


# Reorienting TVET Policy Towards Education for Sustainable Development



On behalf of  
 Federal Ministry  
for Economic Cooperation  
and Development

  
United Nations  
Educational, Scientific and  
Cultural Organization

  
International Centre  
for Technical and Vocational  
Education and Training

  
Capacity Building International  
Germany

# International Conference: Reorienting TVET Policy Towards Education for Sustainable Development

## FINAL REPORT

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in partnership with

UNESCO-UNEVOC International Centre (Bonn) and

Colombo Plan Staff College for Technician Education (Manila)



On behalf of

Federal Ministry  
for Economic Cooperation  
and Development



**inWent**

Capacity Building International  
Germany

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# Preface

This publication reports on the ESD review-responsive and future-oriented programme on “Reorienting TVET Policy Towards Education for Sustainable Development”, jointly organized by the UNESCO-UNEVOC International Centre in Bonn, Germany, InWEnt – Capacity Building International, Germany and Colombo Plan Staff College for Technician Education in Manila, Philippines.


The United Nations declared 2005-2014 as the Decade of Education for Sustainable Development (DESD) and recommended that all countries take progressive steps to integrate sustainable development into their educational policies and plans at all levels and in all education sectors. Education for Sustainable Development (ESD) therefore concerns all levels, settings and types of education and can be conceived as an integral part of any education system. It translates into daily decisions and actions to protect our future.

“The concept of ESD is therefore linked to key issues such as poverty reduction, sustainable livelihoods, climate change, human rights, gender equality, corporate social responsibility and protection of indigenous cultures. Its holistic nature makes it a tool for the achievement of the Millennium Development Goals (MDGs) and the Education for All goals” (UNESCO Draft Resolutions, 2010-2011).

Five years have passed since that historic moment and, at mid-point, it is important to consider the progress made and obstacles encountered during the first five years to be able to establish policy directions, provisions, strategies, mechanisms and contexts that directly support the implementation of Education for Sustainable Development.

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

10 years after Seoul (1999) and Dakar (2000), there are new opportunities to re-focus on technical and vocational education and training (TVET) and skills development for the world of work, and there has thus been a revival of interest in TVET in development circles and at national levels. TVET, as an integral part of lifelong learning, has a crucial role to play in this new knowledge era. TVET is both a consumer and producer of resources. It is a sector involved in the transformation of resources. TVET can play an instrumental role in developing a new generation of individuals who will face the challenge of achieving sustainable socio-economic development. TVET is seen as an effective tool to realize the objectives of a culture of peace, environmentally sound sustainable development, social cohesion and international citizenship.



Problems relating to threats to the sustainability of the world impel that quality TVET must meet the needs of learners for them to cope with today's challenges and to find solutions. Thus, to satisfy this goal, it is essential that TVET integrate the principles, values and practices of sustainable development, and that these be embedded in efforts to address the needs for employability. However, regional, national and local differences mean that reforming TVET for sustainable development may be interpreted in many different ways.

Thus, attaining excellence in ESD locally, nationally and globally as one of the building blocks for Education for All (EFA) is dependent on education and training leadership, teaching innovation and the promotion and replication of effective and sustainable TVET practices.

Building on the results of the March 2009 Bonn ESD World Conference, this international TVET experts meeting aims to be a catalyst to integrate sustainable development-focused objectives, themes, strategies and operating procedures into TVET policies, programmes and practices.

The discussions will focus on the following four-dimensional ESD concerns:

1. Creative methods to expand awareness, meaning and scope of ESD through multi-stakeholder dialogue;
2. Strategies for inclusion of non-formal and informal learning in the context of sustainable development;
3. Means for incorporating ESD in the TVET (including training of leaders in business and industry to form the values toward corporate social responsibility, etc.);
4. Ways for creating greater synergy and networking among representatives of SD-related institutions of governance and learning.

Prof. Shyamal Majumdar, Ph.D.  
Director General CPSC  
Manila  
Philippines

Dr. L. Efison Munjanganja  
UNESCO-UNEVOC  
Bonn  
Germany

Dr. Harry Stolte  
InWEnt, Dep. 4.02  
Magdeburg  
Germany

# Introduction and Summary

## Reorienting TVET Policy Towards Education for Sustainable Development

Berlin/Germany

26.08.2009 – 28.08.2009

### 1) Background

The International Expert Meeting on Reorienting TVET Policy Towards Education for Sustainable Development (ESD): A Building Block for Education for All (EFA), took place in Berlin, Germany, with the cooperation of the Colombo Plan Staff College for Technician Education (CPSC), InWEnt Capacity Building International and the UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training.

Building on the results of the March 2009 ESD World Conference in Bonn, Germany, this international TVET expert meeting aimed to be a catalyst to integrate sustainable development-focused objectives, themes, strategies and operating procedures into TVET policies, programmes and practices.

Organizers of the meeting are:

- the Colombo Plan Staff College for Technician Education (CPSC) – an Intergovernmental Organization for human resource development in Asia and the Pacific Region. CPSC's programmes and services are primarily intended to equip TVET personnel in the member countries with up-to-date knowledge and skills in various areas of interest. CPSC is the only regional institution established specifically to enhance the quality of TVET, providing leadership by designing and conducting various programmes and courses at different levels. Represented by Mr. Prof. Dr. Shyamal Majumdar.
- InWEnt – Internationale Weiterbildung und Entwicklung (Capacity Building International, Germany) – stands for the development of human resources and organizations through international cooperation. InWEnt is active worldwide in human resource development, advanced training and dialogue. InWEnt works together with people in key positions, assisting them in shaping processes of change in their own countries. Represented by Mr. Dr. Harry Stolte.

- UNESCO-UNEVOC International Centre – UNESCO’s specialized centre for Technical and Vocational Education and Training (TVET). It concentrates on providing technical backstopping to strengthen and upgrade TVET. It focuses on meeting the needs of developing countries, countries in transition and those in a post-conflict situation, especially youth, girls and women, and the disadvantaged. Represented by Ms. Naing Yee Mar.

## **2) Aims and Outcomes**

The aims and expected outcomes of this special programme were:

- Increased understanding of the importance of TVET for ESD in line with the goals of EFA
- A set of lessons from leading practices in ESD
- Plans for further advancing TVET for ESD
- Study visit of relevant institutions and industries in Germany

Moreover, the discussions focused on the following four-dimensional ESD concerns:

1. Creative methods to expand awareness, meaning and scope of ESD through multi-stakeholder dialogue;
2. Strategies for inclusion of non-formal and informal learning in the context of sustainable development;
3. Means for incorporating ESD into TVET (including training of leaders in business and industry to form the values toward corporate social responsibility, etc.);
4. Ways for creating greater synergy and networking among representatives of SD-related institutions of governance and learning.

## **3) Day One – 26.08.2009**

### **3.1) Introduction**

Course Coordinator Chairperson Prof. Theodora Josue Gayondato (Chairperson, Projects and Consultancy Division of CPSC for Technician Education) welcomed the participants in Berlin and introduced the three representatives of the organizing institutions: Prof. Dr. Shyamal Majumdar (CPSC), Dr. Harry Stolte (InWEnt) and Ms Naing Yee Mar (UNESCO-UNEVOC), and the other participants, representing Papua New Guinea, Philippines, Myanmar, Mongolia, India, Malaysia, Thailand, Nepal, Sri Lanka, Pakistan, Maldives, Fiji and Bangladesh. On behalf of the participants, she expressed her thanks to the organizers and thanks for choosing Berlin as a meeting venue, a city that stands for changes in a historical context. This introduction was followed by short introductory speeches of the organizers.

### **3.2) Opening Speeches**

Dr. Harry Stolte welcomed all guests to the InWEnt branch in Berlin. He pointed out that it is an honour for InWEnt to be the host of such an important event. His speech showed the close

connection of InWEnt to the Asia-Pacific region and the wish to push more activities in the future in that area. He also reported about companies that are very interested in the programme but which would like to see more implementation examples, which InWEnt is willing and able to provide. He proposed that all participants should take a more active role based on the outcome of the meeting. In this regard he wanted to motivate the participants to actively discuss about the topics proposed during the meeting, in order to bring some valuable impressions back to their own countries.

The second speaker was Ms. Naing Yee Mar (Programme Officer of UNESCO-UNEVOC).

After thanking Dr. Stolte and Prof. Dr. Majumdar for the organization of the event, she apologized on behalf of Dr. L. Efison Munjanganja (Officer in Charge and Head of UNEVOC Networks) for not being present, and she conveyed his kind regards to everyone and his firm belief in the programme. During her speech, she stressed the important role of UNESCO-UNEVOC in strengthening and upgrading the UNESCO Member States' education systems for the world of work, and shared some of UNEVOC's views on key issues with particular reference to integrating ESD into TVET, UNESCO-UNEVOC being UNESCO's lead agency in the development and implementation of TVET for ESD programmes. Moreover, she underlined that both the Millennium Development Goals and Sustainable Development require individuals to have sustainable livelihoods in order to make an effective contribution to the economic and social development of their communities and countries. Ms. Naing Yee Mar concluded that as the year 2009 marks the mid-way point of the DESD, this meeting is an opportunity to explore together how issues concerning TVET and ESD are of particular relevance for the personal, national and regional level, and to build a platform for international exchange on ESD from different perspectives. She encouraged all participants to examine their contribution to ESD, to make efforts to achieve quality TVET in support of ESD, and to review progress achieved and develop strategies for the way ahead for the second half of the Decade.

Afterwards, the video for the 35th anniversary of CPSC was presented, showing the development of CPSC, the historical beginning, the projects that were started and the success which CPSC has reached in the last years.

The third speech was held by Prof. Dr. Shyamal Majumdar (Director General of CPSC). After welcoming the participants, he thanked InWEnt for the close cooperation and the hosting of the programme. He pointed out that, in his view, the people present were the most valuable people in the region because they are in charge of sustainable development issues in their countries. He explained the programme and its importance for the world in the following years. Problems with the realization of the concept in the countries were also an important part of the speech. The missing understanding of the programme by the people was given as a discussion point to the group for later argumentations. It was made clear that the meeting should lead to a report about Best Practices in the respective countries with an aim to helping the 18 participating countries to improve their own programmes and future planning. To show the winnings of the programme for the countries and to learn from each other were



pointed out by Mr. Dr. Majumdar as being major issues. He also explained the progress which was already made by focusing on the new learning centre of CPSC: CSPS, which is a milestone for the project. Finally, he wished everybody a productive and interesting time in Germany.

After a short break all the participants were asked to introduce themselves and their experiences with ESD.

### 3.3) Keynote Presentations

“Major Challenges in Integrating Sustainable Development in TVET Curriculum” by Prof. Dr. Shyamal Majumdar

The first presentation was given by Prof. Dr. Shyamal Majumdar with the topic: “Major Challenges in Integrating Sustainable Development in the TVET Curriculum”. It first dealt with development as being a global problem if it is only motivated economic factors, and ignores those of social and environmental stability. The results are poverty, natural disasters, global warming and inequality of income and development. The economic development in production, consumption and infrastructure can bring air pollution, greed, water pollution and war. Mr. Majumdar pointed out that the crisis cannot be solved by the kind of education that helped creating the problem in the first place.

A major part of the presentation was the explanation of the “Six Challenges” that come with the integration of SD in TVET, formulated as questions:

- What is the major problem in integrating SD in the TVET curriculum?
- Can we define Generic Key Concepts of Sustainable Development?
- Is there any model to integrate SD in the TVET Curriculum?
- Can we relate Generic to Specific learning outcomes in SD?
- Is it possible to integrate SD in Subject Domains?
- Can we deliver ESD in the same way as we deliver conventional courses?

The answers to these questions can be analysed in different ways but Mr. Majumdar explained that the most important factor is the understanding of the three pillars of sustainable development: Environmental, Social, and Economic Sustainability.

The five “Rs”: Reduce, Reuse, Recycle, Repair, Rethink must be seen as major aspects: people have to understand that everything is connected. As a general message, the importance of the understanding of natural processes, environmental resources, the cycles of matter and energy were explained. Recovery, recycling, retrofitting of refrigeration and air conditioning systems, clean energy and waste reuse, smart materials for construction, low energy devices for electronic equipment were only some examples used to describe the possible actions which can be taken by everyone. Finally, Mr. Majumdar gave some keywords for the future actions regarding ESD:

- action and reflection;
- problem solving and critical thinking;
- research and investigation;
- discuss and debate, less lecturing;
- field work and laboratory, less class work;
- research and investigation;
- problem solving.

As a conclusion of the presentation, it was explained that the only way forward is through reorienting TVET policy towards ESD, promoting it in all parts of education, reorienting the curriculum to integrate ESD, building the capacity of teachers, developing learning resources and multi-stakeholder partnership, and monitoring, evaluation and research.

“Think globally and act locally” is a slogan which should be used for the future work of the participants to ensure a successful introduction of ESD in the society.

Presentation by Dr. Harry Stolte

The next speaker was Dr. Harry Stolte (InWEnt) who gave a presentation on behalf of InWent, in which he outlined the organization’s role in International Development and indicated a number of arguments on the importance of TVET.

His speech was wide ranging, covering issues including the role of TVET in leading to sustainable development, the different problems which countries have by introducing ESD in their curriculum and the training of teachers. He pointed out that it is difficult to find one strategy for all countries because all have different needs and problems. They all have to be handled differently to ensure a successful introduction of ESD. As another important point, he named the demands and areas to be integrated in TVET. Integration of training and workplace learning, continuous adjustment to labour market developments / developments in society, special didactics relating to the huge range of practical skills, improvement of training programmes based on training needs and methods of curriculum development were only some points mentioned by Dr. Stolte to show the wide range of actions that can and must be taken to ensure a positive result of the project. In the next part he named problems with which countries have to deal when they introduce ESD in TVET: lack of coherent national policies, discontinuity in teacher training, delay in identifying national occupational needs, unclear policies at the regional level, inadequate registers of training opportunities, and a shortage of VET teacher trainers are problems many countries face when implementing ESD.

In the final part of his presentation, Mr Stolte presented the different issues in reorienting TVET for sustainable development. He explained the importance of families, inhabitants, professional contacts, interested persons from other areas, public administration, laboratories, research institutes, technology suppliers, consultancy, companies and public research institutes in reorienting and implementing ESD in TVET.

### 3.4) Country presentations

In the next part of the meeting, the different representatives of the countries made a presentation about the implementation of ESD in their countries.

Papua New Guinea (Mr. Jayasundara J. Banda)

It was shown that Papua New Guinea is a country with a lot of natural resources but with a lack of possibilities to use them. Therefore, ESD in TVET is a very important topic for the country. The prime objective is to provide coordinating services and logistic support for the seven Technical and Business Colleges, 141 Vocational Centres situated in 21 Provinces, and the 1075 teachers working in TVET institutions.

A lot of progress has been made in the last years, but challenges remain.. The Government, Donor Agencies and Non-Governmental Organizations assist to resource TVET teaching facilities, tools, equipment and infrastructure in TVET institutions. The issues and challenges of Papua New Guinea were defined as follows: Strengthen institutional leadership and management including Financial Management, restructure TVET Division and TVET Institutions to meet increasing market demand, commercialize and give more autonomy to TVET institutions, provide more opportunities for teacher skills upgrading training, establish more TVET institutions to meet industry and community demands and increase linkages with Higher Education Institutes and International TVET capacity building organizations.

Philippines (Mr. Elmer K. Talavera, Ces0 III)

In a very motivating presentation, Mr. Talavera stated that all are responsible for the problems which we are facing, and that it is our duty do to something about it. After showing the successful actions that were taken in the Philippines to include ESD in TVET, Mr. Talavera reported about a large project that was implemented in the Philippines to recover, recycle and retrofit refrigerators. By this example, he showed the complexity of the implementation of ESD into a national system, but he also explained that there are benefits for countries that undertake change. People must learn to live with the the resources available to them and must not ignore the fact that the systems which led us to this point must be changed.

Myanmar (Dr. Theingi)

Dr. Theingi informed about the success in her country where 29 government technical high schools and 10 technical institutes have been founded to ensure the qualification that the country needs. She pointed out that it is the country's goal to build a modern developed nation that can march towards industrialization. A lot has happened in Myanmar and there are now hundreds of good qualified teachers who take care of the needs of more than 10.000 students in different subjects including English, Chemistry and Mathematics, to name but a few. At the end of her presentation, Ms. Theingi explained that it is very important for Myanmar to support its own regional development, to produce skilled workers, technicians and high-qualified labourers and to shift from an agriculture-based to an industrialized country.

Mongolia (Ms. Chimid Tungalag)

Ms. Chimid Tungalag informed about the current problems of Mongolia, a large territory with a small population and a high level of unemployment. To change the current situation, the government of Mongolia launched an education reform. As a result, the number of schools and colleges are rising as fast as is the number of secondary schools and high level education institutes. She explained that Education for Sustainable Development was introduced in the educational policies and planning of the country, especially in the curricula of the secondary schools and universities, which are the main implementing organs of those policies, apart from TVET. The number of students has been increasing for some years as well as the number of teachers, which must be trained in the future to ensure that a high quality in education and ESD can be achieved.

India (Dr. Vijay P. Goel)

Dr. Vijay P. Goel explained the important role Education plays in the political field in India. He explained that both the Central Government and the States are responsible for education policy formation and implementation, and the equitable provision of access to relevant and good-quality higher education. For the development of the education system, targets were defined, such as: to expand and upgrade vocational education and training, higher and technical education, to promote research in educational institutions and redesign the educational pattern at school level to facilitate skills development. As the major challenges and issues in TVET he named the low priority for Vocational Education, the shortage of trained teachers and trainers, inadequate linkages with industries, the lack of infrastructure and the inflexible curriculum.

All presentations highlighted the difficulties in integrating the tenets of sustainable development into education, but all agreed on the need for TVET to reorient its curricula towards the conservation and sustainable use of resources, social equity and appropriate development, as well as imbuing students and workers with competencies to practice sustainable tasks at the workplace.

The presentations were followed by discussions, mainly about the work to be done to implement ESD in their country. During this discussion, Mr. Majumdar insisted once more on the need to consider development not only as an economic but also social and environmental issue. Development results will only be sustainable if these three factors are considered jointly.

#### **4) Day Two – 27.08.2009**

The second day started with the introduction of Dr. Klaus-Dieter Mertineit, an expert for the Institute of Environmental Protection in TVET (Germany), followed by the other countries' presentations.

#### 4.1) Country presentations (Part Two)

Malaysia (Ms. Ani Asmah Tajul Ariffin)

Ms. Tajul Ariffin explained the current situation in Malaysia regarding TVET and EDS. She explained that the development in her country has made a huge step forward in the last years due to the close cooperation with the industry. She described how the capacity and effectiveness of training can be enhanced by increasing the number of public training institutions, adding further courses in technical fields, strengthening the certification/accreditation systems and the quality of technical education, as well as encouraging private sector participation in the field of technical education and training.

She further described Malaysia's experience in work-based learning (WBL). WBL programmes have formal instructional and learning plans that directly relate students' WBL activities to their learning outcomes towards career goals. All in all, a very good picture of the actual situation was given by showing all the efforts that have been made during the last years to involve TVET into the education system of the country. Malaysia has defined its issues and challenges as follows: clear objectives, measurable outcomes, top management involvement, open dialogue, strategic discussions, effective sharing of resources as well as sharing achievements and challenges.

Thailand (Ms. Dr. Sirirak Ratchusanti)

In the frame of her presentation, Ms. Ratchusanti gave a very interesting report about the current educational situation of the people of Thailand. For those already in the labour market, it found that a skills gap was prevailed in many fields of occupation. This resulted from the rapid change of technology and the nature of work in increasingly competitive business and industries. In her opinion, TVET needs to keep abreast of the changing world of work and technology. To achieve this goal, a flexible programme has been designed to meet the needs of those in the labor market. They would be able to upgrade and update their knowledge and skills and receive qualifications.

Widening participation on TVET programmes in Thailand has been considered as an important tool for increasing human capabilities and national products as well as diminishing poverty. It was also mentioned that TVET takes on a complex and distinctive character with regard to sustainable development. Sustainable development is to integrate economic, environmental and social aspects through TVET. Thailand recognizes the important role of TVET as a vital tool for producing manpower with the necessary skills required for employment and/or entrepreneurship as well as for poverty alleviation.

Nepal (Dr. Ghinire Devi Prasad)

Mr. Prasad gave a very informing presentation about his country and about the development of TVET and ESD.

He firstly portrayed his country in vivid pictures. He then went on to explain that Sustainable Development is impossible without appropriate policies and programmes on

education and training, particularly TVET. Various plans, policies and programmes were developed which however were not adequate in terms of expansion, inclusion and relevance. Due to that, a new policy was developed and finally sustained, including the expansion of training services and opportunities, inclusion of hitherto disadvantaged groups and individuals, integration of various training modes and providers into one system, relevance to link training content and outcome with economic demand. Some examples of best practice were given, such as Trade Schools, Annex Schools, Partnership schools, Community Schools as well as the National Skills Testing Board. At the end the speaker stressed the importance of applying ESD in TVET taking into account the needs and opportunities given in the country. He ended his presentation by saying that “The wealth of Nepal is the green forest” and showed the importance of the nature for the development of his country.


Sri Lanka (Mr. Dr. H.L.Obeyesekera)

The presentation of Dr. Obeyesekera offered an overview of the development of TVET and ESD in Sri Lanka. It was shown that in the last few decades, most of the regional countries have paid much attention to the development of human resources. But it must be stated that greater attention was given to development of vocational and technical skills. As an example, skills required in the field of construction were not transmitted, therefore the construction sector did not develop as rapidly as needed. As a result of this experience, the following conclusions were made: it is necessary to organize the technical and vocational education and training in a way that it becomes a valid option and to introduce the required levels of skilled workforce, and it is also necessary to introduce skill standards applicable to different vocational areas relevant to different levels of skilled workforce.

To achieve this, the country is planning to train a competent and productive manpower for better livelihood through quality and relevant occupational training in order to meet the challenges of changing the global socio-economic and technological needs. This vision should come true through several actions, such as promoting an industrial linkage with the TVET sector, opening direct avenues to school leavers from the secondary education system to the Vocational and Technical Training system and to identify a National Vocational and Technical Education system from low-level craftsman training to top-level technologist training. Sri Lanka has formulated a lot of strategies to achieve a strong development in the country through TVET. Mr. Obeyesekera stressed the need to have a tight security policy system for TVET to monitor the main entries to the TVET sector, to establish a national TVET policy introducing upward mobility of TVET programmes at different skill levels and to introduce a system for unified certification.

Pakistan (Mr. Yousaf Kamal Malik)

Mr. Malik’s presentation started with a video of the development of TVET in Pakistan. It showed some very good examples for the implementation of TVET into the education system



and current developments in Pakistan. In the next part of his presentation, Mr. Malik pointed out that Sustainable Development is relating the present to the future. Through ESD, education seeks to empower people to assume responsibility for creating a sustainable future. He made clear that there is no single route to sustainable development. Each economy, country and culture has different options and requirements to negotiate the process of achieving sustainability.

For a country where 30% of the population lives below poverty line, sustainable development will have a totally different orientation and strategy. These would help define decisions at the Government and societal level. In this scenario of poverty, a core component of ESD would be empowering people through incomes, social security, education for their children and programmes that enhance and empower them with skills. That is where Technical and Vocational Education and Training would play a significant role and make an impact. In addition, Mr. Malik presented a donation system in Pakistan where the banks donate a certain amount in a fixed period of time to a charity company. This money is used to help in different fields, such as education, healthcare, infrastructure, food, and to help taking steps against poverty in the country. At the end Mr. Malik said that TVET is an ideal adjunct to education for sustainable development.

He explained that the world is conceptually involved in a movement whereby a snowball effect might gather into an avalanche. TVET as a tool for sustainable development can refute some of the cynics who consider that the term is more charming than meaningful. We live on a planet where 20 percent of the population consumes 80 percent of the national resources; therefore we must learn to properly use the resources we have and help the poor to become part of the global society.

Maldives (Ms. Mariyam Noordeen)

In her presentation, Ms. Noordeen drew a picture of the current situation in the Maldives. At first she explained the term TVET from her point of view: TVET prepares learners for employment and helps them to continue their education part time and full time. TVET is based on individuals mastering skills and skills concepts, with an aim to remaining employable as technologies and society advance.

The vision of a TVET system in the Maldives means that it should be demand driven, accessible, financed by its beneficiaries and of guaranteed quality so that it can meet the needs of society for stability and economic growth, the needs of companies for skilled workers, the needs of young people for attractive opportunities on the labour market and the needs of workers for continuous mastery of new technologies. In the next part of her presentation she explained the NCS (National Competency Standards) system, provides a set of guidelines for defining the knowledge and skills required to perform a particular occupation. It is a communication tool for employers, employees and educators. As examples of best practice in the Maldives, Ms. Noordeen mentioned GULHUN and Career Path Program (CPP) which are designed to reach the target population to achieve the minimum competencies for entry in the

Employer Basic Training (EBT). An other example is “Skilled Training at Resorts” (STAR). This programme includes a one-month orientation with up to two months of investigating the jobs at a resort. For example: resort office, recreation and food preparation or food services.

Fiji (Ms. Alumeci Susu Tuisawau)

The next presentation was about Fiji. If education is the key to development, TVET is the ‘Master Key’ that can transform the world of work and the economy, alleviate poverty, save the environment and improve the quality of life. TVET plays an equally important role in the social, economic and political development of any nation, together with its academic counterparts but she also informed that Fiji has not fully realized its potential and has treated TVET as a ‘second best option’ to academic education.

Nevertheless, the goals of TVET in Fiji are to facilitate economic development by transmitting to local citizens values, knowledge and attitudes that are necessary to perform certain skills in the modern sector of the economy and to provide young people with the skills needed for employment in a wide range of job categories including self-employment and wage employment. The current situation is rather difficult because TVET has suffered from being considered as the fall-back position for those who did not succeed in academic education. However, this viewpoint is changing considerably. A major reason for this shift in thinking is the changing nature of work and its impact on social and economic development. Finally, Ms. Tuisawau highlighted some issues and challenges for TVET in Fiji, such as: the lack of a shared national vision and, the lack of adequate resources and trained personnel at all levels in the TVET sector. As a conclusion, she appointed the need to establish TVET policy and reorient it towards ESD and the need for a clear articulation of the possible pathways for TVET in order to instil in a person the values, ethics, knowledge, attitudes and skills to contribute to a sustainable future.

Bangladesh (Ms. Razia Begum)

Ms. Razia gave a short overview of the different levels of certification and diploma in her country. She explained the important role of affiliated institutes, their specialization and their intake capacity. She further presented the major achievements of TVET in Bangladesh.

For example, new institutes were established and their capacity increased to 18320 students in the last three years; four separate polytechnic institutes for women were created and a double-shift programme was introduced. The role of the government in the education development in Bangladesh is very important which can be seen through its numerous responsibilities and its efforts to bring the development on the right way. The major challenges for TVET in Bangladesh are to update the knowledge and the skills within a competitive market, to ensure participatory and also to react on the need of assessments for the competitive job market.



## 4.2) Keynote Presentations

“The Dual System of Vocational Training in Germany” by Dr. Klaus-Dieter Mertineit

In the first part of his presentation, Mr. Mertineit explained the basic structure of the Dual System in Germany. This topic generated a vivid discussion and many questions on the experiences and best practices of the Dual System in Germany were asked. Mr. Mertineit gave the audience an overview of the developments, structure, experiences and current changes of the Dual System in Germany. He then explained the development of ESD in TVET in Germany.

The whole project is a nationwide process with the strategic goals to further develop the concept of ESD and broadly spread good practices, forge stronger links between individual players and stakeholders in ESD, to increase public visibility of ESD and strengthen international cooperation. The German definition of sustainable development is different to the definition of other countries. In Germany, a successful implementation of sustainable development is shown by good results. Mr. Merineit presented the organizations and instruments used in TVET in Germany, such as committees at federal and state level, internet platforms, pilot projects and research studies as well as conferences and meetings.

TVET policy's priority objectives in Germany were outlined.

First, the contribution to the implementation of SD at the social level, secondly, the “Manufacturer/ Producer responsibility” and, thirdly, the promotion of competency required to shape a sustainable future. Sustainable development in Germany is mainly related to environmental issues. Attention is particularly drawn to energy saving, energy efficiency, renewable energies, controlled water supply and wastewater disposal, waste avoidance, waste reduction and recycling.

Introduced in the 1980s, the concept of sustainable development has a long tradition in Germany. That shows how much time and effort is needed to introduce a structured and functional system. As concerns ESD, the new working profiles presented, e.g. the service technician for wind or power plants or the specialist for renewable energy technologies.

The presentation gave the participants a good picture of the potential benefits of having a well-functioning and ESD system.

As a comment, Dr. Stolte mentioned that the international cooperation of Germany towards TVET is still weak and he would like to use the opportunity to share the knowledge and experience of Germany with the participants in the future to show them some best practice examples and give them some guidelines for their own systems and programmes.

“TVET for the Second Half of the UN Decade of Education for Sustainable Development” by Naing Yee Mar

Education for the world of work (including technical and vocational education and training) is of increasing importance to the rapidly changing world and its emerging demands, and TVET has a very important role in achieving quality education for sustainable development, so as to contribute to a better, safer and more sustainable world. Ms. Mar presented the work of UNESCO-UNEVOC, UNESCO's International Centre for TVET, and how it seeks to contribute to the United Nations Decade of Education for Sustainable Development (DESD). She stressed the important role of quality TVET in achieving education for sustainable development.

The presentation drew on the key findings from the mid-Decade review reported on the DESD Monitoring and Evaluation Global Report, and the Bonn Declaration that resulted from the "UNESCO World Conference on Education for Sustainable Development – Moving into the Second Half of the Decade" held in Germany from 31 March to 2 April 2009. The way forward was shown in seven strategies of UNESCO in support of DESD:

- vision-building and advocacy;
- consultation and ownership;
- partnership and networks;
- capacity building and training;
- research and innovation;
- use of Information and Communication Technologies (ICTs);
- monitoring and evaluation.

Ms. Mar explained the importance of TVET and ESD in our society and the changing nature of TVET due to the changing needs of the society.

One of the most important points of the presentation was the implication of TVET in support of DESD, and in this regard Ms. Mar explained the activities of UNESCO-UNEVOC in the areas of:

- TVET Teacher education;
- Private Public Partnership (PPP);
- Promotion and dissemination of research and innovative practices;
- Capacity Building for skills improvement and enhanced employability;
- Access to ESD information in relation to TVET.

Ms. Yee Mar concluded TVET has a key role to play in promoting not just Education for Sustainable Development, but also Education for All, as well as in achieving the Millennium Development Goals, since it opens the doors to reduce poverty, to improve equity, greater justice and fairness, and to reduce marginalisation of disadvantaged groups.

### **4.3) Group Work and Results of the Meeting**

The next step in of the meeting was group, work which aimed to help the participants share their knowledge, to discuss and to present their results towards given topics of policy, development,

achievements and possible results of ESD in the world. The outcomes proved clearly that the event helped the people to go deeper into the topic and to reach a better understanding of the whole complex of sustainable development.

After the presentation of the group work, Dr. Majumdar summed up the results and pointed out the view for the future.

A lot of ideas were put forward towards a new guideline for the introduction of TVET and ESD. Internally, there is a turning towards topics such as energy saving, water saving, good ethics and SD. As a result, according to Mr. Majumdar, there is a need to revamp the curriculum, as the current “business as usual” approach does not include the three pillars of environmental, social and economic development. A suggestion was made by Dr. Majumdar to organize a national-level seminar focusing on the integration of ESD in TVET, with the support of CPSC. It was also stated that the most important issue is to create awareness of ESD in people.

As a result of the discussions, a guideline will be created to help the countries to implement ESD. Obviously, discussions are not enough and it is time to start projects to get some new results and experiences. That can only happen step by step and cannot be done in a hurry. Resource material will be needed as well as better information to the people about the structure and aims of ESD.


Mr. Majumdar also explained that CPSC will introduce a new website where everybody in the world will have access to the information about TVET and ESD. This will be a good opportunity for interested people to keep themselves informed and to create awareness of the topic.

Ms. Yee Mar from UNESCO-UNEVOC informed that she would include the findings of the meeting in her quarterly report to the DESD Section in Paris.

Dr. Stolte informed that he would contribute, in a mid-term perspective, to the transfer of experience from Germany and Europe to the participating countries. The representatives of CPSC, InWEnt and UNESCO-UNEVOC were highly satisfied with the organization of the event and they informed that they would put a lot of effort in the development of this project in the future.

As a final summary, Dr. Majumdar spelt out the following objectives:

- to organize a half-day seminar on TVET for ESD in every country;
- to create a website dedicated to ESD and TVET;
- The water and sanitation sector will be used as a concrete example for the countries, supported by a model curriculum and the implementation of techniques;
- CPSC will start the implementation of the “Green Campus” project with the support of German knowledge and experience;
- the creation of a standard guideline is one of the main targets;
- the permanent sharing of knowledge with the other countries is a must for the successful development of the project.



After the summary, the audience thanked the organizers for the interesting event. Every participant received a certificate for his contribution to the sharing of knowledge and experience with in the International Expert Meeting. These two days helped the participants to better understand the importance of integrating ESD in TVET in their countries and be aware of the work that needs to be done to successfully achieve this project. Awareness, understanding and motivation are core elements of the work with ESD. The participants went back to their countries with new ideas, new experiences and a lot of examples that should help them to introduce ESD in TVET in their countries, which is absolutely necessary to ensure a positive development for the future, not only in one country, not only on one continent but in the whole world.

# Keynote Presentations

## MAJOR CHALLENGES IN INTEGRATING SUSTAINABLE DEVELOPMENT IN TVET

### **Prof. Shyamal Majumdar, Ph.D.**

Director General, Colombo Plan Staff College, Manila, Philippines,  
Professor, National Institute of Technical Teachers' Training & Research, Kolkata, India  
Regional Vice President, Asia & Pacific Region IVETA, 2002-2006  
Email: dr\_majumdar@yahoo.co.in / dr\_majumdar@cpsctech.org

### **Content Outline**

1. Introduction
2. Meaning and Dimensions of Sustainable Development
3. Challenges in Integrating SD in TVET Curriculum
  - Challenge 1: Understanding the Meaning and Scope of ESD
  - Challenge 2: Defining Sustainable Development Skills in terms of knowledge skills and attitudes
  - Challenge 3: Applying Functional models for Integrating SD in TVET Curriculum
  - Challenge 4: Relating Generic to Specific Learning Outcomes in SD
  - Challenge 5: Integrating Sustainable Development in Subject Domain
  - Challenge 6: Teaching and Learning Methodology
4. Conclusion
5. References

**"Sustainable development depends critically on the competencies of all of our population --- with competencies understood to cover knowledge, skills, attitudes and values."**

(OECD Education Ministers)

## 1. INTRODUCTION

Sustainable Development (SD) is an elusive term, which many people misunderstand to only refer to environmental protection or economic development. Sustainable Development is more than that. It is about maintaining and improving the quality of life without compromising the ability of future generations to meet their own needs. It is also becoming an initiative to start a fair and long-term transition to more sustainable production and consumption by the population. It is not limited to a concern for the natural environment or focused exclusively on economic development. Rather, SD is a concept based on integrating socio-cultural, environmental and economic considerations [1]. Moving towards the goal of sustainable development requires fundamental changes in human attitudes and behavior, in our personal lives, in our community activities and in the work place.

The Earth Summit (UNCED) Conference which took place in Rio de Janeiro on 3-4 June 1992 was attended by about 120 heads of state and government together with delegates from over 170 countries. The centerpiece of the Rio agreements (Agenda 21) is a major action programme setting out what nations should do to achieve Sustainable Development in the 21st century. One of the important outcomes of the conference for educators centered on the recommendation that environment and development education should be incorporated as an essential part of learning within both formal and informal education. A proposal has since then been made for governments to strive to update or prepare strategies aimed at integrating environment and development as a cross-cutting issue into education at all levels within the next three years (Agenda 21, Chapter 36). Increasing awareness was initiated following the Brazil conference and almost all countries started giving importance to the sustainable development paradigm and injected the concept into the curricula at all levels. A key outcome of the 2002 World Summit on Sustainable Development was the establishment of a special United Nations Decade of Education for Sustainable Development from 2005-2014 with the primary goal of making sustainable development central to all education and training in all sectors by refining and promoting the transition to a sustainable future through all forms of education, public awareness and training.

The international community, together with mutisectoral stakeholders, is now championing dynamic development processes. Skills orientation and training are slowly being undertaken as immediate responses to global drivers of change, which include technology, trade and climate change and other persistent environmental issues. While addressing acute skills gaps, more and more efforts are likewise being directed to align education and training to emerging sustainable principles. Green economy, green-collar jobs,

green society and even green technology have become more than just buzz words. They are maintained as major considerations in meeting skills needs within the dynamic process of mitigating environmental concerns and adapting social and economic orientation.

Successfully making these changes is critically dependent on education and training since trades taught in Technical Vocational Education & Training (TVET) are considered directly related to social, economic and environmental progressive or regressive developments in all parts of the world. Thus, TVET system requires deep immersion in the understanding and practices of SD. The changing nature of the world of work, especially due to globalization and technological changes, demands how these changes impact upon the quality of social, economic and environmental conditions. TVET can play an instrumental role in developing a new generation of individuals who will face the challenge of achieving sustainable socio-economic development.

Unfortunately, Technical Vocational Education & Training in many countries remain locked up into the role of being a mere supplier of skilled labour to industry and is thereby unable to respond effectively to the needs of the sustainable development strategies. TVET professionals need to be called upon to reorient the TVET curriculum towards sustainability while maintaining the principles of 6R that is Reduce, Reuse, Renew, Recycle, Repair and Rethink perspectives. Therefore TVET system needed to be aware and deeply immersed in the concept and challenges of SD for applying in the work place urgently.

Discussion in this paper surrounds the many facets and challenges faced in integrating sustainable development in TVET, reinforced by the urgent need to invent and re-invent ways in infusing the concepts of sustainable development into the curriculum or diffusing SD principles from specific technical subject domains to create independent sustainable development disciplines or trades. One by one, the author will enumerate the imperatives of integrating SD in curriculum in progressive manner of discussing its real meaning, the skills that are oriented to SD, the generic knowledge that needs to be possessed as minimum requirements for understanding the process of SD integration to the curriculum and the underlying principles and models developed for applying this in TVET.

## **2. MEANING & DIMENSIONS OF SUSTAINABLE DEVELOPMENT**

The growing concern about sustainable development has led present day policy makers, administrators, educators and managers to call for a more holistic and integrated educational approach for sustainable development touching upon environment, social, technological and economic priorities. These priority concerns and issues are posing as need-based focus of future educational initiatives.

In the Mid-Term draft review report on Decade of Education for Sustainable Development, 10 critical areas of concerns have been identified as priority if efforts have to be fast tracked. These areas include:

- Awareness, meaning and scope of ESD
- Reorienting curricula, teaching and learning
- Capacity-building
- ESD-related research, monitoring and evaluation
- ESD synergy with other ‘adjectival’ educations
- ESD resources and materials
- International and regional cooperation
- National networking
- Coordination
- Financing

Based on the above critical priority areas recommended in the mid-term review of DESD, re-orienting curricula and teaching and learning come handy in the gamut of priorities that need to be acted upon urgently. Various concerns have now escalated the need from multisectoral stakeholders to pay attention to these key priorities to equip future generations with the right skills, knowledge and attitude that shape understanding and decisions for sustainable future.

Consequently, TVET needs to focus on the three dimensions of sustainability-economic, social and environment. These dimensions can be put in concrete terms in teaching technical and vocational subjects and courses in terms of skilling the workforce to tap them to contribute to the economy, to prepare for gainful and decent employment and to minimize greenhouse emissions, for example, representing a balanced approach to workforce development.

### **Pillars of Sustainable Development**

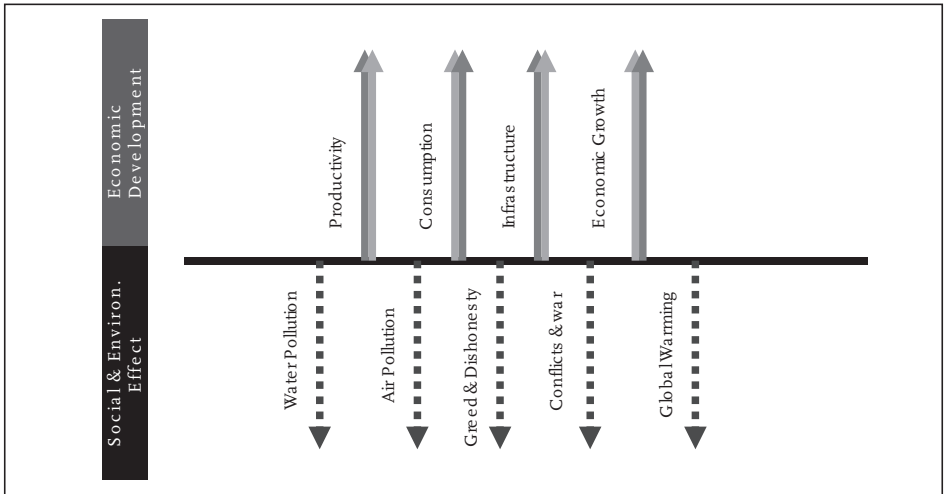
Environmental sustainability is the first pillar of SD. It requires a change from a “business as usual approach” to a Sustainable Development approach of using natural resources wisely, minimizing waste, limiting damage to the atmosphere and checking harmful climate change. This involves the responsible use of raw materials, energy, water etc., awareness of the impacts of production processes, and environmental auditing system.

Economic Sustainability is the second pillar of SD. It requires a different and wider, set of economically related knowledge, skill and attitude regarding economic literacy, sustainable production and consumption and management of small enterprises.

Social Sustainability is the third pillar of SD. On both the global and local scale, social sustainability involves ensuring that the basic needs of all people are satisfied and all, regardless of gender, ethnicity or geography, have an opportunity to develop and utilize their talents in ways that enable them to live happy, healthy and fulfilling lives.

In collectively assessing the three dimensions of SD, one can surmise that economic development taking place can be mapped with social and environmental effects, or vice versa, thus the inter-relatedness of these dimensions and the apparent integrated protocol is required to study them in holistic approach in terms of curriculum reforms. Figure below illustrates the underlying causes and effects of development in various fronts.





<Figure 1.> Sustainable Development

In revisiting TVET curriculum, it appears that that these observed changes need to be reflected by providing academic provisions for acquiring knowledge, skills and values that will help technician students cope with and adapt to these changes. The focus of this may revolve around how TVET will respond to the demands for change so as to incorporate societal issues and introduce and integrate related environmental concepts into the curriculum of TVET programmes.


### 3. CHALLENGES IN INTEGRATING SD IN TVET CURRICULUM

In an attempt to have meaningful discussions of the solutions, identifying major challenges would be the first method to understand the underpinnings of SD-oriented interventions. In this paper, the following six challenges being identified by the author are needing urgent attention.

#### 3.1 CHALLENGE 1: Understanding the Meaning and Scope of ESD

Limited awareness and understanding of ESD at all levels are still fundamental challenges resulting in a limited societal and governmental support base for ESD. This limited awareness and understanding may keep people from recognizing the presence and value of existing ESD, with activities taking place that may not carry an ESD label. Efforts need to be made to better communicate ESD more effectively so that full diversity of ESD and SD is fully understood.

Moreover, regional national and local differences mean that ESD may be interpreted in



many different ways. These differences in interpretation are often rooted in a country's specific tradition in governance but may also derive from the concrete challenges a country or region might be facing. As a result, there is a wide range of interpretation of ESD. The tradition in governance, for instance, affects whether a country adopts a more pedagogical orientation towards ESD emphasizing (social) learning, participation and capacity building emphasizing changing people behavior. On the other hand, countries facing extreme poverty will look ESD from different angle, different than those countries characterized by high oil dependency.

Although there should be space for multiple interpretation and meanings of ESD, there is a common understanding that education and learning in the context of sustainable development can not ignore the interconnection between the environmental, social, economic and cultural aspects of SD. During the remaining half of DESD, a multi-stakeholder dialogue among all partners representing economic, social and cultural aspects of SD should be encouraged.

However, SD has classically evolved in its meaning and purpose. Beyond the definitions, the parameters by which ESD must be understood have now extended to the identification of specific skills and knowledge. It is no more limited to becoming aware of the environmental conditions, but integrating, in its highest form, the Learning to Learn Skills into the process of improving the quality of life without compromising the ability of future generations to meet their own needs. In effect, climate change education, as an example, need not be only an awareness drive but structured technical and academic body of knowledge and skills to be taught in formal or modularized subject domain areas.

### **3.2 CHALLENGE 2: Defining Sustainable Development Skills in terms of KSA (Knowledge, Skills and Attitudes)**

All the three dimensions of sustainable development may require a generic knowledge/concept, skills and attitudes on Education for Sustainable Development (ESD) which need to be embedded and to cut across all discipline or subjects. However, discipline-wise, there are specific SD requirements for the varying nature of business, technology and application.

Broadly, there are generic skills that have been identified to create sustainable communities, according to Rigg (2008), which are the (1) ability to create vision, (2) leadership to achieve buy-in, and (3) understanding sustainable development, economics of development and democratic processes.

Some of the relevant Generic Concepts which underpin the integration of sustainable development into TVET include Sustainable Development, Carrying Capacity, Eco-space, Ecological footprint, Natural Capitalism, Eco-efficiency, Lifecycles Analysis, Triple Bottom Line, Environmental Management System, Economic Literacy, Sustainable Production, Sustainable Consumption, Managing Small Enterprise and Application of 6Rs: Reduce, Reuse, Renew, Recycle Repair and Rethink perspectives.

Moreover, the relevant Generic Skills needed to underpin the integration of SD into TVET must lead to the application of concepts related to SD in the workplace, evaluation of the sustainability to the work environment, identification of the environmental strengths, and envisioning of alternative ways to work.

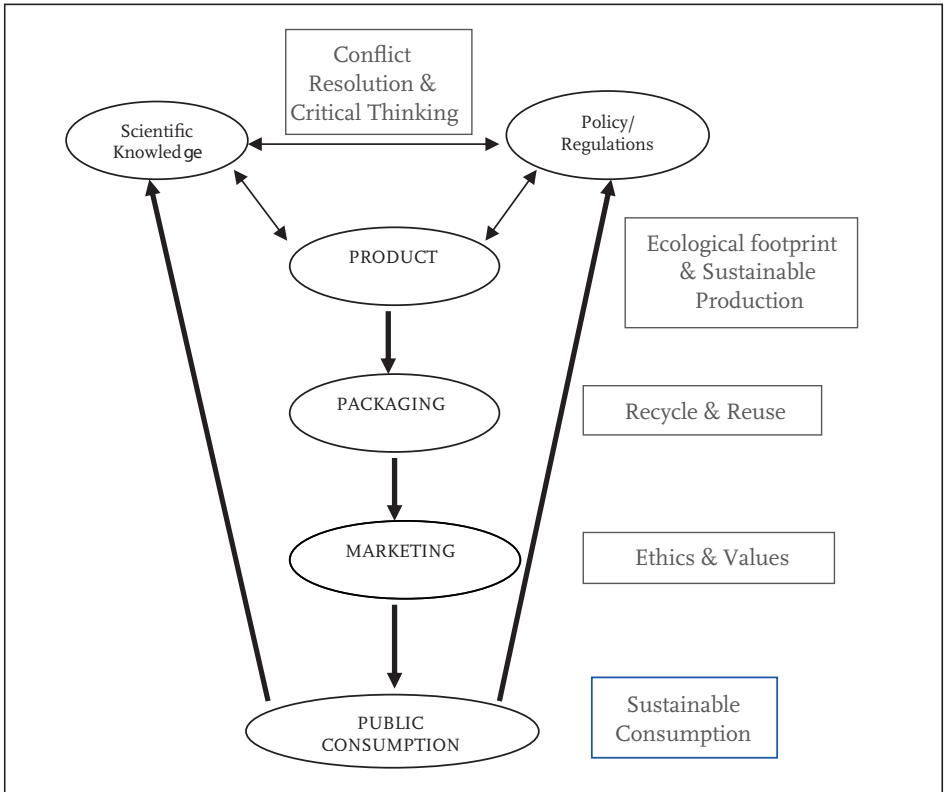
The relevant Generic Attitudes which underpin the integration of SD into TVET include adapting to varied situation, thinking critically and creatively, resolving conflict peacefully, and working honestly and responsively.

But the question is how to integrate the generic concepts, skills and attitudes of sustainable development into the TVET curriculum? To start with, classifying skills to be taught, according to the perceived specific outcome espoused by Turok & Taylor, may be a helpful exercise. These are enumerated in the following table.

<Table 1> Skills Classifications & Learning Outcomes

Skills	Learning Outcome
Strategic and leadership skills	For initiating and promoting change
Process skills	For enabling change
Practical skills	For delivering change

Below is a simple illustration (Figure 2) of how generic skills, concepts and knowledge are mapped within dynamic processes in the workplace. TVET as a discipline is expected to anticipate their applications in the world of work to appreciate the extent by which curricular foundations need to be strengthened.



<Figure 2.> Mapping Key Generic Skills, Attitudes and Knowledge in SD in Product Cycle

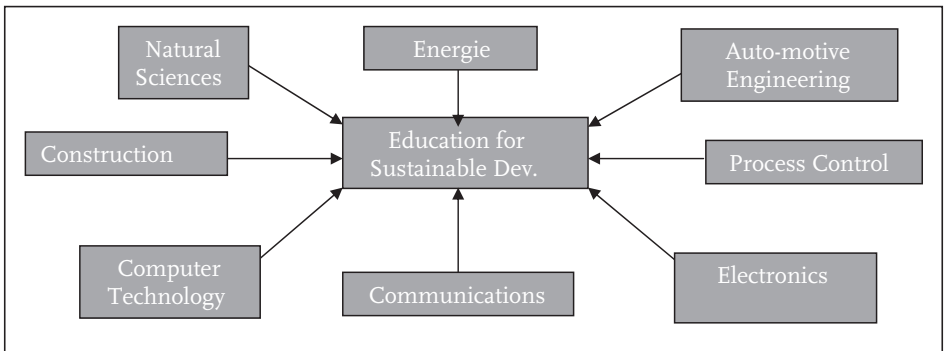
Greater learning outcome of integrating ESD in TVET is elaborated by this author in subsequent section.

### 3.3 CHALLENGE 3: Applying functional models for integrating SD in TVET Curriculum

There could be many approaches for incorporating “Sustainable Development” components into the curriculum, but two specific models of Hungerford have been very much talked about in this field. The first model of Hungerford is known as “Inter-disciplinary or Diffusion Model” whereas the second model is known as “Multi-disciplinary or Infusion Model”. The essential features of these two models are discussed below.

### 3.5a Hungerford's Diffusion Model

In this model the sustainable development issues arising from different disciplines of education are diffused, i.e. taken out from their respective areas and pooled into a common discipline or subject known as 'Education for Sustainable Development' (see Figure 3).



<Figure 3> Diffusion Model

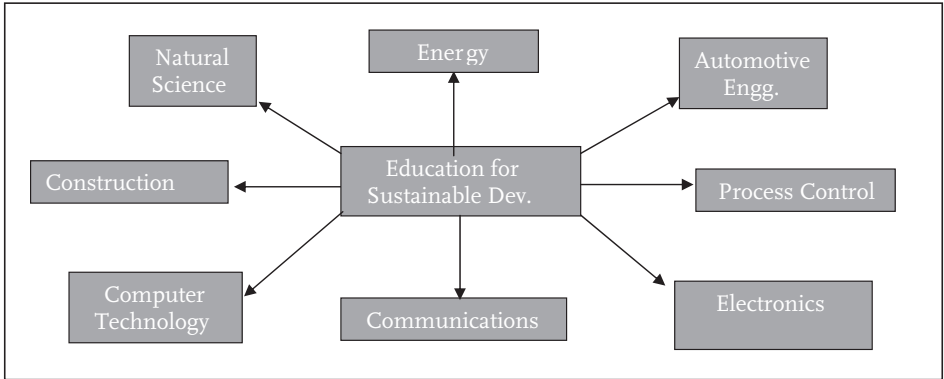
The implementation of this model in TVET may lead to a subject or course on Education for Sustainable Development where generic concepts, skills and attitudes of SD will be covered with specialization in specific fields.

The macro-level courses will be at par with the conventional technical courses. These courses, being interdisciplinary, necessitate the interactions between a wide range of people trained in different fields of knowledge (discipline) each with its own concepts, methods, body of knowledge and language attacking a common problem from various viewpoints. The interaction may range from simple communication of ideas to mutual integration or organization of the concepts, methodology, procedures, epistemology, terminology, data, etc. This requires continuous interaction and communication between the exponents of different discipline.

This model is also known as Hungerford's "stand alone" model.

### 3.5b Hungerford's Infusion Model

In this model, the generic concepts/skills/attitudes of sustainable development are injected or embedded into the various conventional disciplines and subjects without introducing new subjects or courses such as Education for Sustainable Development or so (see Figure 4). This may be done as discussed below.



<Figure 4.> Infusion Model

A combination of both models called Hybrid model is further seen suitable in the effort of integrating ESD in TVET curriculum. This allows opportunity to create a new multi-dimensional discipline for vocational and skills training based on emerging trades and, at the same time, provide ready offerings on having SD relevantly embedded where it may be useful and necessary for preparing the workforce for the world of work.

**3.4 CHALLENGE 4: Relating Generic to Specific Learning Outcomes in SD**

While developing the curriculum, there is a need to correlate between general learning outcome to specific learning outcome in education for sustainable development. To illustrate the concept, a learning outcome in the terms of General and Specific in the area of environment education for sustainability has been described.

<Table 2.> Environmental Education for Sustainability (Environmental Protection):  
General and Specific Learning Outcomes

General Learning Outcomes	Specific Learning Outcomes
The student should be able to: 1. Understand the importance of natural processes, relationships and resources that exist in the environment.	Explain the importance of the cycles of matter and energy supply.
	Explain the need for management of finite resources.
	Relate the above to global consumption, population dynamics and industrial and social processes.
	Be aware of the interdependence of actions by individuals and communities and the environmental consequences and opportunities of these relationships.

General Learning Outcomes	Specific Learning Outcomes
2. Evaluate the environmental impact of an activity.	Evaluate the impact of action in terms of environmental, economic, social and aesthetic dimensions.
	Select options and justify good environmental practice.
	Evaluate potential changes in technical, vocational, personal and national behaviour.
3. Analyse how past decisions and activities affect a local environment.	Explain the ways in which past activities and decisions have shaped the environment of the present day.
	Evaluate relevant historical perspectives and events.
	Identify the conflicts that arise from environmental issues and consider ways to resolve such conflicts.
4. Interpret the legislative framework which exists to protect the environment.	Apply the principles of the relevant environmental legislation.
	Work (or identify good practice) within the principles of the relevant legislation.
5. Evaluate the economic and social benefits of good environmental practice.	Relate the concept of sustainability to local, national and global environmental issues.
	Evaluate conservation, re-use and recycling in an economic and social context.

The following procedure may be generally adopted in developing the core of sustainable education which is widely applicable and which can be built into the technical and vocational education programme curriculum.

### 3.4a. Choosing the Content

The chosen content should take into account:

- Discussion of the aims of SD as identified nationally and internationally
- The essential learning for SD
- The need to build on a student’s previous learning and awareness from their school curriculum or elsewhere
- The views of practicing teachers of technical and vocational education who have already included environmental issues in their programmes
- The key dimensions such as management of resources and use of energy, pollution, legislation, health, safety of people and other species, etc.
- Global perspectives, justice and equity, cultural awareness, information and communication skills, group working, planning, executing and evaluation

### **3.4b. Presenting the Contents**

Units of learning outcomes may be designed for presenting the content. Learning outcomes define the intended achievements of knowledge, understanding, skills and attitude change. General learning outcomes may be subdivided into more specific terms. It has been found useful to write learning outcomes in three categories: general learning outcomes, more specific learning outcomes and assessment criteria which enable students' achievement to be measured.

An example of a Unit of Environment Education (EE) for Sustainability designed for students is given below.

### **3.4c. Unit of Generic EE for Sustainability**

3.4c.1. Understanding the importance of natural processes, relationships and resources that exist in the environment. – This general learning outcome requires an understanding of the natural process that takes place in the environment and an awareness of the interdependence of all species and development of the attitude that individual species must learn to enjoy the benefits of nature without encroaching upon the rights of others. A true understanding of these issues will lead one to manage resources and materials effectively, reduce waste and recycle materials.

3.4c.2. Evaluation of the environmental impact of an activity. – Processes in the natural world are interconnected. It is the activities of human societies that threaten these relationships and balances. Awareness on the dynamic nature of the environment is important in understanding problems of pollution and personal responsibilities as a consumer of resources. Many of the environmental problems that face us today are due to lack of knowledge and concern for the production and consumption process. Environmental audit and review is a central process in taking environmental responsibility. To achieve environmental protection and sustainability acknowledgement of our individual roles as employees and consumers is required.

3.4c.3. Analysis of past decisions and activities affecting local and/or the global environment. – Analysis of past activities and decisions which are responsible for the present environmental degradation is required. Perspectives may include social, cultural, and industrial components. Awareness of the long-term consequences of decisions is necessary for future planning and sustainable development.

3.4c.4. Interpretation of the existing legislative framework for environmental protection. – Awareness about the relevant environmental legislations and development of attitudes to work within that framework. Students should understand the underlying principles of environmental law developed to meet national and international requirements.

3.4c.5. Identification of economic and social benefits of good practice. – Students should be able to identify good environmental practice and develop an understanding of sustainable



development. Often this may require understanding of different cultures and viewpoints.

Each general outcome is accompanied by a number of more specific outcomes. In the full specification, the range of knowledge and understanding required is added to each general outcome as shown below.

### **3.5 CHALLENGE 5: Integrating Sustainable Development in Subject Domain**

All the three dimensions of TVET and sustainability may be integrated or infused with the discipline-specific courses like Civil Engineering, Electronics Engineering, Chemical Engineering etc. This is the most difficult and challenging part of integrating SD into existing occupations. There is a need to study each and every discipline with the generic concepts of 5R and see how it is applicable or modified in the subject content. Examples like carefully disposing of chemicals, recycling of materials, renewable energy generation, low energy equipment, organic agriculture, eco-design, water supply and quality, eco-efficiency and ecological footprint need to be carefully studied in each and every discipline. Most importantly, alternative ways of thinking is the call of the day.

### **3.6 CHALLENGE 6: Imparting ESD with innovative pedagogy**

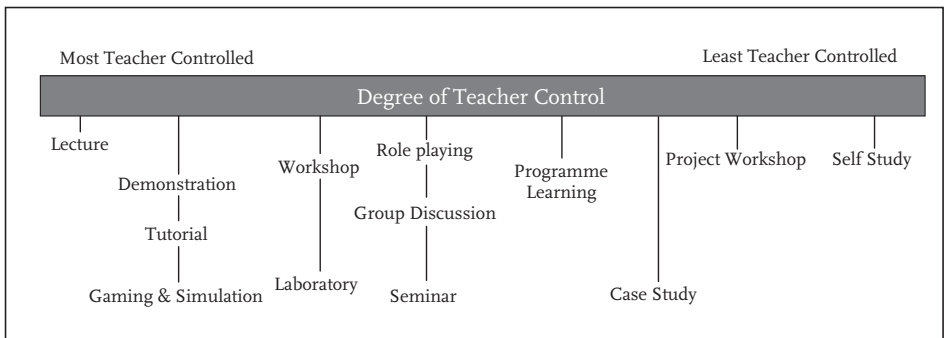
There are some basic principles in imparting ESD or keeping ESD aligned with pedagogy. These are:

- (1) Methods for ESD in TVET should promote problem solving skills, creativity and innovative skills.
- (2) All techniques should be designed to suit learner characteristics, meet their needs and develop their interest and enthusiasm.
- (3) Methods should focus on real-life problems solving, i.e., application of principles of science, social science and technology to solve environmental problems.
- (4) A problem or project-centered approach is usually more appropriate than a subject or discipline approach for ESD.
- (5) Scientific and technological aspects of environmental issues should be supplemented with values and ethical aspects.
- (6) Teaching approaches should shift away from lecturing towards group work, self study and methods which use active involvement in projects and community life.
- (7) Team-teaching can effectively pool talents of specialist teachers to work in an inter-disciplinary way.
- (8) Learners should have access to elective subjects suited to their own personal and professional needs, interests and job opportunities.

Unlike other conventional courses, ESD can not be delivered in the same way. However, there are specific ways to impart ESD for creating greater learning outcome. To do this, it is to be understood that the most important part in Education for Sustainable Development is the teaching methodology. Thus, Environmental Education, as an example, must focus more on learning than on teaching, so that it will have the ability to emphasize active, participatory techniques rather than passive one-way instruction from the teacher.

### 3.6a Teaching and Learning Methodology

Figure 5 exhibits the role of teachers with various teaching/learning methods, their objectives and how they may be matched to obtain the required objective.



<Figure 5.> Role of Teacher in various Teaching / Learning Methods

Similarly, there should be a clear understanding of how different methods of delivery help in achieving learning objectives.

## 4. CONCLUSION

The Hybrid model is widely used over most of the developing countries at present in integrating Sustainable Development into TVET curriculum. To develop a better understanding of the environment and sustainable development, policy makers, administrators and teachers must now endeavour to adopt the Hybrid Model towards integrating SD into technical and vocational education. The integrated approach has to be injected into the curriculum in a gradual manner so that the required change can be effected over a period of time.

Moreover, the use of primarily interactive, participatory and collaborative teaching-learning techniques are recommended for SD with a focus on hands-on experience including field and factory visits, field work, lab work, etc. Field and factory placement programmes for TVET

students may be reoriented to include environmental and sustainable development elements. Facilities to work with business and government organizations, NGOs and local communities should be arranged as much as possible for providing access to environmental expertise and exposing the students to real-life problems. However the process of reorienting TVET towards sustainable development is broader and a more pervasive task than that of revising syllabi and devising new teaching and learning materials that incorporate principles and examples of sustainability. Thus, re-orienting the curriculum towards sustainability requires significant educational reforms or what Cuban calls “second-order change”. Where “first-order change” seeks to improve the effectiveness or efficiency of educational processes through new courses or materials without disturbing the basic organizational structure, “second-order change” reforms the fundamental ways in which educational systems and institutions function and includes new goals, structure and roles of schools, teachers and students.

All these if implemented successfully would lead to environmentally responsive engineers and technicians for green society.

## 5. Further reading

Bandhu D.; Moitra A. K.; Singh, H. (1990) “Environmental Education and Sustainable Development”. New Delhi, India.

Department of Education, Culture and Science [DECS] (1999) „Environmental Education Guide“. ADB TA No.1385-PHI/CPSC/MEMSI consortium series. Pasig City.

Engleson, D. C. (1989) “A Guide to Curriculum Planning in Environmental Education”. Wisconsin, Department of Instruction. Madison, WI: Wisconsin Department of Public Instruction.

Evans-Klock, C.; Poschen, P. (2008). “ILO Green Jobs Initiative and implications for skills development”. Presentation made at the International Workshop: “Future Skills Needs for the Green Economy”. Thessaloniki: CEDEFOP.

Hogarth, T. (2008) “Emerging Skill Needs in a Greener UK Economy”. Presentation made at the International Workshop: “Future Skills Needs for the Green Economy”. Thessaloniki: CEDEFOP.

Hungerford, H. R.; Peyton, R.B. (1980) “Strategies for the Training of Teachers in Environmental Education”. Paris, France.

Hungerford, H. R.; Peyton, R. B. (1986) “Procedures for Developing an Environmental Education Curriculum. A Discussion Guide for UNESCO Seminars on Environmental Education. Environmental Education series 22”. Division of Science, Technical and Environmental Education. Paris: UNESCO.

Hungerford, H. R.; Volk, T. L.; Ramsey, J. M. (1989) "A Prototype Environmental Education Curriculum for the Middle School – A Discussion Guide for UNESCO Training Seminars on Environmental Education". Paris: UNESCO.

Narayana Rao, M.; Brady Davis, B.; Jagathrakshakan, T. (1998) "Integration of Environmental Components into Technician Curricula: A Global and Indian Perspectives". Journal of Technical and Vocational Education. Issue 15, pp. 1-12.

Narayana Rao, M.; Jagathrakshakan, T.; Shaw Nawaz, V. (1996) "Green Guide for Indian Polytechnics". Canada-India Institutional Cooperation Project. Chennai: CIICP.

Palmer, J.; Neal, P. (1994) "The Handbook of Environmental Education". London: Routledge Publishers.

Parkin, C. (1997) "Environmental Education for Sustainability". Proceeding of International Vocational Education and Training Conference (IVETA 97) at Helsinki, Finland. pp. 57-57.

Rigg, M. (2008). "Skills for Sustainable Development necessary but sufficient?". Presentation made at the International Workshop: "Future Skills Needs for the Green Economy". Thessaloniki: CEDEFOP.

UNESCO (2005) "Learning for Work, Citizenship and Sustainability: Final Report." International Experts Meeting on Technical and Vocation Education and Training. Bonn, Germany.

UNESCO (2005) Draft International Implementation Scheme (IIS) for the United Nations Decade of Education for Sustainable Development. Report to General Assembly. Paris: UNESCO.

UNESCO-UNEP International Environmental Education Programme (IIEP) (1985) "A Problem-Solving Approach to Environmental Education". Environmental Education Series 15. Paris: UNESCO.

UNESCO-UNEP International Environmental Education Programme (IIEP); Colombo Plan Staff College for Technician Education (revised June 1993) "Environmental Education Training Guide for Technical and Vocational Education Teachers". Paris: UNESCO.

UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training (2006) "Orienting Technical and Vocational Education and Training for Sustainable Development. A Discussion Paper". Bonn, Germany, ISSN 1817-0374.

United Nations (2002) World Summit on Sustainable Development (WWSN). Plan of Implementation. Johannesburg, South Africa.

# TVET in ESD

**Dr. Harry Stolte,**

InWEnt  
 Head of Division -  
 Modern Media and Development of Vocational Training Curricula,  
 InWEnt, Bonn,  
 Germany



**Welcome**

**Guests of CPSC & UNESCO-UNEVOC  
 on  
 International Experts Meeting  
 "Reorienting TVET Policy towards  
 Education for Sustainable Development"**

**Presentation: Dr. Harry Stolte  
 Head of Division "Modern Media and Curricula Development in TVET"  
 Representative InWEnt in Saxony-Anhalt**

26.02.2009

**InWEnt: Facts & Figures**

- Founded in 2002 (by merger of DSE and CDG)
- head office in Bonn, branches in more than 30 locations
- regional offices in 12 countries
- 52.000 participants from 140 countries per year
- 800 employees – mostly in Germany
- 4 international conference centres
- annual turnover: 136 Mio. € (2008)
- shareholders: German Government, Länder, Private Sector  
 Constituency
- main commissioners: BMZ: 60%, other federal or state  
 ministries: 20 %, third parties: 20 %

26.02.2009

**Facts: HRD Core Competences**

The diagram illustrates the HRD Core Competences process. It starts with four overlapping circles: 'Specialist know-how', 'Regional competence', 'Market knowledge', and 'Pedagogical competence'. These lead to 'Customised demand-oriented solutions', which then leads to 'Executive and change competence'.

26.02.2009

## Facts: main business fields



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## Facts: TVET Portfolio (Overview)

### 1. Reform of TVET-Systems

- Innovation of Vocational Education and Training Systems
- Legal regulations and standards
- Controlling, monitoring and evaluation of qualification processes
- Management of TVET institutions and resources

### 2. Labour Market oriented Development of Qualifications

- Prognosis of labour markets and planning of TVET
- Labour market and occupational information systems
- International mobility and transparency
- Employment oriented qualification in the informal sector

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## Facts: TVET Portfolio (Overview)

### 3. Development of Curricula and Occupations

- Methods and instruments of analysis of educational demand
- Methods of modular curriculum development
- Testing, accreditation and certification
- Development of teaching and learning media
- TVET for Sustainable Development

### 4. HRD for Companies

- Education and training in companies
- Internationalization of HRD
- Development of competences of multiplier

### 5. TVET Networks

- Policy dialogue
- Transnational learning communities
- Alumni

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## CBC: Context: international commitments

### ■ MDGs and Millennium Declaration

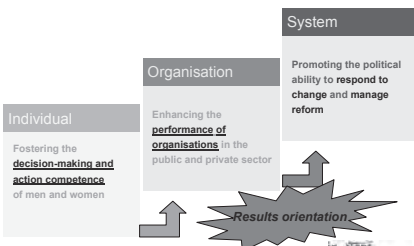
### ■ Paris Declaration (OECD-DAC 2005)

- **Ownership** of development process by partner countries
- **Alignment** of donor actions to partner countries' policies and strategies
- **Harmonisation** of donor contributions
- **Managing for Results** guided by clear targets and indicators
- **Mutual accountability** through transparency and (peer) reviews

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## CBC: three Levels

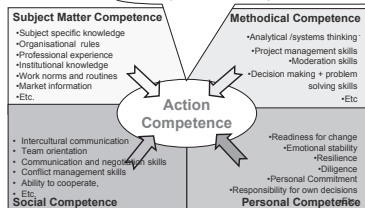


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## CBC: What is action competence?

"...the ability and readiness of an individual to behave adequately, in an objective oriented, reflective and responsible manner, in professional, social and private contexts of life"

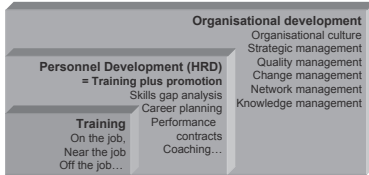


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## CBC: HRD for organisational development

Capacity Building is more than training....



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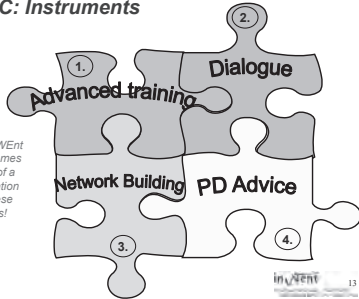
## CBC: InWent didactic principles

- 1. Participation:** Learner and trainer = partners
- 2. Variety:** of formats, methods, locations, media ...
- 3. Practical orientation:** direct link to professional tasks
- 4. Participant orientation:** based on participants' needs/experience
- 5. Tolerance:** climate of openness and partnership, multicultural teams
- 6. Transparency:** clear communication/agreement on objectives, methods and contents
- 7. Systemic approach:** to understand and manage complex problems

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## CBC: Instruments

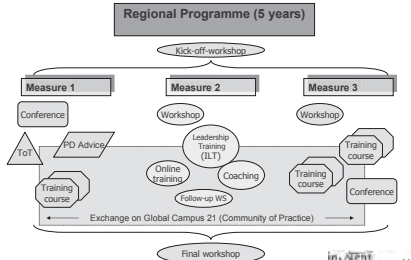


Most InWent programmes consist of a combination of all these elements!

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## CBC: Mix of Instruments: Example „Architecture“ of a typical InWent programme



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## PrIME – in short

### What?

- InWent's programme cycle management system
- standards for controlling of **outputs, outcomes and impacts**
- key element of QM
- according to OECD-DAC standards
- introduced in 2005 through a comprehensive training initiative

### Why?

- assurance of **service quality and results for clients and target groups**
- basis for **internal communication, knowledge management organisational learning**
- basis for **external cooperation, reporting, legitimization**

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## PrIME: Outcome orientation: Results chain

PrIME levels	Results levels	Objectives levels
	<b>Impact</b>	<b>Programme goal:</b> Description of the intended <b>indirect and long-term effects</b> to which the programme should contribute. » in this way, the programme contributes to an enhanced performance in the area of... »
	<b>Outcome</b>	<b>Objectives of the component/measure:</b> Description of the <b>direct short and medium term effects/changes</b> which the intervention wants to achieve ↑ » the organisation changes its procedure towards... » » participants introduce ... in their organisation... » » participants apply ... in their workplace... »
	<b>Output</b>	<b>Results of the activities/services of InWent (= learning objectives)</b> » participants are able to... » » participants have acquired knowledge and skills in... »
	<b>Activities</b>	Training, networking, dialogue, coaching, advice... are implemented

Selected issues in the re-orientation of TVET to Sustainable Development

Sustainable action process in companies:

TVET Teachers should be able to understand the SD-process in companies as well as they should be able to fulfill their „service function“ to deliver appropriate training and competences for workforce to successful changes towards Sustainability

26.02.2009 Dr Harry Blöthe

Selected issues in the re-orientation of TVET to Sustainable Development

**III. Demands of ESD to re-orient TVET Teacher training**

**TVET Teachers must be enabled to link closely with the world of work and local/regional communities / society to identify the real training needs and to develop appropriate training programmes as well as for youth, adolescents and adults**

- Very few specialised, separate TVET TT institutions exists
- TVET TT tends either to be integrated with general teacher education or to be speciality in other university programmes
- At the same time, many institutions delivering VET-training, often under different ministries; This has a negative effect on the development and systematic accumulation of TVET expertise and on research and innovation
- There is also a lack of didactical thinking on vocational subjects which needs institutional „homes“ and can best be developed in centres of competence; Some institutional concentration would, therefore, be advisable

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Selected issues in the re-orientation of TVET to Sustainable Development

**III. Demands of ESD to re-orient TVET Teacher training**

**TVET Teachers must be enabled to link closely with the world of work and local/regional communities / society to identify the real training needs and to develop appropriate training programmes as well as for youth, adolescents and adults**

- The traditional way of teaching divides the comprehensive learning process of the learner into the teaching of theoretical and practical subjects – this is not useful for understanding of work processes and demands of communities
- There is a need to devote more attention to the development of the content of vocational subject in its own right. Vocationally specific subject theory is often underdeveloped
- Teachers should not only have academic qualification and practical real-life work experience; they must be trained to convert this experience into their teaching concepts

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Selected issues in the re-orientation of TVET to Sustainable Development

**III. Demands of ESD to re-orient TVET Teacher training**

**TVET Teachers must be enabled to link closely with the world of work and local/regional communities / society to identify the real training needs and to develop appropriate training programmes as well as for youth, adolescents and adults**

- Existing TT curriculum will have to be changed if appropriate learning environments are to be created
- Teacher training methods need to focus more on the outcomes for learners in form of demonstrated competency
- If the learning environment is more active and project-based, learners are more likely to develop the deep understanding of vocational concepts and skills, which is required in a rapidly changing economy – special in context of complex concepts of Sustainable Development
- This transfer of knowledge and skills is more likely to occur if the TT curriculum is based on solving problems similar to those experienced in the world of work

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Selected issues in the re-orientation of TVET to Sustainable Development

**III. Demands of ESD to re-orient TVET Teacher training**

**TVET Teachers must be enabled to link closely with the world of work and local/regional communities / society to identify the real training needs and to develop appropriate training programmes as well as for youth, adolescents and adults**

- The dominant model for continuing TT is still supply-based; institutions such as universities etc. offer training courses to VET schools either free of charge or on market terms.
- Continuing VET TT, in particular, is still focused on individuals rather than groups, and does not include institutional and organisational development.
- More emphasis should be put on demand-led training provision close to, or within, the schools.
- Training needs assessments are still mostly not carried out.

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Selected issues in the re-orientation of TVET to Sustainable Development

**IV. Strategical/methodological aspects to re-orient TVET Teacher training towards ESD**


Demands and areas to be integrated in TVET TT:

- integration of training and workplace learning
- continuous adjustment to labour market developments / developments in society
- special didactics relating to the huge range of practical skills
- improvement of training programmes based on training needs assessment
- methods of curriculum development
- methods and techniques of ICT, Internet, databases and ICT-based media development
- improvement of the standards of teaching and of the learning environment
- vocational training for adults and special pedagogical/methodological tasks of re-training
- organised transfer of research findings on VET to institutions involved in VET


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Selected issues in the re-orientation of TVET to Sustainable Development		
IV. Strategic/methodological aspects to re-orient TVET		
Levels, problems and priorities regarding TVET TT:		
Levels	Problems	Priorities
System	<ul style="list-style-type: none"> <li>Lack of coherent national policies for TT</li> <li>Making salaries for trainers of teachers equivalent to similar qualified employees in companies</li> <li>Discontinuity between teacher training and curriculum development</li> <li>Discontinuity between TT and labour market needs</li> <li>Delay in identifying national occupational standards</li> </ul>	<ul style="list-style-type: none"> <li>Encouraging similar status, pay and conditions TVET and General education</li> <li>Development of standards for trainers of teachers and trainers, based on core competencies including skills of teaching adults</li> <li>Linking the upgrading of VET and TT to salary increases</li> <li>Involvement of social partners in curriculum development and assessment of VET TT</li> </ul>
Regional	<ul style="list-style-type: none"> <li>Unclear policies on the regional dimension of TT</li> <li>Inadequate registers of training opportunities at clearly defined levels</li> <li>Shortage of VET trainer trainers outside the core created through special projects</li> <li>Lack of specialised regional institutions for VET TT</li> <li>Lack of integration of off-site and school or workplace-based training</li> </ul>	<ul style="list-style-type: none"> <li>Networks of „Teachers and Regional Adult Training Centres“ to disseminate good practice</li> <li>Development of „practitioner-experts“ drawn from enterprises and VET schools to become trainers of teachers and trainers</li> </ul>

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Selected issues in the re-orientation of TVET to Sustainable Development		
IV. Strategic/methodological aspects to re-orient TVET		
Levels, problems and priorities regarding TVET TT:		
Levels	Problems	Priorities
Local	<ul style="list-style-type: none"> <li>Lack of procedures for guaranteeing standards in private TT institutions</li> <li>Inadequate links between training institutions and companies</li> </ul>	<ul style="list-style-type: none"> <li>Encouraging enterprises to support and become involved with TT</li> <li>Forming partnerships between TT institutions and enterprises</li> </ul>
Institutional	<ul style="list-style-type: none"> <li>Unclear policies on regional dimensions of TT</li> <li>Inadequate registers of training opportunities at clearly defined levels</li> <li>Shortage of VET trainer trainers outside the core created through special projects</li> <li>Lack of specialised regional institutions for VET TT</li> <li>Lack of integration of off-site and school or workplace-based training</li> </ul>	<ul style="list-style-type: none"> <li>Networks of „Teachers and Regional Adult Training Centres“ to disseminate good practice</li> <li>Development of „practitioner-experts“ drawn from enterprises and VET schools to become trainers of teachers and trainers</li> </ul>
Team	<ul style="list-style-type: none"> <li>Equipping TT departments with appropriate modern technological equipment and helping staff to use practices such technology in their teaching and training</li> <li>Age profile of trainers of teachers and trainers skewed towards the over 40s resulting in „old mentality“ resistant to change</li> </ul>	<ul style="list-style-type: none"> <li>Support for organisational development of TT institutions with the development of team approaches similar to best in other sectors</li> </ul>

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Selected issues in the re-orientation of TVET to Sustainable Development		
IV. Strategic/methodological aspects to re-orient TVET		
Levels, problems and priorities regarding TVET TT:		
Levels	Problems	Priorities
Individual	<ul style="list-style-type: none"> <li>TT training is not an attractive profession due to low salary, status, lack of career ladder and better rewards for working in the commercial sector</li> <li>„Brain drain“ to other professions and problems of recruitment</li> <li>Teacher trainers do not always have the credibility in VET schools for which they are training VET teachers</li> <li>Excessive demands of multiple roles for the multiplicators (teacher, trainers, project manager)</li> </ul>	<ul style="list-style-type: none"> <li>Arrange to update trainers of teachers and trainers with knowledge and experience of the current labour market</li> <li>Develop the role of „practitioner-expert“ by using practising teachers as trainers of other teachers</li> <li>Insufficient experience of some trainers of teachers</li> <li>Align qualifications and teacher and trainer profiles with the changing needs of the professions and teachers with the world of companies / world of work</li> </ul>

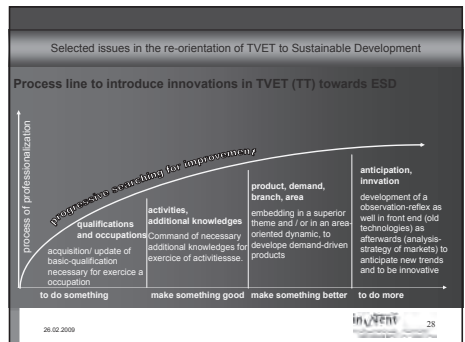
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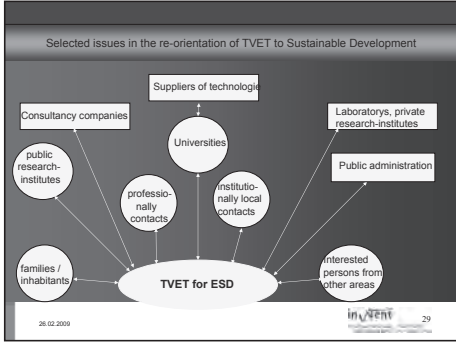
Selected issues in the re-orientation of TVET to Sustainable Development					
V. Strategic framework to re-orient TVET Teacher training					
Level at which the innovation is implemented	Funding and timetable	Change leader(s) and strategy	The innovation	Target groups and dissemination	Effects (+/-)
System • National • Regional • Local  Institutional • Whole • Team  Individual • Teacher and trainer training • Teacher and trainer	<ul style="list-style-type: none"> <li>Externally/Internally</li> <li>Short/long term</li> <li>Sustainable ?</li> </ul>	<ul style="list-style-type: none"> <li>„Top-down“ „force“</li> <li>„Diffusion“/„persuade“</li> <li>„Bottom-up“/„empower“</li> </ul>	<ul style="list-style-type: none"> <li>Policies</li> <li>Plans</li> <li>Materials</li> <li>Knowledge</li> <li>Skills</li> <li>Values</li> </ul>	<ul style="list-style-type: none"> <li>Pilot</li> <li>Large scale</li> </ul>	<ul style="list-style-type: none"> <li>Achievements</li> <li>Unintended consequences</li> <li>Barriers</li> </ul>

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Selected issues in the re-orientation of TVET to Sustainable Development			
V. Strategic/methodological approaches to re-orient TVET Teacher training			
Top-down „Cascading“	Network „Syn-Energizing“	Bottom-up „Self-developing“	
National reform	Project	Between teacher and trainer training institutions	Within teacher and trainer training institution
From system to institutions	International – National – Regional – Local	By individuals and institutions	

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*Selected issues in the re-orientation of TVET to Sustainable Development*

InWent:

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Contact: [www.inwent.org](http://www.inwent.org)  
[harry.stolte@inwent.org](mailto:harry.stolte@inwent.org)

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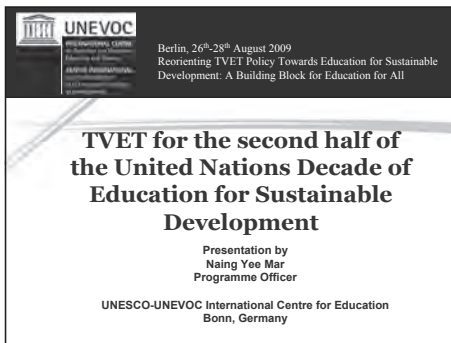
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# TVET for the second half of the United Nations Decade of Education for Sustainable Development

Ms Naing Yee Mar,

Programme Officer,  
UNESCO-UNEVOC

International Centre for Technical and Vocational Education and Training,  
Bonn, Germany



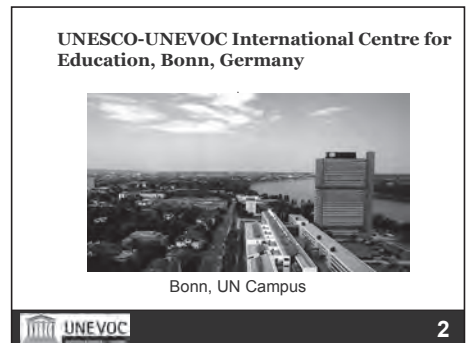
**UNEVOC**  
International Centre for Technical and Vocational Education and Training

Berlin, 26<sup>th</sup>-28<sup>th</sup> August 2009  
Reorienting TVET Policy Towards Education for Sustainable Development: A Building Block for Education for All


## TVET for the second half of the United Nations Decade of Education for Sustainable Development

Presentation by  
Naing Yee Mar  
Programme Officer


UNESCO-UNEVOC International Centre for Education  
Bonn, Germany



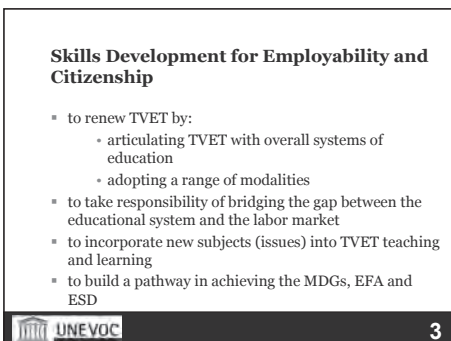
### UNESCO-UNEVOC International Centre for Education, Bonn, Germany



Bonn, UN Campus




2



### Skills Development for Employability and Citizenship

- to renew TVET by:
  - articulating TVET with overall systems of education
  - adopting a range of modalities
- to take responsibility of bridging the gap between the educational system and the labor market
- to incorporate new subjects (issues) into TVET teaching and learning
- to build a pathway in achieving the MDGs, EFA and ESD



3



### Key message

“*Quality TVET* has a very important role in achieving education for sustainable development.”



4

### Presentation Focus

- the United Nations Decade of Education for Sustainable Development (DESD) (which spans from 2005 to 2014).
- UNESCO's Action for DESD
- UNESCO and TVET
- The Role of UNESCO-UNEVOC



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### Aims of this presentation

- to provide an opportunity to re-examine the contribution of TVET to achieve **quality Education for sustainable development**;
- to provide a platform for international exchange on ESD related issues; and
- to review progress achieved and develop strategies to integrate ESD into TVET **for the second half of the Decade**;



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### Notions of Sustainable Development

- in the past mainly focused on **the natural environment**
- more recently there has also been a broadening in how this idea is interpreted, to include all aspects of development including **economic, social and political** aspects, and also notions such as **peace building as a pathway for achieving harmonious, sustainable societies.**



7

### Global Crisis

*the reasons why they have occurred, reminds us of the fact that sustainable development does not just depend on economic factors, but also upon the **social and political environment** in which we all live and work.*



8

### Sustainable development depends also on values and social factors

“The Planet has enough resources to meet people needs, but not their greeds” – Mahatma Gandhi



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### What is sustainable development?

According to the famous Bruntland Commission report of (1987):

“Sustainable development refers to development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.



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## Education for Sustainable Development

- Individuals to have *sustainable livelihoods* to make an effective contribution to the economic and social development of their communities



In December 2002, the United Nations General Assembly (UNGA) adopted resolution 57/254 to put in place a United Nations Decade of Education for Sustainable Development (DESD), spanning from 2005 to 2014.

## Overall Goal for DESD

- Integrate the principles, values and practices of sustainable development into all aspects of education and learning



## UNESCO for DESD

UNESCO was requested:

- To lead the Decade;
- To develop a draft International Implementation Scheme (IIS) for the Decade.

## Summary of the the goals and objectives of the Decade Strategic Document

**United Nations Decade of Education for Sustainable Development (2005-2014): International Implementation Scheme**

(UNESCO Education Sector, 2005)

## Seven strategies

- vision-building and advocacy;
- consultation and ownership;
- partnership and networks;
- capacity-building and training;
- research and innovation;
- use of Information and Communication Technologies (ICTs);
- monitoring and evaluation.

### UNESCO's Action in 2008-2009

Five keys areas have been defined:

- Enhancing **leadership and coordination**
- Supporting Member States capacities for **ESD policy formulation and M&E** of the implementation
- Preparing **the mid-term review** conference for DESD in Bonn, Germany
- Supporting publications and disseminations of **learning resources** and good practices
- Promoting an **intersectorial approach to ESD**



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### the mid-Decade review reported on the DESD Monitoring and Evaluation Global Report, entitled

*Learning for a Sustainable World:  
Review of contexts and structures for Education for  
Sustainable Development (2007-2009)  
Key Findings and Ways Forward*



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### The DESD Monitoring and Evaluation Process

It comprises three phases that span the Decade:

Phase I: 2007-2009, focusing on contexts and structures of work on ESD;

Phase II: 2009-2011, focusing on process and learning for ESD;

Phase III: 2011-2014, focusing on the impacts and outcomes of the DESD.

Reports will be published by UNESCO in 2009, 2011 and 2015 respectively.



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### UNESCO World Conference on Education for Sustainable Development – 31/03-02/04/2009

Strategic issues and challenges in ESD implementation have been grouped in 4 thematic clusters:

- Relevance of ESD for key sustainable development challenges
- Building partnership to promote ESD
- Capacity Development for ESD
- ESD and the teaching-learning process



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### The Bonn Declaration

resulted from the

*“UNESCO World Conference on Education for Sustainable Development*

*– Moving into the Second Half of the Decade”*



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### Bonn Declaration findings

- Progress of ESD unevenly distributed and requires different approaches in different contexts;
- Importance of education for the global development agenda;
- Essential contribution required to ESD to shaping the purpose, quality of all education;



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### What next for the 2<sup>nd</sup> half of the Decade?

- UNESCO Strategy will be implemented in line with International Implementation Schemes (IIS).
- It will provide the global strategic framework for UNESCO and its partners for the 2<sup>nd</sup> half of the Decade.
- Its main goal will be the support of Member States and Stakeholders in addressing sustainable development challenges through ESD.



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### Implication for TVET

- New subjects (issues) need to be incorporated into TVET teaching and learning
- A need to renew TVET by articulating TVET with overall systems of education; and adopting a range of modalities
- Quality must meet the need of learners, integrating the values of sustainable development into TVET
- Need of taking into consideration local differences in reforming TVET systems toward sustainable development



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### Quality TVET for sustainable development

- education is **the key** to sustainable development, then TVET is the **Master Key** to such Development, since it opens the doors: to reduce poverty, to improve equity and greater justice and fairness, and to reduce marginalisation of disadvantaged groups.



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### Integrating ESD into TVET

UNESCO- UNEVOC Action Plan for the United Nations Decade of Education for Sustainable Development (DESD):  
Summary planning  
of the Thematic Programme 3  
(2005-2014)



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### Programme activities focus on:

- Education for All and TVET
- Education for Sustainable Development and TVET
- Strengthening and upgrading the worldwide UNEVOC Network



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## The UNEVOC Network



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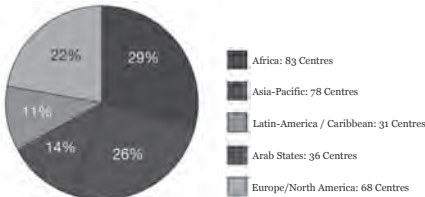
## Representatives of the UNEVOC Network

- TVET teaching institutions at the secondary and post-secondary school levels;
- TVET research groups within universities;
- TVET departments within Ministries of Education and
- National bodies dedicated to TVET developments.



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## Classification of UNEVOC Centres by Region

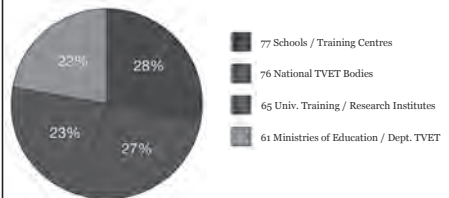


Please note: The total number of Centres in this graph exceeds the actual number of UNEVOC Centres due to the fact that some countries belong to more than one UNESCO region.



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## Classification of UNEVOC Centres by Type of Institution



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## Integrating ESD into TVET

- Teacher education and training and planning and management of TVET
- Capacity Building to UNEVOC Network members and Member States in learning contents and curricula development
- Partnership in support the Decade
- UNEVOC Network and UNEVOC Centres services and assistance in supporting the reorientation of TVET for sustainable development
- Plan for further advancing TVET for sustainable development over the remaining years of DESD



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## UNESCO- UNEVOC Programme Areas

- TVET Teacher education
- Private Public Partnership (PPP)
- Promotion and dissemination of research and innovative practices
- Capacity Building for skills improvement and enhanced employability
- Access to ESD information in relation to TVET




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**International Consultation on  
Education for Sustainable Development:**

**TVET Teacher Education towards Sustainability  
Chiang Mai, Thailand  
19-24 August 2007**




**International Expert Meeting**

**Corporate Social Responsibility and Education  
for Sustainable Development:  
Advancing the Partnership  
Bonn, Germany  
6-7 November 2007**





### ESD related issues in TVET Curriculum development

- China
- Mongolia
- South East Asia
- Asia Pacific Region
- Africa
- Etc.,



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### UNEVOC Publications

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### UNEVOC Website: [www.unevoc.unesco.org](http://www.unevoc.unesco.org)



- Always up-to-date on UNEVOC and TVET: News and Events and feature articles inform about current developments (RSS feed available)
- Easy and direct subscription to UNEVOC services: e-Forum, UNEVOC Bulletin (print and/or digital)
- Comprehensive search for UNEVOC Publications (most of them available for download)
- UNEVOC Network Directory easily accessible via online database

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### UNESCO-UNEVOC e-Forum

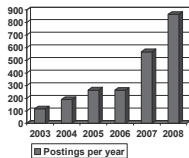
- The e-Forum is a mailing list on TVET issues for TVET experts from around the world. It was started in 2000.
- Direct access via [www.unevoc.unesco.org/e-Forum](http://www.unevoc.unesco.org/e-Forum)
- Easy sign-up via online form
- Online interface:
  - > Threaded view
  - > Search messages
- Examples of issues discussed:
  - > Curriculum revision and redesign
  - > Enhancing TVET in Liberia
  - > Evaluation and assessment of work-based learning, etc.

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## UNESCO-UNEVOC e-Forum A growing online community

- Interest and participation in the e-Forum is growing rapidly
- The e-Forum currently has more than 1100 members from more than 140 Countries. About 50% of members are from developing countries
- High participation rate  
2008: 330 different contributors
- 50 to 120 messages per month
- 462 messages so far in 2009 (20 April)



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## UNEVOC Online Conferences

- "Two pathways, one destination - TVET for a sustainable future"
- Moderated online conference from 22 October to 10 November 2007 (free of charge)
- more than 100 participating TVET experts from around the world
- Next online conference will take place this year



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## TVETipedia — An open TVET Portal A quick glance at our future plans

- New online portal for the exchange of information on TVET
- Based on easy-to-use "wiki" technology (like Wikipedia)
- TVET experts worldwide can create accounts and add/edit content
- Quality is assured by UNEVOC editorial team



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## Achievement

- The publication of qualified case studies,
- Building synergies among public sector, private sector and international development agencies,
- Stimulating the active participation of policy makers, practitioners and researchers,
- Contributing not only to the achievement of the planned objectives, but also to the development and implementation of UNEVOC's overall action plan on "Integrating ESD into TVET".



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## Lessons

It is important

- to update with the latest ESD issues;
- to actively explore the circumstances under which companies might successfully become involved socially responsible behavior in TVET;
- to apply an effective management tool in meeting the objectives set down in UNEVOC to achieving ESD in TVET;
- To take initiatives and planning for different activities based on a more realistic, socially, culturally oriented;
- to increase capacity and resources through an international public-private learning networking.
- To identify the potential areas for collaboration with the private sector and set milestones for further development of the various ESD oriented activities for the second half of the United Nations Decade of Education for Sustainable Development



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**UNEVOC**

INTERNATIONAL CENTRE  
for Technical and Vocational  
Education and Training

CENTRE INTERNATIONAL  
pour l'enseignement  
et la formation technique  
et professionnelle

Mail  
UNESCO-UNEVOC  
International Centre  
UN Campus,  
Hermann-Ehlers-Str. 10  
53113 Bonn, Germany

Tel  
+49 228 815-0100

Fax  
+49 228 815-0199

Internet  
info@unevoc.unesco.org  
www.unevoc.unesco.org

# Innovative Practices in TVET for ESD: German Experience

Dr. Klaus-Dieter Mertineit,

Institute for Environmental Protection in TVET,  
Hannover,  
Germany




## Innovative Practices in TVET for ESD: German Experience

presented by  
**Dr. Klaus-Dieter Mertineit**  
Institute for Environmental Protection in TVET, Hannover, Germany

**International Experts Meeting on  
REORIENTING TVET POLICY TOWARDS EDUCATION FOR  
SUSTAINABLE DEVELOPMENT**  
27<sup>th</sup> August 2009 in Berlin, Germany


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## ESD in TVET in Germany Overview

- ✓ Implementation levels
- ✓ Decade of Education for SD in Germany
- ✓ Examples of Good Practice


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## ESD in TVET in Germany Implementation Levels

- **Macro level:**  
How can SD be anchored in the vocational education and training system?
- **Meso level:**  
How can SD be implemented in corporate training centres and vocational schools
- **Micro level:**  
Which competences ought to be promoted?  
What content should be educated in which form?


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## ESD in TVET in Germany Decade of Education for SD

**Nationwide process with four strategic goals**

- ✓ Further develop the concept of education for SD and broadly spread good practices
- ✓ Forge stronger links between individual players and stakeholders in Education for SD
- ✓ Increase public visibility of Education for SD
- ✓ Strengthen international cooperation



[www.bne-portal.de](http://www.bne-portal.de)

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## ESD in TVET in Germany Decade of Education for SD

### Organisation and instruments in TVET

- ✓ Committees on federal level and in the German states
- ✓ Internet platform ([www.bibb.de/nachhaltigkeit](http://www.bibb.de/nachhaltigkeit))
- ✓ Pilot project programme
- ✓ Research studies
- ✓ Conferences and meetings

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## ESD in TVET in Germany Decade of Education for SD

### Objectives

- ✓ To contribute to the social implementation of sustainable development
- ✓ Key term: "Manufacturer / Producer responsibility"
- ✓ To promote the competency needed to play an active role in shaping a sustainable future (as integrated part of vocational competence!)



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## ESD in TVET in Germany Decade of Education for SD

### Main Issues and Core Areas in TVET

- ✓ Energy saving; energy efficiency, renewable energy
- ✓ Controlled water supply and waste water disposal
- ✓ Waste avoidance, reduction and recycling
- ✓ Reducing CO<sub>2</sub>
- ✓ Improving chances on the labour market
- ✓ Promoting women and girls
- ✓ Promoting disadvantaged people

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## ESD in TVET in Germany Environmental Protection (EP)

- ✓ Beginning in the end of the 1980s
- ✓ Interlinked with German environmental policy
- ✓ Integrated in all training regulations and vocational school curricula
- ✓ Specialisation by means of a few environmental occupations
- ✓ Promoted by programmes with 38 pilot projects
- ✓ Train-the-trainer concepts
- ✓ Media and training / teaching aids
- ✓ Corporate concepts of implementation
- ✓ Collection of good practice



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## ESD in TVET in Germany Macro Level

### Examples

- ✓ Integration of relevant topics and competences in initial training
- ✓ Specialisation by means of environmental occupations
- ✓ Additional qualifications on advanced training level

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## ESD in TVET in Germany (Macro Level) Examples: Integration into Initial Training

### Environmental protection in the job outline

Apprentices have to be enabled to ...

...contribute to the avoidance of operational environmental damages in the job area, in particular by:

- a) explaining possible environmental damages caused by the training company and how they could contribute to environmental protection in form of examples;
- b) applying the relevant environmental protection regulations to the training company;
- c) using possible economical and environmentally useful applications of energy and materials;
- d) avoiding waste, materials disposed by recycling etc.

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**ESD in TVET in Germany (Macro Level)**  
**Examples: Integration into Initial Training**


- Mechanics for Sanitary, Heating and Air Conditioning Systems
- Industrial Mechanics
- Electronics Technicians for Building and Infrastructure Systems



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**ESD in TVET in Germany (Macro Level)**  
**Examples: Additional Qualifications on Advanced Training Level**

- Service Technician for Wind Power Plants
- Specialist for Renewable Energy Technologies
- Technical Consultant for Environmental Protection in Trade
- Energy Consultant
- Corporate Officer for Waste Management etc.



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**ESD in TVET in Germany (Macro Level)**  
**Examples: Specialisations**

- Water Supply Engineering Technician
- Sewage Engineering Technician
- Recycling and Waste Management Technician
- Pipe, Sewer and Industrial Service Technician



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**ESD in TVET in Germany**  
**Meso Level**

**Examples**

- ✓ Demonstration plants for Renewable Energies in a Vocational School Centre
- ✓ The Building as a Teaching Material in a Centre of Competence for Sustainable Construction
- ✓ A Vocational School on its way to a Sustainable Training and Education Centre

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**ESD in TVET in Germany (Meso Level)**  
**Example: Demonstration plants for Renewable Energies in a Vocational School Centre**

**Attributes**

- ✓ Thermic solar plant, photovoltaic plant, block heat and power plant and wind power plant
- ✓ Using the energy (in school and feed in electricity network)
- ✓ Using the demonstration plants in classes / courses
- ✓ Measurements and visualisations (PCs / monitors)

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**ESD in TVET in Germany (Meso Level)**  
**Example: Demonstration plants for Renewable Energies in a Vocational School Centre**



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### ESD in TVET in Germany (Meso Level)

#### Example: The Building as a Teaching Material in a Centre of Competence for Sustainable Construction

##### Attributes

- ✓ Construction of a new eco friendly training building
- ✓ Measurement stations and visualisations
- ✓ Ecological features are considered in the didactical concept systematically (inkl. teaching aids)
- ✓ Ecological features are considered in the environmental managementsystem systematically

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### ESD in TVET in Germany (Meso Level)

#### Example: The Building as a Teaching Material in a Centre of Competence for Sustainable Construction



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### ESD in TVET in Germany (Meso Level)

#### Example: A Vocational School on it's way to a Sustainable Training and Education Centre

Development of regional economy

Demographic change

European labour market



Sustainable development

Competence standards

Increased self-government of vocational schools

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### ESD in TVET in Germany (Meso Level)

#### Example: A Vocational School on it's way to a Sustainable Training and Education Centre

##### Attributes

- ✓ Development of profile and strategy
- ✓ Integration into the quality management system
- ✓ Sustainable school development with a school integrated production school
- ✓ Well-directed use of pilot projects (production school and promotion of sustainable consumption) for sustainable school development
- ✓ Involving of all teachers by means of projects teams and school conferences

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### ESD in TVET in Germany (Meso Level)

#### Example: A Vocational School on it's way to a Sustainable Training and Education Centre

##### School integrated production school

- ✓ Disadvantaged young people
- ✓ Productive work in addition to lessons at school
- ✓ Cooperation between trainers and vocational school teachers
- ✓ Focus: solar energy and mobility



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### ESD in TVET in Germany

#### Micro Level

##### Examples for integration

- ✓ Taking care of cooling lubricants
- ✓ Efficient use of energy

##### Training methods

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ESD in TVET in Germany (Micro Level)  
**Example: Taking care of Cooling Lubricants**



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ESD in TVET in Germany (Micro Level)  
**Example: Efficient use of energy**



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ESD in TVET in Germany (Micro Level)  
**Training Methods I**



Instruction                      Project method

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ESD in TVET in Germany (Micro Level)  
**Training Methods II**



Investigation                      Creative workshop

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**Thank you for your attention!**

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**The Dual System of Vocational Education and Training in Germany:  
 From School to Work**



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## The Dual System of Vocational Education and Training in Germany: From School to Work



### Dual training

- **Places of learning:** Company and part-time vocational school
- **Final qualification:** State-recognized training occupation (chamber certificate)
- **Prerequisites:** Full compulsory education (no leaving certificate required)
- **Duration:** Two, three or three and a half years

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## The Dual System of Vocational Education and Training in Germany: From School to Work



### Full-time vocational schools

- **Places of learning:** School, additional practical work placement, if applicable
- **Final qualification:** State-recognized occupation (school certificate)
- **Prerequisites:** Completion of general education, further requirements for specific occupations
- **Duration:** Two or three years

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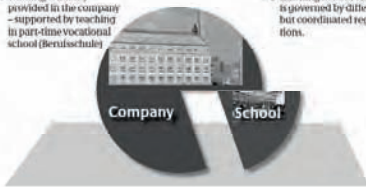
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## The Dual System of Vocational Education and Training in Germany: Dual Training

- Training is mainly provided in the company – supported by teaching in part-time vocational school (Berufsschulen)
- Learning at both venues is governed by different but coordinated regulations.



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## The Dual System of Vocational Education and Training in Germany: Dual Training



- 3-4 days per week
- on the basis of training regulations
- within the framework of a training contract
- mostly at the workplace

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## The Dual System of Vocational Education and Training in Germany: Dual Training



- 3-4 days per week
- on the basis of training regulations
- within the framework of a training contract
- mostly at the workplace
- added by courses in inter-company training centres

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## The Dual System of Vocational Education and Training in Germany: Dual Training



- 1-2 days per week on average
- on the basis of a framework curriculum
- general and vocational knowledge is taught within the framework of compulsory education

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## The Dual System of Vocational Education and Training in Germany: Vocational Competence



Dr. Klaus-Dieter Merfeldt

INWIK\_27-08-2009

Folie 35

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# Country Presentations

## Bangladesh

MS. RAZIA BEGUM

ADDITIONAL SECRETARY  
MINISTRY OF EDUCATION  
BANGLADESH

### Re-orienting TVET Policy towards Education for Sustainable Development Bangladesh Perspective



Presented by  
Ms. Razia Begum  
Additional Secretary  
Ministry of Education  
Government of Bangladesh

### Outline

1. Objective/ Rationale
2. A short brief on Technical and Vocational Education in Bangladesh
3. Certificates/ Diplomas/Degrees offered in TVE
4. Enrollment and Expenditure in TVET
5. Challenges - Quality Assurance, Accountability, Governance and Sustainability Issues.

### Objectives

- 1. To give a brief account on the status of the TVET in Bangladesh.
- To give an overview of the Government programs and policies.
- To highlight some of the best practices used in TVET in Bangladesh.
- To focus on risks and challenges lying ahead.

### A Short Brief on Technical and Vocational Education:

(Certificates/ Diplomas/Degrees offered)

1. **Certificates:** SSC/HSC (Vocational)  
Offered by : Govt./Non Govt. Technical Schools and Colleges.  
**Prerequisite:** 10 yrs of Schooling (SSC), 12 yrs of Schooling (HSC)
2. **Diplomas :** 4 years course, Polytechnic Institutes  
**Requisite :** SSC/HSC(Voc)
3. **Degrees:** 4 years course, Engineering Colleges  
**Requisite:** Diploma, HSC (voc) and equivalent.

Ref: Bangladesh Technical Education Board

## Technical and Vocational Education:

### Present status

#### a) Certificate level:

##### (i) Govt. Technical School and Colleges:

- These type of institutes conducts SSC (Voc) and HSC (Voc) certificate courses.
- SSC (Voc) 10 years Schooling program
  - HSC (Voc) 12 years Schooling program (prerequisite qualification SSC (Voc))
- Besides this, Technical School and Colleges conducts short courses for different time period.

##### (ii) Non-Govt. Schools :

These type of schools conducts SSC (Voc) Course.

#### b) Diploma level institutes:

- Polytechnic institutes and similar type institutes.
- These type of institutes conducts 4 years diploma in Engineering, Survey, Glass and ceramic, graphic arts and printing courses
- Pre-requisite qualification is : SSC, SSC(voc) and equivalent.

#### (c) Degree level institutes:

- These institutes conduct 4 years BSC in Engineering, Leather Technology, Textile technology and Technical Education courses.
- Prerequisite qualification required to enroll these courses :Diploma, HSC (voc) and equivalent.

## List of affiliated institutes, specialization and intake capacity

### 1. Diploma in Technical Education

Number of Institutes			Intake Capacity
Public	Private	Total	
1	-	1	120

### 2. Diploma in Vocational Education

Number of Institutes			Intake Capacity
Public	Private	Total	
1	-	1	80

Ref: Bangladesh Technical Education Board, Computer Cell

### 3. Diploma in Engineering

Number of Institutes			Intake Capacity
Public	Private	Total	
47	128	175	35,832

**Area:** Architecture, Automobile, Chemical, Civil, Civil (Wood), Computer, Electrical, Electronic, Food, Mechanical, Power, Refrigeration and Air-Condition, Offset Printing, Graphic Reproduction Printing, Ceramic, Glass, Marine, Shipbuilding, Aircraft Maintenance (Aerospace), Aircraft Maintenance (Avionics), Computer Science, Data Telecommunication and Networking, Surveying, Architecture and Interior Design, Construction, Electro medical, Environmental, Garments Design and Pattern Making, Instrumentation and Process Control, Mechatronics, Mining and Mine Survey, Telecommunication.

Ref: Bangladesh Technical Education Board, Computer Cell

### 4. Diploma in Textile Engineering

Number of Institutes			Intake Capacity
Public	Private	Total	
03	-	03	150

**Area:** Yarn Manufacturing, Fabric Manufacturing, Wet Processing, Garments & Clothing.

### 5. Diploma in Forestry

Number of Institutes			Intake Capacity
Public	Private	Total	
06	20	26	2,280

Ref: Bangladesh Technical Education Board, Computer Cell

### 6. Diploma in Agriculture

Number of Institutes			Intake Capacity
Public	Private	Total	
13	90	103	10,010

### 7. Diploma in Animal Health and Production

Number of Institutes			Intake Capacity
Public	Private	Total	
03	-	03	300

Ref: Bangladesh Technical Education Board, Computer Cell

### 8. a. Diploma in Health Technology b. Certificate in Health Technology

No of Institution a. M/O Health. b. M/O Education	Intake Capacity			Total Intake Capacity
	Public	Private	Total	
a.	5	29	34	4100
b.	0	52	52	1920
Certificate in Health Technology				
	Intake Capacity			Total Intake Capacity
	Public	Private	Total	
a.	0	67	67	2180
b.				

Ref: Information Cell, Directorate of Technical Education

### 10. HSC (Business Management)

Number of Institutes			Intake Capacity
Public	Private	Total	
-	1327	1327	1,19,250

**Area:** Computer Operation, Secretarial Science, Accounting, Banking, entrepreneurship.

### 11. HSC (Vocational)

Number of Institutes			Intake Capacity
Public	Private	Total	
64	-	64	16,740

Ref: Bangladesh Technical Education Board, Computer Cell

### 12. SSC (Vocational)

Number of Institutes			Intake Capacity
Public	Private	Total	
129	1597	1726	1,25,000

**Area:** Audio Video System, Agro Based Food, Automotive, Building Maintenance, Civil Construction, Computer, Drafting (Civil), Drafting (Mechanical), Dress Making & Tailoring, Farm Machinery, Fish Culture & Breeding, Fruit & Vegetable Cultivation, Food Processing & Preservation, General Mechanics, General Electrical Works, Livestock Rearing & farming, Poultry Rearing & Farming, Refrigeration & Air Conditioning, Welding Works, Electrical Maintenance Works, Dying Printing & Fishing, Glass,

Wood Working, Ceramic, Machine Tools Operation, Knitting, Plumbing & Pipe Fitting, Weaving, Welding & Fabrications, Architectural Drafting With AutoCAD, Electrical Machine Maintenance, Industrial Electronics, Nursing & Mid- wifery, Hotel Management & Catering, Foundry Works, Shrimp Culture & Breeding.

### 13. Dhakil (Vocational)

Number of Institutes			Intake Capacity
Public	Private	Total	
-	100	100	6,000

Ref: Bangladesh Technical Education Board, Computer Cell

### 14. Certificate in Vocational Education

Number of Institutes			Intake Capacity
Public	Private	Total	
01	-	01	120

### 15. Computer Training Program

Number of Institutes			Intake Capacity
Public	Private	Total	
03	472	475	14,000

Ref: Bangladesh Technical Education Board, Computer Cell

## 16. Basic Trade Course (360 Hours)

Number of Institutes			Intake Capacity
Public	Private	Total	
09	160	169	8,275

Ref: Bangladesh Technical Education Board, Computer Cell

## Vocational Education

### • Bangladesh Vocational Qualification Framework (present)

NSS Basic	Basic skilled	360 hours Basic Trade Course
NSS III	Semi skilled	SSC (Voc) Class IX
NSS II	skilled	SSC (Voc) Class X
NSS I	Highly skilled	HSC (Voc) Class XI & XII
NSS Master	Master craftsman	Industry Assessed

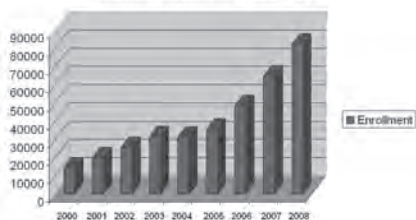
Ref: Bangladesh Technical Education Board, Computer Cell

## No. of institutes and students appearing SSC (Voc) Examination

Year	No. of Institution	No. of Student appearing SSC (Voc)	Pass rate (%)	Growth rate (%)
2000	427	14560	61.85	-
2001	535	20055	57.16	37.74
2002	680	25590	43.45	27.60
2003	687	31627	38.92	23.59
2004	870	31452	51.16	-0.55
2005	950	35779	51.44	13.76
2006	1227	48309	61.37	35.02
2007	1338	64637	51.08	33.80
2008	1463	82375	62.88	27.44

Ref: Bangladesh Technical Education Board, Computer Cell

Yearwise Enrollment in SSC (Voc)



Ref: Bangladesh Technical Education Board, Computer Cell

## Comparison of General & Vocational Education at Secondary Level:

Year	SSC Examinee		% of Vocational Education
	Total	Vocational	
2003	1084241	31627	2.92
2004	964507	31452	3.26
2005	944015	35779	3.76
2006	995123	48309	4.86
2007	1024537	64637	6.31
2008	1006569	82375	8.18
2009	1058674	75057	7.08

Ref: Bangladesh Technical Education Board, Computer Cell

## Major achievements in TVET

### Ensuring Accessibility:

- New institutes are established to enhanced enrollment and 18320 enrollment capacity increased for the last three years.
- Special quota facilities for tribal (2/4 each institutes), freedom fighters dependant(2 each group of each department), and women (10%) and vocational back ground students (15%) of capacity are provided.

- 4 separate polytechnic institutes for women are established, intake capacity is 680 (enrollment= 680\*4 years course =2720).
- Double shift program launched with the existing infrastructure through paying only 30% of basic salary and capacity becomes double of those institutes where double shift program running and increased intake capacity number is 14630.

#### Quality and relevancy:

- Syllabuses updated with market demand
- Monitoring tools designed and monitoring is done accordingly
- Industrial linkage enhanced for getting practical experience
- New equipment supplied for updated skill.
- Training facilities arranged for the teachers' and staff both home and overseas.
- Linkage is being maintained with International Agencies for exchanging technical knowledge.

#### Role of Government in educational development

- Govt. Establishes new educational institute on regular basis from its won fund.
- Govt. prepares syllabuses through its agencies.
- Govt. conducts examination
- Govt. prepares education policy
- Govt. contributes full fund for govt. educational institutes and 90% salaries for the Non-Govt. educational institutes
- Govt. contributes to international organization for improving quality of Technical Vocational Education.

#### Role of community participation in education

- Industry people are involved in preparing syllabuses to make syllabus market oriented.
- Industry linkage is being maintained with educational institutes and students are getting opportunity for industrial attachment program in the industries.
- At present some Non-govt. organizations are conducting Technical and vocational education program.
- Some private organizations are conducting diploma and degree courses on TVET

#### Local resource mobilization:

- Maximum of our educational institutes are funded through Govt. own resources.
- Infrastructure of Non-Govt. School is built through community/private funding

#### Ensuring good governance in education sector:

- Teachers' are provided training on guidance and counseling.
- Teachers' are given training on Competency Based Training on TVET.
- Guardians' day is observed annually in the institutes.

#### Educational Financing

##### Funding Modalities: Vocational/ Technical Education.

Financial contribution for Technical and Vocational Education institutes are made by govt. for Govt. Certificate level institutes like ; Technical School and Colleges ,Diploma level institutes like; Polytechnic Institutes & similar type Institutes and Degree level Institutes like, Engineering Colleges, Textile college, Leather college and Teaching Training College from revenue budget.

### Budget Allocation (Revenue & Development) for DTE

(Amount in taka and in million)

Fiscal	Total Budget for Ministry of Education (MOE)	Budget allocation for DTE	Percent( %) share by DTE out of total MOE
2003-04	48899.1	1522.0	3.11
2004-05	50113.7	2113.2	4.22
2005-06	69150.6	2023.4	2.93
2006-07	82390.0	1775.4	2.15
2007-08	85861.9	2651.3	3.09
2008-09	90530.5	2200.9	2.43

Ref: Bangladesh Technical Education Board, Computer Cell

### Main Challenges

- Updating knowledge and skill with competitive and volatile market .
- Ensuring participatory learning .
- Need assessment for competitive job market .
- Rather more expensive than general education.
- Survival with technological changes.
- Social status and images of TVET learners'.
- Access of students

- Relevance of curriculum.
- Flexibility in curriculum.
- Quality education and training.
- Capability development for infrastructure building.
- Trained teachers'.
- Quality and updated tools and equipment.
- Adaptation with technological changes.

### Major programs undertaken for Re-orienting TVET policy

- Review and strengthen TVET policies, systems and legislation at the central and decentralized levels.
- Enhance flexibility, quality and relevance of TVET.
- Strengthen TVET institutions through improved knowledge and skills of managers and teachers.
- Develop National Technical and Vocational Qualification Framework

- Improve skills development resulting in enhanced productivity and competitiveness in key growth and export-oriented industries in the formal industrial sector.
- Increase access of underprivileged groups to TVET.
- Establish partnerships with industry; Focus: RMG and textiles, Construction, Light engineering, Leather, Agro-food, IT and Transport equipment .

- Develop competency and training standards.
- Develop curricula, teacher guides, learning materials and assessment tools.
- Develop capacity in external competency assessment.
- Upgrading Teacher training Institutions.
- Strengthen the capacity of DTE for planning, research & development and social marketing.
- Deliver skills training in poor communities.

### Sustainability of achievements:

- Keep pace with new technologies is a must
- Increased women participation in TVET
- Continue updating of Syllabuses as per market
- Industries linkage enhanced for practical skill.
- Increased Training facilities for teachers' and trainers.
- International Linkage and cooperation for sharing exchanging technical knowledge

### Conclusion

- Societal role
- Social Commitment
- Social responsibility
- Social adaptability to change

Thanks for patience hearing



# Fiji

ALUMECI SUSU TUISAWAU  
SENIOR EDUCATION OFFICER TVET  
MINISTRY OF EDUCATION,  
FIJI ISLANDS

## **COUNTRY PRESENTATION on**

### **REORIENTING TVET POLICY TOWARDS EDUCATION FOR SUSTAINABLE DEVELOPMENT**



**FIJI**

- *“While education is the key to any development process, TVET is the ‘Master Key’ that can transform the world of work and the economy, alleviate poverty, save the environment and improve the quality of life” (Luisoni, 2005: 250).*

## **Introduction**

- TVET plays an equally important role in the social, economic and political development of any nation together with its academic counterpart.
- However, Fiji has not fully realized its potential and has treated it as a ‘second best option’ to academic education.

- It is envisaged that stakeholders would be empowered especially the policy-makers, so that they can genuinely accept TVET as an equally important component of the total learning system providing relevant knowledge, skills, attitudes and competencies for employability, improvement of quality living and learning communities.

## Goals for TVET

- to facilitate economic development by transmitting to local citizens certain values, knowledge and attitudes that are necessary to perform certain skills in the modern sector of the economy,
- to provide young people with the skills needed for employment in a wide range of job categories including self-employment and wage employment,

- to promote a work ethic and sensitise learners to the importance of practical work skills and the dignity of manual labour,
- to promote sustainable development, save the environment and improve the quality of living,
- to alleviate unemployment as well as poverty,

- to reduce the mass movements of school-leavers from rural to urban areas,
- to provide an alternative route to higher academic education for early secondary school-leavers,

## Present Status on TVET Programs in relation to Education for Sustainable Development (ESD)

- TVET system housed in more than one government ministries.
  - **Ministry of Education, National Heritage, Culture & Arts and Youth & Sports**
    - Manages the school based TVET systems at primary, secondary and post-secondary school levels
    - Fiji Institute of Technology (semi-autonomous)
    - Advanced Vocational Training (IHRD ) – community and non-formal training
  - Ministry of Labour
    - TPAF (Training for Productivity Authority of Fiji)

- Ministry of agriculture – Fiji College of Agriculture
- Ministry of Forestry
- University of the South Pacific
- Private Vocational Centres

- TVET has suffered from being considered as the fall-back position for those for those who did not succeed in academic education streams
- This viewpoint has changed considerably now. A major reason for this shift in thinking is the changing character of work and its impact on social and economic development

- TVET is now seen as playing a complementary role in 'skilling' primary and secondary school students and 'up-skilling' industry and other workplace employees.
- TVET can provide both the link with productive work and motivation for life-long education and training.
- It has the capacity to incorporate Pacific knowledge, technologies and life-skills as well as indigenous pedagogy in the learning agendas

- TVET now involves such a variety of approaches, including both formal and informal education, that it can supplement the formal systems of schools in ways that will increase their effectiveness.
- TVET Curriculum –
  - Vocational – Competency based and need ESD to be integrated

### **Best Practices on ESD in Fiji**

- The current TVET curriculum has little emphasis on sustainable development
- Currently - revision of the curriculum following the National Curriculum Framework
  - the model which that is currently in use and is going to be used in the future is the infusion model.
    - Citizenship Education
    - Enterprise Education
    - Environment Education

- eco-tourism
- sustainable agriculture – e.g. zero tillage & organic farming; minimise waste by recycling,
- production of virgin coconut oil using environmentally friendly method;
- production of packaging papers using trees and recycled papers – these are used in the tourism market

- **provide energy through renewable resources – FIT & TPAF**
- development of a curriculum that is grounded in local culture, values and lifelong skills,
- integration of students with special needs into regular schools,
- establishment of centres to pilot Distance Education and
- the expansion of Compulsory Education to all schools

## Issues and Challenges in TVET on ESD

- the lack of a shared national vision
- the lack of adequate resources and trained personnel at all levels in the TVET sector; and
- the existing traditional TVET culture, pedagogy and training

## Conclusion

- Need to establish TVET policy and reorient it towards education for sustainable development.
- There should be a clear articulation of the possible pathways for TVET in order to develop a whole person that has values, ethics, knowledge, attitudes and skills to contribute to a sustainable future

- Review of the current curriculum
- Training of teachers
- Vocationalisation of secondary education
- *(educating the 'whole person' by providing life-skills including values education and preparation for the world of work, self-employment and ongoing learning)*

# India

## DR. VIJAY P. GOEL

DEPUTY DIRECTOR GENERAL,  
DEPARTMENT OF HIGHER EDUCATION  
MINISTRY OF HUMAN RESOURCE DEVELOPMENT,  
GOVERNMENT OF INDIA



### CONSTITUTIONAL COMMITMENTS

- Education is in the concurrent list of the Constitution.
- Both Centre and states are responsible for policy formation and implementation.

### RIGHT TO EDUCATION BILL (2009)

- *Free education to children in 6-14 age group*
- Parliament has adopted 'The Right of Children to Free and Compulsory Education Bill, 2009,' which envisages
  - free and compulsory education to children in the 6-14 age group
  - getting education would be a fundamental right of the child
  - The law would ensure that the child got free, compulsory and quality education by qualified teachers.

### XI FIVE YEAR PLAN

#### MISSION

To provide access to relevant and good quality higher education in an equitable manner.

#### OBJECTIVES

EXPANSION, QUALITY AND INCLUSIVE EDUCATION

## PROGRESS IN ENROLMENT INDICATORS

		2001-02	2006-07	Difference
GER	Primary (I-V)	96.3	111.24	14.94 ↑
	U/Primary (VI-VIII)	60.2	73.63	13.43 ↑
	Elementary (I-VIII)	82.4	96.92	14.52 ↑
	Secondary (IX-X)	33.36	53.20	19.84 ↑
	Sr. Secondary (XI-XII)			
Dropout	Higher Education		12.3	↑
	Primary	39.0	25.43	13.57 ↓
	Elementary	54.6	46.03	8.57 ↓
	Secondary (I-X)	56.69	45.33	↓

Source: SES 2006-07

## CENTRAL HIGHER AND TECHNICAL EDUCATION INSTITUTES AT THE END OF X PLAN AND PROPOSED IN XI PLAN

S.No.	Kind of Institution	Numbers	
		Existing at the end of the Xth Plan	Additionally proposed to be established during XI th Plan
1.	Central Universities	19	30 (16 in uncovered states & 14 aiming at world-class Standards)
2.	IITs	7	8
3.	NITs	20	10
4.	IIITs	4	20
5.	IISERs	2	3
6.	IIMs	6	7
7.	SPAs	1	2

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## NUMBER OF AICTE APPROVED TECHNICAL INSTITUTIONS WITH INTAKE CAPACITY

PROGRAMME	Degree		Diploma	
	No.	Intake	No.	Intake
Engineering	1668	6,53,290	1414	3,54,466
Pharmacy	854	52,334	583	34,591
Hotel Management	81	5,272	92	4,890
Architecture	116	4,543	5	120
App. Arts & Crafts	9	650	8	1,010
Management	1149	1,21,867	-	-
MCA	1017	70,513	-	-
Total	4849	9,08,469	2102	3,95,077

Source: AICTE

GRAND TOTAL (Degree+Diploma)	No.	6996
	Intake	13,03,546

## TECHNICAL AND VOCATIONAL EDUCATION TRAINING (TVET) SYSTEM IN INDIA

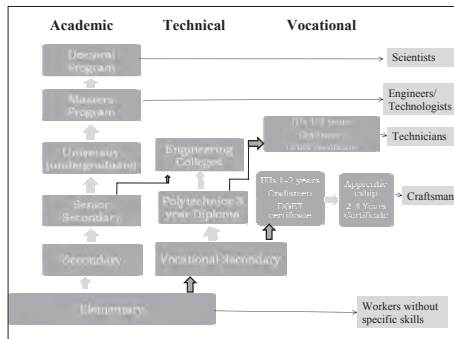
### Central Government

- National Skills Development Council
- Ministry of Human Resource Development
  - Department of School Education and Literacy
  - Department of Higher Education
- Ministry of Labour and Employment
- Other key Ministries -Agriculture, Health, etc.

### State Governments

### Private Sector

### NGOs



## National Policy on Education, 1986 (as modified in 1992) on Skill Development

- Healthy attitude towards work and life.
- Enhancing individual employability.
- Reducing mismatch between demand and supply.
- Alternative to higher education of skilled manpower.
- Distinct stream.
- Skill for entrepreneurship and self employment.
- Special focus on women, rural, tribal, deprived section.
- Programme for the disabled.
- Career improvement.
- Non-formal flexible programme for the neo-literates, dropouts .
- 10% of higher secondary students by 1995 and 25% by 2000.

## SCHEME OF VOCATIONALISATION OF SECONDARY EDUCATION

### Centrally Sponsored Schemes

- Launched in 1988
- Covered 10000 schools with an intake capacity of one million students

### OBJECTIVE

- To provide for diversification of educational opportunities so as
  - To enhance individual employability
  - To reduce the mismatch between demand & supply of skilled manpower
  - To provide an alternative for those pursuing higher education

## VOCATIONALISATION OF SECONDARY EDUCATION

### Financial Assistance to States/UTs

- To set up administrative structure
- Area vocational surveys
- Preparation of curriculum
- Text book
- Work book curriculum guides
- Training manual
- Teacher training programmes
- Strengthening technical support system for research and development
- Training and evaluation

- At present, about 150 courses are being offered in various States/UTs.
- Out of 150 courses only 94 courses recognized by the Board of Apprenticeship Training under the Apprentices Act 1961.
- Scheme to be revamped during XI plan

## REVAMPED SCHEME OF VOCATIONALISATION OF HIGHER SECONDARY EDUCATION

- Strengthening of existing Vocational Schools and establishing new vocational schools.
- Expansion of intake capacity during 11<sup>th</sup> Plan.
- Development of competency based modular Vocational courses of varying duration
- Revision of the existing system from supply based to demand based.
- Setting up of Central Board and State Boards of Vocational Education (CBVE) and (SBVE) for accreditation/affiliation, examination certification and equivalence.
- Provision for vertical and horizontal mobility.
- Provision of multiple-entry, multiple exit and flexibility in delivery.
- Provision of joint-responsibility of academic Institute and Industry/Employer for making a person employable.

## POLYTECHNICS IN INDIA

- 1400 Polytechnics
- Offer three year diploma courses
  - Civil, Electrical and Mechanical Engineering
  - Many started courses in Electronics, Computer Science, Medical Lab Technology
  - Also specialised courses : Leather Technology, Sugar Technology, Printing Technology
  - Garment Technology, Beauty Culture and Textile Design preferably in Women Polytechnics.

## MAIN PROBLEMS OF POLYTECHNIC EDUCATION IN INDIA

- Non - availability of courses in new and emerging areas.
- Inadequate infrastructure facilities and obsolete equipment.
- System unable to attract quality teachers
- Inadequate financial resources
- Inadequate or non-existence of state policies for training and retraining of faculty and staff
- Lack of flexibility and autonomy to the institutions
- Inadequate industry institute participation
- Lack of Research and Development in technician education
- Antiquated Curricula.

## UNIVERSITY GRANTS COMMISSION

- Scheme of Career Orientation to Education/Career Oriented Programme/Career Oriented Courses.
- The objective of the scheme is to ensure that the graduates who pass out after completing these courses, have knowledge, skills and aptitude for gainful employment in wage sector, in general and self employment, in particular.
- The courses run parallel to the conventional B.A., B.Com. and B.Sc. Degree.
- The successful students are awarded certificate/diploma/advanced diploma under this programme.

**• INDUSTRIAL TRAINING INSTITUTES (ITIS) AND INDUSTRIAL TRAINING CENTRES (ITCS).**

- The Directorate General of Employment and Training (DGE&T) initiated CTS in 1950 by establishing about 50 ITIs for imparting skills in various vocational trades.
- Vocational Training refers to certificate level crafts training and is open to students whose leave school after completing anywhere from grades VIII – XII.
- Programme administered under the Craftsman Training Scheme (CTS)
- Operated by ITIs and ITCS.
- Training is provided in 32 engineering and 22 non-engineering trades approved by the National Council for training in Vocational Trades to people aged 15-25 years.

**• INDUSTRIAL TRAINING INSTITUTES (ITIS) AND INDUSTRIAL TRAINING CENTRES (ITCS).**

- 7500 ITIs/ITCS with an overall capacity of 75000 over all places in the country.
- Vocational training is provided in small duration trades such as Carpenter, Electrician, Plumber, Auto-technician, Painters, Packages, Multipurpose Technicians, Masons, Dairy Assistants, etc.
- Duration of the training programme varies from 1-2 years or small duration of 2 – 3 months.
- Resource persons for the programme may be drawn from rural engineering departments of state governments, faculty of engineering colleges/polytechnics/ITIs and others. The trainees may also be provided one or two week's orientation program in relevant industries.
- Integrate the training programmes in collaboration and support through funding from departments such as Science & Technology/Industries/Rural Development/Labour as well as industries.

**NATIONAL INSTITUTE OF OPEN SCHOOLING (NIOS)**

- Imparting education through open and distance mode from Primary to Senior Secondary level.
- Mandate for offering vocational education and training programmes to general and prioritized groups (Scheduled Castes, Scheduled Tribes, women, rural people, neo-literates, disabled and disadvantaged groups of the society etc.) through a network of its study-cum-training centres known as Accredited Institutes (AIs).
- Network of 11 Regional Centres and about 2067 study centres .
- About 1063 accredited vocational institutes (AIs).
- Cumulative enrolment in VET during the last five years is 93000.

**JAN SHIKSHAN SANSTHAN (JSS)  
(literally meaning People's Education)**

- JSS was launched as a Adult Education Program of MHRD,
- Aimed at improving the vocational skills and quality of life of workers and their family members.
- Programme initially focuses on adults and young people living in urban and industrial areas and those who had migrated from the rural areas.
- Acted as a district level resource to organise vocational training and skill development programs.
- At present, 221 JSS are functioning in various States of the country.

**OTHER TRAINING FOR THE INFORMAL SECTOR**

- The Ministry of Rural Development administers schemes aimed at creating sustained employment opportunities to secure a certain minimum level of employment and income for the rural poor.
- They include
  - the Jawahar Rozgar Yojana (JRY),
  - Employment Assurance Scheme,
  - the Integrated Rural Development Programme (IRDP),
  - the Programme for Development of Women and Children in Rural Areas (DWCRA), and
  - the Training of Rural Youth for Self-employment (TRYSEM).

**OTHER TRAINING FOR THE INFORMAL SECTOR**

- The Department of Women and Child Development runs Support to Training and Employment Programs (STEP)
  - The scheme offers condensed courses of education and vocational training program for women.
- The Khadi and Village Industries Commission (KVIC) has 51 training centres, including 12 village industry training centers.
- Prime Minister's Rozgar Yojana provides wage employment and self-employment to educated unemployed youths aged between 18 and 35 years.



## OTHER TRAINING FOR THE INFORMAL SECTOR

- The Bharatiya Yuva Shakti Trust (BYST) aims to help unemployed or under-employed youths aged 18-35 years to set up or develop their own businesses.
- Entrepreneurship Development Centres/Institutes provide training in different fields based on the resource endowment of the area.
- The National Renewal Fund (NRF) provides assistance to cover the cost of retraining and redeployment of employees arising from modernisation, technology upgradation and industrial restructuring.
- The Ministry of Agriculture's Krishi Vigyan Kendra's (KVK) impart training to farmers, farm women, rural youth and grass roots level extension workers in broad based agricultural production systems.

## NEW INITIATIVES TO BE TAKEN IN TVET DURING XI PLAN

## NATIONAL POLICY ON SKILLS DEVELOPMENT

- Finalised in May 2008 by the Ministry of Labour and Manpower
- Skill development initiatives
  - Support employment generation
  - Economic growth and social development process
- An integral part of comprehensive economic, labour and social policies and programmes
- Better coordination between various stakeholders – Ministries, States, Industry etc.
- Promote excellence and will meet the requirements of knowledge economy

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## NATIONAL POLICY ON SKILLS DEVELOPMENT

### Mission

National Skill Development Initiative will empower all individuals through improved skills, knowledge, nationally and internationally recognised qualifications to gain access to decent employment and ensure India's competitiveness in the global market.

### Aims

- To support achieving rapid and inclusive growth through
  - Enhancing individuals' employability (wage/ self employment) and ability to adapt to changing technologies and labour market demands.
  - Improving productivity and living standards of the people.
  - Strengthening competitiveness of the country.
  - Attracting investment in skill development.

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## NATIONAL POLICY ON SKILLS DEVELOPMENT

### Objectives

- Create opportunities for all to acquire skills throughout life, and especially for youth, women and disadvantaged groups.
- Promote commitment by all stakeholders to own skill development initiatives.
- Develop a high-quality skilled workforce/ entrepreneur relevant to current and emerging employment market needs.
- Enable the establishment of flexible delivery mechanisms that respond to the characteristics of a wide range of needs of stakeholders.
- Enable effective coordination between different ministries, the centre and the states and public and private providers.

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## NATIONAL POLICY ON SKILLS DEVELOPMENT

### Scope

- Institution-based skill development including ITIs/ITCs/Vocational schools/technical schools/polytechnics/ professional colleges etc.
- Learning initiatives of sectoral skill development organised by different ministries/departments.
- Formal and informal apprenticeships and other types of training enterprises.
- Training for self employment/entrepreneurial development.
- Adult learning, retraining of retired or retiring employees and lifelong learning
- Non-formal training including training by civic society organisations.
- E-learning, web-based learning and distance learning.

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## MAJOR CHALLENGES AND ISSUES IN TVET

### SOME REASONS FOR LOW PERFORMANCE

- Low priority for Vocational Education
- Shortage of trained teachers and trainers
- Inadequate linkages with Industries
- Absence of a National Competency Testing and Accreditation system
- Lack of infrastructure – building, modern equipment and raw materials.
- Inadequate or non-coverage of trades in service sector which has higher employment potential.
- Lack of equivalence for employment purposes
- Lack of vertical mobility.
- Inflexible curriculum.
- Lack of convergence between various agencies.
- Lack of overall social recognition.

### ISSUES ON VOCATIONAL EDUCATION

- Employability and Demand and Supply matching
- Informal Sector's requirement
- Multiple skills
- Flexibility of Course design, modularity
- Out of School Children
- Open and distance learning
- Use of Technology
- Linkage to local demand
- Career guidance
- Teacher's Training and Retention

### ISSUES ON VOCATIONAL EDUCATION

- National Vocational qualification system Skill requirement in – Curriculum, Assessment and Certification
- Emerging Sectors
- Involvement of Industry and Civil Society
- Horizontal and Vertical Mobility
- Equity (Girls, rural population, SC, ST, Minority and Disabled)
- Financing
- State Government's Role

- The challenges are immense and in order to achieve the goals there has to be **substantial expansion of quality technical/ vocational education and training for raising employability and productivity.**
- The skills provided have to be attuned to:
  - New business requirements;
  - Improving quality of education and trainings at all levels; and
  - Make technical/ vocational education system more flexible and inclusive for sustainable growth.

### APPROPRIATE STRATEGIES TO BE ADOPTED

- Expand and upgrade vocational education and training
- Expand and upgrade higher and technical education
- Promote research in educational institutions; and
- Redesign the educational pattern at the school level to facilitate skill development.
- Government have to redefine its role in:
  - reforming & strengthening vocational education and training
  - clear policy for facilitating capacity expansion through private sector participation.
  - make investment in vocational training institutes
  - promote industry and academia interaction to narrow the existing gap between the demand and supply of the skilled manpower

# Malaysia

## ANI ASMAH TAJUL ARIFFIN

PRINCIPAL ASSISTANT DIRECTOR  
POLICY DEVELOPMENT DIVISION  
DEPT. OF POLYTECHNIC & COMMUNITY COLLEGE EDUCATION  
MINISTRY OF HIGHER EDUCATION  
MALAYSIA

### WORK-BASED LEARNING DIPLOMA PROGRAMMES at Community Colleges in Malaysia

ANI ASMAH TAJUL ARIFFIN  
DEPT. OF POLYTECHNIC & COMMUNITY COLLEGE EDUCATION  
MINISTRY OF HIGHER EDUCATION  
MALAYSIA

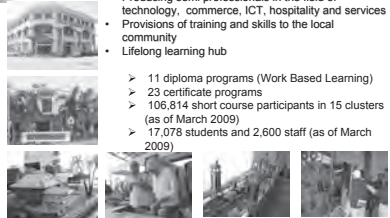
AUGUST 17, 2009

### TVET IN THE COMMUNITY COLLEGE

#### Community Colleges (39 with 21 branches)

- Producing semi professionals in the field of technology, commerce, ICT, hospitality and services
- Provisions of training and skills to the local community
- Lifelong learning hub

- > 11 diploma programs (Work Based Learning)
- > 23 certificate programs
- > 106,814 short course participants in 15 clusters (as of March 2009)
- > 17,078 students and 2,600 staff (as of March 2009)



### Rebranding of Community Colleges

Encompasses the following sub-programmes :

- Corporate Collaboration with GLCs and other relevant organisations
- Conducting industry-driven diploma level programmes
- Introducing student allowance
- Developing new CCs and establishing branches of CCs
- Establishing Promotion and Marketing Unit

"The capacity and effectiveness of training will be enhanced by increasing the number of public training institutions, adding **turner courses** in technical fields, strengthening the certification/accreditation systems and the quality of technical education, as well as encouraging private sector participation in the field of technical education and training. ....**The technical curriculum will be enhanced with the cooperation and input of industry..**"

SPEECH BY THE FORMER PRIME MINISTER  
YAB DATO' SERI ABDULLAH AHMAD BADAWI  
AT THE TABLING OF THE MOTION ON  
THE NINTH MALAYSIA PLAN, 2006-2010  
DEWAN RAKYAT, 31 MARCH 2006

## Concept & Approaches of WBL

## Definition of WBL

- Instructional programmes that deliberately use the workplace as a site for student learning.
- WBL programmes have formal instructional and learning plans that directly relate students' WBL activities to their learning outcomes towards career goals.

Definition  
...continues

- WBL programmes are formal, structured and strategically organised by college lecturers and industry trainers to link learning in the workplace to students' college-based learning experiences.
- WBL experiences are college-credit generating.

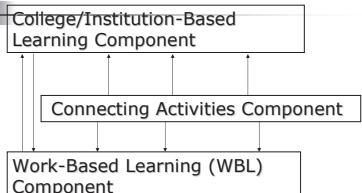
## Industry Driven Diploma

- Collaboratively develop, review and deliver diploma level programmes
- "Work-Based Learning (WBL)" approach will be co-developed with related industries in order to ensure improved education and training that meet the needs of the industries
- Increase Employability of Graduates

## WBL MODELS should provide such elements as:

- Coordinated classroom and workplace learning
- Integration of occupational-technical and academic curriculum
- Periodic evaluation of student progress (assessment system)

Model



### College/Institutional component involves:

- Underpinning Theoretical and Practical Knowledge and Skills
- Generic of Soft-Skills
- Other Academic Contents

### WBL component involves:

- Teaching and Learning in general workplace competencies as well as in all aspects of the related industries
- Work Experiences
- Workplace Mentoring

### Connecting Activities involves:

- Ensuring students are well-matched with industries' WBL
- Ensuring a systematic approach for college-to-work linkages
- Can be carried out by college, industry and others participating in the WBL experiences

### Examples of Connecting Activities:

- Support Services such as Career Counseling; Staff Development; Technical Assistance and Job Placement
- Follow-up Evaluation of Graduates and Activities to determine – intended outcomes have been attained and positive workplace learning experiences are achieved

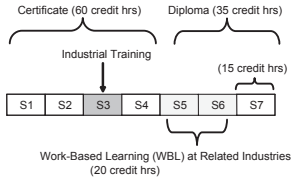
### Community College WBL Programme

- Jointly developed curriculum to ensure job matching
- Creation of Engineering Assistants' Profile
- Creation of Technicians' Profile
- Identifying related academic content
- Identifying related core skills

continue...

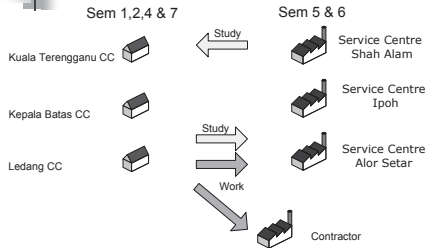
- Mechanism to accommodate students at the industries
- Comply with Malaysian Qualification Framework (MQF) and the Public Services Department (PSD) requirements
- Comply with Industry Standards

### Community College WBL Diploma Programme



### Community College WBL Diploma Programme

Eg. Automotive Technology



### PROGRAMMES OFFERED

- 2007 – Automotive Technology, Electrical Technology, Computer Technology, Hotel & Catering, Fashion & Apparel
- 2008 – Facilities Maintenance & Management, Architectural Technology, Advertising Technology, Food Processing Technology, Business Accounting, Tourism & Adventure

### ASSESSMENT STRATEGY:

- Systematic, Ongoing and Integrated into the process of teaching and learning
- Based on careful consideration of obtained information/evidences
- Activities should not only examine simple recall of information/knowledge but should also determine the extent to which students have made sense of information/knowledge - Authenticity

### ASSESSMENT STRATEGY

Method	Assessment Techniques	
	Used in Community College	Used in WBL
<b>I. Written Assessment</b>		
Theory	X	X
Multiple Choice	X	X
Case Problems	X	X
Short Answers	X	X
Portfolio	X	X
Technical Report	X	X

continue...

Method	Assessment Techniques	
	Used in Community College	Used in WBL
<b>II. Practical Problem Solving and Performance Assessment</b>		
Presentation Skills	X	X
Management-Decision Making	X	X
Cooperative Learning	X	X
Role Playing	X	X
Computer Applications	X	X

continue..

Method	Assessment Techniques	
	Used in Community College	Used in WBL
<b>II. Practical Problem Solving and Performance Assessment</b>		
Teacher Observation/Evaluation	X	X
Employer Observation/Evaluation	X	X
Student and Peer Evaluation	X	X
Work Experience	X	X
Project Performance Evaluation	X	X

continue..

Method	Assessment Techniques	
	Used in Community College	Used in WBL
<b>II. Practical Problem Solving and Performance Assessment</b>		
Competency-based Evaluation	X	X
Demonstrations	X	X
Interviews	X	X
Self Assessment	X	X
Peer Assessment	X	X
Conferences	X	X
Self-Improvement Plan	X	X
Time Management Record	X	X

## PORTFOLIO

- Capture the richness, depth and breadth of student's learning
- Within the context:
  - the module
  - where learning takes place, classroom, and workplace

## Possible Elements of a Portfolio:

- Resume (documentation of technical skill training, work experience)
- Documentation of Curriculum of Module
- Samples of Technical Proficiency or Project Completed

- Mentor Evaluation
- Certificate of Training and Awards
- Workplace Competency Certificate
- Videotapes or CD of Presentations on Work-Based Activities
- Copies of Self and Peer Evaluation on Teamwork and Projects

## ISSUES & CHALLENGES

- Clear objectives
- Measurable outcomes
- Top management involvement & commitment
- Open dialogue & strategic discussions
- Effective sharing of resources
- Clarity of roles & mutual responsibilities
- Sharing achievements & challenges





# Maldives


**MARIYAM NOORDEEN**  
 MINISTRY OF HUMAN RESOURCE,  
 YOUTH AND SPORTS

**COUNTRY PAPER FROM MALDIVES**  
 For the International Experts meeting on  
 "Reorienting TVET Policy towards Education for Sustainable  
 Development"


**INNOVATIVE PRACTICES IN TVET TOWARDS  
 EDUCATION FOR SUSTAINABLE  
 DEVELOPMENT**  
 Berlin, Germany  
 26<sup>th</sup> – 28<sup>th</sup> August 2009

By  
**Mariyam Noordeen**  
 Ministry of Human Resources, Youth and Sports

**COUNTRY IN BRIEF**



**Location:** South West of Sri Lanka, on the Equator




**Area:** 115,300 sq. km

**Capital:** Male' (2 sq. km)

**Climate:** 28 – 32 Degree Celsius

**Geography:** 1,190 coral islands, forming an archipelago of 26 major atolls. Stretches 820 kilometres north to south and 120 kilometres east to west. 200 are inhabited, 87 are exclusive resort islands.


**Population:** 304,869





**Population in Male':** 103,693

**Language:** Dhivehi **Currency:** Rufiyaa and Laari

**Literacy Rate:** 98.94%



**COUNTRY IN BRIEF**





**Economy:** Tourism is the main industry, contributing 33.3% of GDP, Fishery accounts for 10% of GDP

**GDP per Capita:** \$2,674


**Economically Active:** 128,836

**Youth Unemployment Rate:** 40% of women and 20% of men



2

**EDUCATION**



**Students enrolled (Grade 1 to 12):** 100,241

**HIGHER EDUCATION & TVET (GOV)**

**Maldives College of Higher Education (MCHE)** degree, Advanced Diploma, Diploma, and Certificates

**College of Islamic Studies (CIS)** offers certificate, diploma and advanced diploma programs

**Centre for Continuing Education (CCE)** provides technical, vocational and continuing education

**Maldives Institute of Vocational and Technical Education (MIVET) is based on CBT and PRIVATE EDUCATION INSTITUTIONS**

86 private institutions are registered with the government to date

It is estimated that 1000 to 1500 Maldivian students are pursuing diplomas, degrees and graduate qualifications abroad at any given time

3

## PRESENT STATUS ON TVET PROGRAMS



**TVET** Linking Training to Careers

**A TRAINING PROVIDER?**  
JOIN US IN BEING PART OF THE SOLUTION  
**BE A TVET TRAINING PROVIDER!!**  
CALL: 3347 411



Info@tvet.gov.mv

[www.tvet.gov.mv](http://www.tvet.gov.mv)

## WHAT IS TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET)

TVET prepares learners for employment and then helps them to continue their education part-time and full-time

TVET is based on individuals mastering skills and the concepts behind those skills, over a working lifetime to get a first job and then remain employable as technology and society change

## TVET VISION

A TVET system in the Maldives that is **demand driven, accessible, beneficiary financed** and **quality assured** that meets the needs of society for stability and economic growth, the needs of Enterprise for a skilled and reliable workforce, the need of young people for decent jobs and the needs of workers for **continuous mastery of new technology**

## TVET MISSION

To provide **Technical and Vocational Education and Training Services** to meet labor market demands, industrial / commercial stakeholders training requirements and **personal development needs**

## The New TVET System

Based On:

- A National Qualifications Framework to give Credit for All Training
- Education and Training for Jobs
- Demand-driven skills development for Jobs
- Training Partnerships with business and industry
- Linkages with regional and international TVET organizations

## THE TWIN TRACKS OF TVET

### Track 1 – Institution Based TVET

Primary target group is continuing students from the school system

Provide theory and underpinning academic knowledge courses for employer based students

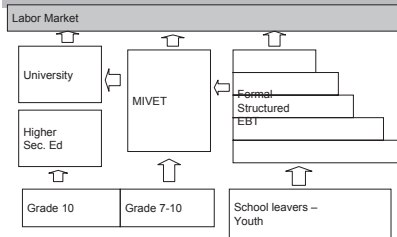
Professor set academic standard

### Track 2 – Employer Based TVET

Primary target groups are proposed, new and on-going employees trained to employer set competency standards

Work with employer set Competency Standards

## TWIN TRACKS OF TVET



## EMPLOYMENT SKILLS TRAINING PROJECT (ESTP)

The goal of the ESTP Project is to increase the number of Maldivian men and women with entry-level occupational qualifications and skills for employment or for self sustaining livelihood initiatives.

Increasing the participation rate of Maldivians in the labor market and the economy is important for the continued economic well-being of the country.

## EMPLOYMENT SECTOR COUNCILS (ESCs)



## EMPLOYMENT SECTOR COUNCILS (ESCs)

Reduce gap between demand for qualified workers and the supply of qualified Maldivian labor.

Enterprise ownership of TVET and increased role in training

## TRAINING FOR EMPLOYMENT

Skills Standards set by Employers

Skills training on-the-job by employers

Theory and Practical provided by the Institution

Funding training shared among employers, trainees and Government

## NATIONAL COMPETENCY STANDARDS (NCS)

NCS is a written specification of the Knowledge and skills and the application that knowledge and skills required to perform a particular occupation to industry specific standards

It is a communication tool for Employers, Employees, Educators

## WHY NATIONAL COMPETENCY STANDARDS (NCS)?

To maintain uniform occupational standards

To improve quality and relevance of skills development programs

To establish a unified national qualification system

## USES OF NATIONAL COMPETENCY STANDARDS (NCS)?

**It Provides Basis for:**

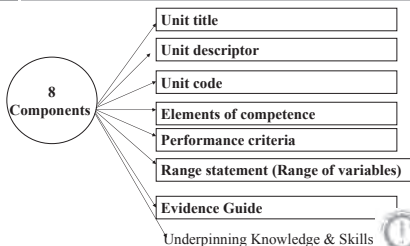
Curriculum Development

Competency Based Assessment

Awarding Qualifications

Accreditation (Approval) of Training Programs

## COMPONENTS OF A UNIT OF COMPETENCY



## TYPES OF TRAINING

INSTITUTION BASED	EMPLOYER BASED	FOUNDATION
<ul style="list-style-type: none"> <li>• MCHE</li> <li>• TVET College</li> <li>• Private Trainers</li> </ul>	<ul style="list-style-type: none"> <li>• STAR (SKILLS TRAINING AT RESORTS)</li> <li>• CITI (CONSTRUCTION INDUSTRY TRAINING INITIATIVE)</li> <li>• FENDAA</li> </ul>	<ul style="list-style-type: none"> <li>• GULHUN - Linking Youth to Skills Training</li> <li>• CPP (Career Path Program)</li> </ul>

## THE FIRST TVET INSTITUTION OF MALDIVES

- The MIVET under the Ministry of Education, is a new institution designed to meet the needs of:
- employers for a skilled workforce
- young people for jobs leading to careers
- communities to be part of long term economic development .
- Government for social stability.
- 

## INSTITUTION BASED TRAINING to link young people to great careers

### BENEFICIARIES

Out of school, unemployed youth. This group will receive priority. Individuals who complete school on finishing grade 10 are also a priority

Every effort will be made to achieve gender equity

## INSTITUTION BASED TRAINING

Provides entry level courses which are 3 to 6 months, full time. Graduates of these courses can continue learning and move up the career ladder

As skills are required, at least 50% of the training will be on-the-job (OJT), applied and hands on

## EMPLOYER BASED TRAINING (EBT)

EBT provides an opportunity for trainees to earn and learn

- Trainees will be placed for 3 – 6 months on the job training

1 month orientation to the industry

- On the job training and underpinning knowledge

At the end of the training the trainees will receive a National Certification

## BEST PRACTICES

**GULHUN (LINK) and Career Path Program (CPP)** are designed to reach the target population to achieve the minimum competencies for entry to Employer Based Training (EBT)

### SKILLS TRAINING AT RESORTS(STAR)

- One month orientation
- Up to 2 months investigating Resort based jobs at a Resort
- National Certification

Resort Office  
Boats  
Recreation  
Engineering  
Food Preparation and Food Services  
--and many more





### Construction Industry Training Initiative

- 1 month orientation to the industry
- 2 months on the job
- Mason, Shutterer
- Carpenter, Electrician
- Plumber, Bar Bender
- and many other skills

### FOUNDATION PROGRAMS CAREER PATH PROGRAM (CPP)

The school system currently allows students whose learning style is not slanted towards classroom based learning to reduce their course load from 8 subjects to 4 subjects in grades 8, 9 and 10. However the students must stay in school for the whole day. This leads to a discipline problem and most likely to loss of self esteem by the "skill oriented" students.

### FOUNDATION PROGRAMS CAREER PATH PROGRAM (CPP)

These "skill oriented" students will follow a reduced academic timetable in grades 9 and 10

With parental permission, these students will be involved in On-the-Job Learning (OJL) during their school time when they are free due to reduced course load

### FOUNDATION PROGRAMS CAREER PATH PROGRAM (CPP)

By the end of grade 10, CPP students could be assessed for competencies at the Certificate level 1 & 2 (or further) and have begun the career path up the NQF ladder

The grade 10 CPP graduates will then transfer without evident formality or difficulty to the TVET system and continue On the Job Training (OJT)

### FOUNDATION PROGRAMS CAREER PATH PROGRAM (CPP)

No new teachers would be required in the schools system, although it might make sense to have OJL Coordinator

Organizing the on the job opportunities would involve the island Councilors and Atoll Councilors and TVET

## CHALLENGES

Equipment and Facilities (cost)

Lack of Qualified Training Providers

Setting of skills standards for graduates by employers rather than institutional system

Focus on employment rather than both employment and self employment

Employer's commitment for recruitment

## CHALLENGES

Existence in the education system to recognize learning and skills mastery that takes place outside of institutions

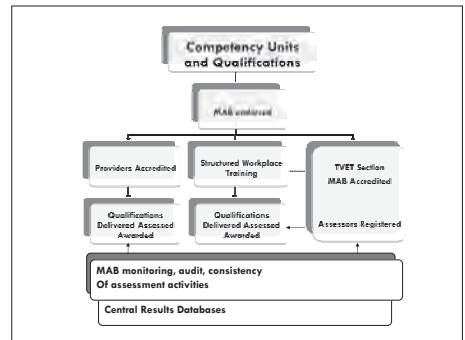
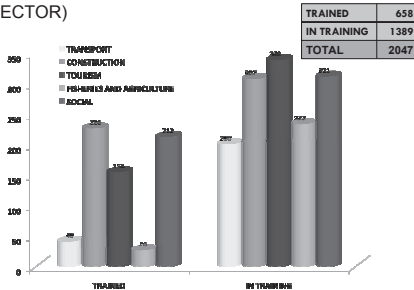
Interest by youth

Mindset of parents

Peer Pressure

Employer's commitment for recruitment

NUMBER OF TRAINEES (SECTOR)



**THANK  
YOU**





# Mongolia


**TUNGALAG CHIMID**

OFFICER

VOCATIONAL EDUCATION AND TRAINING METHODOLOGY CENTER

MINISTRY OF EDUCATION, CULTURE AND SCIENCE

MONGOLIA




**EDUCATION FOR SUSTAINABLE DEVELOPMENT IN MONGOLIA**

CH. TUNGALAG specialist,  
National Vocational Education,  
Training and Methodology Center

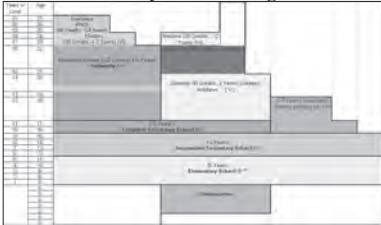
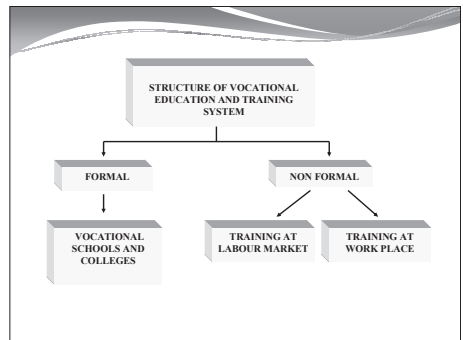
**Mongolia**  
overview

- Large territory
- Small population
- High poverty
- High literacy
- Ex socialist

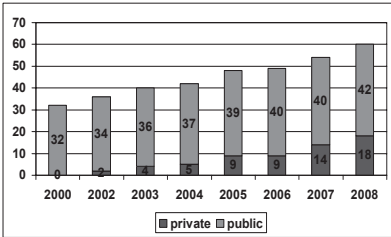
Land: 1564000 sq.km  
Population: 2.7 mln  
GDP: \$2.7 bln  
GDP per capita approx. 1000\$  
GDP Growth: 8.4%  
Poverty: approx. 30%  
Literacy: 97.8%  
Unemployment rate: 3.2%  
Birth rate 2.3%



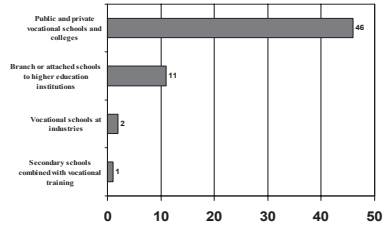
**Educational system of Mongolia**

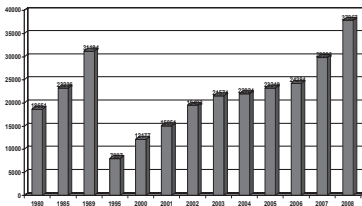
NUMBER OF VOCATIONAL SCHOOLS AND COLLEGES



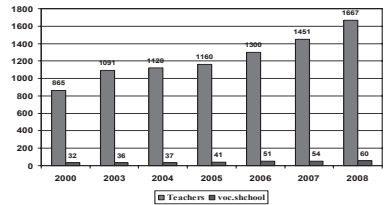
TYPES OF VOCATIONAL SCHOOLS AND COLLEGES



NUMBER OF STUDENTS



NUMBER OF TEACHERS



## ESD in Mongolia

Education for sustainable development introduced in the educational policies and planning of our country, specially in the curricula of the secondary schools, universities which are the main implementing organs of those policies except TVET

## BARRIES TO SUSAINABILITY IN TVET

- the lack of a shared national vision
- -the lack of adequate resources and trained personnel at all level in the TVET sector
- - the existing traditional TVET culture, pedagogy and training packages

## Conclusions and proposed actions

- **Develop a national approach and vision to implementing education for sustainability in TVET.**

The development of a coherent and integrated national vision, supported by appropriate legislation, should therefore be of the utmost priority.

- **Encourage a culture of sustainability in TVET**

Analyze TVET policy and culture to assess how to facilitate the transition towards a sustainability culture and how to identify any barriers. Training programs that may be necessary to promote this change of culture should be identified and implemented.

**[www.nmc.mn](http://www.nmc.mn)**

National Methodology Center Mongolia at Ministry of  
Education, Culture and Science

# Myanmar

**DR. (MS.) THEINGI**

DEPUTY DIRECTOR GENERAL

DEPARTMENT OF TECHNICAL AND VOCATIONAL EDUCATION

MINISTRY OF SCIENCE AND TECHNOLOGY,

UNION OF MYANMAR

## Reorienting TVET Policy towards Education for Sustainable Development in Myanmar



Dr. Theingi

Department of Technical and Vocational Education  
Ministry of Science and Technology  
The Union of Myanmar

## Outlines of Presentation



- Introduction
- The Best Practices on ESD in Myanmar
- Issues and Challenges in TVET on ESD in Myanmar
- Conclusion

## Introduction

- sustainable development of vocational education is highlighted
- has already opened 29 Government Technical High Schools (GTHS) and 10 Government Technical Institutes (GTI)
- To build a modern developed nation
- is reported the reorienting technical and vocational education training policy towards education for sustainable development in Myanmar

## Introduction



The objectives of opening technical vocational school are as follows:

- To expose students at the basic high school education level to a range of practical activities in the vocational field in order to make them familiar with, and stimulate their interest in, vocational subjects and so give them equal opportunity to choose their future careers in either the technical or general fields.
- To equip students who have completed Basic Education with those occupational skills that will be enable them to enter into gainful employment in industry and commerce
- To provide trained human resources in science, technology, and commerce, matching supply of skilled labor with demand
- To encourage the increased participation of rural and remote area students in education, training and employment of technical field

## The Best Practices on ESD in Myanmar

- Opening Government Technical High School (GTHS)
- Opening Technical Training School (TTS)
- Opening Government Technical Institute (GTI)

### Opening Government Technical High School (GTHS)

- To answer the needs of medium level qualified labors in industries
- high level qualified labors, qualified general workers and skilled workers are also educated
- GTHS are oriented toward technical and vocational education that provides training for skilled workers partly in classes and in workshops within the school structure.

### Opening Government Technical High School (GTHS)

#### Basic Structure for GTHS (Year I) Curriculum

Courses	Hours per Year	Periods Per Week
Specialized Courses	720 hours	18 Periods
Generalized Courses	680 hours	17 Periods

### Opening Government Technical High School (GTHS)

- Total teaching hour is 1400 hours per year
- 35% course work
- 65% practical work
- take 2 years course and 6 months on job training.

### Opening Government Technical High School (GTHS)

#### Courses of GTHS

Specialized Courses:	Generalized Courses :
<ul style="list-style-type: none"> <li>➤ Building Technology</li> <li>➤ Building Service Technology</li> <li>➤ Electrical Technology</li> <li>➤ Electronics Technology</li> <li>➤ Auto Mechanic Technology</li> <li>➤ Machining Technology</li> </ul>	<ul style="list-style-type: none"> <li>➤ Myanmar</li> <li>➤ English</li> <li>➤ Mathematics</li> <li>➤ Physics</li> <li>➤ Chemistry</li> </ul>

### **Issues and Challenges in TVET on ESD in Myanmar**

- Teacher training programs are normally conducted in vacation time of a year.
- GTHS are carried out by more than 500 teachers for nearly 10,000 students.

### **Opening GTI**

- Ten GTI opened in the year 2009
- 1620 students are studying around the country
- 4 Major Subjects are offered (Civil, EC, EP, Mech)

### **Conclusions**

- To highly support the regional development of the nation.
- To produce skilled workers, technicians and high leveling labors
- To march towards industrialized country from agricultural based country
- To achieve the crowning success in the field of the vocational education.



**THANK YOU!**



# Nepal

**Dr. Devi Prasad Ghimire**

Vice-Chairman

Council for Technical Education and  
Vocational Training

Sanothimi, Bhaktapur, Kathmandu, Nepal



Reorienting TVET Policy  
towards Education for  
Sustainable Development

CTEVT, Nepal

## Contents

- ◆ Introduction
- ◆ Rationale
- ◆ Present Status of TEVT Programs
- ◆ Best practices on ESD
- ◆ Issues and Challenges

## Introduction: A Country Brief

- ◆ **Population:** 26.3 million (UN, 2005)
- ◆ **Capital:** Kathmandu
- ◆ **Area:** 147,181 sq km (56,827 sq miles)
- ◆ **Major language:** Nepali
- ◆ **Major religions:** Hinduism, Buddhism
- ◆ **Life expectancy:** 61 years (men), 62 years (women) (UN)
- ◆ **Monetary unit:** 1 Nepalese rupee
- ◆ **Main exports:** Carpets, clothing, leather goods, jute goods, grain
- ◆ **GNI per capita:** US \$340 (World Bank, 2006)
- ◆ **Literacy rate:** .54.1%, (male-65.5%, female-42.8%)
- ◆ **International dialing code:** +977

## CTEVT

- ◆ **Established in 1989 A.D.**
- ◆ **Functions Under**
  - **CTEVT Act 1989 (First Amendment 1993)**
  - **CTEVT Rules and Regulations 1995 (First Amendment 2004)**
  - **Policy Formulation and Coordinating body mandated for producing basic level to higher level skillful human resource required to the labor market**

## Rationale (why reorientation?)

- ◆ Sustainable development is impossible without appropriate policies and programs on education and training, particularly TVET
- ◆ CTEVT since its establishment is playing vital role in the development of such policies.
- ◆ Various plans, policies and programs were developed
- ◆ However, these were not adequate in terms of expansion, inclusion, relevancy etc.
- ◆ Considering this fact Govt. approved new policy on Oct. 2, 2007

## Core elements of newly developed policy

- **EXPANSION** of training services and opportunities
- **INCLUSION** of hitherto disadvantaged groups and individuals
- **INTEGRATION** of various training modes and providers into one system
- **RELEVANCE** to link training content and outcome with economic demand, and
- Finally sustained **FUNDING** to ensure that the TEVT market can take off.

## How best Nepal is doing in terms of each element?

### Expansion

- ◆ CTEVT 19 schools/ institutes affiliated more than 200 private schools
- ◆ Demand for affiliation, particularly in nursing is tremendously increasing reversing traditional saying "send daughters to nurse and sons to commerce if you wish to spoil them"

### Inclusion

- ◆ Target group scholarships such as Madanjit, Netherlands NGO to encourage serve people of their native places after completion their training
- ◆ Provision of classified (1 full & 1 half in each school) and special scholarships (75) selected based on 10 criteria (60 %) and score of entrance (40 %)
- ◆ Allocation of budget for imparting TSLC level Trainings to 400 poor Muslim & DAGs boys and girls of 8 backward terai districts, besides initiating 2 nursing schools for terai girls

### Integration

- ◆ Revision of curricula incorporation of essential element through DACUM process advancing

### Relevancy

- ◆ Speeding up of the research on demand for TVET products in quantity and quality (skills)

### Sustainable funding

- ◆ Donors including Govt. are increasingly interested in expanding and improving TVET sector, Banepa (China), MM Biratnagar (India), KNIT (Korea), Nurbegian gift in pipe line.

## Present Status of TEVT Programs

### TEVT Providers in Nepal

- ◆ Council for Technical Education and Vocational Training
- ◆ Private Institutions
- ◆ Other Governmental Agencies
- ◆ Technical Institutions of the Universities
- ◆ Secondary School (Annex Schools)
- ◆ NGO/INGO

## Geographical Distribution of TEVT Institutions under CTEVT





## Various programs currently run by the CTEVT by areas and level

Area	Program	TSLC	Short term training
Engineering	<b>Diploma</b> Civil, Electrical, Electronics Mechanical, Surveying, Computer, Architecture,	<b>TSLC</b> Civil, Electrical, Electronics Mechanical, Refrigeration and Air Conditioning, Computer, Surveying, Automobile	Need based vocational trainings in all areas like • Motorcycle Maintenance, • Traditional Birth Attendance, • Food and Vegetable Preservation, • Hotel and Tourism Management, • Trekking Guide, • Cooking and Baking • Village Animal Health Worker, • Fitter, • Carpenter etc of varied duration.
Health	General Health, Nursing Pharmacy, Dental Science Medical Lab Technology Ophthalmic Science	CMA, ANM, Lab Assistant, AAW, Dental Hygienist, Anchi	
Agriculture	Agriculture Science, Food Technology	Veterinary JTA, Plant Science JTA	
Others	-	Social Mobilization, Office Management	

## Number of TEVT institutions under CTEVT (CTEVT, 2007)

SN	Description	Diploma	TSLC	Short-term vocational training
1	CTEVT managed	7	7	3
2	Affiliated	125	100	47
3	Annex	-	15+4 = 19	-
3	Total	71	126	44

## Best Practices for ESD

### No unique modality

- Trade Schools (CTEVT managed and Affiliated)
- Annex Schools (TEVT programs in Public schools)
- Partnership schools such as Tansen & Ilam by giving grants only
- Community Schools KPK Guthi, Madan Memorial performing well
- National Skills Testing Board (already developed 174 OSSs, skill testing increasing tremendously even of insurgents, skills of holders are stated in back of certificates, 4 levels of certificates, holders are employed soon with better salary nationally/internationally)
- OJT in relevant areas such as Community forests (most successful) that have given life to earlier saying "wealth of Nepal is the green forest"

### Skill for Employment Project

- Is ADB funded and aims at train 80000 youths of DAGS in 6 years based on their interest and needs
  - Model in partnership in policy making at center & implementation in local level
  - Long and complex procedures
- ΤΙΤΙ**
- **Ίμματα τραινινγ το νατιοναλ ανδ ιντερνατιοναλ ινστρουκτορσ ανδ μοναγερσ οφ διφφερεντ δυραπτιον ασ περ δεμανδσ**
  - **Βεχομιγγ σελφ συφφινεντ εσεν αφτερ αιτηδρακαλ Σαισσ συκπορτ**

## Issues and Challenges

- How to make TVET programs accessible equitable and adequate.
- How to match supply and demand of TVET products (relevancy)
- How to refocused programs according to the emerging needs at national and international labor markets.
- How improve quality of training programs
- How to provide post training supports
- How to monitor, coordinate ever increasing TTPs diversified nature located at various locations of
- How to replace traditional instructors by competent ones
- How to raise sustainable funds for 3 months and beyond
- How to develop NVQF for upgrading of qualification and skills of incumbent workers

**Thank you very much for patience**



## Reference:

- Ministry of Education (2009), *Nepal Education in Figures 2009 at a Glance*. MOE, Kathmandu.
- Nepal Living Standard Survey, 2004, Central Bureau of Statistics, Government of Nepal
- Nepal Wireless Networking Project, Case Study and Evaluation Report, Pun et al, 2006
- The Eighth Plan (1992-1997)* (National Planning Commission).
- *The Ninth Plan (1997-2000)* (National Planning Commission).
- "The National Science and Technology Policy, 1989", *Nepal Gazette*, August 1989.
- Three Year Interim Plan (2007/08-2009/10) (National Planning Commission)
- CTEVT (2009). *A Glimpse of Technical Education and Vocational Training in Nepal*. CTEVT: Bhaktapur.
- CTEVT (2005). *Provision of Technical Education and Vocational Training under CTEVT*. Technical Education and Vocational Training Development Journal, CTEVT: Bhaktapur.

# Pakistan

**YOUSAF KAMAL MALIK**

Chairman

Punjab Vocational Training Council,

Government of Punjab

Islamic Republic of Pakistan

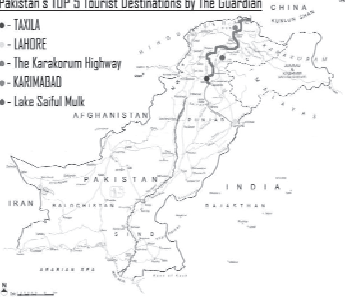


Pakistan Facts	
Capital	Islamabad
Official Languages	Urdu (National) English (Government)
Regional Languages	Punjabi, Pashto, Sindhi, Seraiki & Balochi
Area	803,940 km <sup>2</sup>
Population	180,808,000 (2009 estimate)
GDP	Total: \$167.640 billion Per capita: \$1,044 (2008 estimate)
Currency	Pakistani Rupee (Rs.)
Time Zone	PST (UTC + 5)

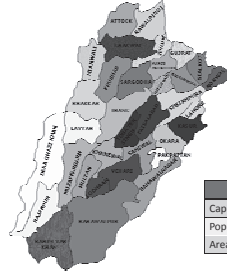
Pakistan Facts	
Literacy rate	49 %
Religion	95% Muslims, 5% others
Imports	Industrial equipment, chemicals, vehicles, steel, iron ore, petroleum, edible oil, pulses, tea.
Exports	Cotton, textile goods, rice, leather items, carpets, sports goods, handicrafts, fish and fish prep. and fruit
Industry	Textiles, Cement, Fertilizer, Steel, Sugar, Electric Goods, Shipbuilding
Major Crops	Cotton, Wheat, Rice and Sugarcane
Total cropped area	25.01 million hectares
International Seaports	Three (Karachi, Bin Qasim and Gwadar)

**Pakistan's TOP 5 Tourist Destinations by The Guardian**

- - TAXILA
- - LAHORE
- - The Karakoram Highway
- - KARIMABAD
- - Lake Saifal Mulik



**Punjab - Pakistan**



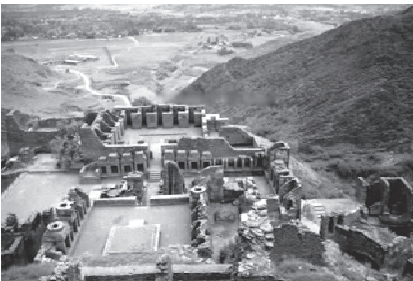
Capital	Lahore
Population	89 Million
Area	205,344 km <sup>2</sup>



**TAXILA IS A WORLD HERITAGE SITE (327 BC)**



**ARCHAEOLOGICAL RUINS AT MOENJODARO (2600 BC)**



**TAKHT BAHI , MARDAN (1ST CENTURY BCE)**



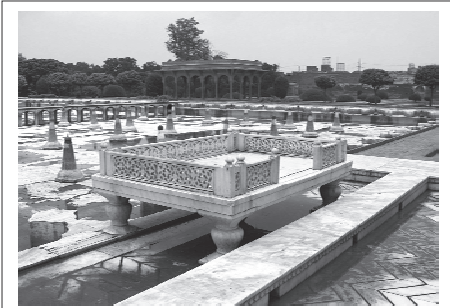
**LAHORE FORT (1566 AD)**



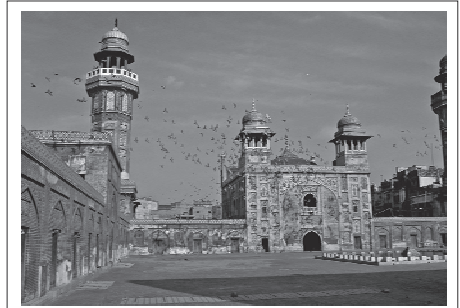
**LAHORE FORT (1566 AD)**



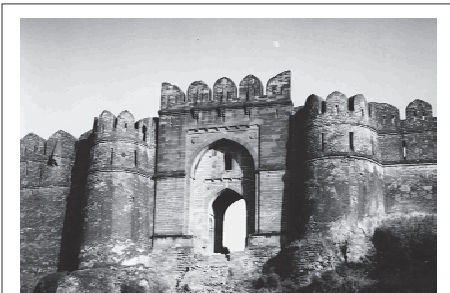
**SHALIMAR GARDENS, LAHORE (1641 A.D)**



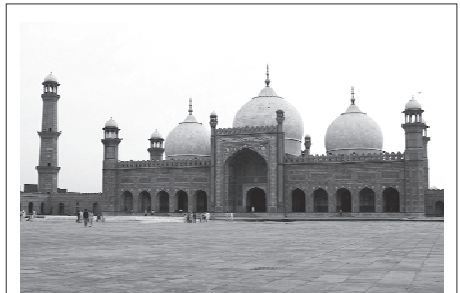
**SHALIMAR GARDENS, LAHORE (1641 A.D)**



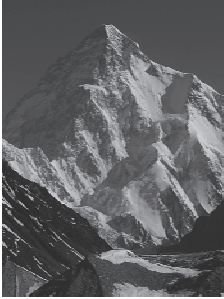
**WAZIR KHAN MOSQUE, LAHORE (1635 A.D.)**



**ROHTAS FORT, JHELUM (1545 AD)**



**BADSHAHI MOSQUE , LAHORE (1673)**



**K2 - KARAKORAM RANGE, PAKISTAN (HEIGHT 28, 251 FT)**



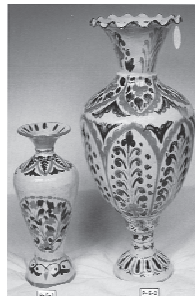
**LAKE SAIFUL MULUK - KAGHAN VALLEY**



**FAIRY MEADOW- KAGHAN VALLEY**



**BANJOSA LAKE - AZAD KASHMIR**



**PAKISTANI CULTURE**



**PAKISTANI CULTURE**



PAKISTANI CULTURE



PAKISTANI CULTURE

## Reorienting TEVT Policy towards Education For Sustainable Development

### Models of TEVT Program in relation to education for sustainable development

#### Best Practices

- PVTC – Punjab Vocational Training Council
- Daanish School System & Centers of Excellence
- Food Stamp Program and Skill Empowerment as an alternate tool
- National Technical Training Center Program / Skills for the 21<sup>st</sup> Century

**Punjab Vocational Training Council**  
Government of Punjab



[www.pvtc.gop.pk](http://www.pvtc.gop.pk)

# Audacity of Hope



**Punjab Vocational Training Council  
Government of Punjab**



Skill Training & Economic Empowerment



**"IT IS DIFFICULT  
TO SAY WHAT IS  
IMPOSSIBLE,  
FOR THE DREAM  
OF YESTERDAY IS  
THE HOPE OF  
TODAY AND THE  
REALITY OF  
TOMORROW."**

**AIM**



**To so empower the below  
poverty line young girls  
and boys through enabling  
vocational skills that they  
have access to gainful  
employment and are  
economically independent  
and able to support their  
families**

**VITAL STATISTICS**

PVTC - PARTNER FOR PROSPERITY

<b>Total No. of VTIs including:</b>	
• 13 Satellite VTIs	146
• 6 Female Campuses	
<b>Total Trades (Operative / Total)</b>	34 / 42
<b>Annual Pass out capacity</b>	26, 000
<b>Trainee Gender Ratio ( F : M )</b>	2 : 3
<b>Total Pass-outs since inception</b>	100, 359
<b>Employability of Pass-outs</b>	63 %
<b>No. of District Boards of Management (DBOMs)</b>	34
<b>No of Persons from Private Sector involved in DBOMs (Excluding ex-officio members)</b>	270
<b>Total Employees of all VTIs</b>	2, 376
<b>Total Instructional Staff</b>	1, 269
<b>Total Admin Staff</b>	1, 107
<b>Trainees / Total Staff Ratio</b>	9 : 1
<b>Trainees / Instructional Staff Ratio</b>	17:1

**OPERATIONAL TRADES**

Sr. #	Trade Code	Trade Name	Entry Level	Duration (Months)		
				VTI	OJT	Total
<b>AD - Auto &amp; Diesel</b>						
1	AD-01	Auto Mechanic	Middle	12	2	14
2	AD-02	Motorcycle Mechanic	Middle	12	2	14
3	AD-05	Tractor Mechanic	Middle	6	2	8
4	AD-06	Auto Electrician	Middle	12	2	14
<b>AL - Agriculture &amp; Live Stock</b>						
5	AL-01	Artificial Insemination	Matric	1		1
6	AL-03	Plant Protection	Matric	12	2	14
<b>CO - Computer Applications</b>						
7	CO-02	Computer Application & Database Management	Matric, preferable with science	12	2	14
8	CO-03	Computer Application for Business	Intermediate, preferable with science	12	2	14
9	CO-05	Auto CAD	Matric, with computer knowledge	6	2	8
10	CO-07	Microsoft Unlimited Potential (CO/OA)	Matric, preferable with science	6	2	8

(Trades) Continued..... 1/4

**OPERATIONAL TRADES**

Sr. #	Trade Code	Trade Name	Entry Level	Duration (Months)		
				VTI	OJT	Total
<b>EL - Electrical</b>						
11	EL-03	Industrial Electrician	Matric	12	2	14
12	EL-04	Refrigeration & Air Conditioning	Matric	12	2	14
13	EL-06	Motor Winding	Primary / Middle	6	2	8
14	EL-07	Repair & Maintenance of Electrical Appliances	Middle	12	2	14
<b>ET - Electronics</b>						
15	ET-02	Radio & Television Mechanic	Matric	12	2	14
16	ET-05	Computer Hardware Repair and Network Assistant	Matric, preferable with science	12	2	14
17	ET-06	Mobile Phone Repairing	Matric, preferable with science	6	2	8
<b>MC - Mechanical</b>						
18	MC-04	Welder / Fabricator	Primary	6	2	8
19	MC-05	Plumber	Middle	6	2	8
20	MC-07	Machinist	Middle / Matric	12	2	14

(Trades) Continued..... 2/4



## OPERATIONAL TRADES

Sr. #	Trade Code	Trade Name	Entry Level	Duration (Months)		
				VTI	OJT	Total
<b>HC - Health Care</b>						
21	HC-01	Clinical Assistant	Matric, preferable with science	12	2	14
		In the following six disciplines:				
		1. Basic Anatomy & Physiology				
		2. Nursing Pathology and Library Diagnosis				
		3. Pharmacology and Dispensing				
		4. Preventive Medicine				
5. Radiology						
<b>MS - Miscellaneous</b>						
22	MS-01	Screen Printing	Middle	6	2	8
23	MS-03	Beautician	Middle	6	2	8
24	MS-04	Import / Export Procedure & Documentation	Intermediate, preferable with science	6	2	8
25	MS-06	Food Cooking and Kitchen Organization	Matric	6	2	8

(Trades) Continued..... 3 / 4

## OPERATIONAL TRADES

Sr. #	Trade Code	Trade Name	Entry Level	Duration (Months)		
				VTI	OJT	Total
<b>SG - Stitching</b>						
26	SG-01	Domestic Tailoring	Primary	6	2	8
27	SG-03	Leather Garment Stitching	Middle	6	2	8
28	SG-04	Dress Making	Primary/ Middle	12	2	14
29	SG-05	Embroidery	Primary	12	2	14
30	SG-06	Industrial Garments Stitching	Middle	6	2	8
<b>TX - Textile</b>						
31	TX-01	Computer Textile Designing	Matric	12	2	14
32	TX-02	Computer Pattern Designing	Matric	6	2	8
33	TX-03	Textile Fitter	Middle	12	2	14
34	TX-05	Textile Weaving	Middle	12	2	14

(Trades) Continued..... 4 / 4

### Total Pass-outs in a Calendar Year \*

\*(Based on results compiled in Year 2008)

Six Months Courses  
( 6 + 2 Months )

One Year Courses  
( 12 + 2 Months )

47 %

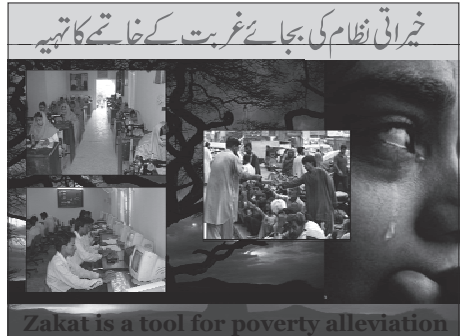
53 %

16 Courses\*

\*( Artificial Insemination is 1 Month Course )

18 Courses

**TOTAL TRADES : 34**



### TEVT for rehabilitation instead of relief Unique Model in Punjab

- Estimates suggest that from **\$250 billion to \$1 trillion** annually are contributed in Zakat by Muslims world wide for charitable causes
- Malaysia, Saudi Arabia, Kuwait, Lebanon, Qatar, UAE and Jordan are using Zakat mostly for medical, food, agriculture, scholarship etc.
- According to Pakistan Center for Philanthropy (PCP) / Dr. Shams Kassim Lakha, the money Pakistanis donate to different charities may be around **Rs.140 billion**. Besides "begging industry", billions of rupees of philanthropic contribution are unaccounted for. Charity can be much more effective if it is used to build schools and skill development centers.

Our problem is that we concentrate on relief efforts but not on rehabilitation. From departmental store owners to businessmen, no one want to pay taxes, but they still give Rs.140 billion as charity

This reflects lack of trust between the Government and people.

Source: The News, April 28, 2009 by Saad Hasan

### TEVT for rehabilitation instead of relief Unique Model in Punjab

- Zakat as a tool of skills and economic empowerment in PVTI is unique of its kind. It has pioneered, way to channel Muslim Charity (Zakat) funds to support an effective model of vocational technical training.
- According to EEA\*, USAID\*\* and IYF\*\*\* case study, carried out recently, PVTI has done remarkable job of improving access to training and employment for young men and woman who lacked the financial resources to receive vocational technical training.

\* EEA - Education & Employment Alliance

\*\* USAID - United States Agency International Development

\*\*\* IYF - International Youth Foundation



### Zakat for skills empowerment Unique Model in Punjab

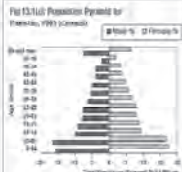
- Total Zakat funds received since inception (1998 – 2009) are Rs.2, 609 million (\$32.61 million)
- PVTC has an annual allocation (2008-2009) of Rs.678 million (\$8.47 million) of Zakat funds.
- We provide following to each trainee:
  - Free training
  - Free books / manuals
  - Free uniform
  - Lab Equipment
  - Consumables
  - Rs.500/ month stipend
  - Rs.5000 as tool grant money for self employment
  - Job placement assistance in the relevant industry.

### Capitalization Value of Vocational & Technical Training

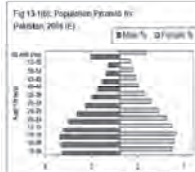
Particulars	(1998 – 2009*)	Rs. In Billion
Pass-out	100, 359	
Employed (63%)	63, 226	
Earnings @ 5000 / Month		13.12
Earnings @ 7000 / Month		18.38
Earnings @ 9000 / Month		23.6
Nos. of Families rescued from Poverty trap	63, 226	
Improvement in Quality of Life of (average family size = 6.5 persons)		410, 969 Population

\* Projected earnings for year 2009 included.

### Time Bomb



- What has been described as a 'time-bomb' (by UNESCO 2003) could be an imminent situation for Pakistan.

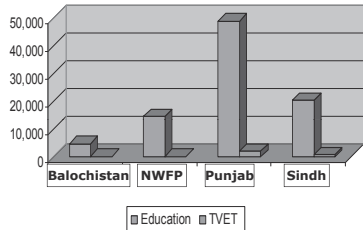


- The emerging demographic trends point towards burgeoning population between the ages of 10-25 who will enter the labour market to find the jobs

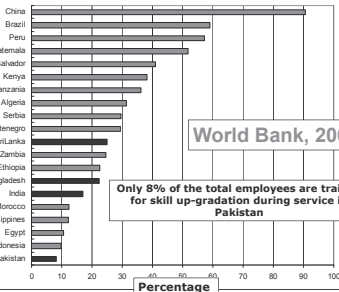
Economic Survey of Pakistan, 2007

### Pakistan Expenditure on Education and TEVT

(Rs. Million)  
(Budget for financial year 2007-2008)



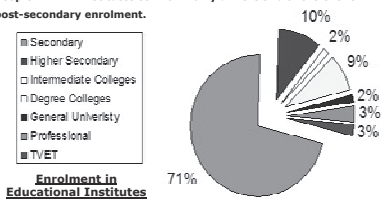
### International Comparison Formal in-service training by country (%)



World Bank, 2007  
Only 8% of the total employees are trained for skill up-gradation during service in Pakistan

### TEVT or General Education: What do student prefer?

- Skills development is a political and economic priority but it is not always a priority for parents and youth.
- Only 3% of students pursue TEVT – Technical and Vocational Education Training qualification
- People in TEVT institutes still form only a mere 9% of the entire post-secondary enrolment.



Enrolment in Educational Institutes

# THANK YOU WE ARE EXTREMELY GRATEFUL TO:



When the strong  
help the weak, all of  
us become stronger



# Philippines

**ELMER K. TALAVERA, CESO**

REGIONAL DIRECTOR

TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY

REGION XI, JUAN LUNA ST., DAVAO CITY

## Environmental Education in TVET



*Presented by:*

ELMER K. TALAVERA, CESO III  
Regional Director  
TESDA Davao Region, Philippines

*Presented during the*

INTERNATIONAL EXPERTS' MEETING IN REORIENTING TVET POLICY  
TOWARDS EDUCATION FOR SUSTAINABLE DEVELOPMENT

26-30 AUGUST 2009  
BERLIN, GERMANY

“ Nature is a borrowed  
Wealth that has to be  
returned to the  
future generation ”

## MANDATE

Section 2 of RA 7796 specifically declared the State policy to provide relevant, accessible, high quality and efficient technical education and skills development in support of the development of high quality Filipino middle-level manpower responsive to and in accordance with Philippine development goals and priorities.



## TESDA VISION

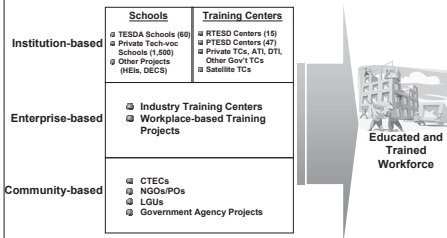
TESDA is a leading partner and catalyst in the development of the Filipino workforce with world-class competence and positive work values



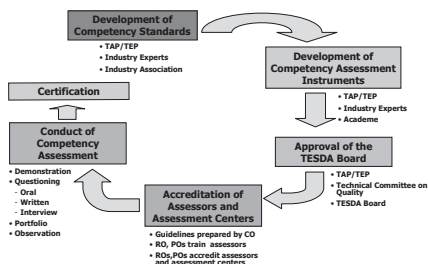
## TESDA MISSION

TESDA provides direction, policies, programs and standards towards quality technical education and skills development

## TVET DELIVERY NETWORK



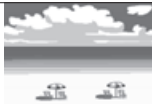
### The Competency Assessment and Certification System



## TESDA's commitment to Environmental Protection

- National CFC Phase-out Plan
- Motor Vehicle Emission Control

## TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY AND THE NATIONAL CFC PHASE OUT PLAN



### SKIN CANCER

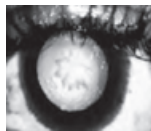


### HUNGER



## DO YOU WANT THESE ?

### CATARACT



### DIE YOUNG BY RAPID AGING



## YOU ARE PART OF THE ROOT CAUSES...

- AIR FRESHENER/AEROSOLS
  - R-12 (Hydrocarbon & R-134a)
- FIRE EXTINGUISHERS
  - Halons (R-123)
- FOAMS
  - R-11 (R-141b & Methylene Chloride)
- INHALERS (Metered Dose Inhalers)
  - R-12 (Hydrocarbons & R-134a)
- REFRIGERATORS
  - R-12 (Hydrocarbon & R-134A)
- AIR CONDITIONERS
  - R-22 (RS44 or Hydrocarbon & R-410a)
- CLEANING SOLVENTS
  - Carbon Tetra Chloride (CTC) (R-141b)



**IMPROPER USE OF THESE PRODUCTS WILL LEAD TO OZONE LAYER DEPLETION!!!**



☐ UV-B attacks our immune system making us prone to:

- ☐ skin cancer
  - ☐ eye cataracts
  - ☐ rapid aging
  - ☐ other serious diseases
- ☐ UV-B arrests the growth of plants and trees and phytoplankton
- ☐ UV-B degrades building materials



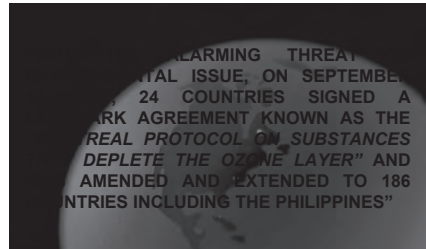
The Ozone Layer is a thin, fragile shield that envelops the entire earth which efficiently and effectively **filters and screens almost all of the harmful ultraviolet rays**

The depletion or the loss of the blocking effect of the ozone layer against ultraviolet rays caused by the emission of the ODS results in the **puncturing of the ozone layer** producing to what we call "OZONE HOLE"



**The ozone hole is almost thrice as big as the continental USA**

## THE MONTREAL PROTOCOL



### ACTION OF THE PHILIPPINE GOVERNMENT IN COMPLIANCE WITH THE MONTREAL PROTOCOL



- ESTABLISHMENT OF AN OZONE PROTECTION UNIT KNOWN AS THE "PHILIPPINE OZONE DESK" UNDER THE ENVIRONMENTAL MANAGEMENT BUREAU OF THE DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (DENR).

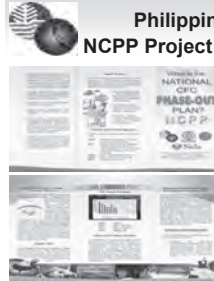
### ACTION OF THE PHILIPPINE GOVERNMENT IN COMPLIANCE WITH THE MONTREAL PROTOCOL

- IN NOVEMBER 2002, THE NATIONAL CFC PHASE OUT PLAN ( NCPP) WAS APPROVED WITH A TOTAL GRANT ASSISTANCE OF US \$ 10.53 M FROM THE MULTILATERAL FUND OF THE MONTREAL PROTOCOL ADMINISTERED BY THE WORLD BANK. IT AIMS TO PHASE OUT THE REMAINING CFCs IN THE PHILIPPINES BY 2010 THROUGH A GRADUAL PHASE OUT SCHEDULE.

**MULTIPARTITE AGREEMENT WAS SIGNED  
LAST MARCH 23, 2003**



**Philippine Ozone Desk  
NCCP Project Management Unit**



- September 2003-DENR Admin. Order No. 2003-43 established the NCCP PMU
- PMU is tasked to implement the Philippine National CFC Phase-Out Plan



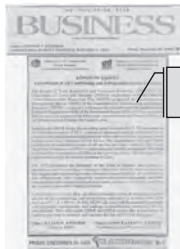
**Bureau of Customs (BOC)**



**Prohibits the entry of  
CFCs in the country**



**Bureau of Trade Regulation and  
Consumer Protection (BTRCP)**



**Accreditation of Air Conditioning  
Service Providers**

- National Certification (TESDA)
- Mandatory equipment
  - Recovery machine
  - Recovery/recycling machine
  - Vacuum pump, etc



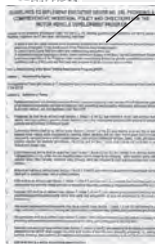
**Bureau of Product Standards (BPS)**

**PHILIPPINE NATIONAL  
STANDARD**

Develop standards pertaining to Refrigeration and Air Conditioning, Aerosols and Mobile Air Conditioning, Aerosols and Mobile Air Conditioners, Aerosols and Mobile Air Conditioners



**Bureau of Import Services (BIS)**



**Guidelines to Implement Executive Order  
No. 156, Providing a Comprehensive  
Industrial Policy and Directions for the  
Motor Vehicle Development Program**

- Ban the import of second had equipment and motor vehicles for 5 years from January 1, 2004 to December 31, 2008 (manufactured from 1995 and before that with ODS)



DOTC – Land Transportation Office (LTO)



Inspection of air conditioning systems in motor vehicles as a requirement to renew vehicle registration



DOH – Bureau of Food and Drugs (BFAD)

- The CFC phase-out strategy in Metered-Dose Inhaler (MDI); Ban the importation of CFC MDI by 2007



TECHNICAL EDUCATION & SKILLS DEVELOPMENT AUTHORITY (TESDA)

ASSESSMENT AND CERTIFICATION OF 3000 OR MORE RAC/MAC TECHNICIANS NATIONWIDE



“THE BIGGEST CONTRIBUTORS TO OZONE DEPLETION ARE THE TECHNICIANS”



VENTING OF REFRIGERANTS IS ONE OF THE PRIMARY CAUSES OF OZONE DEPLETION

CRITICAL COMPETENCIES IN THE COMPETENCY STANDARDS IDENTIFIED

Refrigerant Recovery

- Is the process of removing refrigerant from a system and properly storing and labeling in a sealed cylinder.

Refrigerant Recycling

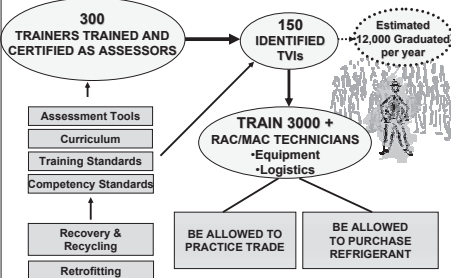
- Is the process of riding collected refrigerants of contaminants by oil separation through the use of filter driers to reduce moisture, acidity and particles to be reused



Retrofitting

- Is the process of converting CFC RAC Equipment to Non-CFC RAC Equipment

STRATEGY: TESDA COMMITMENT ON NCPP IMPLEMENTATION



TESDA'S ROLE IN THE IMPLEMENTATION OF THE NCPP

- 1 UPGRADE THE EXISTING TRAINING REGULATIONS
- 2 PREPARE TRAINING CURRICULUM
- 3 CONDUCT TRAINERS TRAINING
- 4 CONDUCT COMPETENCY ASSESSMENT OF RAC AND MAC TECHNICIANS FOR CERTIFICATION
- 5 PUBLIC AWARENESS AND OUTREACH PROGRAM
- 6 FORMULATION AND DEVELOPMENT OF CODE OF PRACTICE IN RAC AND MAC SECTOR





## ACCOMPLISHMENT REPORT ON TVET COMPONENT OF THE NATIONAL CFC PHASEOUT PLAN FOR THE YEAR 2003

### 1. COMPETENCY STANDARDS

- Developed Competency Standards (CS) for HVAC/R
- Developed Assessment Instruments for NCPP required competencies in cooperation with the SSCO of TESDA

### 2. CURRICULUM

- Developed competency-based curriculum on RAC and MAC
  - Recovery/Recycling of Refrigerants
  - Retrofitting of RAC and MAC System
- Developed learning materials on Recovery/Recycling of Refrigerants and Retrofitting of RAC and MAC system
- Developed Trainers Guide on the conduct of Trainer's and Technician Training



## ACCOMPLISHMENT...

### 3. TRAINERS' TRAINING

- Trained 358 RAC and MAC Trainers out of 300 targeted trainers within 2 years (August 2003-August 2005)
- Trained 25 industry Trainers from service shops, manufacturers and associations

### 4. ADVOCACY

- Participated in the exhibit of "Clean Air Now!" sponsored by SWISSCONTACT
- Conducted orientation programs on refrigerant identification for LTO, DTI and BOC inspectors
- 9TH OSH NATIONAL CONGRESS

### 5. CODE OF PRACTICE

- As Technical Working Group member, participated in the formulation and development of Code of Practice for RAC and MAC Technicians



## ACCOMPLISHMENT(2005-present)

### 1. CURRICULUM AND TRAINING MATERIALS

- Reproduction of learning materials in CD format and hard copy
- Pilot testing of curriculum and learning materials developed for technicians
- Inclusion of the 2 critical competencies in the promulgation and adaptation to National HVACR curriculum

### 2. TECHNICIAN TRAINING

- Trained 2800 technicians as of December 2006



### 3. ASSESSMENT AND CERTIFICATION

- Facilitate competency assessment of NCPP trained trainers in coordination with Assessment Board as National Assessors of technicians
- Facilitate accreditation of assessment centers in cooperation with Assessment Board
- Conduct competency assessment of technicians /graduates. Certification is a requirement by the Department of Trade and Industry in renewing the business permit to operate a RAC/MAC service shop



### 4. CODE OF PRACTICE

- Contribute in the development of Code of Practices
- Adoption of Code of Practices as learning material supplement of the HVACR sector
- Inclusion of Good Practices in all the core competencies of the HVACR curriculum

### Pledge of Allegiance to the Philippine flag

<p><i>Ako ay Pilipino Buong katapatang nanunumpa Sa watawat ng Pilipinas At sa bansang kanyang sinasagisag Na may dangal, katarungan at kalayaan Na ipinakilos ng sambayanang Maka-Diyos, Makakalikasan, Makatao at, Makabansa.</i></p>	<p>I am a Filipino I pledge my allegiance To the flag of the And to the country it represents With honor, justice and freedom That is put in motion by one nation For the love of God, Nature, People and Country.</p>
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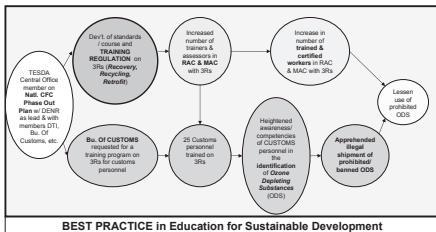
Sector/ Title of Qualifica- tion	Number of Workers Assessed and Certified														
	2006			2007			2008			May-09			Total		
	A	C	rate	A	C	rate	A	C	rate	A	C	rate	A	C	rate
<b>HWAC</b>															
1. RAC Window AC/Domestic Ref Servicing NC I	8	6	100.0 %	1,02	770	75.4%	1,59	1,230	81.3 %	14	101	71.6%	275	2,170	78.7%
2. RAC (PACU/CRE) Servicing NC II	5	7	68.2%	816	967	92.0%	1,29	1,163	89.2 %	25	249	96.1%	2,02	2,025	91.1%
3. Transport RAC Servicing NC I	1	0	0.0%	188	179	95.2%	129	128	99.2 %	15	107	100.0 %	434	423	97.5%
<b>TOTAL</b>	7	13	97.3%	1,82	1,618	89.1%	3,01	2,674	88.5 %	57	467	80.1%	51	4,618	85.3%

Competency Assessment and Certification Office (CACO), TESDA

National TVET Trainers and Assessors Qualification Program 2006 - June 2009					
QUALIFICATIONS	2006	2007	2008	2009	TOTAL
<b>ALL</b>	<b>780</b>	<b>3,193</b>	<b>4,511</b>	<b>4,819</b>	<b>13,303</b>
Automotive Servicing NC I	0	0	0	1	1
Automotive Servicing NC II	46	230	166	167	609
RAC Servicing NC I	0	1	0	0	1
RAC(PACU/CRE) Servicing NC II	46	23	37	27	133
Transport RAC Servicing NC II	5	3	5	3	16
<b>RAC/MAC</b>	<b>97</b>	<b>257</b>	<b>208</b>	<b>188</b>	<b>760</b>
	12.44%	8.05%	4.61%	4.11%	5.71%

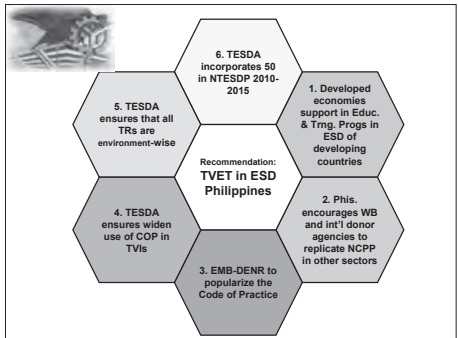
Source: Competency Assessment and Certification Office (CACO), TESDA

### ANNEX III : Good Practices in TVET-ESD



**BEST PRACTICE in Education for Sustainable Development**

Good Practice in Education for Sustainable Development. This diagram is a representation of an example of the contributions of TVET in Sustainable Development. The Government of the Philippines (GDP) committed to the **Morales Protocol** provided the creation of a **National Cleanse Phase-Out Plan (NCP)** with the Department of Environment and Natural Resources (DENR) at the helm pointed to eradicate CFC use in the country by 2010. This program, supported by World Bank, started 2002 and will directly affect the economic sectors in Automobile and HVAC Training. Verification and Re-Conditioning) by January 2010, the GDP will not allow any importation of CFC. The use of CFC will only be allowed until February 2012.



# Papua New Guinea

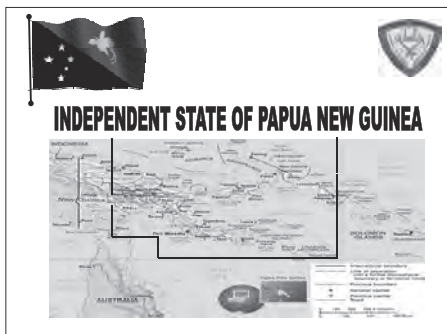
**JAYASUNDARA. J. BANDA**

ASSISTANT SECRETARY – TVET

TECHNICAL VOCATIONAL EDUCATION & TRAINING DIVISION

DEPARTMENT OF EDUCATION

PAPUA NEW GUINEA



## GREETINGS FROM PAPUA NEW GUINEA

WELCOME TO  
INTERNATIONAL EXPERT MEETING ON  
“ REORIENTING TVET POLICY TOWARDS  
EDUCATION FOR SUSTAINABLE  
DEVELOPMENT.”

26<sup>TH</sup> – 28<sup>TH</sup> AUGUST 2009  
BERLIN, GERMANY.

## Moving on...

**TITLE:**  
**Reorienting Policy towards  
Excellence in TVET Education  
for Sustainable Development  
of PNG.**



JAYASUNDARA .J.BANDA  
Assistant Secretary – TVET  
Depart of Education , Papua New Guinea

## ABSTRACT

Technical Vocational Education and Training (TVET) Division is part of the National Department of Education of Papua New Guinea. The prime objective is to provide coordinating services and logistics supports for seven (7) Technical and Business Colleges and 141 Vocational Centres situated in 21 Provinces.

Technical and Business Colleges are producing technician for Trades, Industries, Commerce, Public Service and Community and are offering Diploma, Certificate and extension courses for Full time and part time basis. Vocational Centres are conducting community based short courses.



### Content of Presentation

#### Part A

1. Title
2. Abstract

#### Part B

1. Introduction
2. Present States on TVET Programs.
3. Best Practices on ESD
4. Issues and Challenges.
5. Conclusion.
6. References
7. Appendixs.

### 1. 1 Introduction – PNG's Growth



PNG's growth depends on its human capital resources to harness its vast natural resources for the country's development.

NEP/MTDS emphasis on Basic Education & TVET.

## The Changing World

Globalization is prompting renewed interest in TVET.

### 1. 2 Introduction - Globalization



Globalization is a phenomenon that brings change of a global scale.

Globalization has raged everyone about TVET!

## The Changing World

- The world's people are becoming increasingly interconnected in all facets of their lives: cultural, economic, political, technological, environmental.
- Technology & work practices are rapidly changing.
- The world has become borderless.
- The emerging reality of globalization is convergence which is forced and facilitated by global information systems, faxes, emails, and fiber optics.
- Convergence is said to be the tendency for everything to become more like everything else.

## 1.3 Introduction – TVET Vision Statement

**A DEMAND-DRIVEN BROAD-BASED TECHNICAL VOCATIONAL EDUCATION AND TRAINING THAT MEETS NATIONAL COMPETENCY STANDARDS AND THE NEEDS OF THE COMMUNITY, GOVERNMENT, COMMERCE AND INDUSTRY.**



## 1.4 Introduction – TVET Mission Statement

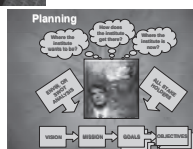
TO PROVIDE, FACILITATE AND PROMOTE INTEGRAL HUMAN DEVELOPMENT THROUGH THE DELIVERY OF RELEVANT AND NATIONALLY RECOGNISED TECHNICAL VOCATIONAL EDUCATION AND TRAINING PROGRAMS NECESSARY TO FOSTER, ENHANCE AND SUSTAIN THE SOCIO-ECONOMIC DEVELOPMENT OF PAPUA NEW GUINEA.



## 1.5 Introduction – PNG's National Vision



Lessons from past Opportunities. Future.



## 1.6 Introduction – Vision 2050

*As leaders in TVET, our role is critical in translating the dreams & goals in the NSP 2050.*

***“Papua New Guinea becomes a Happy, Wealthy, Educated and United Country by 2050”***

## 1.7 Introduction – Vision 2050

*Based on events over the past 34 years, & given the challenges ahead for the next 40 years, the Government's National Strategic Plan (NSP) Mission 2050 is that **“to mobilize all people to create wealth through smart innovative ideas, quality services & equitable distribution of wealth”.***

*The lessons since 1975 will require clear direction & foundation to design TVET institutions/systems to create the environment for economic engines.*

### **1.8 Introduction – What is TVET ?**

The Technical Vocational Education and Training (TVET) Division is one of the Section of the National Department of Education responsible to administer, monitor & provide logistic supports for :

1. 7 Technical and Business Colleges ( National Institutions) In 2008 Students Enrolment 3,950
- 2.141 Vocational Centres- Administration Provincial Function & Inspection, teacher training & partly curriculum National functions. In 2008 students enrolment 13,754

### **2. Present States on TVET programs. TVET Economic Contributor**

A vibrant, responsive, and efficient TVET System is an integral part of PNG's social and economic development and a necessity for the country's sustainable development

### **2. 2 Present States on TVET programs. TVET Reform**



**TVET contributes to Nation building through social & economic empowerment.**

**TVET is recognized internationally.**

### **2.3 – The context for TVET Reform**

**Concerned with developing a new TVET System to promote excellence in TVET Education in PNG targeted to global standard and needs.**

### **2.3 The context for TVET Reform**

**Paradigm shift for innovating TVET led to CBT&A which has seen improvement in education & training to addressing the complex demands of industry, thus reducing the gap between education and industry.**

### **2.4 The context for TVET Reform**

**Moving to implementing a National Qualifications Framework to ensure consistent standards and quality of graduates globally marketable.**

### 2.5 The context for TVET Reform

**TVET caters for varied needs of people.**

**TVET is integral part of human capital development.**

**TVET is preparing people for the world of work.**

### 2.6 The context for TVET Reform

**TVET to become first choice.**

**CBTA was adopted in 1999, a great deal of progress made, but, we are still faced with many challenges.**

**Implications for implementation.**

### 2.7 The National Training Framework

Within the TVET system, there are mechanisms, frameworks, policies & principles to ensure relevant, high quality TVET system.

The **National Training Framework** ensures a consistent environment for TVET institutions to operate an efficient & quality training system.

### 2.9 The National Training Framework

1. PNG National Qualifications Framework
2. National Training Packages
3. PNG National Training Quality Framework

### 2.10 The National Training Framework 1.

#### PNG National Qualifications Framework

Over a period of time, by the six national qualification titles will be:

- National Certificate 1 in (industry or descriptor of industry)
- National Certificate 2 in (industry or descriptor of industry)
- National Certificate 3 in (industry or descriptor of industry)
- National Certificate 4 in (industry or descriptor of industry)
- National Diploma in (industry or descriptor of industry)
- National Advanced Diploma in (industry or descriptor of industry)

### 2.11 Curriculum Challenges



Challenges for effective implementation of the TVET reform.

### 2.12 Curriculum Challenges

1. Full awareness on PNGNQF – Why/What?
2. Full awareness on PNGNTQF, RTP – Why?
3. Re-structured National arrangement for TVET System.
4. Full development of PNG Competency Standards

### 2.13 Curriculum Challenges

5. Continuing development & reviews of NTPs
6. Adequate & continuous funding support.
7. Resourcing of teaching/learning requirements.
8. Strengthening capacity to deliver & assess national qualifications.

### 2.13 Curriculum Challenges

9. Private-Public Partnerships

### 3. BEST PRACTICES :

#### 3.1 ENTRIPRINERSHIP TRAINING.

The prime objective of the System Wide Reform is derived from the MTDS and the National Education Plan to improve the Vocational education sector. The system must provide a vibrant, responsive, and efficient technical and vocational skills training to promote entriprionership training for self employment.

### 3. BEST PRACTICES :

3.2 One of the project in New Island is to promote use of coconut oil for diesel engine. This is working very well. Although the production cost is high, however, no transportation and storage cost. This is ideal for rural community use.

3.3 One of the foreign company selected to grow Cassava for 3500 H to produce energy & fuel.

### 3. BEST PRACTICES :

3.4 PNG is working partnership with Australia and New Zealand to develop policies on:

1. Climate Changes.
2. Green peace.
3. Gender Equality
4. HIV/AIDS.

HIV/AIDS is a part of TVET curriculum now.



### **3.2 Australia Pacific Technical College**

1. The Subsidiary arrangement under the treaty on Development co-operation between Government of Australia (GOA) and Government of Papua New Guinea (GOPNG) to establish a Australia Pacific Technical College (APTC) has been reached in 2007.
2. Port Moresby Technical College is one of the training centre that has accommodated this agreement. Other training Centres are situated at Ela Motors, Hasting Dearing & OTML.

### **3.3 Exxon Mobil Training Centre.**

1. Exxon Mobile Company is planning to establish a training centre at Port Moresby Technical College to train technical skills personnel needed for PNG-LND gas project.
2. The property developers and the Department of Education had preliminary discussions and Port Moresby Technical College and Department of Education are fully supported for establishment of training centre at Port Moresby Technical College.
3. Exxon Mobile training centre is planning to produce 7,500 skills personnel for next 5 years. Draft access agreement was produced by the property developers.

### **3.4 Community College Pilot Project.**

1. The Community College system is an alternative system of technical and Vocational Education an inclusive education for national development, aimed at the empowerment of the disadvantaged and the underprivileged section of the population.
2. It will promote job oriented , work related , skills-based and life coping education. It envisages access ,flexibility in curriculum and teaching methodology, cost effectiveness and equal opportunity to all Papua New Guineans.

### **3.4 Community College Pilot Project.**

3. The Community College system aims to achieve the liberation and empowerment of the exploited and deprived groups of society by releasing and developing the sources within, through middle skills development and facilitating self- actualization.
4. The National Government allocated 131m Kina & NEC endorsed 15 pilot Community College projects in the next five years. The First Marian berg Community College was launched on 11<sup>th</sup> September 2008 and allocate K3m for establishment cost. Civil works & Construction works are being carried out. The policy document has been developed by the TVET Division. The other Pilot projects have been identified for implementation. Two groups of teachers sent to India for training. Two pre-fabricated classrooms arrived in.

### **3.5 Converting Lae Technical College in to PNG polytechnic Institute.**

1. On the basis of the TVET Division NEB submission, the NEB meeting held on 28<sup>th</sup> February 2008 approved converting Lae Technical College in to " PNG Polytechnic Institute" .
2. The Governing Council sent five members group to New Zealand for facts finding mission as New Zealand has very good Polytechnic Institute structure and it is very famous in Pacific Region Countries.

### **3. 6 Education Training & Human Resource Development Program ( EU)**

1. This programme (ETHRDP) is European Union funded (EDF9) which is valued around Euro 39 Million. There are other components to the ETHRDP, however only component five (5) is focusing on Community Based Vocational Education. ( Euro Four (4) M.

#### 4. ISSUES AND CHALLENGES

- The Government, Donor Agencies and Non Government Organisations shall assist to resource TVET teaching facilities, tools, equipment and infrastructure in TVET institutions.
- Strengthen institutional leadership and management including Financial Management.

#### 4. ISSUES AND CHALLENGES

- Restructure TVET Division and TVET Institutions to meet increasing market demand.
- Commercialise and give more autonomy to TVET institutions.
- Provide more opportunities for teacher skills upgrading training.
- Establish more TVET institutions to meet industry and community demand.
- Increase linkages with higher education institutes and International TVET capacity building organisations.

#### 5. Conclusion

A staged approach is important for a making changes in TVET Education for better future. National Qualification System is way forward , which will undeniably be important for improving the TVET globally marketable “products”. It will require the Government’s firm commitment, better coordination, good leadership and support at all levels.



Tenkyu tru

Tanikiu  
Thank You

# Sri Lanka

**DR. H.L OBEYESEKERA**

DIRECTOR GENERAL

DEPARTMENT OF TECHNICAL EDUCATION AND TRAINING

SRI LANKA

## **Innovative Practices in TVET for Education for sustainable development in Sri Lanka to suit to the Regional Competitiveness**

Dr. H.L.Obeyesekera  
Director General  
Department of Technical  
Education & Training , Sri Lanka

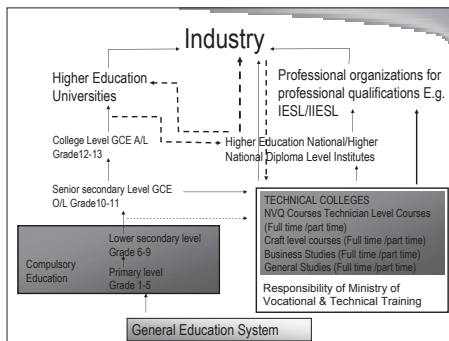
### Introduction

- In the end of the 20<sup>th</sup> century the need for a vocational, technical and educational knowledge and skills for the development of the world's economy was clearly manifested in the improvement of diversity in industrial and Service fields.
- As a result, it was felt that we needed not only those workforce trained in technical and Vocational skills but also those high competent skilled workforce like technicians and technologists in specific areas in industries

- From the beginning of the 21st century, the progress made in industrialization was due to the high capacity of the trained workforce. Therefore the economic development in the world seems to have depended entirely on the knowledge based skill development.
- In the last few decades, most of the regional countries paid much attention to the development of human resources. But it must be stated that greater attention was given to development of Vocational and Technical skills. As a result in many of the countries, the required trained skill labourers in the field of construction could not be found and thus the development came to a Stand - Skill.

- A clearly specified system can not be found in the field of vocational and technical education.
- It is necessary to organize the Technical and vocational education and training as an acceptable system and to introduce the required levels of skilled workforce.
- Also it is necessary to introduce skill Standards applicable to different vocational areas relevant to different levels of skilled workforce.

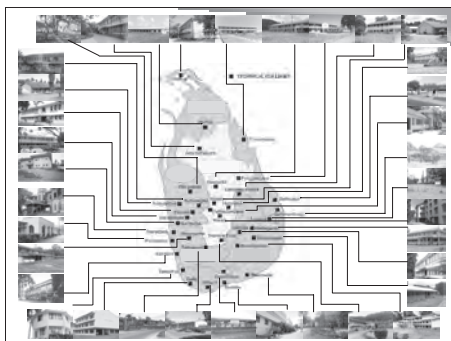
## Present Situation in TEVT Sector in Sri Lanka



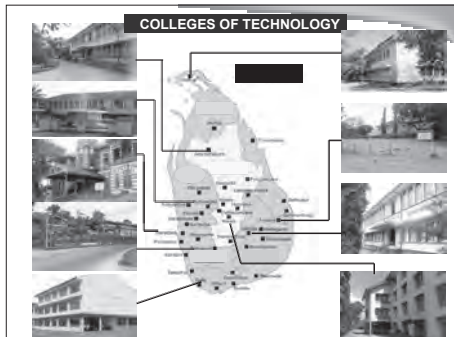
**VISION**  
To be the most trusted leader in providing Technical Education and Vocational competencies to the global market.

### MISSION

We will produce competent and productive manpower for better livelihood through quality and relevant occupational training to meet the challenges of changing global socio economic and technological needs.



### COLLEGES OF TECHNOLOGY



### Key Functions of DTET

- Impart employable skills
- Planning, Monitoring and Evaluating of Activities carried out in 38 Technical Colleges
- Recruitment and development of human resources
- Training needs analysis, development of curricula (Non-NVQ Courses) and instructional materials
- General administration of the Technical Education System
- Provision of finances and other resources for operation and maintenance
- Linking-up with foreign institutions
- Organizing of International Symposiums, Workshops, Seminars & exchange programs in TEVT sector

## Diversified Activities of the DTET

- Production and Services Units
- Career Guidance & Counseling
- Entrepreneurship Development
- Environmental Education
- Job Placement
- Industrial Liaison Committees / Technical Committees
- Curriculum/ Instructional Materials Development
- Academic Audit/ Institutional Audit
- College Based Planning & Development
- Research and Tracer Studies

## Sustainability Development in TVET Sector

### Factors that affect the Development in Developing countries

- ☞ Unutilized human resources
- ☞ Untrained human resources
- ☞ Mismatch between economic development policies and the ways of developing human resources.

- ☞ Less attention on trained skill labourers
- ☞ Lack of TVET concrete policy for HRD
- ☞ Lack of industrial linkages with HRD in TVET sector
- ☞ Lack of qualified trainers for HRD in TVET
- ☞ Technical - Vocational skills are underestimated in society
- ☞ Lack of inter educational level linkages (between secondary and technical/ vocational training)

## Solutions for maintaining sustainability

- ✓ Identify two pathways of TVET development.
  - ◆ Studies/ training must focus on skill training directly.
  - ◆ Studies/ training must focus on skill training with Entrepreneur development.
- ✓ Promote industrial linkage with TVET sector
- ✓ Open direct avenues to school leavers from secondary education system to Vocational/ Technical Training system.
- ✓ Identify National Vocational/ Technical Education system from lowest level craftsman training to top level technologist training

- ✓ Introduce vertical and horizontal linkages between craftsman and technician levels under National Vocational qualification framework (upward mobility of TVET sector) - NVQ system
- ✓ Introduce continuous upgrading system in TVET programme through curriculum development, training and researches in TVET sector.
- ✓ Continue upgrading standards of HRD.
- ✓ Identify local/ National/ regional/ global needs of TVET sector.
- ✓ Maintain tight relationship with international organization in TVET sector at Regional/ International levels.

- ✓ Produce well qualified trained academic and training staff for TVET sector.
- ✓ Implement industrial researches through TVET sector introducing, promoting innovations.
- ✓ Provide relevant physical resources with high quality for training according to the implementing curricula.
- ✓ Fulfill the infrastructure development according to the industrial needs.
- ✓ Have a policy that vocational training at institutional level should be maintained along with the industrial training using implant training dual training

- ✓ Collect labour market information continuously and develop a Labour market information system, linking with the job net locally nationally and some time regionally together with Career Guidance job placement programmes and feed back/ monitoring system.
- ✓ Provide facilities to have public private partnership training programmes and training centres which can be used as production based units for self learning in Entrepreneur skill training and make income generation for maintenance.

## The most important issues

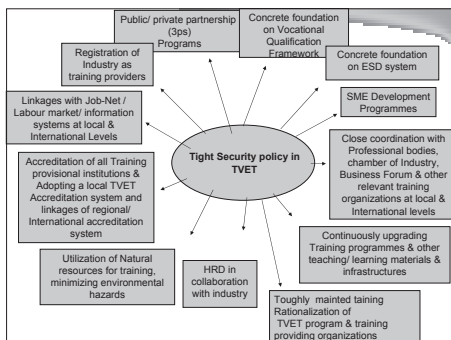
- Global economic trend.
- Envisaging Industrial trend at regional/ International levels.
- Continuing to upgrade curriculum development and Technical Education Researches
- Utilizing natural resources in minimizing environmental hazards.
- Enhancing the knowledge, skills of trainers continuously.
- Upgrading physical resources for training up to regional/ International standards

- Having proper linkage continuously with local industries and foreign training institutions
- Creating links with the industry in financing the training programmes
- Establishing International training and convention centres in TVET sector
- Conducting national/ regional/ international seminars, workshops, conferences, and symposium and exhibitions in TVET.

## Strategies

- Development of a TVET policy that fits the industries at least with their regional standards.
- Changing the management operation in TVET sector at every management levels
- Having direct involvement in industries in TVET sector and making an industrial linkage policy with TVET sector.
- Introducing financing systems for students trained. (Bursaries, Training Levies, Voucher scheme, Student loan scheme, Employer financing system)

- Introducing Tight security policy for TVET at local level (However this tight security policy system should be flexible enough to face the industrial changes.) and Developing at Regional level.
- Promoting SME policy through other Government, non Government, Private organizations and sustainable financing or credit system for development of entrepreneurs capacity building in SME.
- Identification of National or Regional certification system in NVQ/ RVQ to promote skill standards of various vocations at National or Regional demands of the industry or Service sector.
- Reorganizing and stabilizing the TVET policy frame work
- Maintaining a hard policy on rationalization of TVET Programs in Training main training providing Institutions / Organizations.



## Conclusion

- Have a tight security policy system for TVET to survive the main key entries to the TVET sector
- Establish a national TVET policy introducing upward mobility of TVET programmes at different skill levels and introduce a system for unified certification.
- Establish two main training paths ways as the entrepreneur skill development system and the skill training system while introducing skill standards at different skill training levels.
- Maintain a system (may be at a minimum level) in Institutional Rationalization and Network covering all TVET sector, industry and Labour market information system at local and national level and sometimes at regional level.

- Establish a National accreditation system and maintain it in all public and private trainings, providing institutions or organizations accordingly and establishing linkages with regional/ International Accreditation systems.
- Provide facilities such as physical resources and infrastructure facilities frequently to upgrade all training programmes in order to suit them to the global economical development and the vast development in the modern industrial technology. Attention must be paid to incorporate environmental concepts into all TVET curricula.
- Establish a National/ Regional HRD system that fits the industrial need at local and global level, in the TVET sector.
- Change the Management process in TVET continuously through the Quality Management System (QMS).

# Thailand

**DR. (MS.) SIRIRAK RATCHUSANTI**

SENIOR ADVISOR FOR VOCATIONAL EDUCATION STANDARD  
(BUSINESS & HOSPITALITY),  
OFFICE OF THE VOCATIONAL EDUCATION COMMISSION  
MINISTRY OF EDUCATION  
KINGDOM OF THAILAND



"Research is aimed at truth.  
Evaluation is aimed at action."

Michael Patton

Kanjana

## What do we evaluate ?

EVALUATION OBJECTS/TARGETS

- |                |               |
|----------------|---------------|
| 1. Programs    | 2. Curriculum |
| 3. Instruction | 4. Training   |
| 5. Plan        | 6. Activity   |
| 7. Person      | 8. Etc.       |
- Kanjana

Why do we need to evaluate –

**the purpose of the evaluation**

- **Worthen et al. (1996)**
    - to adopt a new program, product
    - to continue, modify, expand, or terminate an existing program
    - congruency between operations & program design
    - value of program & cost effectiveness
    - identify whether problems are being solved
- Kanjana



## Why do we need to evaluate –

Identify needs for the project  
Identify feasibility of the proj.  
Design project activity and resources  
Project Improvement  
Making decision about the project

**The aim/purpose of evaluation will lead to evaluation design**

## Types of eva.

Formative  
Summative

Input  
Process  
Product  
output  
outcomes

## Eva. Model

Tyler's  
Kirkpatrick's  
Scriven's  
Stufflebeam's

*How do we start program evaluation?*

## I - Focusing the Evaluation

### 1. describe evaluation target

- learn what we can about the eva. target
- study the context / purpose
- identify the status of the program

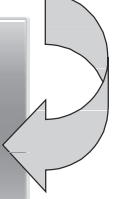
## Find the answer to the questions-

- Who is involved?
- Why it exists?
- What are its parts or functional elements?
- When does it take place?
- Where it exists?
- Has it been evaluated?
- Who are the audience of the evaluation?

## 2. identify program stakeholders & the evaluation audiences




## SOME COMMON AUDIENCES

- POLICY MAKERS
  - PARTICIPANTS
  - TRAINERS
  - GOVT. OFFICIALS
  - PROGRAM PLANNERS
  - STUDENTS
  - PARENTS
  - COMMUNITY
- 

Kaplan

## AUDIENCE CHARACTERISTICS

1. Age, Sex, Race
  2. Occupation
  3. Education/Training Background
  4. Values
  5. Knowledge of Evaluation
  6. Special Concerns
  7. Special Interests
  8. Hidden Agendas
- 

Kaplan

### a "stakeholder"

- anyone without whose input a particular program would be unable to function.

- may have no formal role in a particular program but still be affected (positively or negatively) by the program.



Kaplan

II. identify the evaluation questions.....  
from...

Stakeholders  
previous evaluations  
theory  
Evaluation model/approach

Kaplan

### Descriptive questions sample...

describes the program and what it does

- What activities does the program support?
- Who performs these activities?
- How extensive are these activities?
- How costly are the activities?
- Who use these services?

Kaplan

### Implementation questions sample

- how and to what extent activities were implemented according to the plan
- did the activities reach the target audience

Kaplan

## Impact questions sample

- identify program effects
  - Is the program achieving its intended purposes and effects?
  - Taking both costs and effects in to account, is the current program better than comparable programs?
  - Is it at least achieving similar results?

Konena

## III. Select the evaluation model/ approach

- formative
- summative
- empowerment
- Participatory
- Others, like Tylerian, Scriven's, CIPP, Discrepancy analysis, Kirkpatrick's, etc

Konena

### Evaluation:

judgement process for the educational Goal (behavioral objectives) realized Through education and class activities  
Tyler 1951

process of information gathering  
And treatment necessary to make  
a decision for an educational program  
Cronbach 1984

Konena

the systematic investigation of  
the merit or worth of sth. For  
the purpose of decision making  
(House, 1993)

Konena

Program evaluation typically involves  
assessment of one or more of the five  
program domains:

1. The need for the program
2. Design of the program
3. Program implementation and service delivery
4. Program impact or outcomes
5. Program efficiency

( Rossi et al's 5 program domains)



Konena

“Program evaluation is the use of  
social research procedures to  
systematically investigate the  
effectiveness of ... programs.”  
( Rossi, Freeman and Lipsey)

Konena

## Michael Scriven

Formative & Summative Eva  
Goal free eva.



When a cook taste the food,  
it is Formative Evaluation

When a customer taste the food,  
it is Summative Evaluation



Kontra

## Formative eva.

- focus on actual process

## Summative eva.

- focus on final product

(Scriven 1967)

Kontra

## Eva. definition.

the process of delineating,  
obtaining and providing useful  
information for judging decision  
alternatives

(Daniel Stufflebeam-CIPP Model)

Kontra

## CIPP MODEL

formative-summative

- Context
  - Input
  - Process
  - Product
- formative
- summative

Kontra

## Evaluation Approach

Kontra

## OBJECTIVES-ORIENTED APPROACH

Tyler, Provus, Metfessel & Michael etc.

Determine extent of achieved objectives.  
Specify measurable objectives & compare  
objectives with performance.

Curriculum development  
and needs assessment etc.

Pre-post performance  
measurements.

Kontra

### **MANAGEMENT-ORIENTED APPROACH**

**Stufflebeam, Alkin & Provus.**

**Provides info for decision-making.**

**Evaluating all stages of program development.**

**Accountability, program planning.**

**Identifies / evaluates needs and objectives.**

**Utility, propriety, and technical soundness.**

Kendras

### **EXPERTISE-ORIENTED APPROACH**

**Eisner, Accreditation Groups.**

**Professional judgments**

**Judgment based upon individual knowledge and experience.**

**Self-study, accreditation, criticism.**

Kendras

### **ADVERSARY-ORIENTED APPROACH**

**Wolf, Owens, Levine & Kourilsky.**

**Expose program's strengths / weaknesses.**

**Airs opposing viewpoints / public hearings.**

**Examines controversial programs / issues.**

**Uses forensic / judicial public hearings, clarifies issues.**

**Balance, open to public.**

Kendras

### **EACH MODELS HAS ITS STRENGTHS & WEAKNESSES**

Kendras

### **IV. SELECTION AND IDENTIFY INDICATORS/CRITERIA**

- 1. Purpose of the evaluation**
- 2. Expertise of the evaluator**
- 3. Evaluation audience**
- 4. Time**
- 5. Money**
- 6. Scope**
- 7. Help available**

Kendras

**Select most appropriate indicators lead to successful eva.**  
**Indicator must be directly related to the program evaluated, e.g. objective/goal**

**Identify clearly and measurable in terms, if possible of quantity, quality and time frame of a particular aspect of the program.**

**Clear and smart program objectives will help in identifying smart indicators.**

Kendras



## V. Evaluation Design

- data collection
  - Sources of information
  - instrumentation
  - Data collection procedures
- analysis, interpretation, use
- management plan
  - personnel (consultants), space, supplies, travel, tasks, job descriptions,
  - budget

Kaplan

Identify data/information needed  
and sources of data/information

Identify tools and methods to  
collecting information

Kaplan



Thank you and enjoy your task

Kaplan

Kirkpatrick, Donald L. (1998). *Evaluating Training Programs: The Four Levels*. Berrett-Koehler Publishers.

Worthen, Blaine R, James R. Sanders, Jody L. Fitzpatrick (1997). *Program Evaluation: Alternative Approaches and Practical Guidelines (Second Edition)*. Addison, Wesley, Longman, Inc.

Kirkpatrick, Donald L. (1998). *Another Look at Evaluating Training Programs*. American Society for Training & Development.

Kaplan

# Country Paper

## Bangladesh

### REORIENTING TVET POLICY TOWARDS EDUCATION FOR SUSTAINABLE DEVELOPMENT

**MS. RAZIA BEGUM**  
Additional Secretary  
Ministry of Education  
Bangladesh

#### ABSTRACT

The Technical and Vocational Education (TVE) system is the main producer of the job market of the mid-level technical manpower in Bangladesh. Therefore, the planning of TVE system and its implementation strategies are required to keep pace with the very fast changing technology and means and methods of providing products and services. Performance competencies of students must be tuned to the emerging needs of the job market. Graduates of Technical and Vocational Institutions must be ready to take command over managerial, technological, supervisory and frontline works. But unfortunately, our technical institutions are still unable to produce fully equipped graduates as per the demand of the job market. To improve the situation large investment is needed for the enhancement of the physical facilities and training of teachers. Educational planning is an integral part of overall planning of the economy and that manpower planning is an extension of educational planning through which the educational and the economic system of a country are interrelated. In this context, it is necessary to formulate a comprehensive plan for skill development and gainful employment of the available labour force.

#### 1.0 Introduction

As per World Development Report 1995 of the World Bank, people in the low- and middle-income countries remain in poverty not because of the lack of work but because of the lack of skills or the lack of an economic environment in which they can use their skills to work more productively for a better income. Focusing on such needs for the poor of the nation, for poverty alleviation and the sustainable development in the country, TVET efforts include government

and private funded projects. TVET programmes are governed by the Ministry of Education and under the direct management of directorate of technical education. Despite various limitations of financial, infrastructure and knowledge resources, TVET has successfully implemented many projects that are in the process of development, planning and envisioning. The TVET system has a large role to play in economic growth and social development as provider of trained human resources to the labour market and as provider of skills to those who are looking for employment. The National Strategy for Accelerated Poverty Reduction (NSAPR) recognizes the potential contribution of TVET, in reducing poverty while supporting economic growth, by providing employable skills particularly to those who dropped out of school early and are already of employable age and to the large pool of unemployed and underemployed adults.

The current formal TVET system lacks linkage with and, therefore, relevance to the labour market. The capacity of the existing system to meet the needs of the labour market is small. Employers are looking for more people who can fill their semi-skilled and skilled requirements. There is mismatch between the outputs of the TVET system and the needs of the employment sectors in at least three areas: (i) the trades or occupations where programme are being offered; (ii) the competencies acquired do not meet the requirements of industries or what is needed to take advantage of self-employment opportunities; and (iii) the lack of practical experience of the students. The practical component of the curriculum is not effectively taught. The majority of TVET teachers lack pedagogical training and practical skills, and they have no industrial experience. In addition, TVET institutions suffer from poorly equipped workshops, lack of teaching and training materials, and inadequate classrooms and workshops.

The formal TVET system also provides limited opportunities to the primary target beneficiaries. The successful completion of Class VIII is required for entry into the formal TVET programme in the Secondary School Certificate (Vocational) [SSC(Voc)] and thus excludes the majority who do not complete schooling up to that level. Its clientele are young adolescents who complete Class VIII, can afford to stay more years in school, and have strong white-collar job aspirations. The NPRS calls for a reform of the TVET system by making it more market-responsive, addressing training needs of the underprivileged who do not complete Class VIII, collaborating with the private sector and NGOs, and making its training programme more flexible in terms of duration, curriculum, and students' academic qualifications, among others.

## **2.0 Present Status on TVET Programme**

### **2.1 Different levels of Institutes**

There are three levels of educational institutes under the Directorate of Technical education.

#### **a) Certificate level Institutes:**



(i) Govt. Technical School and Colleges:

These type of institutes conducts SSG (Voc) and HSC (Voc) certificate courses.

- SSG (Voc): 10 years Schooling programme
- HSC (Voc): 12 years Schooling programme (prerequisite qualification SSG (Voc)); and
- Besides this, Technical School and Colleges conduct short courses for different time periods.

(ii) Non-Govt. Schools:

- This type of schools conducts SSG (Voc) Courses.

b) Diploma level institutes:

- Polytechnic institutes and similar type institutes;
- These type of institutes conducts 4 years diploma in Engineering, Survey, Glass and Ceramic, Graphic Arts and Printing Courses; and
- Prerequisite qualification is: SSG, SSC(voc) and equivalent.

(c) Degree level institutes:

- These institutes conduct 4 years BSC in Engineering, Leather Technology, Textile Technology and Technical Education courses; and
- Prerequisite qualification required to enroll these courses: HSC, HSC (voc) and equivalent.

2.2 List of Affiliated Institutes, Specialization and Intake Capacity in TVET Sector are given below:

I. Diploma in Technical Education:

Number of Institutes			Intake Capacity
Public	Private	Total	
1	-	1	120

Area: Electrical & Electronic, Civil, Mechanical.

II. Diploma in Vocational Education:

Number of Institutes			Intake Capacity
Public	Private	Total	
1	-	1	80

Area: Electrical, Automotive, Refrigeration, Radio-TV, Carpentry, Machinist, Welding, Farm Machinery.

III. Diploma in Engineering:

Number of Institutes			Intake Capacity
Public	Private	Total	
47	128	175	35832

Area: Architecture, Automobile, Chemical, Civil, Civil (Wood), Computer, Electrical, Electronic, Food, Mechanical, Power, Refrigeration and Air-Condition, Offset Printing, Graphic Reproduction Printing, Ceramic, Glass, Marine, Shipbuilding, Aircraft Maintenance (Aerospace), Aircraft Maintenance (Avionics), Computer Science, Data Telecommunication and Networking, Surveying, Architecture and Interior Design, Construction, Electro medical, Environmental, Garments Design and Pattern Making, Instrumentation and Process Control, Mechatronics, Mining and Mine Survey, Telecommunication.

IV. Diploma in Textile Engineering:

Number of Institutes			Intake Capacity
Public	Private	Total	
3	-	3	150

Area: Yarn Manufacturing, Fabric Manufacturing, Wet Processing, Garments & Clothing.

IV. Diploma in Forestry:

Number of Institutes			Intake Capacity
Public	Private	Total	
6	20	26	2,280

VI. Diploma in Agriculture:

Number of Institutes			Intake Capacity
Public	Private	Total	
13	90	103	10,010

VII. Diploma in Animal Health and Production:

Number of Institutes			Intake Capacity
Public	Private	Total	
3	-	3	300

VIII. Diploma in Health Technology:

Number of Institutes			Intake Capacity
Public	Private	Total	
-	52	52	1,920

Area: Medical Ultrasound, Dental Laboratory, Physiotherapy, Radiology and Imaging, Pharma, Integrated Medical, Patient Care.

IX. Certificate in Health Technology:

Number of Institutes			Intake Capacity
Public	Private	Total	
-	67	67	2,180

X. HSC (Business Management):

Number of Institutes			Intake Capacity
Public	Private	Total	
-	1327	1327	1,19,250

Area: Computer Operation, Secretarial Science, Accounting, Banking, Entrepreneurship.

XI.

Number of Institutes			Intake Capacity
Public	Private	Total	
64	-	64	16,740

Area: Electrical Works & Maintenance, Clothing & Garments Finishing, Agro-Machinery, Computer Operation & Maintenance, Electronic Control & Communications, Machine Tools Operations & Maintenance, Automobile, Refrigeration & Air Conditioning, Welding & Fabrications, Fish Culture & Breeding, Building Construction & Maintenance, Poultry Rearing & Farming, Wood & Design, Drafting & Civil.

#### XII. SSC (Vocational):

Number of Institutes			Intake Capacity
Public	Private	Total	
129	1597	1726	1,25,000

Area: Audio Video System, Agro Based Food, Automotive, Building Maintenance, Civil Construction, Computer, Drafting (Civil), Drafting (Mechanical), Dress Making & Tailoring, Farm Machinery, Fish Culture & Breeding, Fruit & Vegetable Cultivation, Food Processing & Preservation, General Mechanics, General Electrical Works, Livestock Rearing & Farming, Poultry Rearing & Farming, Refrigeration & Air Conditioning, Welding Works, Electrical Maintenance Works, Dying Printing & Fishing, Glass, Wood Working, Ceramic, Machine Tools Operation, Knitting, Plumbing & Pipe Fitting, Weaving, Welding & Fabrications, Architectural Drafting with AutoCAD, Electrical Machine Maintenance, Industrial Electronics, Nursing & Midwifery, Hotel Management & Catering, Foundry Works, Shrimp Culture & Breeding.

#### XIII. Dhakil (Vocational):

Number of Institutes			Intake Capacity
Public	Private	Total	
-	100	100	6,000

#### XIV. Certificate in Vocational Education:

Number of Institutes			Intake Capacity
Public	Private	Total	
1	-	01	120

XV. Computer Training Programme:

Number of Institutes			Intake Capacity
Public	Private	Total	
3	472	475	14,000

XVI. Basic Trade Course (360 Hours):

Number of Institutes			Intake Capacity
Public	Private	Total	
9	160	169	8,275

2.3 Bangladesh Vocational Qualification Framework (present):

NSS Basic	Basic skilled	360 hours Basic Trade Course
NSS III	Semi skilled	SSC (Voc) Class IX
NSS II	Skilled	SSC (Voc) Class X
NSS I	Highly skilled	HSC (Voc) Class XI & XII
NSS Master	Master craftsman	Industry Assessed

2.4 Role of government in educational development:

- Govt. establishes new educational institutes on regular basis from its won fund;
- Govt. prepares syllabuses through its agencies;
- Govt. conducts examination;
- Govt. prepares education policy;
- Govt. contributes to full fund for govt. educational institutes and 90% salaries for the Non-Govt. educational institutes; and
- Govt contributes to international organization for improving the quality of Technical Vocational Education.

### 2.5 Role of community participation in education:

- Industry people are involved in preparing syllabuses to make syllabus market oriented;
- Industry linkage is being maintained with educational institutes and students are getting opportunity for industrial attachment programme in the industries;
- At present some Non-Govt. organizations are conducting Technical and Vocational Education programmes; and
- Some private organizations are conducting Diploma and degree courses.

### 2.6 Sustainability aspects:

- Syllabuses are being updated and rationalized with job market demand;
- New technologies are being introduced;
- Emerging technologies are being identified and introduced;
- Relevant aspects of courses are being analyzed in a continuous process;
- Emphasis is being put on quality of education;
- Steps are being taken to ensure skills; and
- Linkage is being developed with International Agencies.

## 3.0 Best Practices on Education for Sustainable Development

### 3.1 Ensuring access

- New institutes are established to enhanced enrollment. Enrollment capacity has increased in the last three years;
- Special quota facilities are provided for tribal peoples (2/4 in each institutes), freedom fighters, women (10%) and students with vocational background (15%);
- 4 separate polytechnic institutes for women established with an intake capacity of 680 (enrollment= 680\*4 years course =2720); and
- Launch of double-shift programmes for increased intake capacity.

### 3.2 Quality and relevancy

- Syllabuses updated with market demand;
- Monitoring tools designed and monitoring done accordingly;
- Industrial linkage enhanced for getting practical experience;
- New equipment supplied for updated skills;
- Training facilities arranged for the teachers' and staff both home and overseas; and
- Linkage is being maintained with International Agencies for exchanging technical knowledge.

### 3.3 Local resource mobilization

- Maximum of our educational institutes are funded through Govt. own resources; and
- Infrastructure of Non-Govt. School is built through community/private funding.

### 3.4 International Accreditation

- MOU (Memorandum of Understanding) has been signed with Asia Pacific Accreditation and Certification Commission (APACC) for accreditation. Steps have been taken to get APACC accreditation.

### 3.5 Ensuring good governance in education sector

- Teachers' are provided with training on guidance and counseling;
- Teachers' are given training on Competency Based Training on TVET; and
- Guardians' day is observed annually in the institutes.

### 3.6 Sustainability of educational achievements

- New technologies introduced;
- Emerging technologies introduced;
- Syllabuses updated with market demand;
- Industries linkage enhanced for getting practical skills;
- Training facilities arranged for the teachers' and staff both home and overseas; and
- Linkage being maintained with International Agencies for exchanging technical knowledge.

## 4.0 Educational Financing

### 4.1 Funding Modalities: Vocational/ Technical Education

Financial contribution for Technical and Vocational Education institutes are made by govt. for Govt. Certificate level Institutes, like Technical Schools and Colleges, Diploma level Institutes, like Polytechnic Institutes & similar kinds of Institutes, and Degree level Institutes, like Engineering Colleges, Textile College, Leather College and Teaching Training College from revenue budget.

### 4.2 Share/Participation on Educational Financing

#### a) Revenue Budget for Directorate of Technical Education (DTE)

(Amount in million Taka)

Total Budget for B d t Percent (%)

Ministry of u ge. share by DTE

(Amount in million Taka)

Fiscal	Total Budget for Ministry of Education (MOE)	Budget allocation for DTE	Percent (%) share by DTE out of total MOE	Remarks
2003-04	26067.95	427.12	1.64	
2004-05	29626.42	460.50	1.55	
2005-06	41599.29	771.10	1.85	
2006-07	46581.89	946.80	2.03	
2007-08	51904.80	1225.32	2.36	
2008-09	58892.51	1370.81	2.33	
2009-10	63145.94	1146.09	1.81	

b) Development Budget for Directorate of Technical Education (DTE)

(Amount in million Taka)

Fiscal	Total Budget for Ministry of Education (MOE)	Budget allocation for DTE	Percent (%) share by DTE out of total (MOE)	Remarks
2003-04	22831.1	1094.9	4.80	
2004-05	20487.3	1652.7	8.07	
2005-06	27551.3	1252.7	4.55	
2006-07	35808.2	828.6	2.31	
2007-08	33957.1	1426.0	4.20	
2008-09	31638.0	830.1	2.62	



c) Budget Allocation (Revenue & Development) for Directorate of Technical Education (DTE)

(Amount in million Taka)

Fiscal	Total Budget for Ministry of Education (MOE)	Budget allocation for DTE	Percent (%) share by DTE out of total (MOE)	Remarks
2003-04	48899.1	1522.0	3.11	
2004-05	50113.7	2113.2	4.22	
2005-06	69150.6	2023.4	2.93	
2006-07	82390.0	1775.4	2.15	
2007-08	85861.9	2651.3	3.09	
2008-09	90530.5	2200.9	2.43	

#### 4.3 Procedure of School funding

Non-Govt. school funding for Technical section is done through MPO (Monthly Payment Order). The salary contribution of teachers' and staff for govt. portion is estimated on the basis of the basic salary. The govt. contributes to 100% of the basic salary of Non-govt. school teachers and staff. Directorate office checks some specific criterion and then issues monthly payment order for the Non-Govt. school teachers and staff. At present Directorate of Secondary and Higher Education (DSHE) is conducting the entire procedure. Recently, by order of the Govt., the Directorate of Technical Education (DTE) was created to take on this task.

## 5.0 Issues and Challenges in TVET on Education for Sustainable Development

### 5.1 Improvement of Training Quality to achieve desired Skills

- Lack of practical facilities & infrastructures;
- Shortage of qualified teachers;
- Absence of Teachers Training;
- Low quality technical books & learning materials; and
- Lack of monitoring and effective quality assurance mechanism.

#### 5.2 Improvement of capacity utilization

- High dropout rate (above 20%);
- Poor social perception; and
- Management issue.

#### 5.3 Improvement of industry-institution linkage

- Establishment of Private Public Partnership;
- Curriculum Development;
- Institutional Management; and
- Industrial Training.

#### 5.4 Updating Present Curriculum

- Competency-based; and
- Introduction of need-based and job-oriented courses.

#### 5.5 Achieving NSAPR Targets

- Substantially increase of post-primary student enrollment in TVET (from 8.0% about at present to 20% in secondary stage);
- Expansion of Public or Private sector;
- Improvement of TVET graduate, employability both on the domestic & international markets;
- Increase of girls participation in TVET; and
- More attention to under privileged groups.

#### 5.6 Capacity building of private TVET providers for quality improvement

- Expansion without proper facilities;
- Providing infrastructures & equipment;
- Teacher Training.

#### 5.7 Updating labour Market Information

- Lack of job market information regarding demand of different trades, skill level & quantity for both domestic & overseas market.

### 6.0 Major Programme Undertaken for Re-Orienting TVET Policy

- Review and strengthen TVET policies, systems and legislation at the central and decentralized levels;
- Enhance flexibility, quality and relevance of TVET;
- Strengthen TVET institutions through improved knowledge and skills of managers and teachers;

- Develop National Technical and Vocational Qualification Framework;
- Improve skills development resulting in enhanced productivity and competitiveness in key growth and export-oriented industries in the formal industrial sector;
- Increase access of underprivileged groups to TVET;
- Establish partnerships with industry; Focus: RMG and Textiles, Construction, Light Engineering, Leather, Agro-food, IT and Transport equipment;
- Develop competency and training standards;
- Develop curricula, teacher guides, learning materials and assessment tools;
- Develop capacity in external competency assessment;
- Upgrading Teacher Training Institutions;
- Strengthen the capacity of DTE for planning, research & development and social marketing;
- Deliver skills training in poor communities; and
- Create facilities for introduction of one technical subject from class VI to class VIII, SSC (vocational) and short training courses with a view to expand Vocational Education & Training. „Establishment of Technical School (TS) in each Upazilla“ project has been taken.

## 7.0 Conclusion

Human resource development plays a critical role in the socio-economic development of a country. It is an investment towards improving the quality of human life. Although development brings economic gains to society in general, specific measures become necessary to ensure that they reach the disadvantaged and the weaker sections of the population such as women, children, the disabled, the elderly, and the destitute. The welfare and development of these weaker sections of the society largely depend upon suitable policy directions executed through appropriate programmes and strategies. As a developing country we invest less in human resource development and end up with less educated and less qualified labour force. Many of the dropouts are engaged in technical jobs, like RMG, Carpentry, Construction, Nursery and Poultry Farming, with meager training, or even just with courage and enthusiasm. If we can arrange vocational training for them, we can bring about an industrial revolution in the country and can also export skilled manpower.

## 8.0 APPENDICES

### Appendix-I: Students Appearing SSG (Voc) Examination

Year No. of No. of Student  
Institution appearing SSG (Voc)

Year	No. of institutes	No. of Student appearing SSC (Voc)	Pass rate (%)	Growth rate (%)
2000	427	14560	61.85	-
2001	535	20055	57.16	37.74
2002	680	25590	43.45	27.60
2003	687	31627	38.92	23.59
2004	870	31452	51.16	-0.55
2005	950	35779	51.44	13.76
2006	1227	48309	61.37	35.02
2007	1338	64637	51.08	33.80
2008	1463	82375	62.88	27.44

### Appendix-II: Comparison of General & Vocational Education at Secondary Level SSG Examinee % of Vocational

Year	SSC Examinee		% of Vocational Education
	Total	Vocational	
2003	1084241	31627	2.92
2004	964507	31452	3.26
2005	944015	35779	3.76
2006	995123	48309	4.86
2007	1024537	64637	6.31
2008	1006569	82375	8.18

# Country Paper

## Fiji

# REORIENTING TVET POLICY TOWARDS EDUCATION FOR SUSTAINABLE DEVELOPMENT


**ALUMECI SUSU TUISAWAU**  
Senior Education Officer TVET  
Ministry Of Education, Fiji Islands

## ABSTRACT

TVET plays an equally important role in the social, economic and political development of any nation together with its academic counterpart. However, Fiji has not fully realized its potential and has treated it as a 'second best option' to academic education. TVET is gradually gaining the attention it deserves in the total learning system of all Fiji citizens. Education is regarded as the key to development; however, TVET is seen as 'the master key' because it has the ability to open all the 'doors' of life-long learning and improve the vocational expertise and consequently the quality of living. It is envisaged that stakeholders, especially policy-makers, would be empowered so that they can genuinely accept TVET as an equally important component of the total learning system providing relevant knowledge, skills and competencies for employability, improvement of quality living and learning communities. TVET needs to focus on the three dimensions of sustainability which are economic, social and environmental. The current TVET curriculum has little emphasis on sustainable development and the model which is currently being used in Fiji is the infusion model.

## 1.0 Rationale

Education is an essential tool for achieving sustainability. Fiji continues to pursue developments in education that will provide the basis for future directions and security through educated and civil people who have pride in their country and identity, a deep respect for their heritage and the ability to grow and live in a global environment. The changes to knowledge required means that the education system must be ready to respond to needs that will place its services favourably in respect of the demands for life skills and the workplace.



The importance of Human Resources to the achievements of the Ministry's vision and mission cannot be overemphasized. Being a labour intensive industry, education requires the appointment and retention of a skilled workforce as well as the continual upgrading of their qualifications. A well qualified teaching force is essential for the strive towards quality education and excellence in service delivery.

The right to development implies the right to improvement and advancement of economic, social, cultural and political conditions. Improvement of global quality of life means the implementation of change that ensures every person a life of dignity or life in a society that respects and helps realize all human rights. These changes must include the eradication and alleviation of widespread conditions of poverty, unemployment, and inequitable social conditions. Sustainable development ensures the well-being of the human person by integrating social development, economic development, environmental conservation and protection.

Technical Vocational Education & Training (TVET) in Fiji has been around in our secondary school system for over five decades. Although it has been globally recognised by UNESCO as an important component of education, it has never been provided with appropriate financial support to raise its current standard to the level that it deserves. TVET has maintained a steady progress in the provision for a balanced curriculum ensuring, to some degree, a holistic approach to the predominantly academic curriculum.

Technical Vocational Education and Training (TVET) has suffered from being considered as the fall-back option for those who do not succeed in the more 'academic streams'. It was only during the recent decades that this perception has been globally and nationally challenged and altered. A major reason for this modification has been the changing role of work and its impact on national and international economies, and, with work becoming more technologically based and more diverse, thus reducing the opportunities for unskilled work, TVET has assumed a key educational role.

## **2.0 Present Status on TVET Programmes in relation to Education for Sustainable Development (ESD)**

### **Background of TVET in the School Sector**

TVET is an important aspect of the total learning package of the child as well as the adult learner. This view is consistent with Delors' Report (UNESCO, 1996) that perceives education as providing the all-round development of a child's personality. It identifies a range of learning opportunities that students need to experience in order to be adequately prepared for active participation in all aspects of living. To achieve this, the Delors' Report suggests that the overall education of the learner should be rebuilt around four pillars: 'learning to know', 'learning to do',

‘learning to live together’ and ‘learning to be’. In this regard, TVET in the school sector has a crucial as well as a complementary role to play in preparing an educated citizenry who is more likely to champion “the ideals of peace, freedom, and social justice” (UNESCO, 1996, p.13).

Similarly, the United Nations Decade of Education for Sustainable Development, launched in 2005, the Millennium Development Goals and the Education for All movement express similar sentiments about TVET giving it the status of the ‘master key’ to social, economic and political development. Quisumbing emphasizes:

“Quality TVET needs a teaching/learning approach that does not stop at knowledge and information nor at developing skills and competence, but proceeds to understanding and gaining insights that educates the heart and the emotions and develops the ability to choose freely and to value, to make decisions and to translate knowledge and values into action. Values education is a necessary component of the holistic work education and citizenship education” (2005).

Therefore, there is urgency to reconceptualise TVET making it an essential part of the education curriculum not only of the Pacific Island Nations (PINs) but also globally.

It is underscored, however, that TVET has suffered from being considered as the fall-back position for those who did not succeed in academic education streams. This viewpoint has changed considerably now. A major reason for this shift in thinking is, the changing character of work and its impact on social and economic development. All sectors of employment are now becoming so technologically-based, diverse and dynamically complex that most unskilled workers find it difficult to obtain gainful employment. Therefore, TVET is now seen as playing a complementary role in ‘skilling’ primary and secondary school students and ‘up-skilling’ industry and other workplace employees. TVET can provide both the link with productive work and motivation for life-long education and training. It has the capacity to incorporate Pacific knowledge, technologies and life-skills as well as indigenous pedagogy in the learning agendas. In Fiji, for example, TVET was given impetus when the Fiji Islands Education Commission (1969, p.14) found that the school curriculum lacked “relevance in many of its subject areas to the local environment and to local needs”. Despite numerous curriculum reforms promoting Vocational Education and Training in Fiji as well as other PINs, they have not yet succeeded sufficiently in enriching their school curricula with Vocational Education and the above-mentioned Pacific flavour.

In brief, then, it suffices to mention here that TVET has the potential to contribute to sustainable development, education for all, knowledge society and citizenship. Phillip Hughes (2005) explains:

“TVET now involves such a variety of approaches, including both formal and informal education, that it can supplement the formal systems of schools in ways that will increase their effectiveness. TVET addresses needs that are fundamental to human motivation and achievement, in particular the capacity of work productively and creatively” (2005).

TVET initiatives in most developing countries stemmed from the realization that not all children respond favourably to the formal and academic type of education. It is the minority of the secondary school-leavers who find either employment or places in tertiary institutions while the majority struggles to find opportunities for work. The most commonly articulated goals of Technical Vocational Education and Training are listed below:

- to facilitate economic development by transmitting to local citizens certain values, knowledge and attitudes that are necessary to perform certain skills in the modern sector of the economy;
- to provide young people with the skills needed for employment in a wide range of job categories including self-employment and wage employment;
- to promote a work ethic and sensitize learners to the importance of practical work skills and the dignity of manual labour;
- to promote sustainable development, save the environment and improve the quality of living;
- to alleviate unemployment as well as poverty;
- to reduce the mass movements of school-leavers from rural to urban areas; and
- to provide an alternative route to higher academic education for early secondary school-leavers.

Education systems in many developing countries are highly dependent on western intellectual models, which are essentially academic in content and orientation. In recent decades, however, such systems have faced difficulties that are seen by many to represent a 'crisis' in formal education for developing countries. Major problems include access to educational opportunities, high school push-out rates and the worsening phenomenon of educated unemployment. The problem of a large number of school push-outs exists especially among poorer sections of the population. Educated unemployment and associated social problems have arisen because job opportunities fail to keep pace with the rising expectations of those with formal education qualifications. In this context, the concept of Technical and Vocational Education remains attractive to many educational policy-makers. Consistent with this world-wide trend, Fiji has for some time attempted to incorporate significant technical and vocational initiatives within its education system.

The Education Commission Report 1969 proposes the introduction of Vocational Education in secondary schools in Fiji to cater for the needs of school-leavers, providing education and training for paid employment that would lead students to higher education, to equip students for self-employment and to provide life skills for those who would return to a rural life. This notion was further endorsed by Fiji Islands Education Commission Report 2000. The report stresses that 'dualism' in secondary schools will always be a threat to Technical and Vocational Education. Over the years, technical and vocational education has struggled to get recognition from all sectors leaving a rather vague picture that skill-training is meant for those who are academically weak.



The present structure in the current TVET system saw it being offered and housed in more than one government ministries. The Ministry of Education, (MoE) manages the school-based TVET systems at primary, secondary and post-secondary school levels. Despite its semi-autonomous arrangement, the Fiji Institute of Technology (FIT) comes under the MoE. The Monfort Boys' Town is classified as a private provider of TVET programmes but currently receives an annual funding grant from MoE. The Advanced Vocational Training (AVT) programme provides short-term training to the non-formal sector. It is managed by TVET section of MoE but is funded by the Ministry of Planning and National Development under its Integrated Human Resources Development Programme (IHRD).

Private TVET vocational training institutions, such as the APTECH Computer School, are registered by MOE that recognises their qualifications and graduates. However, they are not closely monitored and do not receive financial or resource assistance from the Education Ministry. Other private TVET providers with agriculture-based training such as Tutu Vocational Centre are supported and funded by the Ministry of Agriculture.

The Fiji College of Agriculture is a fully government agricultural institution and provides a Diploma in Tropical Agriculture and this qualification is accredited by the University of the South Pacific (USP).

The Ministry of Forestry provides forestry skills training at its Forestry School in Colo-i-Suva and TITC in Nasinu. These organizations also provide short-term 'upskilling' courses for the workers of the forestry/timber industry.


The Technology sections of USP's School of Education, FIT Learning Centre and the Fiji College of Advanced Education (FCAE) provide TVET teacher training programmes at certificate, diploma and degree levels for those who wish to pursue 'TVET teaching' as a career.

### 3.0 Best Practices on ESD in your country

The three pillars of sustainable development are:

- (i) Environmental sustainability
- (ii) Economic sustainability
- (iii) Social sustainability

Environmental Sustainability is embedded into all science and TVET curriculum in the new National Curriculum Framework which is outcome-based. This needs to be strengthened in the content and the practical aspect of the TVET subjects. In the Agricultural Science curriculum, the focus of sustainability is on Sustainable Agricultural Practices, e.g. wisely using natural resources (largely due to the depletion of the natural resources due to rapid development), and minimizing wastes and limiting damage to atmosphere, to name a few. The minimization of the green house effects, the wise use of the raw materials, energy and water savings and the awareness of the impacts of production processes etc. are all part of the current curriculum.



Economic sustainability expands the availability of work and the ability of individuals to secure an income to support themselves and their families. Economic development includes industry, sustainable agriculture, as well as integration and full participation in the global economy. Social and economic developments reinforce and are dependent on one another for full realization.

The development of the Enterprise Education curriculum at primary and secondary level and the Vocational Business Studies ensures that students are taught the basic knowledge, skills, values and attitudes regarding economic literacy, sustainable production and management of small enterprises.

Social sustainability implies that the basic needs of the human being are met through the implementation and realization of human rights. Basic needs include access to education, health services, food, housing, employment, and the fair distribution of income. Social sustainability promotes democracy to bring about the participation of the public in determining policy, as well as creating an environment for accountable governance. Social sustainability works to empower the poor to expand their use of available resources in order meet their own needs, and change their own lives. Special attention is paid to ensure equitable treatment of women, children, people of indigenous cultures, people with disabilities, and all members of populations considered most vulnerable to the conditions of poverty.

The development and integration of citizenship education into the current curriculum ensures that social sustainability is taught across all levels and all disciplines. This will have to be included in the review of the TVET curriculum to be align to the NCF.

Fiji is striving towards compulsory and free education for all children. Compulsory education policy was introduced to ensure that all school-age children have access to basic education.


A specific NSDP target states that net enrolment rates for secondary schools rise from 77% to 90% of the cohorts from form 1 by 2010. Another states that the proportion of pupils who start class 1 and reach class 5 to be not less than 95%.

The strategies that have been highlighted are the development of a curriculum that is grounded in local culture, values and lifelong skills, integration of students with special needs into regular schools, establishment of centres to pilot Distance Education and the expansion of Compulsory Education to all schools.

The modularization of the Competency Based Vocational curriculum ensures that short courses are developed which match the labour market need. Enterprise Education is another initiative by the Ministry of Education which targets specific skills and setting up small business enterprises in schools with the purpose of providing income to the schools and students. TVET subjects are now firmly embedded in the curriculum of Fiji. The sustainability of each subject is in question here with the negative growth in some. This shows the inclination of the students towards the academic subjects. In order to attract more students to TVET subjects currently the MoE is revising its TVET curriculum at all levels to become competency-based, market-driven, to integrate sustainable development and align with the National Qualification Authority.

## 4.0 Issues and Challenges in TVET on ESD

- 4.1 The Challenge is for TVET to be regarded as the ‘master key’ of social, economic and political development because it has the potential to transform the world of work and the economy, alleviate poverty, save the environment, promote sustainable development and improve the quality of living.
  - 4.1.1 To promote this philosophy, the relevant sections of the Government and the key stakeholders such as TVET providers need to develop appropriate education and empowerment programmes for policy makers, schools, parents and other members of the school community. This readiness phase warrants full commitment as well as resource-support.
  - 4.1.2 While maintaining control over all the phases of education and training process, the above mentioned advocates must establish the organizational climate and culture in which the TVET learning process can develop with the respect and vitality it deserves in the overall social, economic and political development. TVET must gradually become the norm of the school system.
- 4.2 The absence of an overall national TVET organizing authority for policy, planning, management, implementation, assessment and supervision.
- 4.3 The infusion of the ESD into the existing TVET curriculum.
- 4.4 The successful implementation of TVET programmes is constrained by the lack of readiness of stakeholders, lack of relevance of some of the programmes and unavailability of suitable resources. The absence of relevant research-based data, especially on functional labour market, primary industry and TVET graduates, also hinders its successful planning and management.
- 4.5 The Education Ministry maintains very little contact with industries and informal sector as well as FIT, TPAF and other private providers of TVET. It develops its programmes in isolation from the labour market. FIT and TPAF, however, have employer and employee representation on their boards and through their industrial advisory committees receive feedback on the relevance of their programmes. The workplace attachment of Education Ministry TVET programme is poorly organized and the students do not receive useful on-the-job training.
- 4.6 TVET programmes are not successfully implemented owing to the lack of appropriately qualified teachers and leaders. In particular, a large number of teachers have little industry experience in their teaching areas.
- 4.7 The quality of TVET training remains a problem in most rural areas and with the urban poor, where training facilities are poorly equipped, under-financed and the expertise of teaching staff is inadequate.

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- 4.8 The TVET curricula do not cater for job categories in which many young people with diverse social and economic backgrounds may find employment. There are major skill gaps.
  - 4.9 Mismatch between knowledge and skills acquired and those available in the labour market. MoE must institute ‘research’ studies to obtain correct information for future planning process.
  - 4.10 The quality of courses and programmes offered at FIT, TPAF and other TVET providers needs to be revisited so that they provide relevant knowledge, skills and competencies for employability and sustainability.
  - 4.11 The establishment of the National Qualifications Framework is necessary because it has the potential to establish standards and processes for quality control in FIT and TPAF as well as register and accredit other providers.
  - 4.12 There is a lack of an overall administrative and management structure for policy making, coordination, quality assurance and monitoring of TVET programmes in Fiji with particular reference to, primary and secondary schools, FIT, TPAF and other private TVET providers.

## 5.0 Conclusion

There is a dire need to establish TVET policy and reorient it towards Education for Sustainable Development. With the modularization of the Vocational curriculum, ESD should be included in the TVET training packages.

TVET could and should contribute to preparing better graduates from secondary schools and vocational centres by developing specific skills and increasing employability. There should be a clear articulation of the possible pathways for TVET in order to develop a whole person that has values, ethics, knowledge, attitudes and skills to contribute to a sustainable future.

## Further reading

Sharma, A. (2008) “The Review of the Functions of FIT, TPAF and other TVET Providers”. The University of the South Pacific, FIJI.

Brady, P.; Gorham, A.; Johanson, R.; Naisele, E. (2006) “Skills Gap In the Pacific, Fiji Islands Case Studies (2006-2008)”. Asian Development Bank: Suva, FIJI.

Education Sector Plan 2009-2011

## References

Fiji Education Commission (1969) “Education for modern Fiji: Report of the 1969 Education Commission.” Suva. Fiji Government.

Hughes, P. (2005) “Why is Access to TVET for All essential if EFA is to be achieved? The creative Synergy. Prospects, Vol. XXXV, no3”. Geneva: UNESCO.

Quisumbing, L.R. (2005) “Education for the World of Work and Citizenship: towards sustainable future societies. Prospects: quarterly review of comparative education, Vol. XXXV, no3”. Geneva: UNESCO.

UNESCO (1996) “Learning: The treasure within: Report to UNESCO of the International Commission on Education for the Twenty-First Century”. France. UNESCO Publishers.

Fiji Ministry of Education (2009) Education Sector Strategic Plan 2009-2011. Suva: Government of Fiji.

## 7.0 Appendix

Structure of Formal TVET in Fiji

Level	Institution	Entry	Duration	Certification
<b>SECONDARY LEVEL</b>				
Pre vocational	165		F3-4	Compulsory
Pre vocational	165		F5-7	Optional
Vocational Centres	62	F4,5,6	2 years	MoE Vocational Certificate
<b>POST SECONDARY</b>				
Certificate	FIT, FCA, FSF	F6	2 yrs (5 stages+work exp)	Trade Certificate
Diploma	FIT, FCA, FSF	F7	3 years	
Degree	FIT, USP	F7	3-4 years	

FIT=Fiji Institute of Technology;

FCA=Fiji College of Agriculture;

FSF=Fiji School of Forestry;

USP=University of the South Pacific

# Country Paper

## India

# TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET) SYSTEM IN INDIA FOR SUSTAINABLE DEVELOPMENT

**Dr. Vijay P. Goel**

Deputy Director General, Department of Higher Education  
Ministry of Human Resource Development, Government of India

### ABSTRACT

India has one of the largest technical manpower in the world. However, compared to its population, it is not significant and there is a tremendous scope of improvement in this area. In India, the emphasis has been on general education, with vocational education at the receiving end. This has resulted in large number of educated people remaining unemployed. This phenomenon has now been recognized by the planners and hence there is a greater thrust on vocationalization of education. Another shortcoming in the area of Technical and Vocational Education is that, until now, the number of engineers graduating is higher than the diploma holders. This is creating an imbalance, as more workforce is required at the lower level. Hence more polytechnics and Institutes for Industrial Training (ITIs) are being opened now. Besides, various Ministries are trying to impart vocational courses through innovative institutions, specially launched for the purpose. In doing so, the government is trying to maintain quality of these courses. Under the XIth Plan, vocationalization of education has received a boost with more funds being allocated for the purpose. Besides, it is also being ensured that the marginalized sections of the society, including women, get adequate representation in these courses. It can thus be hoped that TVET will play a major role in improving the lives of the people of India.

### INTRODUCTION

The role of education in facilitating social and economic progress has long been recognized. Education improves functional and analytical ability and thereby opens up opportunities for individuals and also groups to achieve greater access to labour markets and livelihoods. A better educated labour force is essential if we are to meet the labour supply requirements of faster growth. Education is not only an instrument of enhancing efficiency but also an effective

tool of widening and augmenting democratic participation and upgrading the overall quality of individual and societal life.

The population growth of India has declined over many years, yet the labour is projected to grow by close to 2% or some 7 million or more per year over the next few years. Modernization and social processes have also led to more women entering the workforce, lowering the dependency ratio (ratio of dependent to working-age population) from 0.8 in 1991 to 0.73 in 2001. A further decline to 0.59 is expected by 2011.

Skills and knowledge are the engines of economic growth and social development of any country. Countries with higher and better levels of knowledge and skills respond more effectively and promptly to challenges and opportunities of globalization. India is in transition to a knowledge-based economy and its competitive edge will be determined by the abilities of its people to create, share and use knowledge more effectively. This transition will require India to develop workers into knowledge workers who will be more flexible, analytical, adaptable and multi skilled. In the new knowledge economy, the skill sets will include professional, managerial, operational, behavioural, interpersonal and inter functional skills.

To achieve these goals, India needs the flexible education and training system that will provide the foundation for learning, secondary and tertiary education and to develop required competencies as means of achieving lifelong learning.

## **INCLUSIVENESS**

As education is the means for bringing socio-economic transformation in a society, various measures are being taken to enhance the access of education to the marginalized sections of the society. One such measure is the introduction of the reservation system in the institutes of higher education. Under the present law, 7.5% seats in the higher educational institutes are reserved for the scheduled tribes, 15% for scheduled castes and 27% for the noncreamy layers of the Other Backward Classes (OBCs). Under the Indian constitution, various minority groups can also set up their own educational institutes. Efforts are also being taken to improve the access to higher education among the women of India by setting up various educational institutes exclusively for them or reserving seats in the already existing institutes. The growing acceptance of distance learning courses and expansion of the open university system is also contributing a lot in the democratization of higher education in India.

## **CONSTITUTION COMMITMENTS**

According to the Indian Constitution, Education is a concurrent subject whereby powers are vested both in the Central and State Governments.

The Constitution (86th Amendment) Act, 2002, enacted in December 2002, seeks to make free and compulsory education a Fundamental Right for all Children in the age group 6-14 years by inserting a new Article 21-A in Part III ('Fundamental Right') of the Constitution.

The new Article 21-A reads as follows:

“21 A Right to Education:

The State shall provide free and compulsory education to all children of the age of six to fourteen years in such manner as the State may, by law, determine”.

The Right of Children to FREE and Compulsory Education Bill is the consequential legislation to the Constitutional 86th Amendment Act, 2002, which inserted Art. 21 in the Constitution of India to make education for all children in the 6-14 age group a Fundamental Right.

The Bill is anchored in the belief that the values of equality, social justice and democracy and the creation of a just and humane society can be achieved only through provision of inclusive elementary education for all.

## **EDUCATION PATTERN INDIA**

The present education system in India mainly is comprised of primary education, secondary education, senior secondary education and higher education. Elementary education consists of eight years of education. Each of secondary and senior secondary education consists of two years of education. Higher education in India starts after passing the higher secondary education or the 12th standard. Depending on the stream, doing graduation in India can take three to five years. Post-graduate courses are generally of two to three years of duration. After completing post-graduation, scope for doing research in various educational institutes also remains open.

## **TECHNICAL AND VOCATIONAL EDUCATION SYSTEM IN INDIA**

Technical and Vocational Education plays a vital role in human resource development of the country by creating skilled manpower, enhancing industrial productivity and improving the quality of life. The terms Technical Education and Vocational Training are sometimes used synonymously. However, as per present practice, the term TE refers to post-secondary courses of study and practical training aimed at preparation of technicians to work as supervisory staff. The term VT refers to lower level education and training for the population of skilled or semi-skilled workers in various trades and it does not enhance their level with respect to general education.

The main agencies involved in TVET policy formulation and its implementation include:  
Central Government

- National Skills Development Council
- Ministry of Human Resource Development
  - Department of School Education and Literacy (for TVET programmes in senior secondary schools)
  - Department of Higher Education (for Technical Education)
- Ministry of Labour and Employment, Directorate General of Employment and Training (for Vocational Training)
- There are some other 20 Central Ministries and Departments which are running some small TVET programmes.



State Government

- Directorate of Technical Education
- Private Sector
- NGOs

## **TECHNICAL INSTITUTIONS IN INDIA**

Education is an area of special focus in the XI Five Year Plan. The Eleventh Plan places the highest priority on education as a centered instrument for achieving rapid and inclusive growth. It presents a comprehensive strategy for strengthening the education sector covering all segments of the education pyramid. Expansion, quality and inclusiveness are the main objective of the XI Plan.

Technical Education is instrumental in making the remarkable contribution to economic growth of the Developing Countries by way of suitable manpower production according to the needs of the Industry, Society and the Global World as a whole. To produce fully skilled manpower/knowledgeable technocrats in the present era of science and technology is the need of the hour. Polytechnic education has responded to the challenges of industrialization for self-reliance.

Technical Education covers courses and programmes in engineering, technology, management, architecture, town planning, pharmacy and applied arts & crafts, hotel management and catering technology. India's general, technical and managerial capabilities are on par with the best of the world countries. While the youth population is fast shrinking with higher dependency ratios in the developed world, India is blessed with the population of about 70 percent below the age of 35 years. Youths are the most vibrant and dynamic segment as well as potentially most valuable human resource. However, despite phenomenal capabilities, India is seriously handicapped with a very weak and narrow knowledge base, with 12.3% gross enrolment ratio, as compared to 21% in China, 54.6% in developed countries and the world average of 23.2%. There is a need to convert the available huge human resource potential into a reality by expanding opportunities for youngsters and that too on a massive scale and in diverse fields such as science, technology, engineering, architecture, management etc. to reap the demographic dividends. This is possible only if we seriously undertake rapid reforms in the higher and technical education sector.

The technical education system in India can be broadly classified into three categories – Central Government funded institutions, State Government/State funded institutions & self-financed institutions. The 60 centrally funded institutions of technical and science education are as under:

IITs (including 6 new IITs set up during 2008-09)	13
IIMs	7
IISc., Bangalore	1
IISER	5
NITs	20
IIITs	4
NITTTRs	4
Others (SPA, ISMU, NERIST, SLIET, NITIE & NIFFT)	6
TOTAL	60

Besides the above, there are four Boards of Apprenticeship Training (BOATs). In order to give a boost to higher and technical education, the government is opening new central universities, IITs and other central institutions, the detail of which is as under:

SNo.	Institution	No. of existing institutions at the end of X Plan	Additional Proposed in the XI Plan
1	Central Universities	19	30 (16 in uncovered states & 14 aiming at world class standards)
2	IITs	7	8
3	NITs	20	10
4	IIITs	4	20
5	IISERs	2	3
6	IIMs	6	7
7	SPAa	1	2

### Technical Education Quality Improvement Programme (TEQIP)

The Government of India has implemented a Technical Quality Improvement Programme (TEQIP) with the assistance from the World Bank, to improve the quality of education and enhance the capabilities of the technical institutions to become dynamic, demand-driven, quality-conscious and competitive at national and international levels. The proposed reforms include faculty development, examination reforms, regular curriculum revision, introduction of semester system, focus on research and giving autonomy with the accountability.

## VOCATIONAL EDUCATION AND TRAINING IN INDIA

The National Policy on Education (NPE), 1986 (as modified in 1992)

Keeping in mind that the education system should cater to the needs of the manpower requirement for the economic development of the country, Government of India has accorded high importance to Vocational Education and Training. While elaborating on the essence and role of Education, the National Policy on Education (NPE), 1986 (as modified in 1992), has recognized that education develops manpower for different levels of the economy. The NPE also envisages the introduction of systematic, well-planned and rigorously implemented programmes of vocational education, which can be rigorously implemented to enhance employability, reduce the mis-match between demand and supply of skilled manpower and to provide an alternative to those pursuing tertiary education, without particular interest or purpose. The policy envisages that efforts will be made to provide children at the higher secondary level with generic vocational courses which cut across several occupational fields and which are not occupation-specific.

### Vocationalization of Secondary Education

Vocational Education, in a much broader sense, covers education and skill development at all levels from post-primary to tertiary education – both through formal and non-formal programmes. Vocational Education at the +2 stage, also known as higher secondary stage, develop competencies (knowledge, skills and attitude) required by a specific occupation or a group of occupations, through diversified vocational courses to prepare pupils for the world of work, especially for self-employment.

A Centrally Sponsored Scheme on vocationalization of secondary education provides for diversification of educational opportunities so as to enhance individual employability, reduce the mismatch between demand and supply of skilled manpower and an alternative for those pursuing higher education. The scheme provides for financial assistance to the states to set up administrative structures, area vocational surveys, prepare curricula, textbooks, work book curriculum guides, training manuals, teacher training programmes, strengthen technical support systems for research and development, training and evaluation, etc. Under the Scheme,

- Vocational education is provided in 9,619 schools with 21,000 sections covering about 1 million students. It is proposed to expand Vocational Education to 20,000 schools and the intake capacity to 2.5 million by 2011-12.
- About 150 job oriented courses at +2 level are being provided in the areas of Agriculture, Business & Commerce, Engineering and Technology, Home Science, Health and Paramedical, Social Sciences, Humanities, etc.

The Vocational Education Programmes will be restructured with a demand-driven curriculum and a structured workplace hands on training/exposure. Greater emphasis will be on service sector with soft skills and computer literacy, flexi-time. Other features include compulsory partnership with employers who provide trainers and internships, advise on

curricula, participate in assessment and certification. The programme will ensure mobility between vocational, general and technical education and multiple entry-exit options. The 11th and 12th grade students have access to around 160 vocational courses offered in about 6,000 schools of the 32 States/Union territories of the country.

The proposed major modifications under the revamped Scheme of Vocationalization of Higher Secondary Education are –

- Strengthening of existing Vocational Schools and establishing of new vocational schools;
- Expansion of intake capacity during 11th Plan;
- Development of competency-based modular vocational courses of varying duration;
- Revision of the existing system from supply-based to demand-based;
- Setting up/constitution of various bodies/committees for governance monitoring and implementation of the National Vocational Qualification Framework;
- Setting up of Central Board and State Boards of Vocational Education (CBVE) and (SBVE) for accreditation/affiliation, examination certification and equivalence;
- Provision of pathways among 14 Indian qualifications for vertical and horizontal mobility;
- Provision of multiple-entry, multiple exit and flexibility in delivery; and
- Provision of joint responsibility of the academic Institute and industry/employer for making a person employable.

## **POLYTECHNIC EDUCATION**

Polytechnic education in India contributes significantly to its economic development. Most of the polytechnics in the country offer three years of generalized diploma courses in conventional disciplines such as Civil, Electrical and Mechanical Engineering. During the last two decades, many polytechnics started offering courses in other disciplines such as Electronics, Computer Science, Medical Lab technology, Hospital Engineering, Architectural Assistantship, etc. In addition, many single technology institutions are also offering diploma programmes in areas like Leather Technology, Sugar Technology, and Printing Technology, etc. Many diploma programmes are also being offered exclusively for women in Women's Polytechnics such as in Garment Technology, Beauty Culture and Textile Design. Polytechnics are meant to provide skills after class X and the duration of diploma programmes is 3 years, which means that the trainee becomes employable at the age of 19. Polytechnics are also offering post-diploma and advanced diploma programmes of 1-2 years duration in different specializations.

The aim of the polytechnic education is to create a pool of skill-based manpower to support shop floor and field operations as a middle level link between technicians and engineers. The pass-outs of Diploma level Institutions in Engineering & Technology play an important role in managing shopfloor operations. It is further an established fact that small & medium Industry companies prefer to employ Diploma Holders because of their special skills in reading and interpreting drawings, estimating, costing & billing, supervision, measurement, testing, repair, maintenance, etc.

During the last decade, India has seen a tremendous increase in the number of Engineering Colleges at Degree level throughout the country. However, the growth of technical institutions has not been uniform as far as the number of polytechnics and degree engineering colleges is concerned. The present student intake in degree and diploma level technical institutions is 653,000 and 354,000 respectively. The ratio degree to diploma holders is around 2:1, whereas ideally it should be 1:3. This due to of more private participation in the engineering sector compared to the diploma sector. There is also a societal perception that degrees command a premium in the job market rather than diplomas.

A nationwide scheme of “Submission on Polytechnics” has also been launched. Under this scheme, new polytechnics will be set up in every district not having one already. These Polytechnics will be established with Central funding and over 700 will be set up through PPP and Private funding. All these new polytechnic institutes will have a community polytechnic wing. Women’s Hostels will also be set up in all the government polytechnics. The existing Government Polytechnics will be encouraged to modernize in PPP Mode. Efforts will also be made to increase intake capacity by using space, faculty and other facilities in the existing polytechnics in shifts. There is also a shortage of qualified diploma holders in several new areas. Therefore, engineering institutions will be incentivized and encouraged to introduce diploma courses to augment intake capacity. Diploma programmes could be run in evening shifts when the laboratory, workshop, equipment and library are free.

### **Main Problems of Polytechnic Education in India**

Over the years, the diploma programmes have deteriorated losing its skill components, and becoming just a diluted version of degree education. The organizations employing them have to train them all over again in basic skills. Major problems being faced by the polytechnic education system are:

- Non-availability of courses in new and emerging areas;
- Inadequate infrastructure facilities and obsolete equipment;
- System unable to attract quality teachers;
- Inadequate financial resources;
- Inadequate or non-existence of state policies for training and retraining of faculty and staff;
- Lack of flexibility and autonomy of the institutions;
- Inadequate industry institute participation;
- Lack of Research and Development in technician education; and
- Antiquated Curricula.

### **UNIVERSITY GRANTS COMMISSION**

The University Grants Commission has scheme of Career Orientation to Education/Career Oriented Programme/Career Oriented Courses. The objective of the scheme is to ensure that the graduates who pass out after completing these courses have knowledge, skills and aptitude

for gainful employment in wage sector, in general and self employment, in particular so as to reduce the pressure on institutions of higher learning for Master Degree. The courses lead in parallel to the conventional B.A., B.Com. and B.Sc. Degree. The successful students are awarded certificate/diploma/advanced diploma under this programme.

### **INDUSTRIAL TRAINING INSTITUTES (ITIS) AND INDUSTRIAL TRAINING CENTRES (ITCS).**

The Directorate General of Employment and Training (DGE&T) in the Ministry of Labour, Government of India initiated CTS in 1950 by establishing about 50 ITIs for imparting skills in various vocational trades to meet the skilled manpower requirements for technology and industrial growth of the country.

Vocational Training refers to certificate level crafts training and is open to students who leave school after completing grades VIII – XII. The programmes administered under the Craftsman Training Scheme (CTS) are operated by Industrial Training Institutes (ITIs) and Industrial Training Centres (ITCs). This scheme falls within the purview of Directorate General Employment and Training (DGET), under the Ministry of Labour and Employment.

- Training is provided in 32 engineering and 22 non-engineering trades approved by the National Council for Training in Vocational Trades to people aged 15-25 years;
- There are 7500 ITIs/ITCs with an overall capacity of 75000 over all places in the country;
- The vocational training is provided in small duration trades such as Carpentry, Electricity, Plumbing, Automotive Engineering, Painting, Packaging, Multipurpose Engineering, Masonry, Dairy Assistance, etc;
- The training programmes vary between one and two years, or between two or three months;
- The resource persons for the programme may be drawn from rural engineering departments of state governments, faculty of engineering colleges/polytechnics/ITIs and others. The trainees may also be provided a one - or two - week orientation programme in relevant industries; and
- Integrate the training programmes in collaboration and support through funding from departments such as Science & Technology/Industries/Rural Development/Labour of Government of India as State Governments as well as industries.

### **NATIONAL INSTITUTE OF OPEN SCHOOLING (NIOS)**

The NIOS is responsible for imparting education through open and distance mode from Primary to Senior Secondary level. It has the mandate for offering Vocational Education and Training Programmes to general and prioritized groups (Scheduled Castes, Scheduled Tribes, women, rural people, neoliterates, disabled and disadvantaged groups of the society etc.) through a network of its study-cum-training centres known as Accredited Institutes (AIs). The NIOS has a network of 11 Regional Centres and about 2067 study centres. There are about 1063 accredited vocational institutes (AIs). The cumulative enrolment in VET during the last five years represents 93000 students.

## **JAN SHIKSHAN SANSTHAN (JSS) (literally meaning People's Education)**

JSS was launched as an Adult Education Programme of MHRD, aimed at improving the vocational skills and quality of life of workers and their family members. The programme initially focuses on adults and young people living in urban and industrial areas and those who had migrated from the rural areas. JSS has acted as a district level resource to organize vocational training and skill development programmes. At present, 221 JSS are functioning in various States of the country.

## **OTHER TRAININGS FOR THE INFORMAL SECTOR**

The Ministry of Rural Development administers schemes aimed at creating sustained employment opportunities to secure a certain minimum level of employment and income for the rural poor. They include the Jawahar Rozgar Yojana (JRY), the Employment Assurance Scheme, the Integrated Rural Development Programme (IRDP), the Programme for Development of Women and Children in Rural Areas (DWCRA) and the Training of Rural Youth for Self-employment (TRYSEM).

The Department of Women and Child Development runs support to Training and Employment Programmes (STEP), a NORAD-assisted programme on employment-cum-income generation. The scheme offers condensed courses of education and vocational training programme for women.

The Khadi and Village Industries Commission (KVIC) has 51 training centres, including 12 village industry training centres.

Prime Minister's Rozgar Yojana provides wage employment and self-employment to educated unemployed youths aged between 18 and 35 years.

The Bharatiya Yuva Shakti Trust (BYST) aims to help unemployed or underemployed youths aged 18-35 years to set up or develop their own businesses.

Entrepreneurship Development Centres/Institutes provide training in different fields based on the resource endowment of the area.

The National Renewal Fund (NRF) provides assistance to cover the cost of retraining and redeployment of employees arising from modernization, technology upgradation and industrial restructuring.

The Ministry of Agriculture's Krishi Vigyan Kendra's (KVK) imparts training to farmers, farm women, rural youth and grass roots level extension workers in broad-based agricultural production systems.

## **NEW INITIATIVES IN XI PLAN**

At a higher level, the Technical Education and Vocational Training system in India produces a labour force through a three-tier system – graduate and postgraduate level specialists (eg, Indian Institutes of Technology (IIT) and engineering colleges) trained as engineers and technologists, diploma-level graduates, who are trained in polytechnics as technicians and supervisors, and certificate-level craft people trained through formal apprenticeships as semi-

skilled and skilled workers. The government of India in recent years has laid a lot of emphasis on streamlining Vocational Education so that it fulfills the emerging need of the market by focusing on employability skills.

## **NATIONAL POLICY ON SKILL DEVELOPMENT**

A National Policy on Skill Development has been formulated by the Ministry of Labour & Employment. The objective is to create a workforce empowered with improved skills, knowledge and internationally recognized qualifications to gain access to decent employment and ensure India's competitiveness in the dynamic Global Labour market. It aims at increasing the productivity of the workforce both in the organized and the unorganized sectors, seeking increased participation of youth, women, disabled and other disadvantaged sections and to synergize efforts of various sectors and reform the present system.

At present the capacity of skill development in India is around 3.1 million persons per year. The XI Five-Year Plan envisions an increase in that capacity to 15 million annually. India's goal is to create 500 million skilled workers by 2022. Thus, there is a need for increasing capacity and capability of skill development programmes.

Skill development initiatives support employment generation, economic growth and social development process. Skill development policy will be an integral part of comprehensive economic, labour and social policies and programmes. A framework for better coordination between various stakeholders – Ministries, States, Industry, etc. – will be established. It will promote excellence and will meet the requirements of knowledge economy.

### **Mission**

The National Skill Development Initiative will empower all individuals through improved skills, knowledge, nationally and internationally recognized qualifications to gain access to decent employment and ensure India's competitiveness in the global market.

### **Aims**

The aim of skill development in the country is to support achieving rapid and inclusive growth through:

- Enhancing individuals' employability (wage/self-employment) and ability to adapt to changing technologies and labour market demands;
- Improving the productivity and living standards of the people;
- Strengthening the competitiveness of the country; and
- Attracting investment in skill development.

### **Objectives**

The objectives of the national policy on skill development are to:

- Create opportunities for all to acquire skills throughout life, and especially for youth, women and disadvantaged groups;



- Promote commitment by all stakeholders to own skill development initiatives.
- Develop a high-quality skilled workforce/ entrepreneurship relevant to current and emerging employment market needs;
- Enable the establishment of flexible delivery mechanisms that respond to the characteristics of a wide range of needs of stakeholders; and
- Enable effective coordination between different ministries, the centre and the states and public and private providers.

### Scope

The coverage of the national policy on skill development includes the following:

- Institution-based skill development including ITIs/ITCs/vocational schools/technical schools/ polytechnics/ professional colleges, etc.;
- Learning initiatives of sectoral skill development organized by different ministries/ departments;
- Formal and informal apprenticeships and other types of training enterprises;
- Training for self employment/entrepreneurial development;
- Adult learning, retraining of retired or retiring employees and lifelong learning;
- Non-formal training including training by civic society organizations; and
- E-learning, web-based learning and distance learning.

## MAJOR CHALLENGES AND ISSUES IN TVET

Some reasons for low Performance

- Low priority for Vocational Education;
- Shortage of trained teachers and trainers;
- Inadequate linkages with industries;
- Absence of a National Competency Testing and Accreditation system;
- Lack of infrastructure – building, modern equipment and raw materials;
- Inadequate or non-coverage of trades in service sector which has higher employment potential;
- Lack of equivalence for employment purposes;
- Lack of vertical mobility;
- Inflexible curriculum;
- Lack of convergence between various agencies; and
- Lack of overall social recognition.

Some Issues on Vocational Education

- Employability, demand and supply matching;
- Informal sector's requirement;
- Multiple skills;
- Flexibility of course design, modularity;

- Out-of-School children;
- Open and distance learning;
- Use of technology;
- Linkage to local demand;
- Career guidance;
- Teachers’ training and retention;
- Skill requirement in the National Vocational Qualification System – Curriculum, Assessment and Certification;
- Emerging sectors;
- Involvement of Industry and Civil Society;
- Horizontal and vertical mobility
- Equity (Girls, rural population, SC, ST, minorities and disabled);
- Financing; and
- State Government’s role.

The challenges are immense and in order to achieve the goals there has to be substantial expansion of quality Technical/Vocational Education and Training for raising employability and productivity.

The skills provided have to be attuned to:

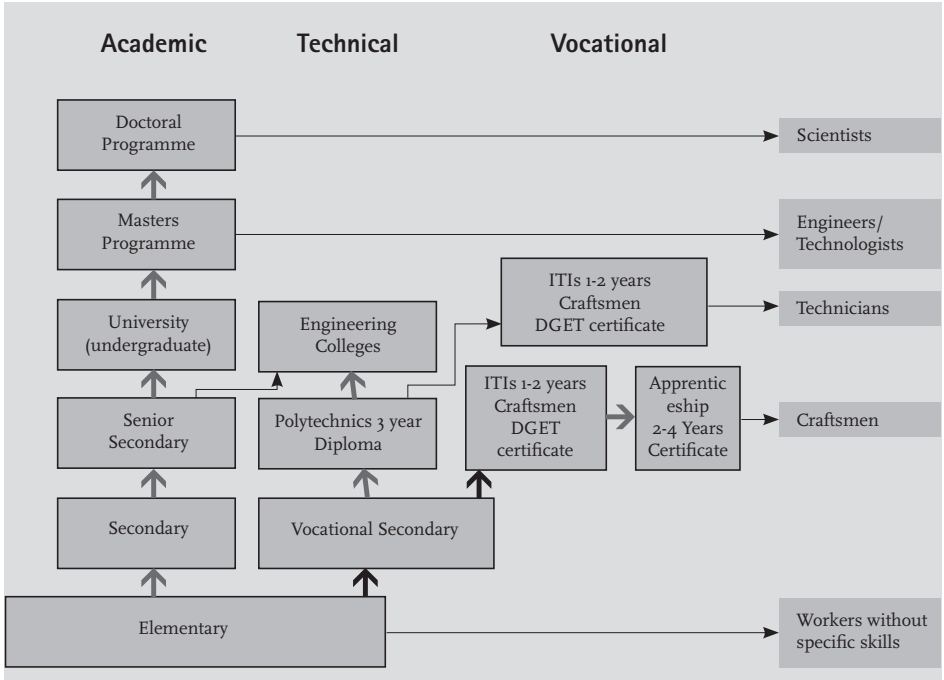
- New business requirements;
- A better quality of education and trainings at all levels; and
- The creation of a Technical/Vocational Education system more flexible and inclusive for sustainable growth.

### **APPROPRIATE STRATEGIES TO BE ADOPTED**

- Expand and upgrade Vocational Education and Training;
- Expand and upgrade Higher and Technical Education;
- Promote research in educational institutions;
- Redesign the educational pattern at the school level to facilitate skill development; and
- The Government has to redefine its role in:
  - reforming & strengthening Vocational Education and Training.
  - clear policy for facilitating capacity expansion through private sector participation.
  - make investment in Vocational Training institutes.
  - promote industry and academia interaction to narrow the existing gap between the demand and supply of the skilled.

Appendix

THE TECHNICAL AND VOCATIONAL EDUCATION SYSTEM IN INDIA



## VOCATIONAL COURSES COVERED IN DIFFERENT AREAS UNDER APPRENTICES ACT 1961

Agriculture : Poultry Production, Fisheries/Fish Processing, Dairying, Sericulture, Apiculture, Floriculture, Plant Protection, Agricultural Chemicals, Inland Fisheries, Plantation Crops and Management, Seed Production Technology, Swine Production, Vegetable Seed Production, Medicinal and Aromatic Plant Industry, Sheep and Goat Husbandry, Repair and Maintenance of Power Driven Farm Machinery, Veterinary Pharmacist-cum-Artificial Insemination Assistant, Agro-Based Food Industry (Animal based), Agro-Based Food Industry (Crop based), Agro-Based Food Industry (Feed based), Post-Harvest Technology, Fish Seed Production, Fishing Technology, Horticulture, Soil Conservation, Crop Cultivation/ Production.

Business and Commerce: Banking, Marketing and Salesmanship, Office Secretaryship/ Stenography, Co-operation, Export-Import Practices and Documentation, Insurance, Purchasing and Storekeeping, Taxation Practices/ Taxation laws/ Tax Assistant, Industrial Management, Receptionist, Basic Financial Services, Office Management, Tourism and Travel, Accountancy and Auditing.

Engineering and Technology: Civil Construction/Maintenance, Mechanical Servicing, Audio-Visual Technician, Maintenance and Repair of Electrical Domestic Appliances, Building and Road Construction, Building Maintenance, Ceramic Technology, Computer Technique, Rural Engineering Technology, Materials Management Technology, Rubber Technology, Structure and Fabrication Technology, Sugar Technology, Tanaries .

Health and Paramedical: Medical Laboratory/ Technology Assistant, Health Worker, Nursing, Health Sanitary Inspector Hospital Documentation, Hospital Housekeeping, Ophthalmic Technology, X-ray Technician, Physiotherapy and Occupational Therapy, Multi-rehabilitation Worker, Biomedical Equipment and Technician, Dental Hygienist, Dental Technician, Multipurpose Health Worker, Pharmacist, ECG and Audiometric Technician, Nutrition and Dietetics, Auxiliary Nurse and Midwives, Primary Health Worker.

Home Science: Food Preservation, Child Care and Nutrition, Catering and Restaurant Management, Pre-school and Crèche Management, Textile Designing, Interior Design, Commercial Garment Designing and Making, Clothing for the Family, Health Care and Beauty Culture, Bleaching Dyeing and Fabric Painting, Knitting Technology, Institutional Housekeeping.

Humanities Science and Education: Library and Information Science, Instrumental Music (Percussion Tabla), Classical Dance (Kathak), Indian Music (Hindustani Vocal Music), Photography, Commercial Art, Physical Education, Bharat Natyam, Cotton Classifier.

## TVET PROGRAMMES RUNNING BY VARIOUS MINISTRIES/DEPARTMENTS IN INDIA

Sl. No.	Ministry/ Department	Schemes/ Programmes/ Institutions having provision for Vocational Education and Training programme	Target Group
1.	<p>M/o Agriculture</p> <p>(i) Department of Agriculture Research &amp; Education</p> <p>(ii) Department of Animal Husbandry, Dairying &amp; Fisheries</p>	<p>Training in Agricultural Extension, Training in use of Agricultural Implements and Machinery, Soil Conservation Training Centre, LFQC&amp;TI, NPPTI, Cooperative Education &amp; Training.</p> <p>Under the University stream, various undergraduate, post-graduate and Ph.D. courses are offered (DARE).</p>	<p>Person engaged in agricultural institutions and support services, member of cooperatives and farmers, students with qualifications as usual under university stream of education</p>
2.	M/o Food Processing Industries	<p>Grants are provided to NGOs for setting up of Food Processing &amp; Training Centres (FPTCs).</p> <p>Institutions like Central Food Technology Research Institute, Paddy Processing Research Centre, PHTC, Council of Entrepreneurial Development Programme (EDP) are also running training courses.</p>	<p>Persons living in rural areas with preference being given to women, SC, ST and other weaker sections of society .</p> <p>Mainly persons in Food Processing Industry.</p>

3.	M/o Health & Family Welfare	<p>Basic Training of multipurpose health workers (Female &amp; Male)</p> <ul style="list-style-type: none"> <li>• ANM/MPW(F) Training Centres</li> <li>• HFWTC &amp; Basic MPWA(M) Schools</li> <li>• Promotional training of Female Health Assistant in 42 training centres. Training is also provided by Safdarjung Hospital, St. John Ambulance, NTCP, NPCB, NMHP, NACP, INC, CBHI, CLTRI, PWTRC, ECH, etc.</li> </ul>	Educated youth with minimum 10 <sup>th</sup> pass, persons working in Health & Family Welfare Programme.
4.	M/o Heavy Industries & Public Enterprises	Counselling, Retraining and Redeployment of Rationalized Workers of CPSEs (Formerly NFR).	Workers who opt for voluntary retirement, rendered surplus or retrenched from CPSEs.
5.	M/o Human Resource Development	Vocationalization of Secondary Education Polytechnics + Institutions for diploma in Pharmacy, Hotel Management, Architecture Community Polytechnic Scheme.	Students having passed 10 <sup>th</sup> class, 10 <sup>th</sup> pass, poorer section of society in both rural and urban areas.
	M/o HRD	Jan Shikshan Sansthan (Vocational Training Centres run by NGOs).	Disadvantaged groups of adults. Priority to adult neo/semi literates, SC and ST, women/girls, oppressed, migrants, slum/pavement dwellers and working children.

	M/o HRD	Support for Distance Education & Web-Based Learning (NPTEL) NIOS – Distance Vocational Education Programmes (Practical Training through Accredited Vocational Institutes-AVIs).	Engineering and Physical Sciences undergraduate/post-graduate, all teachers/faculties in Science and Engineering field 5 <sup>th</sup> , 7 <sup>th</sup> and 8 <sup>th</sup> and 10 <sup>th</sup> pass.
	M/o HRD	Apprenticeship Training for students of +2 Vocational stream,  National Programme on Earthquake Engineering Education.	Students passing out of +2 Vocational Stream,  Recognized engineering colleges/polytechnics and schools of architecture having related academic degree of diploma programme.
6	D/o Information Technology	DOEACC – ‘O’ level CEDTI	Students or working persons with 10+2 pass .  It conducts courses in the field of Electronics, Telecommunications, IT, Process Control & Instrumentation.
7	M/o Labour (DGET)	Craftsmen Training Scheme (CTS), Apprenticeship Training Scheme (ATS), Craft Instructor Training Scheme (CITS), Advanced Vocational, Training Scheme and Hi-tech Training Schemes.	8 <sup>th</sup> , 10 <sup>th</sup> and 12 <sup>th</sup> pass, 8 <sup>th</sup> , 10 <sup>th</sup> and 12 <sup>th</sup> pass or National Trade Certificate (from NCVT) Holders, Instructors of ITIs, Industrial Workers/ Technicians

	M/o Labour (DGET)	Supervisory Training, Women Training Institutes, Central Staff Training and Research Institute, Model Training Institutes, and Model Industrial Training Institutes.	Supervisors from Industry, Women (School leavers, Instructors and others), Training Executives and Principals, School leavers with 8th, 10th and 12th pass.
8	M/o Rural Development	National Institute of Rural Development (NIRD), Swarnjayanti Gram Swarozgar Yojana (SGSY).	Practicing Managers in rural development.  Focus is on the vulnerable groups among the rural poor. SC/STs should account for a minimum of 50%, women for 20% and disabled for 3% of the total swarozgaris during a year.
9	M/o MSME (Small Industries Development Organization - SIDO)	Entrepreneurship Development Programme, Skill Development Programme (SDP), Management Development Programme.	Workers, Education unemployed youth, Entrepreneurs.



10	Ministry of Social Justice & Empowerment	National Institute of Mentally Handicapped, National Institute for the Orthopedically Handicapped, Institute for Physically Handicapped, National Institute for the Hearing Handicapped, National Handicapped Finance and Development Corporation, National Scheme of Liberation and Rehabilitation of Scavengers and their Dependents, National Scheduled Castes and Scheduled Tribes Finance and Development Corporation, Rehabilitation Council of India, Apparel Export Promotion Council (AEPC).	Disadvantaged and marginalized sections of the society viz., SC, Minorities, B.C., Persons with disabilities, Aged Persons, Street children and victims of drug abuses, etc. Workers in Garment Industry.
11	M/o Textiles	Decentralized Training Programme, Weavers' Services Centres, Cooperative Training, Power-loom Centres, Indian Jute Industries' Research Association, Central Wool Development Board, Central Silk Board, Training Centres for Handicrafts, North-Eastern Handicrafts and Handlooms development Corporation.	Skill upgradation of workers in textile industry.
12	D/o Tourism	Food Craft Institutes under State Governments.	10 <sup>th</sup> Pass

13	M/o Tribal Affairs	Vocational training Centres (VTC) in Tribal Areas. (100% central assistance is given to State/UT/NGOs).	Unemployed Tribal Youth (Each person is given training in two trades).
14	M/o Urban Development & Poverty Alleviation	Urban Self-employment Programme under Swarna Jayanti Shahari Rozgar Yojana (SJSRY).	Urban unemployed or underemployed poor below poverty line.
15	HUDCO & others in Construction sector	Building Centres (HUDCO). Company-run schools (NBCC, HCC, L&T, ECC etc.) & association, etc. Construction Industry Development Council (CIDC) & others.	Persons engaged in Construction Industry. Workers & Supervisors having qualifications of Vth to XIIth Standard.
16	D/o Woman & Child Development	Support to Training and Employment Programme for Women (STEP). Swalamban (previously NORAD).	To provide updated skills and new knowledge to poor and assetless women traditional sectors. To train poor women mostly in non-traditional trades.
	D/o Woman & Child Development	Training in Home scale preservation of fruits and vegetables (by Community Food and Nutrition Extension Units (CFNEUs).	Housewives and Adolescent girls with a view to promote preservation and consumption of fruits and vegetables which provide much needed micronutrients, as well as to provided necessary skills which could be useful for income generation purposes.

	D/o Woman & Child Development	Central Social Welfare Board (programmes are organized by voluntary organizations).  Women Empowerment Programme in collaboration with IGNOU (Training programme on “Empowering women through SHG”).	To train women in marketable trades and also to upgrade their skills for getting remunerative employment opportunities.  To organize women into effective Self-Help-Groups.
	D/o Woman & Child Development	Kishori Shakit Yojana  Other programmes like UDISHA, Training of Anganwadi Workers, NIPCCB, Rashtriya Mahila Kosh etc.	To train and equip adolescent girls to improve home-based and vocational skills.

## FURTHER READING

All India Council of Technical Education (AICTE); Ministry of Human Resource Development (MHRD) (2008) National Conference on Technical Vocational Education, Training and Skills Development: A Roadmap for Empowerment. Govt. of India, New Delhi.

Ministry of Human Resource Development (2008) Annual Report. Department of Higher Education, Govt. of India.

Ministry of Human Resource Development (1998) National Policy on Education 1986. Department of Higher Education, Govt. of India.

National Commission for Enterprises in the Unorganized Sector (2009) Skill Formation and Employment Assurance in the Unorganized Sector. Govt. of India, New Delhi.

Planning Commission India (2008). National Development Council Document. Govt. of India, New Delhi.

Short, P. (2009) Technical and Vocational Education and Training in India: A Snapshot of today and changes underway for tomorrow. Ministry of Education, New Zealand.

# Country Paper

## Malaysia

### INNOVATIVE PRACTICES IN TVET TOWARDS EDUCATION FOR SUSTAINABLE DEVELOPMENT

WORK-BASED LEARNING DIPLOMA PROGRAMMES AT COMMUNITY COLLEGES IN MALAYSIA

**ANI ASMAH TAJUL ARIFFIN**


Principal Assistant Director  
Policy Development Division  
Dept. of Polytechnic & Community College Education  
Ministry of Higher Education  
Malaysia

#### **Introduction**

The establishment of the Ministry of Higher Education (MoHE) in March 2004 is an important event in the history of education in Malaysia. The government, in its quest for quality in the delivery system of tertiary education in the country, consequently instituted the Department of Polytechnic and Community College Education (DPCCE) as one of the departments in MoHE. The main functions of the DPCCE is to conceptualize policies and set the direction for polytechnic and community college education to develop human capital in the technical, commercial and service sectors. Currently, DPCCE manages 27 polytechnics and 39 community colleges as well as 21 community college branches throughout the country.

#### **Work-Based Learning (WBL) at Community Colleges**

Work-based learning (WBL) means learning that is derived specifically from doing a job of work and taking on a workplace role (Brennan & Little, 2006). In the early years, before industries were a common place of work, most learning was directly related to the surrounding community and 'work-based' activities. Young people learned by watching and working alongside their parents, relatives and self-claimed partners. Over time, the gap between education and the world of work has increasingly widened. Concepts learned in the classroom have minimal real world significance. For many students the classroom is not connected to the world of work outside of the school. Education and knowledge cannot be delivered solely from



textbooks and lectures; it must include practical, hands-on experience that challenges the students. WBL re-establishes this connection between the classroom and the world of work by providing a platform and link between theory and practice. WBL programmes also provide opportunities to achieve employment-related competencies in the workplace.


Work-based learning in Malaysia began with the rebranding of Community Colleges on the 2nd February 2007. During the launching of the rebranding exercise, 33 companies including Government-linked Companies have consented to sign memoranda of understanding with the Department of Polytechnic and Community College Education to collaborate in areas of mutual benefits. Among the areas of collaboration are participation in curriculum development, curriculum implementation and student assessments. In addition to this, the memoranda also provide opportunities for staff attachment to industries which allow academic staff to keep abreast of current trends in the industries as well as upgrade their knowledge, skills and experiences.

### **Industry Collaboration**

The rebranding exercise has provided the initial breakthrough in formalizing a more serious collaborative relationship between the institutions and industries, even though many initiatives involving industries have already been undertaken by the community colleges in recent years. Among the existing programmes of collaboration are the implementations of industrial training for students, industrial attachments for lecturers, incorporation of professional examinations into the formal college programmes (Cisco, Microsoft, etc), the introduction of project-based learning and many others. The rebranding exercise will take the collaboration to a higher level, with wider participation from industries, and create a “win-win” situation.

The collaboration with the industries will be beneficial in many ways. Leveraging on the experience of the industries, the brand-new WBL diploma programmes, which essentially are industry-driven, are initiated to address the issues of mismatch as well as other issues such as relevancy and connectedness of training programmes. The new WBL diploma programmes which were unveiled by the Minister of Higher Education on 19th July 2007 will be based on real work-site experience, using the approach known as work-based learning (WBL). It is based on the premise that skills trainings are best learned at the workplace as compared to other learning environments. In essence, the workplace within the industrial environment is the student’s best learning workshop.

An industry-driven programme will make the graduates more marketable and truly skillful. The enhanced market value of these programmes is expected to attract more students to the community colleges especially when they know the programmes were developed with solid support from the industries. Furthermore, students would be able to develop soft skills such as positive work culture, social skills, team-working skills and other skills incorporated into the programme. Work-based learning has seen many applications and forms in many parts of the world. According to the Washington State University, WBL is the learning



experience where knowledge and skills secured from industries and institutions are related to the real job requirement. WBL involves a formal programme of learning, structured, and strategically planned by both parties, the institution and industry, to relate learning at the workplace with the experience in the institution and consequently, involves career learning.

The main strength of the WBL in the community colleges is the one-year industrial experience which is incorporated into the curriculum structure. The new WBL diploma programme was developed from scratch with full commitment and participation of the industries. The industries were also involved in designing the assessment methodology, and more significantly, the implementation of the curriculum itself. One of the biggest benefits for the companies participating in the programme is that they will be given priority in employing the graduates, trained and developed by the companies, with an advantage of ready-made skills that can be immediately utilized. As for the graduates who are not selected for employment by the companies where they have undergone the workplace learning, the one-year industrial experience will still be an invaluable asset for seeking employment elsewhere or even for self-employment.

The attachment to the industry in the WBL programme is essentially similar to the current industrial training programme but with a difference. It is more structured and has specific curriculum contents that replicate the real work experience in the industries. As mentioned earlier, the curriculum implementation is being shared by both the institution and the company, applying various modes like mentoring, job shadowing, coaching, tutoring, project-based instruction and others.

In WBL, students are nurtured to be independent workers. However, to ensure the success and sustainability of this programme, appropriate measures must be in place to support the learning process. For example, the students' counseling support needs to be enhanced, logistic support beefed up and many other support services must also be properly planned. Supervision at regular intervals to monitor the progress of the students must be a joint effort between the staff of the community colleges and the company. An effective communication mechanism must be in place to provide real time information so that any issue that arises can be addressed promptly. Officers from both the institution and the company must be committed and flexible so that problems can be nipped in the bud.

Equally important is the documentation of the student's learning experience which must be properly managed so that evidence of competency can be verified in terms of reliability and authenticity. A mechanism for constant dialogues among the parties concerned must be in place to ensure that every member participating in the WBL remains motivated and supportive throughout the programme. Truly, the sustainability of the programme depends very much on the quality and commitment of the participating members. Every department in the participating organizations must function effectively and efficiently to ensure the success of this noble venture which will benefit the industries and the nation in general.

## **Characteristics of WBL Programmes**

The new WBL diploma programme is characterized by its very close collaboration with industries among others. As for the existing institution-based diploma programmes, though there are some forms of collaboration, they are less systematic and rigorous. Essentially, there are significant differences between the two programmes.

The student intake for WBL diploma programmes is directly dependent on the capacity of participating companies in providing places and facilities for work-based learning. For institution-based programmes, the intake is based on the physical facilities available in the institutions such as classrooms and workshops.

Participating companies share equal ownership of the WBL programmes with the institutions since they are involved right from the planning stage to the implementation stage. However, the involvement of the industry is significantly less in the existing institution-based diploma programmes.

The equipment used in WBL is of industrial size and students will have no difficulty applying their skills in the real work situation after graduation. This implies that, no further training will be required at the workplace unlike the institution-based programmes, where companies will need to provide orientation programmes to make the new employees ready for the job.

Teaching will be jointly conducted by staff from the participating companies and lecturers of the community colleges. The institution-based diploma programmes, on the other hand, are wholly taught by full-time lecturers in the community colleges.

The trainers from the companies in work-based learning are experienced practitioners in the industry who are competent on practical skills, whereas the current diploma programmes are conducted by full-time lecturers who have limited industrial exposure.

In work-based learning, the teaching and learning of theory and practice is affected in an integrated manner in real work situations. As for the traditional diploma programmes, there is a time lag between learning the theory and putting it into practice due to the separation of the theoretical and practical lessons conducted in the institutions.

The implementation of the curriculum in WBL programmes is more flexible to suit the work environment in the companies, unlike the institution-based programmes which are more rigid and examination-oriented.

## **WBL Programme Structure**

For the inaugural intake, five diploma programmes were offered, namely Automotive Technology, Electrical Technology, Computer Technology, Hotel Catering, and Fashion and Apparel. Another six programmes were introduced last year, namely Facilities Maintenance and Management, Architectural Technology, Advertising Technology, Food Processing Technology, Business Accounting, and Tourism and Adventure. These courses are conducted in the community colleges throughout the country.

The students were selected among graduates of relevant certificate programmes from the community colleges. In other words, the WBL diploma programme is an extension of the certificate programme with the addition of three semesters. The first two semesters (1 year) will be the work-based learning component conducted in the companies. In the final semester (Semester 7), the students will return to their respective community colleges to consolidate their theory and to 'top up' practical contents not available during their industrial attachment.

All the diploma programmes comply with the requirements of the Malaysian Qualification Framework (MQF) and the Public Service Department (PSD). Even though the programme is meant for students to work in industries, the recognition by PSD would ensure the reliability and validity of the award from community colleges. The period of industry work-based component will provide the students a minimum of 20 academic credit hours and the final semester in the college will contribute a further 15 credit hours. This brings the total credit hours for the diploma programme to 95, with students carrying forward 60 credit hours from the certificate programme.

### **Issues and Challenges**


Invariably any new innovation is bound to meet with challenges and skepticism. Thus, the way forward is to persevere and ensure that the programme succeeds. As a concept the work-based learning is still new and needs time and full support from the government, industries, institutions, parents, and not only from the students themselves. The industries must be fully committed and be ready to offer assistance, as and when required, to realize the spirit of a 'win-win' situation.

Since the WBL programme involves many parties, coordinating the roles of various parties possess another challenge. For the students, the challenge is whether they are mentally prepared to undergo the rigours of the programme, which necessitates information to be given well in advance so that they know what they are getting into. On the other hand, the industries may feel the burden of having to get their staff to deliver lectures which essentially is not their core business. Consequently, staff in the industries may need to undergo some pedagogical training before they can become effective trainers.

Building and sustaining a productive education-industry partnership requires commitment, time, effort and involvement. Some elements required for the effective partnership includes:

- Clear objectives;
- Measurable outcomes;
- Top management involvement and commitment;
- Open dialogue and strategic discussions;
- Effective sharing of resources;
- Clarity of roles and mutual responsibilities; and
- Sharing of achievements and challenges.





Two of the most significant issues affecting the work-based learning programmes are accreditation and assessment. This form of learning where learning is achieved in the workplace must be accredited and subjected to a robust assessment system if WBL is to be accepted by the society, the government, educators and accrediting bodies. Any development of accreditation entails assessment of learning in the workplace and the success of such assessment depends on identifying the outcomes of experience in terms of competence and work role of the learner. This assessment scope should be rigorous and robust using the following mechanisms:

- Provide formative feedback on portfolio work;
- Provide marks for summative assessment;
- Include employer appraisal of competency in the job portfolio assessment;
- Explicit diagnostic assessment explicit and set learning outcomes
- Ensure student sets, negotiates and reviews WBL goals; and
- Ensure employer mentoring procedures are in place .

The mind set of lecturers in the community colleges needs to be transformed as well so as not to be too idealistic, as in some instances the industries may be reluctant to share and reveal technologies and skills that can jeopardize their trade secrets. This necessitates both parties to sit together to find amicable solutions when problems arise. Judging from the success of work-based learning in advanced countries, the potential benefits derived from the implementation of the programmes should outweigh any initial hiccups.

## **Conclusion**

The rebranding exercise has given a new dimension to the development of community colleges in Malaysia as well as an enhanced image. It has also provided an alternative route for the students to further their studies according to their learning style, especially those who are more inclined to the “hands-on” approach. The workplace environment is a suitable place to generate new knowledge, improve innovation, enterprise and creativity. The willingness of industries to participate and collaborate at this scale shows that they are now beginning to see the importance of their role and contributions in human capital development for the nation. While it is too early to assess the success of the programme, the Prime Minister’s interest in encouraging industries to collaborate with institutions of learning should motivate the lecturers in the community colleges to work for the success of this new approach.



## FURTHER READING

Boud, D.; Solomon, N. (2001) "Work Based Learning: A New Higher Education?" Society for Research into Higher Education and Open University Press, Birmingham.

Brennan, J. (2005) "Interpreting Work Based Learning Into Higher Education – A Guide to Good Practice". University Vocational Awards Council, Bolton.

Medhat, S. (2007) "The Path to Productivity: The Progress of Work Based Learning Strategies in Higher Education Engineering Programmes – Final report draft". SEMTA, London.

# Country Paper

## Maldives

# INNOVATIVE PRACTICES IN TVET TOWARDS EDUCATION FOR SUSTAINABLE DEVELOPMENT

MARIYAM NOORDEEN

Ministry of Human Resources, Youth and Sports


### ABSTRACT:

In most countries, linking education with employment has proven to be a real challenge. For educators, industry is where young people go after they drop out of school or after they reach the highest level possible in formal education. For the industry, school provides a classification system to help in staff selection and school may provide some basic theoretical understanding which experience on the job can turn into productive activities.

The education process is usually seen as a continuing school-based experience started at the age of 5 or 6 and completed between 21 and 25 with University degrees at various levels. The objective of each level is to meet the entry requirements of the next level up. Standards are set by the education system itself.

Such a system usually does not meet the needs of neither the employer for a skilled workforce nor the majority of young people for decent jobs, other than at the professional skills levels like Medicine and Engineering. When the needs of the economy are considered, there is little relationship between the needs for economic growth and the learning systems in place to support this growth.

The world of Technical and Vocational Education and Training (TVET) has a unique position in the field of education in the Maldives. A lot of departments are working in conjunction to promote this unique but important arena of education. They include: the Ministry of Higher Education and Training, the Ministry of Education, Education Development Centre (EDC), the Centre for Continuing Education (CCE) and the PIU-TVET Team. Of the mentioned partners, the Ministry of Education, EDC and CCE work hand in hand to promote Skills Development and Vocational Education through integrating it in the formal school system to prepare the students for the different levels through university. On the other hand, TVET prepares learners for employment and then helps them to continue their education part-time.



The tradition of education is to fill the first 22 years of life with learning designed around growth and maturation. TVET is based on young people's mastering skills and the concepts behind those skills, over a working lifetime to get a first job and then remain employable as technology and society change.

It is estimated that there will be about 10,000 school leavers from grades 10 and 12 combined by 2008. Already we have 20,000 unemployed youth. As there are limited TVET institutions in the existing educational framework of the Maldives, we have no systematic way to train these unemployed youth for employability skills.

The Government of Maldives, concerned with rising youth unemployment, particularly in regions outside Malè, led to the initiation of the Employment Skills Training Project (ESTP) delivered in collaboration with the Asian Development Bank (ADB) to increase the number of Maldivian, men and women, actively participating in the labour force and employment.

The project is designed specifically for youth, aged 16 to 34, and adults previously unable to continue their education and training. The project aims to train about 5,000 youth by March 2010, at least 40% of whom will be female. The goal of the project is to increase the number of Maldivian men and women with entry-level occupational qualifications and skills for employment or for self-sustaining livelihood initiatives. A consistent and effective TVET management system is the solution to achieve this goal.

## **Present Status on TVET Programmes in Relation to Education for Sustainable Development**

The Technical and Vocational Education and Training (TVET) programmes run by the Ministry have been contracting public and private training institutions to prepare the youth for employment by acquiring skills. The TVET system in the Maldives is demand-driven, accessible, financed by its beneficiaries and of assured quality that meets the needs of society for stability and economic growth, the needs of enterprises for a skilled and reliable workforce, the needs of young people for decent jobs and the needs of workers for continuous mastery of new technology. TVET also prepares learners for employment and then helps them to continue their education and training on flexible mode with courses running part-time and full-time. Since TVET programmes are demand-driven, they are targeted to cater for the labour market through various skills training programmes. At present TVET has trained 747 youth since mid 2007 and an additional 1994 are currently enrolled in various skills training programmes.

At present, the Maldives skills-based training delivery is comprised of 2 choices for a two track, demand-driven TVET system.

Institution-based trainings and Employer-Based trainings are equally recognized pathways or tracks to develop a career based on skills training.

### Track 1: Institution-Based Training (IBT)

Students continuing from the school system represent the primary target group.

Class/lab-based learning in a structured curriculum environment.

Can provide theory and underpinning academic knowledge courses for EBT.

Works within employer set competency standards, plus

Professor sets academic enhancements.

The National Qualification Framework using National Competency Standards assures mobility between systems and credit recognition over a lifetime.

### Track 2: Employer-Based Training (EBT)

New and ongoing employees represent the primary target group.

Provides On-the-Job Trainings (OJT), plus required underpinning theory and academic skills.

Can provide the students from Institution-Based Training with OJT.

Works within employer, sets competency standards.



## Track 1: Institution-Based Training (IBT)

This refers to technical colleges or similar institutions in which students have completed a requisite O or A level programme and continue in a diploma or degree programme on a full-time basis. The term includes part-time learning in which learners come to the institution in the evening or during the weekends.

The beneficiaries of IBT are the out-of-school, unemployed youth. This group will receive priority. Individuals who complete school by finishing grade 10 are also a priority. IBT will provide these groups with full-time, 3- to 6-month entry level courses. Graduates of these

courses can continue learning and move up the career ladder. As skills are required, at least 50% of the training will be based on On-the-Job Training (OJT), applied and hands on. Institution-Based Training also includes full or part-time trainings offered by private sector trainers.

It is important that IBT be strengthened, to meet the longer term requirements of both enterprises and learners for higher level education in key economic areas. Other than maintaining staff competence and equipment, the main challenge in achieving this would appear to be the learner's interest and the enterprise's comfort with the degree of fit between graduate skills and workplace needs. There appears to be little demand from the enterprises or from the learners for expanding full-time institution-based trades training.

Thus support to the IBT system should be in the general area of career counseling and in assisting public and private institutions, to improve links to employers by adhering to national competency standards set by the enterprises and those who hire new workers. To this can be added the purchase, on behalf of employers, of theory and underpinning knowledge classroom-based learning as part of On-the-Job Training for new employees.

In addition, the Maldives Institute for Vocational Education and Training (MIVET) has been established on 9 May 2009 to deliver technical and vocational trainings. MIVET is also working on introducing technical and vocational subjects in the school curriculum.

The MIVET, under the Ministry of Education, is a new institution designed to meet the needs of:

- employers for a skilled workforce;
- young people for jobs leading to careers;
- communities to be part of long-term economic development; and
- the Government for social stability.

The MIVET offers certificates and diplomas, and eventually degree level programmes in skills areas identified by Employment Sector Councils and approved by the Maldives Accreditation Board. In the future it may also offer degree level programmes as well.

## **Track 2: Employer-Based Training (EBT)**

This refers to organized learning by employees that takes place in the workplace. It includes both mastery of skills under the direction of a worker/trainer and classroom training in the employers premises or elsewhere. Apprenticeship is a classic example of this but so too is pre- and post-employment training provided in the hospitality industry and non-formal learning in family businesses.

At this time, there is no formal Employer-Based training system. There is no formal apprenticeship. From father to son, from mother to daughter-skills transfer is the base of most learning on the islands. The hotels and resorts have training programmes for new staff and these vary from extremely basic to formal international level development activities.

Several Ministries have financed short-course trades training in fields, like barbering and tailoring. However there is no record of any impact of these efforts and the impression of training managers is that they did not lead to employment. With no TVET National Qualifications Framework, there is no record of credits awarded for training in a career growth model.

Short-term trainings in trade skills, such as Electrical Wiring, are being offered, and while such trainings rarely lead to employment, they introduce young school leavers to basic concepts in technology, alternate career options, health and safety and an exposure to formal employment.

EBT is a better option to provide training as the employers' needs and demands can be fulfilled through this.

## **Best Practices on ESD in the Maldives**

For TVET to be accessible by all communities in the Maldives, the Public-Private Partnership has to be achieved. Not only for accessibility, government alone cannot bear the cost of trainings to cater for the growing economy. The Government, wishing to increase the number and ratio of skilled Maldivian workers, launched several projects under several names in conjunction with the private sector. Some of these projects are progressing well and a few still remain dormant.

### **a) Skills Training at Resorts (STAR) programme**

STAR is an On-the-Job Training programme that strives to put youth on the first step of a career ladder that can lead over time to higher jobs as well as academic achievements.

A partnership programme initiated by the Maldives Association for Tourism Industries and TVET, STAR is a 3 - 6 month training programme that will present the youth with a tremendous range of careers available in the tourism industry. This new approach to training is an exciting development for those looking for careers in the tourism industry.

In addition to providing career opportunities to apprentices in the tourism industry, STAR also focuses on helping newly joined employees in the industry achieve a desired level of training, certified by the Maldives Accreditation Board.

Combined with some classroom work and extensive On-the-Job Training, STAR trainees will develop the basic skills required to work in this dynamic industry and start climbing the ladder to success. As of now, a total of 30 trainees have been recruited for trainings at resorts, out of which 5 have completed training and are employed at resorts.

STAR programme is getting more popular and more resorts are participating and taking up trainees for STAR. As an encouragement, government pays a certain amount per trainee.

#### b) TVET – EBT Training

EBT provides an opportunity for trainees to earn and learn. The primary target groups are new and on-going employees trained to employer set competency standards. Trainees will be placed for a 3- to 6- month On-the-Job Training (OJT) with 1- month orientation to the industry. At the end of the training, the trainees will receive a National Certification.

EBT is organized around the needs of the employer for employment competencies and work attitudes at employer set standards. This is different from IBT targeting diplomas and Degrees and the needs of the higher education community for academic achievement based on group learning. EBT does not fit easily with the needs of institutions for a predictable learning environment based on groups of similar students moving year by year through classrooms and labs. EBT is based on new and on-going employees receiving training to meet job requirements. The job requirements are the organizing framework for the training rather than the orderly body of theoretical knowledge provided in classroom instruction.

To facilitate EBT programmes, TVET advertises for training providers and receives proposals for training. Employers from Tourism sector as well as Transport sector have given a good response to these trainings. As of now, several EBT trainings are being conducted. The costs of the trainings are shared between the employer and the government. As an incentive to the trainees, a living allowance is given to them.

These EBT trainings are a good example of Public-Private Partnership since in every aspect of the training, both parties are contributing and both parties are gaining as well. Employers are getting employees with the exact skills required and the government is achieving the objective of acquiring a skilled labour force.

#### c) Community Applied Training (CAT)

CAT is another excellent example of Public-Private Partnership. CAT is accessible to the whole republic, the demand for training comes from the community and the cost is again shared by both parties.

CAT Training focuses on five key sectors important in the continued economic well-being of the country: Tourism, Fisheries and Agriculture, Transport, Construction and the Social Sectors. Such training can be selected, planned, managed, and implemented by the community and focus on areas that the community has identified as priority areas of concern in employment generation. CAT has been very successful and TVET is entering the second round of CAT trainings.

#### d) Career Path Programme (CPP)

The school system currently allows students, whose learning style is not slanted towards classroom-based learning, to reduce their course load from 8 subjects to 4 subjects in 8, 9 and 10. However the students must stay in school the whole day. This leads to a discipline problem and most likely to a loss of self-esteem by the “non-academic” students.

With parental permission, these students would be involved in On-the-Job Learning (OJL)



during school time when they are free because of the reduced course load. By the end of grade 10, CPP students are assessed for competencies at the Certificate 1 level (or further) and so have begun their career path up the National Qualifications Framework ladder.

These CPP graduates will be transferred without evident formality or difficulty to the new TVET system and they will continue with the On-the-Job Training. At this point, they will be either employees or EBT trainees. Further theory and underpinning learning would be supported by TVET through the EBT programme.

Graduating CPP students would leave grade 10 with a nationally accredited “Certificate of Achievement”, recognizing the competencies within Certificate 1 or even Certificate 2 that had been mastered. They will be on the National Vocational Qualifications Framework (NVQF) career ladder on graduation and simply continue with their learning and skills development as employees.

Pilot CPP programmes are being conducted at Laamu Atoll. Additional CPP programmes will be undertaken in 2 schools in the capital Malè, 2 schools in areas with several employers (such as HDh Kulhudhuffushi, Addu Atoll and Laamu Atoll), and 1 school in a smaller island with at least 2 resorts within 30 minutes travel time from Dhoni.

#### e) Construction Industry Training Initiative (CITI)

Like STAR, CITI was targeted at the construction industry. The Government recognized the need to increase the number of Maldivians seeking careers and receiving training in the construction industry, and agreed to contribute its competence and resources to the development, management and support of the CITI programme, with the partnership of the representative association (MACI) of the construction industry.

The Partners agreed that, over time, the construction industry, with MACI’s leadership, will take responsibility for developing and managing Employer-Based Trainings built on National industry endorsed competency standards.

Though it is a partnership programme with the private sector and the government, CITI has not been very successful. Both parties are stakeholders and will contribute to the training. It may be the fact that Maldivian youth see construction industry as ‘dirty’ and requires longer working hours.

More effort has to be put to make CITI programmes more attractive for youths and employers.

## Issues and Challenges in TVET on ESD in the Maldives

In most countries, there are major constraints in developing such a system. A few of these are:

- The cost of Technical and Vocational Training equipment and facilities;
- The difficulty in hiring skilled teachers when the salary is based on academic degrees rather than skills and experience;

- The setting of skills standards for graduates by employers rather than by the institutional system. Employers will not hire graduates that do not meet their standards and many TVET institutions make little contribution to economic growth.
- A focus on employment rather than both employment and self-employment. In emerging economies; there are often few jobs, but tremendous opportunities for self-employed skilled craftsmen;
- The resistance in the education system to recognize learning and skills mastery taking place outside the institutions and a reluctance to open the system to adult learning with life experience entry qualifications; and
- The resistance of employers to work with educators, in particular, or with the government, in general.

To manage these constraints, many economies have developed an Employer-Based Training (EBT) pathway or track in TVET as a parallel of the institution-based system pathway. The basis of EBT is On-the-Job-Training (OJT) based on agreed competency standards. EBT uses academic services from the institutional system when required to match skills development with the underpinning knowledge required to meet the competency standards and to achieve national certification.

## Conclusion

Demand-driven education is a new concept in the Maldives, not only for educators but for the enterprises and the learners themselves. The current system, which includes students up to 22 years, practices Institution-Based Learning, which is curriculum-driven and based on the requirements of the academic community. The shift of focus from what students should learn (curriculum) to what graduates must be able to do and at what level (competency standards) is not easily accepted as it contradicts the experience of the wider academic community.

The shift of concentration from curriculum to competency standards takes time in a community in which even TVET educators come from the academic tradition of degrees and graduate degrees rather than the employment tradition of performance to a standard on the job. However, substantial progress has been made in the last several months. A two-track, demand-driven and standards-based TVET system is designed for the unique requirements of this small emerging multi-island country and there is a clear sense of gaining momentum to support its success.

## FURTHER READING

Department of National Planning (2007) Maldives Country Report. Malé: Republic of Maldives.



# Country Paper

## Mongolia

# REORIENTING TVET POLICY TOWARDS EDUCATION FOR SUSTAINABLE DEVELOPMENT

**TUNGALAG CHIMID**

Officer

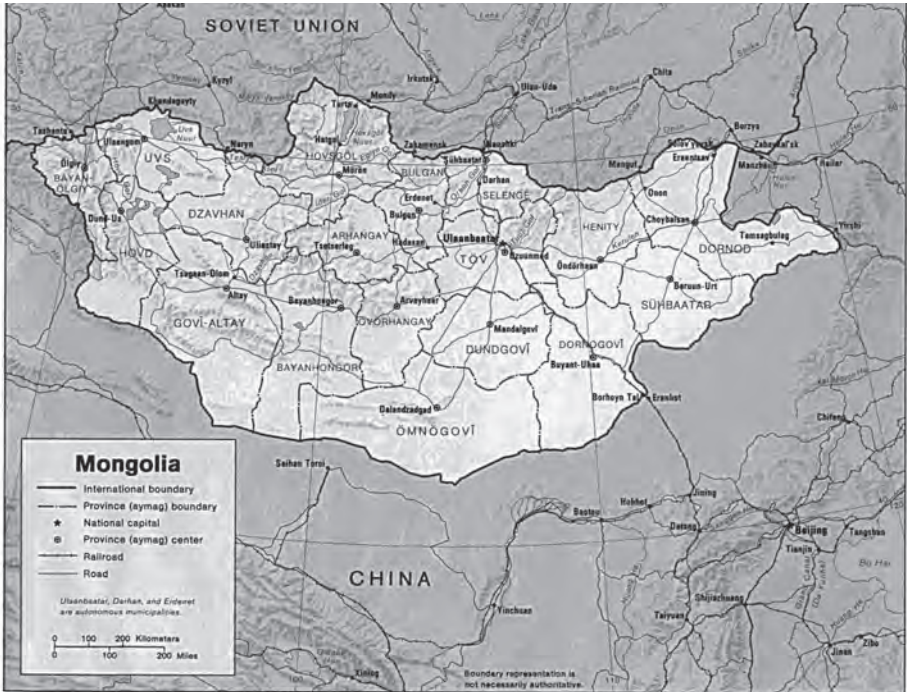
Vocational Education and Training Methodology Center

Ministry of Education, Culture and Science

Mongolia

## INTRODUCTION

Mongolia is situated in the centre of the Asian continent, occupying 1564116 sq.kms territory, and is characterized by a rich geographical pattern ranging from vast plains to high mountains, from valleys and meadows to steppes and semi-deserts. Mongolia is a landlocked, continental country and climate in this zone is dry – the annual precipitation is 100-125mm. Temperatures in summer reach +40 centigrades and in winter drop to -40 centigrades. In spring and autumn there are frequent dust storms.



Nationality: Noun and adjective--Mongolian(s).

Population: (2009est.): 2.8 million.

Annual growth rate: (2007): 1.5%.

Health: (2007): Infant mortality rate--41/1000(under one year). Life expectancy--67 yrs.

Language: Mongolian.

Religions: Tibetan, Buddhist, Lamaism 90%, Muslim 6% (primarily in the southwest), Christian 4%, and Shamanism.

Education: Years compulsory--9 (provided free by the government). Literacy--more than 90%.

# THE EDUCATION SYSTEM OF MONGOLIA

Figure 1.

Years in Level	Age		
21	27-	Doctorate (PhD) (60 Credits, 3-4 years) (VI)	
20	26-		
19	25-		
18	24-	Masters (30 Credits, 1-2 Years) (VI)	Masters (30 Credits, 1-2 Years) (VI)
17	23-		
16	22-	Bachelors Degree (120 Credits, 4-5 Years) University (V)	Bachelors (30 Credits, 1-2 Years)
15	21-		
14	20-		Diploma (90 Credits, 3 Years)
13	19-		Colleges, Institutes (V)
12	18-		(1-3 Years) Vocational Training Schools (III, IV)
11	17-	(2 Years)	
10	16-	Complete Secondary School (III)	
9	15-	(4 Years)	
8	14-	Incomplete Secondary School (II)	
7	13-		
6	12-		
5	11-	(5 Years)	
4	10-	Elementary School (I) **	
3	9-		
2	8-		
1	7-		
	6-		Kindergarten
	5-		
	4-		
	3-		
	2-		
	1-		
	0-		

Non-formal Education

## Technical and Vocational Education System

Before the 1990s, Mongolia had a centrally-planned economical system and was more politically and economically dependent on the former Soviet Union. In 1930s to 1950s, as new economic sectors were created with support of the Soviet Union, vocational workers started being trained through short courses and factory supported schools.

In Mongolia, as in any country, the core factor for the economic development and its citizens' well-being is highly educated, skilled labour force and productive employment.

Not very long ago, technical skills were accorded with a low status and little recognition. Academic education was (and is still) seen as prestigious and more advantageous for taking up lucrative jobs. However, in recent years, a desire has surfaced to actively recognize a „that-must-be-new“-role of the Technical and Vocational Education and Training (TVET) sector from the perspective of promoting poverty reduction and human security, as given in the Millennium Development Goals, as well as achieving national development through technical innovations spurred by the advance of globalization.

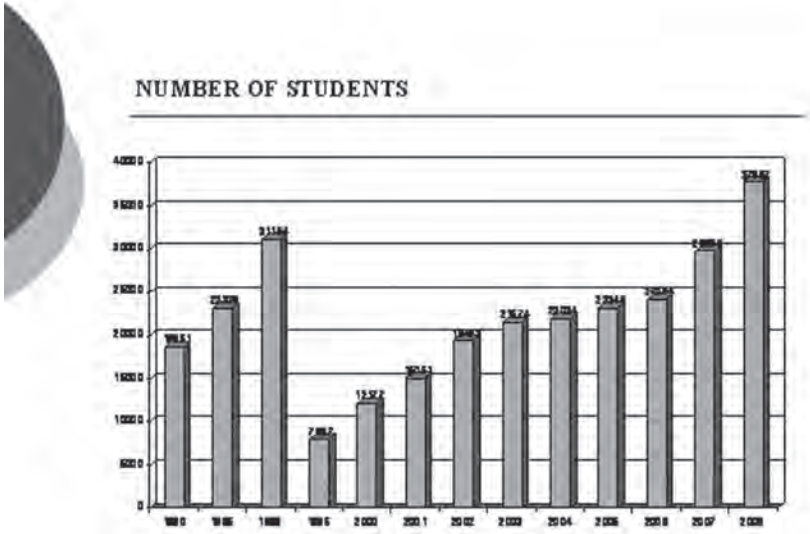
Today in Mongolia, there is a need to pay special attention to training, especially, of youth in technical and vocational field that must be consistent with the labour market demand. This necessitates a holistic and integrated approach to education and Human Resource Development (HRD), the aim of which, to quote Jacques Delors, is ‘the complete fulfillment of the individual in all the richness of the human personality, the complexity of the human powers of expression and commitments – as individual, as member of a family, community, as citizen, producer, inventor of techniques and creative dreamer’.

## Key Features of the TVET System

The shift to an open market economy in the late 80s and the early 90s almost dissolved the vocationally trained workforce in state enterprises and industry sectors in Mongolia. This has had a negative impact on a number of vocations and professions. The number of students in the TVET sector has significantly declined from 60 percent to 30 percent of the student population. After this long period of decline, TVET in Mongolia is now on the threshold of revitalization.

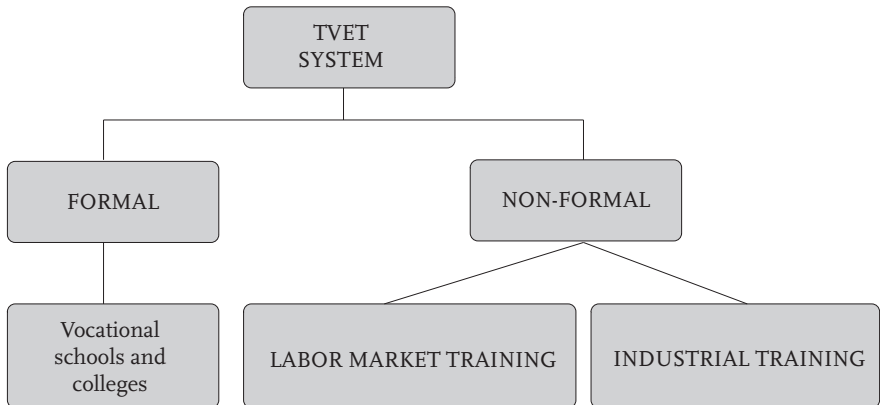
There is no doubt that the training of the professional workforce is the Government's high priority. Although the number of students enrolled in TVET institutions gradually increases year by year, there is still a great demand for national professional workforce. As of 2007-2008 academic years, there were 60 TVET institutions with a total number of 37067 students, which hardly makes 5 per cent of Mongolia's workforce.


Figure 2



With the decentralized setup of TVET schools, the need to strengthen the role of School Management Boards is crucial to provide strategic direction and guidance to the school administration in the context of the national priorities and regional needs.

Figure 3  
TVET System in Mongolia





About 358 Vocational Training Centres were registered with the MSWL, offering short-term courses to cater to the needs of the unemployed and the poor. The Vocational Training Centres are managed by Directors or managers with varying professional backgrounds and levels of education. A total of 25- employment training centres (18 VTPCs and 7- employment offices) have been established in towns and provinces. They are responsible in conducting employment trainings. The Skills Training Voucher Programme (STVP) has been introduced to the private sector in training provision.

## **TVET for Sustainable Development**

The UN Decade of Education for Sustainable Development was launched in 2005. That brought education to the top of the international agenda. It also meant that many countries have started national processes that will lead to improved education reaching out to all and focusing on key issues for the generations.

The United Nations declared the period 2005-2015 as the ‘Decade for Education for Sustainable Development’. Regarding the concept of sustainable development in each country arising from the ideas and principles of the aforementioned issues disseminated over the world, the goals for education of sustainable development for all, were raised.

The countries have realized the goals by means of reflecting an appropriate content towards equipping people with the education of sustainable development, environment and ecology into the formal and non-formal education curriculum.

Encouraging the TVET sector to take on a broader role would promote the recognition of sustainability as a vital issue – where economic, social and environmental objectives are negotiated as inextricably linked and equally important.

On the international, national and local levels, there is a strong emphasis on the need to embrace sustainability as both a concept and a practical process to be implemented. Our future and well-being – environmentally, culturally, spiritually, politically and economically – are likely to depend on our ability to adapt our traditional attitudes and behaviours to include a more wide-ranging vision. The TVET sector can play a significant role in promoting such a future, but may be hampered by the current almost exclusive focus on production and industry, at the expense of the economic, environmental and social issues, which should be recognized as equally important.

## **ESD in Mongolia**

Mongolia is well ahead on the way to create education processes supporting sustainable development. Today, one of the key issues in exploring the relevance of sustainability education for Vocational Education and Training is that much of the literature and policy-making are based upon the view of this sector as a supplier of skilled labour for the industry. This purely



economic perspective makes it difficult for the sector to respond effectively to emerging social and environmental priorities.

Having reflected an appropriate content towards equipping learners with the education of sustainable development, environment and ecology into TVET standards, syllables and national curricula in line with 'Concept of sustainable development of Mongolia', we set forth objections to improve the human capacity in this area. In carrying out these goals, governmental, non-governmental as well as public organizations have had contributions with different features.

In 2002, WWF Mongolia formulated a project that focuses on environmental education. The ultimate goal of the project is to support the sustainable use of natural resources in Mongolia.

The focus of the project has been on the wider concept of Education for Sustainable Development (ESD) where environment is included along with social and economic perspectives.

The foundation for the project is the national network of teams created in all aimags (provinces) in Mongolia. Those teams function as clusters of expertise and experience in how to apply educational approaches that favour sustainable development and increase environmental awareness.

The teams consists of people working with different school subjects and representatives from the formal as well as from the non-formal school system. Around 132 teachers, covering all aimags, have been engaged in developing national standards.

The overall result of the programme has been very good and the Mongolian Ministry of Education, Culture and Science and other stakeholders have expressed a lot of interest. The wide national acceptance of the approaches developed indicate that the impact of this short-term project can have a sustainable impact.

The Swedish International Development Cooperation Agency (SIDA) provides financial assistance and the Swedish company Ramboll Nature AB was given the contract to give an international expertise to facilitate the process of developing human and institutional capacities and education methods and material in Mongolia.

The TVET sector needs to look at its modes of teaching and learning and discover which ones have the potential to incorporate practices that will develop sustainability knowledge, skills and values. The good news is that TVET practitioners are already engaged in pedagogical practice of this type – through action learning, problem solving and work-based group learning.

## **Barriers to Sustainability in TVET**

Educators work with restrictive, traditional modes of delivery and training package development and thus can find it difficult to incorporate change and development in areas such as industry and new green technologies, as well as promote a recognition of the need for this change in order to sustain the environment. Taking these restrictions into account, major barriers to the establishment of a culture of sustainability in Vocational Education and Training appear to be:

- the lack of a shared national vision;
- the lack of adequate resources and trained personnel at all levels in the VET sector; and
- the existing traditional VET culture, pedagogy and training packages.

Given the rise in environmental consciousness and the push for TVET to embrace sustainability, providers face a significant challenge in shifting their focus from technical competency to incorporating the more generic cognitive and behavioural skills required by the workplace of the future.

## Conclusions and Proposed Actions

Sustainability ethos and practice are now embedded at the global and national levels, and represents a paradigm shift in human thinking and behaviour. However, the ramifications of this change are yet to be recognized within the TVET sector.

A list of actions which will encourage the adoption of education for sustainability in TVET:

Develop a national approach and vision to implementing education for sustainability in TVET

The development of a coherent and integrated national vision, supported by an appropriate legislation, should therefore be of the utmost priority.

Encourage a culture of sustainability in TVET

Analyze TVET policy and culture to assess how to facilitate the transition towards a sustainability culture and how to identify any barrier. Training programmes that may be necessary to promote this change of culture should be identified and implemented.

Determine an appropriate TVET pedagogy which will promote sustainable development

The true role of TVET as a creator of, or reactor to, change can be determined. The necessary change in pedagogy can then be implemented.

Embed sustainability principles in TVET policy, practice and training packages

The sector needs to redirect its current primary focus on the economic and social aspects of TVET with its very narrow view on sustainability to one which demonstrates a vision which is both long term and aware of the needs of the future generations. TVET sector should develop core cross-industry training packages cooperatively with industry in various key sectors, such as the environment, sustainable landscapes, agriculture, energy, building and economics.

Identify areas in particular need of sustainability training

TVET sector needs to identify the industries and areas of need for professional sustainability trainings such as mining.



Encourage and facilitate the adoption of sustainability across the entire education sector.

TVET providers and industry work together to establish sustainability standards and codes of practice. Further, given the broad range of skills required for industry and generic skill trainings, pathways for articulation of sustainability course between universities and the TVET sector should be clearly defined.

Establish education for sustainability implementation and delivery group within TVET

There is a need to establish implementation and delivery groups at the national, state and territory levels to oversee and facilitate the transition of the VET sector to sustainability ethos and practice.

# Country Paper

## The Union of Myanmar

### REORIENTING TVET POLICY TOWARDS EDUCATION FOR SUSTAINABLE DEVELOPMENT IN MYANMAR

**DR. (MS.) THEINGI**

Deputy Director General  
Department of Technical and Vocational Education  
Ministry of Science and Technology,  
Union of Myanmar

#### **ABSTRACT:**

This paper presents, Innovative Practices in TVET towards Education for Sustainable Development in Myanmar. Myanmar has developed TVET by opening 30 Government Technical High Schools across the country. The purposes of opening GTHS are:

- (1) To expose students at the basic high school education level to a range of practical activities in the vocational field in order to make them familiar with, and stimulate their interest in, vocational subjects and so give them equal opportunities to choose their future careers in either the technical or general field.
- (2) To equip students who have completed Basic Education with those occupational skills that will enable them to enter into gainful employment in industry and commerce.
- (3) To equip students with the relevant productive and entrepreneurial skills that will prepare them for self-employment.
- (4) To provide trained human resources in science, technology and commerce, matching the supply of skilled labour with the demand.
- (5) To encourage the increased participation of rural and remote area students in education, training and employment in the technical field.

## 1. INTRODUCTION

The development of today's Technical and Vocational Training profession in Myanmar reflects the development of Myanmar Society. New means of production demand new methods of education of the labour force and constituted the main factors for the development of Vocational Education. The department of Technical and Vocational Education focuses on the relation between high school and work, as well as Vocational Education.

The present college entrance examination system, which selects future scholars, is giving rise to one-sided interpretation of what a talented person really is. There is a tendency towards the belief that only a person who goes to college or university can be called intelligent. Such a narrow opinion has greatly affected the development of a healthy coordination between education, economy and the society. It is generally considered that vocational education is merely the education of failures in college entrance examinations, rather than an effective way for a person to become educated or realize his her value, and there is evidence that such a tendency is becoming more and more serious and is causing a series of social problems. In the economic field, structural unemployment has become an issue, that is, there is an increasing and urgent need for former workers and even for graduates.

## 2. The Best Practices on ESD in Myanmar

The Government Technical High Schools were established to answer the needs of medium level qualified labour in industry. In addition to high level qualified labourers, lower level labourers are also educated in these institutions. Higher education was not able to answer to the needs of industrialization. The Government Technical High Schools (GTHS) are pre-diploma schools and these schools can continue in related diplom programmes after being successful in the transition exam. The technical high school education system is based on a system which upgrades General Curriculum to Competency-based Curriculum in order to develop the qualified technician profession.

Research Areas:

1. Analysis of GTHS teachers' qualifications and their present conditions;
2. Analysis of GTHS Curriculum.

### 2.1. Myanmar's GTHS Teachers Qualifications and Their Present Conditions

Teachers are the professionals who undertake the duties of textbook teaching and normal education training and educating their students to be builders in enhancing national qualities. The GTHS teachers were organized by the Department of Technical and Vocational Education (DTVE) under the Ministry of Science and Technology. As part of the higher education system,

all teacher education programmes are supported to fulfill the general requirements for higher education institutions in order to meet the needs of today's society regarding teaching and research.

The last training established for GTHS teacher was organized by the DTVE in 2008, the courses consisted mainly of lectures combined with demonstrations and exercises in workshops and laboratories. The courses were offered during both the day and evening occupations such as Electrical Technology, Automotive Technology, Machining Technology, Building Technology, Building services Technology and Electronics Technology for specialized course and Myanmar, English, Physics, Chemistry and Mathematics for generalized course. The GTHS teacher candidate who graduates from the Technical College and University, as well as Art and Science College and University must take the Personnel Selection Examination and the English Language Examination, and achieve a minimum of points, defined by his/her field. Then, they will be appointed to vacant positions and if there is any demand from the institutions, he/she will be assigned as a teacher.

## 2.2. Curriculum of GTHS

The Curriculum of GTHS has been characterized by plurality and unity, marking this level different from the primary, secondary and ordinary high schools level, with a common curriculum. These GTHS schools are oriented towards Technical and Vocational Education that provides training for skilled workers, partly in classes and partly in workshops within the school structure.

GTHS system combines general theoretical education and Vocational Training. This integrating approach has given equal status to practical and theoretical education. General theoretical education and Vocational Education and Training are offered side by side, often in the same school buildings classrooms and school workshops.

GTHS policy-makers might hope that the diversification of the GTHS curriculum will motivate changes in attitudes towards self-employment and further education , and even ease transition from school to work.

In addition to consideration of the interests of students, GTHS Schools stream students into specific subject areas on the basis of their aptitude for these subjects.

### Basic Structure for GTHS (Year I) Curriculum

Courses	Hours per Year	Periods per Week
Specialized Courses	600 hours	15 Classes
General Courses	600 hours	15 Classes

### Specialized Courses of GTHS (Year I) Curriculum

Courses	Theory-Tutorial-Practical (Periods)
Building Technology	5-0-10
Building Service Technology	5-0-10
Electrical Technology	5-1-9
Electronics Technology	5-0-10
Auto Mechanic Technology	3-0-12
Machining Technology	4-0-11

### Generalize Courses of GTHS (Year I) Curriculum

Courses	Theory-Tutorial-Practical (Classes)
Myanmar	2-1-0
English	2-1-0
Maths	2-1-0
Physics	2-0-1
Chemistry	2-0-1

### 3. Issues and Challenges in TVET on ESD in Myanmar

There are six courses offered on the year one for 8524 students, as mentioned in 30 GTHS. The number of students registered varies along with the location, population and developing status of local states and divisions of Myanmar.

### 4. Conclusion

In Myanmar, by opening the Government Technical High School (GTHS) under the Department of Technical and Vocational Education, the qualified and skillful technical workers, operators and technicians will be prepared. And, it could be supported to improve national industrial sector and to develop national economy. Moreover, it could transform Myanmar from an agriculture based country to a modern industrialized country in the near future.

# Country Paper

## Pakistan

# REORIENTING TVET POLICY TOWARDS EDUCATION FOR SUSTAINABLE DEVELOPMENT

**YOUSAF KAMAL MALIK**

Chairman

Punjab Vocational Training Council,

Government of Punjab

Islamic Republic of Pakistan

## 1. INTRODUCTION

Pakistan is the second-largest country in South Asia with a land mass of 796,096 square kilometers. Home to approximately 180.80 million people, Pakistan ranks as the sixth most populous nation in the world. Like other South Asian countries, the literacy rate, estimated at 49 percent of the total population, remains low.

The Islamic Republic of Pakistan was founded on the 14th of August 1947. The seat of the Federal Government is based in the city of Islamabad, which is the Republic's capital.

Pakistan is the land of Indus river, which flows through the country for 2500 kilometers (1600 miles) from the Himalaya and Karakoram mountain ranges to the Arabian Sea. It is a land of snow-covered peaks and burning deserts, of fertile mountain valleys and irrigated plains. It has an estimated population of 180.80 million (January 2009) representing an array of ethnic groups.

Pakistan is strategically located at the crossroads of Asia, where the road from China to the Mediterranean meets the route from India to Central Asia. For thousands of years, this junction has been a melting pot of diverse cultures, attracting traders and adventurers, pilgrims and holy men. Now the old Chinese trade route is reopened; the spectacular Karakoram highway threads its way through the Himalayas, Karakorams and Pamirs, following the ancient Silk Route and entering China over the 4733 meter (15,528 feet) Khunjerab Pass, the highest metalled border crossing in the world.

Pakistan's 4000-year history is richly illustrated by archaeological sites and imposing monuments scattered over the length and breadth of the country. Brick cities from the Indus civilization, which flourished around 2000 BC, stand beside Buddhist ruins contemporaneous



with the birth of Christianity. Magnificent Muslim tombs from the 12th century vie with the palaces, mosques and forts of the Moghul emperors of the 16th and 17th centuries.

Geographically, Pakistan is comprised of three main regions, the mountainous North, where three of the world's great mountain ranges (the Hindukush, the Karakoram and the Himalayas) meet, the enormous but sparsely populated plateau of Balochistan in the South-West, and the Punjab and Sindh plains of the Indus river and its main tributaries. Located in South Asia, between 23° - 42' and 36° - 55' latitude north and between the longitudes of 60° - 45' and 75° - 20' east, Pakistan is bordered by India on the East, China on the North-East, Afghanistan on the North-West while Iran shares its border in the South-West and Arabian Sea in the South.

Pakistan has continental panorama with magnificent mountain ranges, plateaus (Potohar), deserts (Thar and Thal), plains (Punjab), rivers, lakes and the Arabian Sea. The Himalayan, Karakoram, Hindukush, Sulaiman and Salt ranges are some of the most renowned mountain ranges in the world with K-2 (second to Mount Everest), Nanga Parbat and Tirich Meer as some of the highest peaks in the world. Out of 14 highest peaks (more than 8000 m), in the world, 5 are situated in Pakistan. Pakistan boasts the densest concentration of high mountains in the world, with 82 peaks over 7000 meters (23000 feet) within a radius of 180 km (12 miles). The Himalayas and Karakoram rose to the heights when the northward drifting Indian geological plate collided with the Asia plate, its Northern edge nosing under the Asia plate and pushing up the mountains still, causing the mountains to rise 7 millimeters (1/4 inches) in a year.

### Mountain Peaks of Pakistan

Name of the Peak	Height M (F)	Range	World Rank
K2	8611 (28,253)	Karakoram	02
Nanga Parbat	8125 (26,660)	Himalaya	09
Gasherbrum I	8068 (26,470)	Karakoram	11
Broad Peak	8047 (26,400)	Karakoram	12
Gasherbrum II	8035 (26,360)	Karakoram	14

Pakistan is a repository of ancient civilizations, such as those of Mehr Garh, Moenjodaro, Harappa, Gandhara and Taxila and a vast collection of relics relating to art and sculptures has been unearthed and rehabilitated. Pakistan's archaeological sites are located at places such as Mehr Garh (Quetta), Chakwal, Kot Diji, Moenjodaro, Harappa, Taxile, Takht-i-Bahi, Dir and Swat. The Mehr Garh site, at the foot of Bolan Pass in Balochistan, discovered in 1984, is the first Neolithic site in the world. The evidence suggests that the site remained occupied for

5000 years (from 8th to 3rd millenniums BC) before the Indus Valley civilization of Moenjodaro and Harappa.

## **Programme Theme as Practiced in Pakistan**

### **Rationale:**

The theme of the programme we are today gathered for is “Reorienting Technical & Vocational Education and Training Policy towards Education for Sustainable Development” through work force development. This theme is fundamental to a country like Pakistan. The current conference is a commendable initiative in this regard on the part of the organizers viz. InWEnt, Capacity Building International Germany; Colombo Plan Staff College for Technician Education, Philippines and UNESCO – UNEVOC International Centre, Germany.

It is now recognized internationally by the developed and developing countries that there is need for new paradigms of both development and learning for the world of work. As we have learnt in Pakistan, Education and Technical Training for and through the work place is the master key (if education is considered the key) that can alleviate poverty, improve social equity, ultimately conserve the environment, improve the quality of life for the households and, as a result thereof, help to achieve sustainable development. We have come to the realization that skills empowerment and work force development has a direct bearing on ensuring sustainable development.

This, as we are all by now aware, requires three cornerstones:

- Economic, to provide adequate and fair standard living for all;
- Social, to develop institutions that promote values, practices and relationships that can sustain everyone equally; and
- Ecological, to stay within the carrying capacity of the planet.

The Brundtland Report conceptualizes sustainable development that

“meets the needs of the present without compromising the ability of future generations to meet their own needs”.

It is now accepted that,

“achieving sustainable development will require balancing environmental, societal and economic considerations in the pursuit of development and an improved quality of life”.

Agenda 21 identified education as an essential tool for achieving sustainable development and highlighted four areas of action for education.

These were:

- Improve the quality of basic education;
- Reorient existing education programmes to address sustainable development;
- Develop public awareness and understanding; and
- Provide training for all sectors of private and civil society.

A number of ideas and principles underlining sustainability have been identified. One of the important components is poverty alleviation. I will during the course of my presentation be relating TVET to poverty alleviation and education as a tool for sustainable development.

Sustainable development is basically relating the present with the future. It requires sensitivity where EST is a vision of education that seeks to empower people to assume responsibility for creating a sustainable future. There is no single route to sustainable development. Each economy, country and culture has different options and requirements to negotiate the process of achieving sustainability. For a country where 30% of the population lives below the poverty line, sustainable development will have a totally different orientation and strategy. These would help define decisions at the governmental and societal levels. In this scenario of poverty, a core component of EST would be empowering people in terms of incomes, social security, education for their children and programmes that enhance and empower them with skills. That is where Technical and Vocational Education and Training would play its role and make an impact.

## TVET Programmes

In Pakistan, a country with a population of 180.80 million and a per capita income of US\$ 1044, the strategy of implementing TVET policy towards Education for Sustainable Development is being implemented through:

- a. Skills empowerment programmes for those living below the poverty line. The Punjab Vocational Training Council (PVTC) is specifically designed in the largest province of the country with a population of 89 million to carry this out.
- b. Providing free education to the poorest of the poor. This programme is initially designed for the backward areas of the province.
- c. Action plan for permanent rehabilitation of Food Support Scheme beneficiaries by imparting income generation skills/technical training as social protection initiative. Development of Technical and Vocational Training Programmes on need based models.
- d. The Federal Government is also active on the education for sustainable development by introducing the NATIONAL TECHNICAL TRAINING CENTRES PROGRAMME (NTTCP), which envisions skills for the 21st century. The objective is to wean the country out of the low skills, low productivity and low expectation trap which permeate many spheres of our national economic activities.

The instruments for this change will be a wide- ranging dissemination of skills upgrade and training of the workforce, so that its employability, productivity and competitiveness can be enhanced. The resulting societal transformation and well-being will far outweigh economic benefits, and will help turn our youth away from negative influences and actions.

Pakistan is currently on a favourable portion of the demographic transition until 2030, with an influx of some 60 million people in the economically productive age group. However, without skills and opportunities for employment, social cohesion and well-being can be severely impacted.

In order to access the potential dividends, it becomes essential to manage this transition through a set of calibrated programmes. In the absence of any such planning and investment in Pakistan, the emergence of large numbers of uneducated, unskilled and unprepared population will only lead to a social disaster with negative fall out for sustainable development.

## The Current Situation:

Pakistan is suffering from both skills shortage and skills gap.

- The number of persons enrolled at present in Vocational and Technical Training institutes is only 1.3 % (about 300,000) of the 14-19 age cohort;
- This is dangerously low when compared with numbers of 35-60% for OECD countries, and 6-20% for the Asia Pacific economies;
- Pakistan is even finding it difficult to maintain its large and varied infrastructure, or compete in the modern global workplace.;
- There is also a major mismatch between the desired and the actual quality levels and relevance. Pakistan's growth and development are limited by a lack of competence in both hard and soft skills, rather than by an underinvestment;
- The nature of work and demands for skills is changing in Pakistan, and employment opportunities are shifting across industries and occupations;
- The profile of the Pakistani workforce in 2008 shows share of employment in agriculture, services and industry at 43.6, 36.2 and 20.2 percent respectively;
- National surveys also indicate that over 8 million workers have moved away from agriculture into services and industry since 1995, with the service sector absorbing nearly 55 percent of such persons;
- This is to be seen in the context of a steady migration from urban to rural areas; some 80 million people are expected to migrate from rural to urban areas in the next two decades;
- While there has been some productivity improvement, it reflects a lower starting base rather than a real growth, and the skill levels still remain low. The grave mismatch between the demand and the quality skills is clear from labour surveys over the period which indicates that 59.2 percent of the unemployed are literate or semi-literate;
- 33.6% of the Labour Force possesses less than 1 year of education, while 70% has less than 8 years of schooling.

In the Province, where I come from i.e. Punjab with a land area of 205,344 square kilometers and a population of 89 million, skill development for poverty alleviation is like a national anthem. Human capital is a precious resource.

The Punjab Vocational Training Council (PVTC) as a leading organization has by now trained over 100,000 girls & boys which has contributed over Rs. 13.12 billion (US\$ 160 million) for the national economy.

The model works on a Public-Private Partnership with stakeholders such as PVTC & the local industry working together to apply the resources and competences of industry and vocation for the benefit of all. All institutes are managed by a Board, constituted by the private sector to identify the market needs. The upgradation of the human capital is the core component for sustainable development. We empower girls and boys between the ages of 18-35 with skills and competences for work which directly advance the employability of individuals. In this regard, it will be relevant, before next August gathering, ignore the “Special Persons” who are devoid of hearing and speaking faculties. They are encouraged to apply for trades and to be trained by teachers qualified to handle such special persons.

PVTC provides an opportunity through 36 different trades to young people to increase their chances of employability relevant in trades to the demands of our society. Our training methodology possesses a combination of knowledge, practical and social skills and positive attitude. This is in fact a regular course of twelve months on “Life Skills” which is designed for girls and boys who are educated only up to the primary/middle level or matriculation with ten years of formal school education.

Let me also inform that, to keep curricula relevant, we have regular links with the end users, i.e. industry and service sector. We have a regular internship programme without which no certificate is awarded.

Through skills and TVET, we can also export our manpower and receive a premium on TVET efforts. We have a vision of Vocational Education that focuses on practical or life skills.

We have seen decency being brought to the lives of such families, which brings social advancement through dignity not only for the families but also for the social community. Even in the case of pro-poor initiatives, the Government is emphasizing “rehabilitation” rather than “relief”. Massive programmes are being undertaken to replace “Food Stamp Programmes”.

We understand that education is the key to unlock the “cage of human misery” which will open up the future of freedom and hope. Who can deny that education paves the way from poverty and hunger to freedom? Similarly, our initiative in free primary education will also lead to productivity in the formal and informal sector of economy. This has led to personal empowerment and socio-economic development.

Here I would like to interact more informally with my fellow participants and talk about our experience of Technical and Vocational Education and Training and solicit any questions or interaction.

Other sectors that I will be talking about relate to:

- Education for the poorest of the poor;
- Food Support Programme; and
- National Technical Training Centres Programme.

On the three above-mentioned interventions for sustainable development, I would like that we interact informally so that it is possible to generate interest and a learning process. Essentially, I am looking for a feedback from all of you so that we can improve ourselves in our endeavour for a modest contribution towards global sustainable development.

In our country we are aware of a ticking time bomb, where a large number of young people in the age bracket of 10-25 is and will be awaiting work opportunities. As I have mentioned above our recent TVET reform effort also include National Technical Training Centres all through the country which will hopefully cater to skills for the 21st century. As it has been remarked in an international conference, it is a means to jump on the bandwagon of globalization. TVET provides a larger vision of sustainable development. That is one of the reasons why we are also striving in making the skills of girls and boys exportable.

## **National Technical Training Centres Programme**

Economic and Social Benefits of the Programme:

The National HRD Programme based on internationally benchmarked skills is not just about building the skills needed for the workplace in Pakistan's future economy, it is also about present day marketable and economically relevant education for young people in the economically productive age group.

### **SMEs:**

The first major beneficiaries will be the Small and Medium Enterprises (SMEs). Their contribution to Pakistan's economy, employment absorption and poverty alleviation can be gauged from the fact that 90 percent of all private sector manufacturing units employ less than 99 persons. Their impact is also extremely high in the manufacturing sector, even when most of this may be employment generation at 'subsistence levels'.

This change management (training, skill development and adaptation of technology) will be a key objective of the Centres and will be intensified by enhanced networking with industrial clusters and business houses.

- SMEs in Pakistan are an integral part of the manufacturing supply chain in all sectors. They are also major players in the industrial and service supply chain, producing a variety of products and services.

- The entire process for increasing high quality skills and productivity in Districts, will place these opportunities close to most people who actually work (farmers, workers on building sites or the office / factory floor, and those who work in trade), and who are hardly educated and may not even be literate.
- The skilled personnel will be able to partake of the fruits of globalization which, apart from other factors, has brought about a massive change in the nature of work and the workplace. The 90s showed that manufacturing can also be done anywhere if the skills and physical connectivity/electronic connectivity is appropriate. Now even design activities can be undertaken anywhere, if transnational skills and management levels are matched.
- Ultimately, each and every one who enrolls will acquire core skills together with some other skills, which are transferable; that is to say, they are skills which every individual needs to continue learning and be effective at work. This is the requirement of the workforce in the 21st Century
- Apart from practical skills in the chosen trade, the individuals will improve their ability to handle numbers, analytical skills, and effective communication.

### **The Community:**

The programme will be embedded in local communities at the district level, in order for them to be strengthened economically and socially through learning and employment. A whole new generation of trained and productive manpower will be produced which will help maintain the infrastructure, implement development activities, and partake of productive employment in agriculture, industry and services at the local and national levels. Apart from poverty alleviation through decent employment (with decent wages), its impact on social transformation and solidarity will be enormous.

### **UNESCO in Pakistan**

I have briefly covered four (04) areas of TVET interventions in education for sustainable development. UNESCO in Pakistan has undertaken the following activities under Education for Sustainable Development (ESD) in 2007-08.

#### **Project:**

Building and mobilizing effective partnerships and networks for ESD in Pakistan.

#### **Activities:**

- Establishment and operationalization of a National Forum on ESD;
- Awareness and capacity of relevant ESD stakeholders and partners;
- Development of advocacy materials on ESD; and
- Organization of a National Conference on Education for Sustainable Development (ESD) entitled “Learning to Live on Planet”, in March, 2007 in Karachi. This two-day conference

included focus group workshops, such as ESD and Formal Education, ESD and Civil Society, ESD and Media, etc.

### **Material development:**

- Adaptation, printing and dissemination of Teachers' Guide Book for Teachers and Teacher Educators: Education for Sustainable Development; and
- Adaptation, printing and dissemination of the Book "Rethink, Refuse and Reduce – Education for Sustainable in a Changing World.

The above is not enough. As a lead role, more tangible effort and guidance would be required. The Government in Pakistan would require/need more agency support for the development of TVET. How much UNESCO could respond to such expressed needs? UNESCO will have to take into account the characteristics of TVET and those of country needs and the state of economy. Given current global situation, the needs are sensitive. But other countries might help – such as Germany, Australia, Switzerland; etc. Focus should be on capacity development and better international sharing of knowledge and experience.

We, of course; do not expect UNESCO in Pakistan to cover the whole range of TVET themes as that would be a recipe for superficiality. What however is required is at least a concerted effort towards fulfillment of clear definable and measurable inputs for a less developed country like Pakistan.

### **Conclusion**

Given the poverty of skills, TVET is an ideal adjunct to Education for Sustainable Development.

We are conceptually involved in a movement whereby a snowball effect might gather into an avalanche. TVET thus as a tool for sustainable development can refute some of the cynics who consider that the term is more charming than meaningful.

Given the above, we will also have to be mindful that we live on a planet where 20 percent of the population consumes 80 percent of the national resources. Sustainable development as a cliché will have to provide tangible bite for the majority of the poor.



# Country Paper

## Philippines

### TVET AND SUSTAINABLE DEVELOPMENT

**ELMER K. TALAVERA, CESO**

Regional Director

Technical Education and Skills Development Authority

Region XI, Juan Luna St., Davao City

#### TVET and Sustainable Development

The Technical Education and Skills Development Authority (TESDA) was created by virtue of Republic Act 7796 enacted on August 1994.

Mandated to manage the tech-voc sector, TESDA is governed by a tripartite Board with representations from the government, the private sector and the labour sector. It is supported by a Secretariat which operates 17 Regional Offices each headed by a Regional Director, and 85 Provincial/District Offices each headed by a Provincial/District Director. It also has a network of 125 TESDA Technology Institutions (TTIs) which includes 16 Regional Training Centres, 45 Provincial Training Centres (PTC), and some specialized training centres including the TESDA Women's Centre (TWC) and the National TVET Trainers' Academy (NTTA) in the Central Headquarters. Some 4,500 organic dedicated personnel man the authority. The Director General holds office at the central headquarters, with a cabinet rank, supported by the Deputy Directors General in charge of Sectoral TVET (ST), Field Operations (FO), and Communities and Local Government Units Services (CLGUS).

There are 7 Executive Offices, namely: the Planning Office (PO), the Qualifications and Standards Office (QSO), the Competency Assessment and Certification Office (CACO), the TVET Systems Development Office (TSDO), the Regional Coordination Office (RCO), the Office of TESDA Technology Institutions (OTTI), the Office of the Chief for Services and Administration (OCSA). Each Executive Office is headed by an Executive Director.

TESDA's major product lines include the policies and plans for the TVET sector, competency standards and training regulations. Its network of private and public Tech-Voc Institutions (TVIs) has a rated capacity of more than a million graduates in a year, and more than 3,000 tech-voc providers nationwide offering qualifications from the existing roster of 210 Training Regulations promulgated by the TESDA Board. Another major concern that TESDA manages is the Competency Assessment and Certification programme which grants

proof of competency to a graduate or worker who successfully performs the assessment procedures stipulated in the Training Regulations (TRs). The National Certificate is a document issued by the Authority which serves as a license to a technician to perform his trade.

Role of Education in ESD. “Information is power. Positive changes in our environment will only take place with an efficient and effective education campaign ... how we should drive, and unite, to ensure that we will have a better Philippines – environment-wise,” DENR Secretary Atienza said.

Global Agenda 21 Chapter 36 emphasized “Education, including formal education, public awareness and training should be recognized as a process by which human beings and societies can reach their fullest potential. Education is critical for sustainable development and improving the capacity of the people to address environment and development issues”. “If we all care for the environment, it will care for us; when we put the environment first, development will last” (Meadows, 1990).

The National Environment Education Action Plan (NEEAP) seeks to complement existing government education programmes. The Education for All (EFA) programme targeted in the Millennium Development Goal (MDG), which is being spearheaded by the DepEd as a multi-sectoral endeavor, has been identified as a potential support system for the NEEAP. The EFA has set its activities in four areas: the institutionalization of early childhood development as a basic service for all children in the country; the improvement in the quality and efficiency of primary education; the eradication of illiteracy; and the provision of basic knowledge, skills and values that allow adults and out-of-school youth to improve the quality of their life and increase their opportunities to participate in the development process.

Sustainable Development – a commitment of every citizen. The pledge of the Filipinos to the national flag is with the recognition and accountability of every Filipino to love and protect nature. This should be among the guiding principles on Philippine Education for Sustainable Development (ESD) which must be inculcated and imbibed by all learners at all levels of the Philippine educational system.

It is but logical to assume that the three branches of education, i.e. Basic Education, Technical Vocational Education and Training (TVET), and Higher Education, are supportive of the above principles enshrined in the Pledge of Allegiance to the Philippine flag.

<b>Pledge of Allegiance to the Philippine flag</b>	
Ako ay Pilipino	I am a Filipino
Buong katapatang nanunumpa	I pledge my allegiance
Sa watawat ng Pilipinas	To the flag of the Philippines
At sa bansang kanyang sinasagisag	And to the country it represents
Na may dangal, katarungan at kalayaan	With honor, justice and freedom
Na ipinakilos ng sambayanang	That is put in motion by one nation
Maka-Diyos, Makakalikasan, Makatao at, Makabansa	For the love of God, Nature, People and Country.

## Sharing the Philippine TVET experience in ESD

Programme brief. The Montreal Protocol is a landmark agreement signed by some 24 countries on September 16, 1987 on substances that deplete the ozone layer and was amended and extended to 186 countries including the Philippines.

**The biggest contributors to ozone depletion are the technicians. Venting of refrigerants is one of the primary causes of Ozone Depletion.**

National CFC Phase-Out Plan

Action of the Philippine Government in compliance with the Protocol. Consistent with the Protocol, in November 2002, the National CFC Phase-out Plan (NCPP) was approved with a total grant assistance of USD 10.53M from the multilateral fund of the Montreal Protocol administered by the World Bank.

The NCPP aims to phase out the remaining CFCs in the Philippines by year 2010 through a gradual phase-out schedule. A multipartite agreement signed in March 2003 involved the Department of Environment and Natural Resources (DENR), Land Transportation Office (LTO), Department of Trade and Industry (DTI), Department Of Finance (DOF), Department Of Health-Bureau of Food And Drugs (DOH-BFAD), and the Technical Education and Skills Development Authority (TESDA). In September 2003, the Philippine Ozone Desk (POD) and the NCPP Project Monitoring Unit (NCPP-PMU) were set up. The PMU is tasked to implement the NCPP.

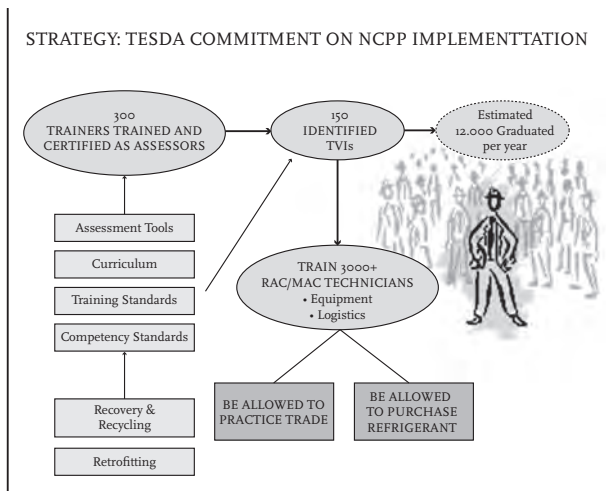
The LOGFRAME (Annex I) depicts the roles of the Government agencies in a convergence strategy for the National CFC Phase-out Plan (NCPP):

1. Department of Finance (DOF) – Bureau of Customs (BOC) – prohibits the entry of CFC in the country, conducts training (200 BOC personnel nationwide) on ODS identification, and monitoring of other controlled substances in partnership with DENR-Environment Management Bureau (EMB)-POD.
2. Department of Trade and Industry (DTI)-Bureau of Trade Regulation and Consumer Protection (BTRCP) – is in charge of the accreditation of Air Conditioning Service Providers; It ensures that the service providers are manned by technicians certified as competent by TESDA. Likewise, it ensures that the service shops have the necessary recovery and recycling machines, vacuum pumps and all the equipment mandated by the law.
3. Department of Trade and Industry (DTI) – Bureau of Import Services (BIS) – manages the implementation of EO No. 156 providing for a comprehensive industrial policy and directions for motor vehicles development programme. Specifically, the guidelines ban the import of second-hand equipment and motor vehicles for 5 years from January 1, 2004 to December 31, 2008 (manufactured from 1995 and before that with ODS).
4. Department Of Transportation and Communication (DOTC) – Land Transportation Office

(LTO) - is responsible for the inspection of AirCon systems in motor vehicles as a requirement to renew vehicle registration.

5. Department Of Health (DOH) – Bureau of Food and Drugs (BFAD) - bans the importation of CFC Metered-Dose Inhalers (MDI) starting 2007.

6. Technical Education and Skills Development Authority (TESDA) – conducts assessment of RAC (Refrigeration and Air Conditioning) and MAC (Mobile Air Conditioning) technicians; develops training curriculum and modules for CFC POP; develops competency requirements for technician certification; conducts “Train the Trainers Programme”; provides accreditation to Regional /Provincial Training Centers for RAC/MAC; supports DENR-EMB-POD in the public awareness and outreach programme; assists in the formulation and development of Guidelines on Code of Practice in RAC/MAC.



The diagram on the Strategy of TESDA on NCPP implementation depicts how strategic the TVET interventions are. Only TESDA-certified technicians are allowed to practice their trade and purchase refrigerants.

The engagement starts with the experts’ identification of work standards in the operation of the recovery machine and the proper step-wise procedures in ensuring that the refrigerant will not be vented accidentally/ intentionally into the air. The same process is done for the two other critical competencies recycling and retrofitting air-conditioning systems. From these competency standards are drawn the assessment tools so that performance can be properly calibrated, thus competence of a technician is established. Curricula and Training standards were likewise drawn from competency standards. These processes are done in consultation with the practitioners in the trade. These TVET products, specifically the assessment tools and the training standards, were utilized by the project to propagate the technology through the development of TVET trainers in the 150 selected Tech-Voc Institutions (TVIs) and the training/certification of technicians in the selected pilot enterprises/shops.

## TESDA's Role in the Implementation of the NCPP:

1. Upgrade existing Training Regulations - by year 2005, the Training Regulations (TRs) for Heating, Ventilation and Air-Conditioning/Refrigeration HVAC/R (i.e., RAC and MAC) promulgated by the TESDA Board, already incorporated the critical competencies of the 3Rs (Recovery, Recycling, & Retrofit).
2. Prepare Training Curriculum –  
Three critical competency requirements:
  - a. Refrigerant Recovery – the process of removing refrigerant from a system and properly storing and labeling in a sealed cylinder.
  - b. Refrigerant Recycling – the process of ridding collected refrigerants by oil separation through the use of filter driers to reduce moisture, acidity and particles to be reused.
  - c. Retrofitting of RAC/MAC systems – the process of converting CFC RAC equipment to non-CFC RAC equipment using ozone-friendly refrigerants.

Along this area, the following had been accomplished: the development of Competency Standards for HVAC/R; the development of Assessment Instruments for NCPP-required competencies.

Developed competency-based curriculum and learning materials on RAC/MAC covering the 3Rs (Recovery/Recycling of refrigerants and Retrofitting of RAC/MAC systems). 2006, the pilot-tested curriculum and learning materials have already been reproduced in both soft and hard copies for dissemination. A Trainers Guide on the conduct of Trainers' and Technicians training was developed likewise .

3. Conduct Trainers Training – to train 300 RAC/MAC trainers from different TVIs, CHED institutions and industries (trained 121 as of Nov.25, 2003).

2003, some 358 RAC/MAC trainers (Target for August 2003-August 2005) were trained. The programme has trained 25 industry trainers from service shops, manufacturers and associations.

By EO 2006, some 2,800 technicians have already been trained. Of the 13,303 TVET trainers qualified from 2006 to June 2009 under the National TVET Trainers and Assessors Qualification Programme (NTTAQP), 760 of them are trainers in the RAC/MAC sector representing some 5.71% of the total number of TVET trainers in the country. This number is more than twice the target set forth by the NCPP which was already achieved EO 2005.

4. Conduct Competency Assessment of RAC and MAC technicians for certification – to certify 5,000 technicians nationwide by 2005. To train 300 accredited assessors for NCPP by 2004.

National TVET Trainers and Assessors Qualification Programme 2006 - June 2009					
QUALIFICATIONS	2006	2007	2008	2009	TOTAL
ALL	780	3,193	4,511	4,819	13,303
Automotive Servicing NC I	0	0	0	1	1
Automotive Servicing NC II	46	230	166	167	609
RAC Servicing NC I	0	1	0	0	1
RAC(PACU/CRE) Servicing NC II	46	23	37	27	133
Transport RAC Servicing NC II	5	3	5	3	16
RAC/MAC	97	257	208	198	760
	12.44%	8.05%	4.61%	4.11%	5.71%

Source: Competency Assessment and Certification Office (CACO), TESDA

2005, TESDA has facilitated the competency assessment of 358 trained trainers in coordination with the Assessment Board as National Assessors of Technicians. Assessment Centres were accredited in coordination with the Assessment Board. From 2006 to June 2009, TESDA has developed additional 760 competency assessors in the RAC/MAC sector. Continuous conduct of competency assessment of technicians/ graduates was implemented. As a matter of policy, certification is a requirement by the DTI in the renewal of Business Permits to operate a RAC/MAC service shop.

- Public awareness and outreach programme – this is an area for improvement. While there are instances of video exposure of advocacy materials, such practice is not sustained. The materials can still be popularized and positioned at the community and even household level. Information, education and communication strategies are wanting in order to raise awareness about the role of TESDA objectives.

As an example, TESDA participated in the exhibit of “Clean Air Now” sponsored by Swisscontact; conducted orientation programmes on refrigerant identification for LTO, DTI and BOC inspectors; participated in the 9th OSH National Congress.

- Formulation and development of Code of Practice in RAC and MAC sectors – the Code of Practice features the Standard Operating Procedures for all HVAC/R practitioners nationwide.

TESDA has contributed to the formulation of the Code of Practice for RAC/MAC sector, which has been included in all core competencies of the HVAC/R curriculum.

This handbook was developed to generally contribute to the reduction of emission of Ozone Depleting Substances (ODS), in Refrigeration and Air Conditioning Sector.

There are three sections under the sector, namely: (1) Domestic Refrigeration and Window Type Air Conditioner, (2) Commercial and Industrial Refrigeration and Air Conditioning, and (3) Transport Refrigeration and Air Conditioning. RAC/MAC technicians in the Philippines will use this Code as reference on good practices in handling and working with refrigerants. It also features the regulations and legislations governing the trade. TESDA makes use of the Code in the assessment and certification of the technicians' competence. It is a must for technicians to fully understand the contents of the Code in the course of the training on recovery, recycling and retrofitting procedures.

NOTICE ON THE DOCUMENT: This Code of Practice for Refrigeration and Air Conditioning was made possible using funding from the Multilateral Fund (MLF) through the World Bank (WB) and the Government of Sweden, granted to the Philippine Government through the Department of Environment and Natural Resources (DENR) as implementing agency and Land Bank of the Philippines (LBP) as the financial intermediary. This handbook was developed to generally reduce the emission of Ozone Depleting Substances (ODS), in Refrigeration and Air Conditioning Sector. There are three (3) sections under the sector, namely: Domestic Refrigeration and Window Type Air Conditioner, Commercial and Industrial Refrigeration and Air Conditioning, Transport Refrigeration and Air Conditioning. The original document was drafted by Engr. Ariel D. Delicana, the Project Component Coordinator for the Code of Practice, Reclamation and Trade Communication (PCCCPRTC) of the Project Management Unit (PMU) - National CFC Phase-out Plan (NCPP) under the Philippine Ozone Desk (POD) of the Environmental Management Bureau (EMB), Department of Environment and Natural Resources (DENR). This was then presented to the members of the Technical Working Group (TWG) for the Code of Practice for Refrigeration and Air Conditioning, who are composed of representatives from concerned industry organizations and stakeholders directly or indirectly involved in the field of refrigeration and air conditioning. The finalization was attained through a series of discussions with the group and consultations meetings conducted with different sectors in the refrigeration and air conditioning industry. Technicians will also use this Code as reference on good practices in handling and working with refrigerants, including regulations and legislations concerning with the trade. Each technician will be made to fully understand the contents of this material in line with their training on recovery, recycling and retrofitting procedures prior to their certification from TESDA. This Code will be a living document and therefore subject to change or revision. It is expected that those concerned sectors with areas not fully covered by this Code shall be responsible to present additional inclusions to be included in the next revision and reproduction. Any comment or suggestion will be highly appreciated for the improvement of the contents of this Code and should be addressed to:

The Technical Working Group (TWG)  
Code of Practice for Refrigeration and Air Conditioning  
C/o National CFC Phase out Plan- Project Management Unit (NCPP-PMU)  
Philippine Ozone Desk-Environmental Management Bureau (POD-EMB)  
Department of Environment and Natural Resources (DENR)  
DENR Compound, Visayas Avenue, Quezon City  
Tel. No.: 63-02-4264338/ 63-02-9284578/ 63-02-9284589

## Programme Accomplishments

Year	Assessed	Certified	Certification Rate
1987	43,465	18,354	42.23%
1988	52,138	22,259	42.69%
1989	43,465	18,354	42.23%
1990	54,392	22,259	40.92%
1991	59,015	22,918	38.83%
1992	54,392	24,724	45.46%
1993	81,840	54,226	66.26%
1994	68,191	45,384	66.55%
1995	64,856	39,534	60.96%
1996	97,405	49,744	51.07%
1997	90,569	45,554	50.30%
1998	127,055	57,095	44.94%
1999	125,559	62,684	49.92%
2000	90,472	57,605	63.67%
2001	185,399	144,746	78.07%
2002	158,305	68,529	43.29%
2003	111,251	39,209	35.24%
2004	207,918	122,453	58.89%
2005	223,984	108,361	48.38%
2006	257,796	160,941	62.43%
2007	398,711	293,219	73.54%
2008	549,121	431,071	78.50%
	3,145,299	1,909,223	60.70%

It is noteworthy that for the 12-year period 1987-2008, the access to the National Competency Assessment of TESDA has grown from just a little over 40,000 to more than half a million per annum. Likewise, the number of practitioners certified has grown from less than twenty thousand (18,354) in 1987 to more than 400,000. Thus, it can be said that the quality of human resources has been enhanced by more than twenty-five times.

**Certified Trainers:** on the other hand, today, there are already about 760 TVET trainers who can handle the delivery of the 3Rs.

**Certified workers:** For HVAC/R, for the past 3.5 years, the TVET sector has produced a total of 4,618 certified technicians, consistent with the standards incorporating Recovery, Recycling, and Retrofit. Quality of training is also high with a certification rate of 85% which has also improved from 83% in 2007 to 90% in 2009. There are also technicians in the RAC/MAC sectors certified in specific core competencies, who were thus issued Certificates Of Competencies (COCs).



Sector/ Title of Qualification	Number of Workers Assessed and Certified														
	2006			2007			2008			May-09			Total		
	A	C	Rate	A	C	Rate	A	C	Rate	A	C	Rate	A	C	Rate
HVAC															
1. RAC (Window AC/Domestic Ref) Servicing NC I	6	6	100.0%	1,021	770	75.4%	1,591	1,293	81.3%	141	101	71.6%	2,759	2,170	78.7%
2. RAC (PACU/CRE) Servicing NC II	57	56	98.2%	616	567	92.0%	1,292	1,153	89.2%	259	249	96.1%	2,224	2,025	91.1%
3. Transport RAC Servicing NC II	10	9	90.0%	188	179	95.2%	129	128	99.2%	107	107	100.0%	434	423	97.5%
TOTAL	73	71	97.3%	1,825	1,516	83.1%	3,012	2,574	85.5%	507	457	90.1%	5,417	4,618	85.3%
Competency Assessment and Certification Office (CACO), TESDA															

Title of NC/COC	No. of Certified Workers
RAC Servicing NC I	
Recover and Recycle Refrigerant in Window Type Air - Conditioning / Domestic Refrigeration Units	874
Repair and Retrofit Window Type Air - Conditioning / Domestic Refrigeration Units	851
RAC Servicing NC II	
Recover and Recycle Refrigerant in PACU / CRE Units	926
Repair and Retrofit PACU / CRE Systems and Its Accessories	920
Transport RAC Servicing NC II	
Recover and Recycle Refrigerant in Transport Air - Conditioning and Refrigeration Systems	121
Repair and Retrofit Transport Air - Conditioning and Refrigeration Systems and Its Accessories	113
TOTAL	3805

This group of technicians with specific COCs provides an additional of about 3,805 practitioners in the HVAC/R sector who are compliant to the Code of Practice in their specific critical competencies.

## The National Environmental Education Action Plan (NEEAP)

The NEEAP seeks to complement existing government education programmes. The Education for All (EFA) programme, which is being spearheaded by the DepEd as a multi-sectoral endeavour, has been identified as a potential support system for the NEEAP.

The EFA has set its activities in four areas: the institutionalization of early childhood development as a basic service for all children in the country; the improvement in the quality and efficiency of primary education; the eradication of illiteracy; the provision of basic knowledge, skills and values that allow adults and out-of-school youth to improve the quality of their life and increase their opportunities to participate in the development process. In this context, it can be seen that the NEEAP, while part of a worldwide response, is a strategic link between the Philippine Agenda 21, and the academic sector whose future depends on its implementation.

Essentially, the NEEAP for Sustainable Development (SD) seeks to support the key elements of SD under the Enhanced Philippine Agenda 21 – Poverty Reduction, Social Equity, Empowerment and Good Governance, Peace and Solidarity and Ecological Integrity. The Updated NEEAP for SD (2005-2014) is an initiative of the Philippines in support to the United Nations Decade of Education for Sustainable Development (UNDESD), which embraces the following key themes in ESD (under the UNESCO Framework for a Draft Implementation Scheme of the UNDESD): Overcoming Poverty; Gender Equality; Environment Conservation and Protection; Rural Transformation; Human Rights; Intercultural Understanding and Peace; Sustainable Production and Consumption; Cultural Diversity; Information and Communication Technologies.

The Plan envisions an environmentally-literate and proactive citizenry imbued with a sense of responsibility to care, protect and enhance environmental quality that is conducive to their well-being, supportive of the nation's economic development and unified in its pursuit of peace, social justice and equity in the use of natural resources.

The Plan purports to:


1. improve the institutional systems, making them more relevant towards the delivery of environmental education to all segments of society;
2. mobilize resources and encourage more private/public investments and partnerships in supporting programmes for environmental education;
3. establish a critical mass of committed environmental educators and practitioners who will spearhead the environmental education movement; and;
4. promote environmental ethics which will instill the right values and attitudes as a way of life among the Filipinos.

## What can be done to advance TVET for ESD:

Environmental education is the process by which people develop awareness, knowledge and concern about the environment and its diverse values and processes, and learn to use this understanding to preserve, conserve and utilize the environment in a sustainable manner for the benefit of present and future generations. EE involves the acquisition of skills, motivations and commitments to work individually and collectively toward the solution of current environmental problems and the prevention of new ones. Environmental education adopts an integrated approach to the environment, both natural and human-made, and promotes a holistic, dynamic and interactive view of its biological, physical, social, economic, technological and cultural components. It is recommended to emphasise some points of the environmental education in various sectors

Adherent to the institutional agreements stipulated in the National Environment Education Action Plan (NEEAP), and conscious of the UN declaration of 2005-2014 as the Decade of Education for Sustainable Development (DESD), with expectations that all countries take progressive steps to integrate sustainable development into their educational policies and plans in all education sectors, the following are forwarded for consideration:

1. For the developed economies to provide continuous support to the developing economies' education and training programmes aiming at protecting and conserving the environment. Initially, research on workplace practices (across all occupations in all sectors) harmful to the environment can be shared to the southern economies. Likewise, occupation-specific good practices will be very helpful.
2. For the Philippine government to request the WB and other international donor agencies to consider replicating the Philippine National CFC Phase-out Plan (NCP) to other economic sectors.
3. For the Environment Management Bureau (EMB) of the DENR to look at possibilities to popularize the Code of Practice some more from its technical form to different media that will reach more segments of society most especially the RAC/MAC technicians and members of the household.
4. Specific to the NCP, for TESDA to require the use of the Code of Practice for RAC and MAC as a must reference and learning material in all RAC and MAC qualifications course offerings. Corollarily, TESDA has to ensure the accessibility of the copy of the Code of Practice either in print or soft copies. The use of the Code has to be religiously monitored through with TESDA conducting regular compliance audits in training centres and institutions offering RAC/MAC qualifications.

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5. The Sustainable Development context of the Training Regulations for RAC and MAC should serve as a start for TESDA and the TVET sector in looking at the Sustainable Development (SD) in other existing qualifications as well. It should be considered that, as a matter of policy, all subsequent Training Regulations (TRs) that will be developed and promulgated by the TESDA Board MUST include competencies on preventing further damage to our environment. While in crafting competency standards, safety to the workers and the customers are always considered, a conscious effort has to be effected to consider always safety and protection of the environment. TESDA's Central Office, specifically the Qualifications Standards Office (QSO) need to work actively with the DENR's Environment Management Bureau (EMB) in this respect.
  6. Incorporation of Sustainable Development in the National TESD Plan 2010-2015. Considering that the year 2010 is a planning year for Technical Education and Skills Development 2010-2015, TESDA and other education authorities should ensure that the strategies supportive of the principles of SD are situated and targeted in the Plan. TESDA's Planning Office (PO) shall work with the EMB. The ESD context of the NTESDP should seek the guidance of the DENR-EMB through the Inter-Agency Committee on TESD Planning in which DENR sits as an active member.

## ANNEX I

NATIONAL CFC PHASE-OUT PLAN LOGICAL FRAMEWORK			
Narrative Summary	Objectively Verifiable Indicators (OVI)	Means of Verification (MOV)	Assumptions and Risks/Remarks
<p>Goal:</p> <p>A Philippines that does not contribute to the emission of CFCs to the atmosphere that exacerbating the ozone layer depletion.</p>	<ul style="list-style-type: none"> <li>• Zero consumption of CFC in the Philippines by January 1, 2010</li> </ul>	<ul style="list-style-type: none"> <li>• Bureau of Customs (BOC) CFC importation records</li> </ul>	<ul style="list-style-type: none"> <li>• No smuggling of CFC in the country occurs</li> </ul>
<p>Purpose:</p> <p>To completely phase out CFC consumption in the Philippines by 1 January 2010 in accordance with the phase-out schedule stipulated in the Montreal Protocol.</p>	<ul style="list-style-type: none"> <li>• 2,017.6 metric tons (MT) Ozone Depleting Potential (ODP) of CFC phased out by January 1, 2010</li> </ul>	<ul style="list-style-type: none"> <li>• Bureau of Customs (BOC) CFC importation records</li> </ul>	<ul style="list-style-type: none"> <li>• No smuggling of CFC in the country occurs</li> </ul>
Outputs (key result areas):			
<p>1. Complete conversion of the manufacturing sector (enumerated below) into use of non-ODS in their operations:</p> <ul style="list-style-type: none"> <li>• Production of aerosol products, including metered-dose inhalers [MDI], foams and plastic products;</li> <li>• Use of ODS solvents in the pharmaceutical, garments/ textile sectors, and electronics manufacturing (CFC-113)</li> <li>• Production of refrigeration equipment (domestic refrigerators, commercial refrigeration, refrigerated trucks and water coolers)</li> </ul>	<ul style="list-style-type: none"> <li>• 1.2 million units of MDI phased out by [no date]</li> <li>• 508.57 MT ODP CFC-11 and 9.64 MT ODP of CFC-12<sup>1</sup> used in foams eliminated by January 2005</li> <li>• Maintain zero consumption of CFC-113 (0 imports as of 2002) in electronics sector</li> <li>• Maintain zero consumption of CFC-11 in tobacco preparation</li> </ul>	<ul style="list-style-type: none"> <li>• Bureau of Food And Drugs-Department Of Health (BFAD-DOH) <sup>2</sup> product registration of MDIs</li> <li>• Department of Trade and Industry (DTI) records</li> <li>• BOC importation records</li> </ul>	<ul style="list-style-type: none"> <li>• This has been done.</li> </ul>

<sup>1</sup> Based on original NCPP Project Proposal 27 October 2002

<sup>2</sup> Bureau of Food and Drugs – Department of Health

NATIONAL CFC PHASE-OUT PLAN LOGICAL FRAMEWORK			
Narrative Summary	Objectively Verifiable indicators (OVI)	Means of Verification (MOV)	Assumptions and Risks/Remarks
2. Introduction of “good practices” in the servicing sector (refrigeration and air-conditioning [RAC] and mobile air-conditioning [MAC]).	<ul style="list-style-type: none"> <li>• 2,580<sup>3</sup> service shops that can demonstrate proper servicing methods (no venting, no mixing, not using ODS as cleaning agent, always recovering refrigerant before servicing)</li> <li>• 3,000 TESDA certified service technicians</li> <li>• 1,368.64 ODP MT of CFC-12 and 160 ODP MT of CFC-11 phased out by 1 January 2010</li> <li>• # of shops with servicing records</li> <li>• # of shops that inform DENR when they transfer location</li> </ul>	<ul style="list-style-type: none"> <li>• National CFC Phase-Out Plan-Project Monitoring Unit (NCP-PMU) service shop monitoring sheet</li> <li>• Third party audit</li> <li>• Certification documents</li> </ul>	<ul style="list-style-type: none"> <li>• Service shops are amenable to changing ingrained behaviour in servicing methods (venting, no service recording)</li> </ul>
3. Ban on use of CFC in mobile air-conditioning (MAC) – [no specific changes in behaviour of MAC users formulated]	<ul style="list-style-type: none"> <li>• 1,915,943 vehicles not using CFC refrigerants by 1 January 2010<sup>4</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Land Transportation Office (LTO) registration records</li> </ul>	<ul style="list-style-type: none"> <li>• Vehicle owners are amenable to phasing out CFC-based MACs in their units</li> </ul>
4. Strengthen the capacity of relevant government agencies (EMB, DTI, BOC, BFAD), to regulate the operations of users of ODS in the manufacturing and servicing sectors	<ul style="list-style-type: none"> <li>• Process flows for regulation in place in each government agency</li> </ul>	<ul style="list-style-type: none"> <li>• Copy of process flows</li> </ul>	<ul style="list-style-type: none"> <li>• Commitment for strict regulation</li> </ul>

<sup>3</sup> There were 5,057 registered RAC and MAC service enterprises in 2003 when the project started.

<sup>4</sup> All vehicles manufactured after 1998 are designed for non-CFC refrigerant

## NATIONAL CFC PHASE-OUT PLAN LOGICAL FRAMEWORK

Narrative Summary	Objectively Verifiable indicators (OVI)	Means of Verification (MOV)	Assumptions and Risks/Remarks
Activities:			
1. Projects for conversion in the manufacturing sector (no details as not part of TOR)	<ul style="list-style-type: none"> <li>• # of projects implemented</li> </ul>	<ul style="list-style-type: none"> <li>• Project reports</li> </ul>	
2. Develop communication plan and support its implementation			
3. Production of brochures to promote voucher system for tools and equipment among service shops throughout the country	<ul style="list-style-type: none"> <li>• # of brochures produced</li> </ul>	<ul style="list-style-type: none"> <li>• Copy of brochures</li> </ul>	
4. Install inter-agency vetting system for voucher applications from service shops	<ul style="list-style-type: none"> <li>• # of meetings held</li> </ul>	<ul style="list-style-type: none"> <li>• Minutes of meetings</li> </ul>	
5. Accredite suppliers of tools and equipment	<ul style="list-style-type: none"> <li>• # of suppliers accredited</li> </ul>	<ul style="list-style-type: none"> <li>• Accreditation certificates</li> </ul>	
6. Regular coordination meetings with other relevant government agencies (TESDA, BOC, DTI, BFD and LGUs).	<ul style="list-style-type: none"> <li>• # of meetings held</li> </ul>	<ul style="list-style-type: none"> <li>• Minutes of meetings</li> </ul>	
7. Provision of tools and equipment to service shops to enable them to carry out proper servicing methods	<ul style="list-style-type: none"> <li>• # of equipment provided as grant [no specific target on this]</li> </ul>	<ul style="list-style-type: none"> <li>• Receipts</li> <li>• Vouchers</li> </ul>	
8. Formulation of a “Code of Practice” for service shops and service technicians	<ul style="list-style-type: none"> <li>• 2,580 “Code of Practice” for service shops and services given out, one to each service shop</li> </ul>	<ul style="list-style-type: none"> <li>• Copy of “Code of Practice”</li> <li>• NCPP-PMU monitoring sheet</li> </ul>	

## NATIONAL CFC PHASE-OUT PLAN LOGICAL FRAMEWORK

Narrative Summary	Objectively Verifiable indicators (OVI)	Means of Verification (MOV)	Assumptions and Risks/Remarks
9. Training by TESDA of service technicians	<ul style="list-style-type: none"> <li>• # of service technicians trained</li> <li>• # of training activities held</li> </ul>	<ul style="list-style-type: none"> <li>• TESDA training certificates</li> </ul>	
10. DTI accreditation of service shops	<ul style="list-style-type: none"> <li>• # of accreditation activities conducted</li> <li>• # of DTI-accredited service shops</li> </ul>	<ul style="list-style-type: none"> <li>• DTI accreditation records</li> <li>• Project reports</li> </ul>	
11. Certification of TESDA-trained technicians	<ul style="list-style-type: none"> <li>• # of certification activities conducted</li> </ul>	<ul style="list-style-type: none"> <li>• Project reports</li> </ul>	
12. Service documentation coaching (not being done at the moment)	<ul style="list-style-type: none"> <li>• # of shops given coaching in service documentation</li> </ul>	<ul style="list-style-type: none"> <li>• Project reports</li> </ul>	
13. Review of regulatory mechanisms (involving different government agencies) relevant to the RAC and MAC servicing sector	<ul style="list-style-type: none"> <li>• # of reports produced</li> </ul>	<ul style="list-style-type: none"> <li>• Copy of reports</li> </ul>	
14. Carry out Third Party Audit of service shop performance and equipment audit	<ul style="list-style-type: none"> <li>• Third party audit carried out</li> </ul>	<ul style="list-style-type: none"> <li>• Third party audit report</li> </ul>	
15. Establish a database for the monitoring of RAC and MAC service shops all over the country	<ul style="list-style-type: none"> <li>• Database in place</li> </ul>	<ul style="list-style-type: none"> <li>• Report on the development and operation of the database</li> </ul>	
16. Regular monitoring and evaluation activities	<ul style="list-style-type: none"> <li>• Procedures manual in place</li> </ul>	<ul style="list-style-type: none"> <li>• Copy of procedures manual</li> </ul>	
17. Amend PD 1572	<ul style="list-style-type: none"> <li>• Policy amended</li> </ul>	<ul style="list-style-type: none"> <li>• Copy of policy</li> </ul>	
18. EMB staff development <ul style="list-style-type: none"> <li>• In monitoring and evaluation</li> <li>• In regulation [no being done]</li> <li>• In servicing record coaching [not being done]</li> </ul>	<ul style="list-style-type: none"> <li>• # of staff development activities conducted</li> </ul>	<ul style="list-style-type: none"> <li>• Activity reports</li> </ul>	



## ANNEX II

### Waste Reuse in the Automotive Sector:

Used oil + Sawdust = substitute for firewood? Small automotive repair shop-owners, most especially in the rural areas, seldom care on the upkeep of their business establishment. The organization of tools is often wanting. The workshops are a mess. Worse, the technicians, whenever their engines need oil change, usually just throw the oil anywhere they please. Oftentimes, used oil flushed in the side canals ends up downstream. Despite the unsightly situation, seldom do shop-owners realize what drove their customers away. Revenues continue to drop. The incomes of the wives of the shop technicians get affected. Among the first to go is the budget for kerosene used for starting fire for cooking.

A Swisscontact-supported project METASHAPE (Metalcraft Self-Help Associations for Productivity Enhancement) in the Philippines early 90s, embraced sustainable development at the shop level. Part of good housekeeping practices aimed at improving productivity of small workshops, the principles of 5S (good housekeeping) were advocated. As an outcome, a viable system was broached. Used oil, usually thrown to the ground or canals were instead collected and mixed with sawdust and the mixture is distributed to the women at the household level to be used in making fire in cooking.

#### Results:

1. Orderly workshops without spilled and scattered oil stains around thus inviting more clients;
2. less polluted rivers;
3. savings at the households; and
4. rural housewives provided with access to more efficient methods of cooking.

### Waste Reuse in the Tourism Sector:

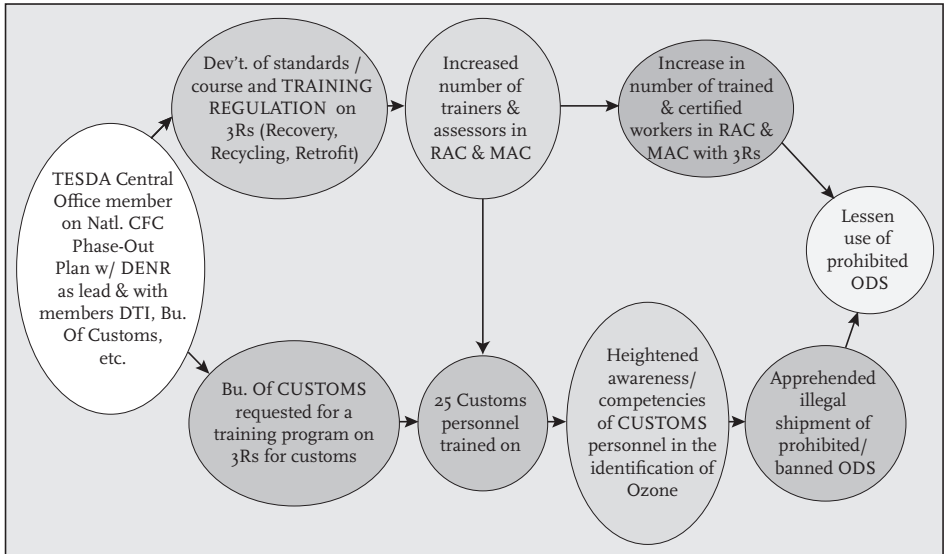
Fish intestines as orchid fertilizers? The smell of fish usually attracts flies. One resort owner in Davao City who also is known in horticulture has developed a system of recycling. Fish intestines and water used in washing fish in the resort kitchen are collected and placed in plastic garbage bags. After some days to allow decomposition, parts of the liquid solution are mixed with parts of water and used as fertilizer to the orchids in the resort.

#### Results:

1. realized savings on fertilizers;
2. more beautiful orchids; and,
3. efficient waste disposal method.

## ANNEX III

### GOOD PRACTICE in Education for Sustainable Development



Good Practice in Education for Sustainable Development. This diagram is a representation of an example of the contributions of TVET in Sustainable Development. The Government of the Philippines (GOP) commitments to the Montreal Protocol prompted the creation of a National Chloro Fluoro Carbon Phase-Out Plan (NCPP) with the Department of Environment and Natural Resources (DENR) at the helm poised to eradicate CFC use in the country by 2010. This programme, supported by World Bank, started in 2002 and will directly affect the economic sectors in Automotive and HVAC (Heating, Ventilation and Air-Conditioning). By January 2010, the GOP will not allow any importation of CFC. The use of CFC will only be allowed until February 2012.

# Country Paper

## Papua New Guinea

# REORIENTING TVET POLICY TOWARDS EDUCATION FOR SUSTAINABLE DEVELOPMENT FOR PAPUA NEW GUINEA

**JAYASUNDARA. J. BANDA**

Assistant Secretary – TVET  
Technical Vocational Education & Training Division  
Department of Education  
Papua New Guinea

### ABSTRACT

Technical Vocational Education and Training (TVET) Division is part of the National Department of Education of Papua New Guinea. The prime objective is to provide coordinating services and logistics supports for seven (7) Technical and Business Colleges and 141 Vocational Centres situated in 21 Provinces. There are five (5) branches in TVET Division namely Curriculum, Inspections, Operations, Vocational and Community Education. There are 49 officers working in TVET Division Head Office and 1075 teachers working in TVET institutions.

The TVET Education is a second priority of the Government of PNG besides Universal Basic Education. Managing and controlling of the Vocational Centres are the responsibility of the Provincial Government where as Inspection, Curriculum and Teacher Training are the responsibility of the National Government. Technical and Business Colleges are the national function directly controlled by the TVET Division in line with the Education and Teaching Service ACTs.

Technical and Business Colleges are producing technician for Trades, Industries, Commerce, Public Service and Community and are offering Diploma, Certificate and extension courses on a full-time and part-time basis. Vocational Centres are offering community-based short courses. There are 80% of the Diploma Students sponsored by the Trades and Industries and 60% of the Technical Training Certificates (TTC) are sponsored by the Office of Higher Education (Government). Approximately 30% of the Students in the TVET Institutions are sponsored by the families and the church organizations. All training programmes are modularised and use Competency Based Training and Assessment (CBT&A) methodologies.

In 2008, PNG introduced 6 levels based on the National Qualification Frameworks.

The Department of Education is providing co-ordination and logistic support for Australia Pacific Technical College (APTC), Exxon Mobil Training Centre, EU Project on Human Resource Development and Community Colleges Pilot Project. TVET Division has introduced Curriculum, Vocational and Inspection reforms in line with the National Education Plan 2005-2014 in order to address the increasing market demand for technician education in PNG.

## **1. Introduction**

Reorienting education policy towards excellence in TVET Education is very important and timely as the National Government of PNG is reorienting and preparing strategic planning for education system for the next 40 years. The Technical Vocational Education and Training (TVET) Division is also working in line with the above Government vision. The Government new Vision is “Perusing and Promoting Excellence in Education for a Healthy, Wealthy and United Papua New Guinea by 2050.” All Education agencies in PNG including the Office of Higher Education, the TVET Division, the National Training Council and the National Apprenticeship and Trade Testing Board are working together to prepare the implementation strategy to achieve the Government Vision.

“TVET is a Master Key for Socio-Economic Development for Papua New Guinea.”

## **2. Present Status on TVET Programmes in Relation to Education for Sustainable Development**

### **2.1 Major Changes in TVET Education**

Technical Vocational Education and Training (TVET) within the PNG Education Sector has undergone major changes in the last five (5) years in its bid to develop a vibrant, responsive, relevant and efficient National Training System for the country. The emphasis has been placed on developing competitive skilled workforce for industries, for self-reliance and community development.

Experience has shown that both National and Provincial priorities directly affect functions and the delivery mechanisms in maintaining the expected standards in TVET. On the other hand, inspections and curriculum delivery strategies are also not effectively resourced and supported. There are administrative and management responsibilities that need to be addressed by both the national and provincial authorities in order for TVET institutions to be effective training providers. In response to these challenges, TVET Division of the Education Department continues to undertake measures to reform the system consistent with the

National Education Plan 2005-2014 and the TVET Policy.

The technical and business colleges operate as national institutions whilst the vocational centres operates as provincial institutions. Although the Technical and Vocational sections amalgamated as a division, there are very big gaps or differences in the systems, procedures and the processes of administration and management of these institutions. These main differences are in the areas of responsibilities in the decision-making process of the policies, in the management and administration of the institutions' assets, equipment and tools, infrastructures, staffing and staff appointments. This is compounded by the abilities and how well the powers vested upon the Governing Councils and the Boards of Management are enforced.

There are also differences in the stages or levels of competencies in the curriculum as well as duplications in the courses. The teacher's base levels vary in the division and there is no recognition and linkage in terms of Vocational Education as prior learning leading to higher technician education. TVET is trying to bridge this gap link at this stage.

## 2.2 TVET Vision and Mission

### TVET VISION STATEMENT

A DEMAND-DRIVEN BROAD-BASED TECHNICAL VOCATIONAL EDUCATION AND TRAINING THAT MEETS NATIONAL COMPETENCY STANDARDS AND THE NEEDS OF THE COMMUNITY, GOVERNMENT, COMMERCE AND INDUSTRY.

### MISSION STATEMENT

TO PROVIDE, FACILITATE AND PROMOTE INTEGRAL HUMAN DEVELOPMENT THROUGH THE DELIVERY OF RELEVANT AND NATIONALLY RECOGNISED TECHNICAL VOCATIONAL EDUCATION AND TRAINING PROGRAMS NECESSARY TO FOSTER, ENHANCE AND SUSTAIN THE SOCIO-ECONOMIC DEVELOPMENT OF PAPUA NEW GUINEA.

## 2.3 TVET Contributor to Socio-Economic Development

A vibrant, responsive, and efficient TVET System is an integral part of PNG's social and economic development and a necessity for the country's sustainable development. The long-term effect as a result of rationalization and systemization of technical and vocational skills trainings would, provide informed skills and knowledge for productive work, increase informal

sector participation and activities, thus, increasing growth in the national economy and eventually increasing the Gross National Product (GNP). The primary effect or end result of this exercise is reducing poverty and empowering marginalized population, both in the rural communities and the urban community.

Technical and Vocational institutions are potential contributors to the economy of the nation. TVET institutions offer vocational and technical courses that are skills oriented and can contribute to the growth of industries both in the formal and informal sectors. These skills can be used to activate both the renewal and non-renewal resources, and or maintain business activities in primary, secondary and tertiary production. Primary production skills would produce agriculture, livestock, fishery and forest products. Business skills activate trading and marketing, thus, creating entrepreneurial culture in the community, while, trade skills contribute to production of raw materials and services sector.

#### 2.4 TVET Institutional Progress

Enrolments in 141 Vocational Centres have not been consistent with the teacher/student ratio (1:15), thus, expenditures in terms of teachers' salaries are beyond comparison. An average of 14,000 students graduate annually from the Vocational Centres. There are about 975 teachers in the Vocational Centres.

Enrolments in Technical and Business Colleges in 2008 are inconsistent. There are 231 full time teachers in the 7 Colleges and the total full-time recorded enrolments represent 3476 students. Colleges achieved the targeted average Teacher/Students Ratio 1:15 in 2009. However, Technical and Business Colleges could not compete with some Private Training Providers due to outdated/deteriorated teaching equipment and short of technical skilled teachers. The Government has not lifted the overseas teacher recruitment ban yet.

The scenario is devastating, coupled with deteriorating infrastructures, obsolete tools and equipments, incompetent teaching and management staff, outdated curriculum and training programmes, and inconsistent support given by different levels of governance and administration of the provincial vocational education system.

#### 2.5 Rationale

In 2009, the TVET Division mostly sought to continue consultations with the major stakeholders and strengthen its coordination within the Division and the Department, to be consistent with the National Education Plan and the Provincial Education Plans. The Division is conducting national seminars, conferences and workshops and other means to ensure that planned activities are realized.

The TVET's Branches are drawing the planned activities stated in the Operational Plan and budget them accordingly. These activities can be reviewed, researched, measured and evaluated to assess for further improvement or other cause of necessary actions.

### 3. Best Practices on Education for Sustainable Development

#### 3.1 TVET Curriculum Reform

The TVET Division within the National Department of Education through its National and Provincial TVET institutions (colleges, and centres) is one of the three government agencies that provide services in the provision of skills training to school leavers, apprentices, employed personnel and the general community. The other government agencies are: the National Training Council (NTC) and the National Apprenticeship and Trade Testing Board (NATTB), which also provide services in managing the standards and quality of skills training in PNG.

The TVET System within the education system is a major stakeholder by providing skills training courses in accordance with the employment demands.

The TVET system reform is guided by the National Education Plan 2005-2014 to create a TVET system that meets Papua New Guinea's present and future workforce needs. It started in 1999 with the launch of the first TVET Corporate Plan 1999-2003.

A major component of the TVET system reform is the reform of the TVET curriculum which has been part of the traditional educational system that is teacher-centred and objective-based. This approach is not effective when the goal is to train a person for specific job-related skills and knowledge and a more appropriate approach is competency-based training.

In March 1999, the Department of Education approved a major policy shift to the use of Competency-Based Training and Assessment (CBT&A) approach in the development of the curriculum and training delivery in TVET institutions. This approach aims for a mastery of industry-specific knowledge and skills and is learner-centred. The CBT&A policy was adopted at the time (1997 to 2002) the National Trade Testing and Certification System (NTTCS) was being developed for PNG.

The competency standards were based on the current three-level training framework for apprentices. The competency standards were used for the setting up of a National Trade Testing and Certification system, and at the same time to develop the new competency-based curriculum for the seven courses (for apprentices). In the meantime, TVET courses remained to be offered and certified without a "unified system of qualifications", and stakeholders, particularly employers, continue to express that they do not fully understand the TVET qualifications.

Under the present arrangements, the responsibility for the development of competency standards belongs to NATTB. Since the introduction of competency standards in PNG, only about 18 standards have been written, some are incomplete, some are outdated having passed the review date.

In short, PNG does not have a fully developed system of competency standards for all trades and occupations. The challenge is how best to develop the new TVET curriculum based

on PNG standards or an adaptation from other countries.

A draft 6-level National Qualifications Framework was prepared in 2006 by a Steering Committee and presented for extensive consultations. A submission was then forwarded, through the channel of authorities in the Department of Education, to the National Executive Council. Concurrent with this development, the new TVET curriculum was also undertaken using competency standards and aligning with the future qualifications framework.

Year 2007 was the preparation year for the implementation of the National TVET Qualifications Framework. Extensive programme of awareness raising, capacity building and in-servicing assistance were conducted. A draft policy on National Quality Training Framework was drafted by a short term adviser to ensure consistent quality standards in all TVET providers.

In 2009, seventeen TVET institutions (7 technical colleges and 10 vocational centres) have been selected & implemented the above courses/national qualifications. An implementation strategy has been agreed to fully support these institutions to ensure that the critical elements of implementation are provided or are in place, such as, the new curriculum (National Training Packages); tools, equipment, learning resources such as books; infrastructures and teacher competencies.

### 3.2 Competency-Based Training

Competency-based TVET reflects competency standards. It is a major means of involving industry in the design, development and provision of training. This involvement is designed to ensure the relevancy and responsiveness of training to industry needs. The essential aspect of CBT is that the delivery, assessment and certification of training relates to the demonstration of attained knowledge, skills and the application required for effective performance at the required level in the workplace as defined in the competency standards. In a competency-based system, importance is placed on demonstrating what an individual can do in the workplace and not how long they spend in training or merely the amount of knowledge they acquired in a formal setting. This means that competency based training is outcomes-orientated.

National Qualifications will only be issued by registered TVET providers or organizations. Typically a number of units of competency or modules of learning are grouped together to form a qualification accredited at a particular PNG TQF level. For example, the National Certificate 1 in Hospitality (Commercial Cookery) consists of 9 modules. To be awarded the qualification, the student needs to be assessed as competent in all of the nine modules. If the student was to only attempt assessment in 2 modules, then he/she would be awarded a Statement of Attainment, which states the modules in which the student is deemed competent in.

The Statement of Attainment can be presented to any other TVET training institution/provider should the student wishes to complete the course with a different provider of TVET in the future.



### 3.3 Quality Assurance

Quality assurance guarantees that a product or service will satisfy the customer's needs. In 2008, a policy on the registration of training providers was developed.

Quality assurance in TVET means the TVET graduates meet the needs of the industry. The quality of TVET programmes is ensured through a National Qualifications Framework. It supports an outcome-based system, or in other words a competency-based TVET system.

A Qualification is a formal certification issued by an approving body in recognition that a person has achieved the learning outcomes or competencies relevant to identified individual, professional, industrial or community needs.

### 3.4 TVET Qualifications

TVET competencies are packaged into a qualification in accordance to the qualifications framework that describes the level of skills, knowledge and responsibilities in the workplace. Assessment materials or instruments are developed to determine whether or not a person can perform the competencies.

Training is offered so that a person can learn new skills and knowledge specified in the competencies. The qualification is a saleable item in the job market. An employer is buying skills and knowledge which will benefit the company.

National qualifications are the basic foundation of human resource development of a nation. If you want to quality assurance on curriculum, you should ensure that the curriculum really supports the qualification. If a training provider is to be registered to offer a qualification, then it should have the human and physical resources to teach the qualification. To issue a certificate, the person must have performed the competencies that make up the qualification.

### 3.5 National Qualifications Framework (NQF)

The need for a National Qualifications Framework (NQF) for PNG had been identified in a number of reports including the 1997 Report "According to their Talents" to NEC on the future of TVET in PNG.

A National Qualifications Framework (NQF) is a unified system of national qualifications and includes all qualifications of the Schools, TVET programmes and Higher Education sectors.

It provides clear rules on the level of education and training that each qualification title represents. It provides qualifications standards across the country and makes it easier for citizens to continue their education as there is a clearly defined pathways. The framework will eliminate confusion caused by different titles and education levels. The qualifications of the TVET sector are in need of the greatest reform.

A qualifications framework started being set up in 2006 with the drafting of a National

TVET Qualifications Framework (NTQF), but it has yet to be fully developed. We have a system of centralized national curriculum in TVET for technical colleges and VTCs. The NEP recognizes the need for localized curricula in response to the needs of communities. The provincial education plans link the national TVET plan to local economies. The Policy submission to the National Executive Council (NEC) has been outstanding for the last two years and this needs to be progressed quickly furthered.

The PNG National TVET Qualifications Framework is consistent with the qualifications frameworks of other countries including our main neighbours of New Zealand, Australia, Hong Kong and the Philippines. Such equivalency is important in terms of international recognition of the skills and qualifications of Papua New Guineans.

### 3.6 Vocational System-Wide Reform Continuation

#### 3.6.1 Goals and Objectives of System-Wide Reform

The major goal of the System-Wide Reform is derived from the Medium Term Development Strategy (MTDS) and the National Education Plan to improve the education sector. TVET as a division in the Department of Education is responsible for the development of skills training in PNG and responds accordingly to the government goals and objectives through the Department of Education.

The current Technical, Business Colleges and the Provincial vocational education system responsiveness is below the required expectations. The system must provide a vibrant, responsive, and efficient technical and vocational skills training and give some opportunities to the 88% of children leaving school every year and to the 86% unfortunates who have left school or have not gone to school due to situations beyond their control.

The primary objective of this innovation is to address the Governments Medium Term Development Strategy (MTDS) 2005 - 2015 by providing access to every Papua New Guineans to quality, appropriate and relevant Technical and Vocational Education intending to stimulate social order and economic growth, thus increasing Gross Domestic Product and uplifting living standards of every Papua New Guineans by 2020.

The outcome of the acquisition of quality, appropriate and relevant Technical and Vocational Education by the number of Papua New Guineans mentioned above would generally improve social order and economic growth in the participating community with chain reaction in provinces and the nation. It is envisaged that there will be an increase in rural productivity, an increase in non-farm employment, a reduction in urban unemployment, and increasing opportunities for further studies for those who can make it through. Consequently, Papua New Guineans will be empowered to participate meaningfully in the government's overarching development process.

### 3.6.2 Vocational Reform Continuation

The major activity for the Vocational Education Branch for this year is focused on Provincial Vocational Education and Training Reform. Their targets are to conduct: a Provincial Vocational Centre Coordinators conference on strategic planning and provincial checklist development; a National Education Board Submission for the endorsement of the Policy on System-Wide Provincial Vocational Education and Training Reform (SWPVR); a National Education Board Submission for the endorsement of commencement of SWPVR in 2009 and national TVET initiatives to financially and logistically support the operations of selected provincial TVET committees and provincial vocational coordinators. Provincial Vocational Education Coordinators' roles will be reviewed within the framework of the SWPVR and restructured in favour of the National Department of Education.

The deregistration of 141 Provincial Vocational Centres and the consequent signing of an MOU on deregistration and re-registration of Provincial Vocational Centres between the national department and provincial education division will be the highlights of the 2009 planned activities.

Ongoing activities will continue concurrently within the context of the System-Wide Provincial Vocational Reform, subsequently implementing the National Education Plan 2005-2014. The major activities will consist of: the completing the nine (9) undone provincial TVET plans and the provincial education plan integration, beginning the development of District TVET plans and the District Education Plan integration, facilitating the development of institutional plans, facilitating the provincial TVET policy development, keeping on facilitating the establishment of the provincial TVET committee, strengthening competency-based enterprising vocational education and training project (Enterprise Oriented Training Programme - EOTP) in 15 existing vocational Centres. In 2009 there are 4 provinces targeted for Vocational reforms.

### 3.7 TVET Inspection Reform

In 2008, the inspection system had been restructured into 4 region: Southern, Momase, Highlands and New Guinea Islands. This year's major inspection activities are to address the administration and management issues that will be dealt by the regions through the senior inspectors via superintendent as a protocol process. The activities for the inspections are to: rationalize the inspection administration and management procedures and processes; conduct investigations; carry out all advisory and final inspections to all TVET institutions as an ongoing calendar year and any other issues from the National Rating Conference. The inspections must secure sufficient funding to carry out the tasks related to assist TVET Reform in consultation with other branches of the division. The restructuring of the inspection system by region will enable the senior inspectors and provincial inspectors to clearly specify tasks in their roles and responsibilities to justify quality and standards in TVET institutions apart from

routine duties. To do this, inspection must develop instruments and tools that must be measurable and accountable directly related to TVET major planned activities in order to make progressive reports, assessment and evaluations for appropriate action.

In 2009 there are 315 teachers targeted to be inspected. There are seven (7) Technical and Business Colleges and 40 Vocational Centres targeted to complete normal inspection, skills and facilities audit to justify suitability for introducing Levels 1 & 2 National Certificate courses. TVET inspectors are planning to visit every Vocational Centre within 2 years.

### 3.8 Provide Coordination Services and Logistic Support for:

- AUSTRALIA PACIFIC TECHNICAL COLLEGE ( APTC)

The Subsidiary arrangement under the treaty on Development cooperation between the Government of Australia (GOA) and the Government of Papua New Guinea (GOPNG) was reached in 2007 to establish an Australia Pacific Technical College (APTC). Port Moresby Technical College is one of the training centres that will accommodate this agreement.

Australia Pacific Technical College (APTC) has been officially launched at Port Moresby Technical College. Construction of its infrastructure has also been started and its scheduled training programme began in January 2009.

All administration of APTC under the umbrella of Port Moresby Technical College and all Assets and Training Equipment will be the property of Port Moresby Technical College after a four-years transitional period. The Department of Education recognizes APTC as a Registered Training Organization (RTO) within Papua New Guinea. Engineering Fabrication, Engineering Mechanical Fitter and System Electricians courses will be offered this year. TVET teachers are attached to the APTC under the Job Attachment Training Programme for a maximum period of 12 months.

- EXXON MOBILE TRAINING CENTRE IN PORT MORESBY TECHNICAL COLLEGE

Exxon Mobile Company is planning to establish a training centre at Port Moresby Technical College to train technical skills personnel needed for the PNG-LNG gas project. The property developers and the Department of Education had preliminary discussions, and Port Moresby Technical College and Department of Education fully support the establishment of a training centre at Port Moresby Technical College. Exxon Mobile training centre is planning to produce 7,500 skilled personnel for the next 5 years. The APTC and Exxon Mobil colleges will be contributing to the Human Resource Development of Papua New Guinea.

- COMMUNITY COLLEGE PILOT PROJECT IMPLEMENTATION

The Community College system is an alternative system of Technical and Vocational Education,

focusing on inclusive education for national development, aimed at the empowerment of the disadvantaged and the underprivileged section of the population. It will promote job-oriented, work-related, skills-based and life-coping education. It envisages access, flexibility in curriculum and teaching methodology, cost effectiveness and equal opportunity to all Papua New Guineans. The Community College system aims to achieve the liberation and empowerment of the exploited and deprived groups of the society by releasing and developing the sources within, through middle skills development, and facilitating self-actualization.

The National Government allocated 139m Kina for 17 pilot Community Colleges for the next five years. The first Community College, Marian Berg, was launched in East Sepik Province on 11th September 2008. The policy document was developed by TVET Division and submitted. The NEC endorsed to establish 15 community Colleges within the next three (3) years.

- EDUCATION TRAINING AND HUMAN RESOURCE DEVELOPMENT PROGRAMME ( ETHRDP)

This programme (ETHRDP) is funded by the European Union (EDF9) which is valued at around 39 Million Euros. There are other components to the ETHRDP; however, only Component Five (5) is focused on Community Based Vocational Education ( Four (4) Million Euros. The overall purpose of ETHRDP is to “promote the development of PNG’s human resources”. The specific objective is to provide effective learning support mechanisms for education and training to promote sustainable human resource development.

Component Five (5) of the EU-funded ETHRDP is focused on Community Based Vocational Education. Its objective is to strengthen community-based Vocational Education responsive to industry and local needs and to self-employment. The programme will pilot activities in four VTCs in four Provinces. For component 5 (Community Participation in Vocational Education and Training), the TORs identify the need for a paradigm shift. The shift will ensure that VTCs respond to local needs, and the needs of the industry and the informal sector.

TVET Policy, released in 2006, confirms the importance of this paradigm shift. The policy reads, in part: “All registered Vocational Centres will plan and deliver short courses which are demand-driven and meet the needs of their community. There will be strong community involvement in the programme planning and courses will be run at a time and venue which suits participants”. The TORs indicate the need for developing management support systems and by training inputs to strengthen the skills of individual Managers and Boards of Management. (NEP 2005-2014).

Vocational Education has now become a clear priority in GoPNG policy but a paradigm shift is required to ensure that Vocational Training Centres (VTC) become responsive to local needs, and to the requirements of the industry and the informal sector. The sub-sector has suffered from past neglect. Institutional systems and management capacity have been

weakened at the provincial and local levels. Unless these are strengthened, the programme will not have any long-term impact. Particular attention will be given to strengthening management capacity in the VTCs themselves, through the development of operational plans by the VTCs, development of management support systems and training inputs to strengthen the skills of individual managers.

Capacity Building, an integral part of the programme, is required to support GoPNG efforts to provide relevant and quality education and training opportunities for all, and to develop all positive aspects of life for self-reliance, social and economic development. Issues such as transparency and accountability in decision-making, gender equity and protection of the environment, will be mainstreamed in the programme. HIV/AIDS awareness will also be incorporated in the programme, notably through both curriculum development and programmed training activities.

### 3.9 CONVERTING LTC INTO NATIONAL POLYTECHNICS INSTITUTE

On the basis of the TVET Division NEB paper on Restructuring Technical and Business Colleges, the NEB meeting held on 28th February 2008 approved converting Lae Technical College into the “National Polytechnic Institute of PNG”, effective from January, 2009.

The NEB states “The National Education Board endorsed to change Lae Technical College into PNG Polytechnic Institute effective from 2008 onwards and expand enrolment to students of Pacific Countries”.


The above NEB decision was circulated at the Governing Council Meeting of Lae Technical College. The Governing Council strongly supported converting Lae Technical College into PNG Polytechnic Institute. The Governing Council has decided to launch National Polytechnic Institute of PNG on 4th of October, 2009.

### 3.10 LINKAGES WITH MEDIUM-TERM DEVELOPMENT (MTD) STRATEGIES

- |                       |                                      |
|-----------------------|--------------------------------------|
| 1. Access             | 1. Good Governance in Institutions   |
| 2. Relevant Education | 2. Export-Driven Economic Growth     |
| 3. Human Resources    | 3. Enhancing Human Resource Capacity |

## 4. Issues and Challenges

1. The Government, Donor Agencies and non-governmental organizations shall assist to resource TVET teaching facilities, tools, equipment and infrastructure in TVET institutions.

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2. Strengthen institutional leadership and management, including financial management.
  3. Restructure the TVET Division and TVET institutions to meet the increasing market demand.
  4. Commercialize and give more autonomy to TVET institutions.
  5. Provide teacher skills upgrading training with more opportunities.
  6. Establish more TVET institutions to meet the industry and community demands.
  7. Increase linkages between higher education institutes and international TVET capacity building organizations.

## **5. Conclusion**

A step-by-step and collective approach and is important for making a transition to SMART TVET which will undeniably be paramount for improving the quality of products, programmes and the processes leading up to these. It will require Government commitment, better coordination, and good leadership and support at all levels of the system and personnel. To achieve these talents the reorienting policy on excellence in TVET Education for Sustainable Development is very important and timely. It will contribute meaningfully to socio-economic development for Papua New Guinea.

## **6. References**

Department of Education (2004) Achieving a better future: A National Plan for Education, 2005-2014. Port Moresby: Govt of Papua New Guinea.

## Country Paper

### Sri Lanka

# INNOVATIVE PRACTICES IN TVET FOR EDUCATION FOR SUSTAINABLE DEVELOPMENT IN SRI LANKA TO SUIT THE REGIONAL COMPETITIVENESS

**DR. H.L OBEYESEKERA**

Director General

Department of Technical Education and Training

Sri Lanka

## 1.0 ABSTRACT

Along with the drastic changes that occurred when the scientific era changed into the technological era, the economy of the world in the 21st century depended on the technological progress. At the same time the gap between developed and developing countries seemed to have become narrower on account of globalization. As a result of this, many of the developing countries at present have become economic giants in the modern world. So, towards the end of the 20th century, the need for a vocational, technical and educational knowledge as well as skills for the development of the world's economy, was clearly manifested in the improvement of diversity in industrial and service fields. As a result, it was felt that we not only needed a workforce trained to get technical and vocational skills, but also those high competent skilled workers like technicians and technologists from specific industrial areas. The reason for this is the increase in the capacity of production in the world. In other words, the trend of the world was focused on the production of high quality goods or on the construction of service fields. From the beginning of the 21st century, the progress made in industrialization was due to the high capacity of the trained work-orce. Therefore the economic development in the world seems to have depended entirely on the knowledge-based skill development.



Thus, according to the Global Economic Trend, Asia-Pacific Regional Development focuses on the development of the human resources. In the last few decades, most of the regional countries paid much attention to the development of human resources. But it must be stated that greater attention was given to the development of Vocational and Technical skills. As a result, in many of the countries, the required trained labourers in the field of construction could not be found and thus the development came to a stand. Further, finding skill labourers at different levels has become another problem. This problem is further aggravated due to the fact that in many of the countries, the Vocational and Technical Education and training is carried out either as an ad hoc system or as a system that is not properly organized.

When we consider general education, we could see a hierarchical system as primary and secondary, junior and senior secondary, upper, Higher or Collegiate and Tertiary levels clearly specified, but such a clearly specified system cannot be found in the field of Vocational and Technical Education. Therefore, what is currently needed is to organize the Technical and Vocational Education and Training as a system that is able to introduce the required levels of skilled workforce. In addition, it is also necessary to introduce skill Standards applicable to different vocational areas relevant to different levels of skilled labourer. However, considering the regional development, taking place in these countries, it can be said that the skill standards at several training levels may differ from country to country. Therefore it is important, on one hand, to prepare inter institutional/countrywise or national skill standards in those countries and, on the other hand, to prepare interregional standards that could be used commonly in all these regional countries. Although it is possible to train the workforce in accordance with each country's requirements through Technical and Vocational Education, it appears as particularly important to plan out skill standards suitable to regional levels or at least to national levels. All these prove the fact that if we want to develop a Technical Education and Vocational Training system, it's a must that we pay attention to its sustainability.

## **2.0 Present Situation in TVET Section in Sri Lanka**

Ministry of Vocational and Technical Training:

The prime responsibility of formulating and implementing a national policy for the Technical Education and Vocational Training sector in Sri Lanka rests with the Ministry of Vocational and Technical Training.

Vision:

Turn out a skilled labour force which has access to a socio-economic development path by providing them with high quality Vocational Training and Technical Education that leads to productive employment opportunities.

#### Mission:

Provision of high quality technical and Vocational Education and Training programmes that meets the globally competitive human resources development requirements in keeping with the technological development and changing needs of the industry.

#### Objectives:

- To develop knowledge and skills for fruitful employment in the Technical Education and the Vocational Training field;
- To produce trained labour for fruitful employment opportunities in the industrial sector;
- To minimize poverty at national level by generating employment in the Technical Education and Vocational Training field; and
- To pave the way to rise up to the higher professional status in the field of Technical Education and Vocational Training.

#### The Institutions under the Ministry:

- Tertiary and Vocational Education Commission
- Dept. of Technical Education & Training (DTET)
- Vocational Training Authority (VTA)
- National Apprentice & Industrial Training Authority (NAITA)
- National Human Resources Development Council
- National Institute of Business Management (NIBM)
- INGIN Institute of Printing & Graphics Sri Lanka Ltd. (INGRIN)
- Skills Development Fund Ltd.

#### Functions:

- Formulating and implementing national policies in the field of Technical Education and Vocational Training;
- Introducing, developing and implementing training courses, according to the international labour market needs for state and private institutions which are engaged in Technical Education and Vocational Trainings;
- Increase the cooperation, coordination and productivity among the institutions under the Ministry;
- Extending Technical and Vocational Education in Sri Lanka up to the village level and expansion of the ability to enter this field for the less considered people, like women, handicapped persons and the poor;
- Awarding the National Vocational qualifications that is internationally recognized to those successfully completing the training; and
- Improving the awareness among people regarding Vocational Education through awareness work programmes and soliciting greater participation.

### 3.0 Sustainability Development in TVET Sector

Sustainability in TVET Sector can vary depending on the position of developed and developing countries. In developed countries, the Qualified Trained Human Resources could be at a very lower level according to the use of material assets, technology and new findings. This is the main obstacle in these countries. On the other hand, there are other factors that could affect a developing country. Some of them are:

- Unutilized human resources;
- Untrained human resources;
- A mismatch between economic development policies and the ways of developing human resources;
- Less attention on trained skilled labourers;
- Lack of TVET concrete policy for HRD;
- Lack of industrial linkages with HRD in TVET sector;
- Lack of qualified trainers for HRD in TVET;
- Underestimated technical/vocational skills are underestimated in the society; and
- Lack of inter educational level linkages (between Secondary and Technical/Vocational Training).

It is obvious here that, although these countries are considered as developed and developing countries, the HRD in the TVET sector is maintained at varying levels.

In order to fulfill the need of the trained skill labour force in developed countries, they simply employ the trained labour force easily obtained from developing countries. This is the other important point that has been considered. Such a labour force should have been trained according to international skill standards or TVET standards. Therefore, it is important to draw up regional TVET sector policies. In this attempt greater emphasis must be laid on development of regional skill standards or programme activities. At the same time, the image of TVET must be enhanced.

### 4.0 Solution for Maintaining Sustainability

For this purpose, an adequate TVET system has to be planned out. Although it may differ from one country to another, such TVET systems should not completely differ from what was originally planned out, given the present global trends in economic development. As such, the following points are to be taken into consideration:

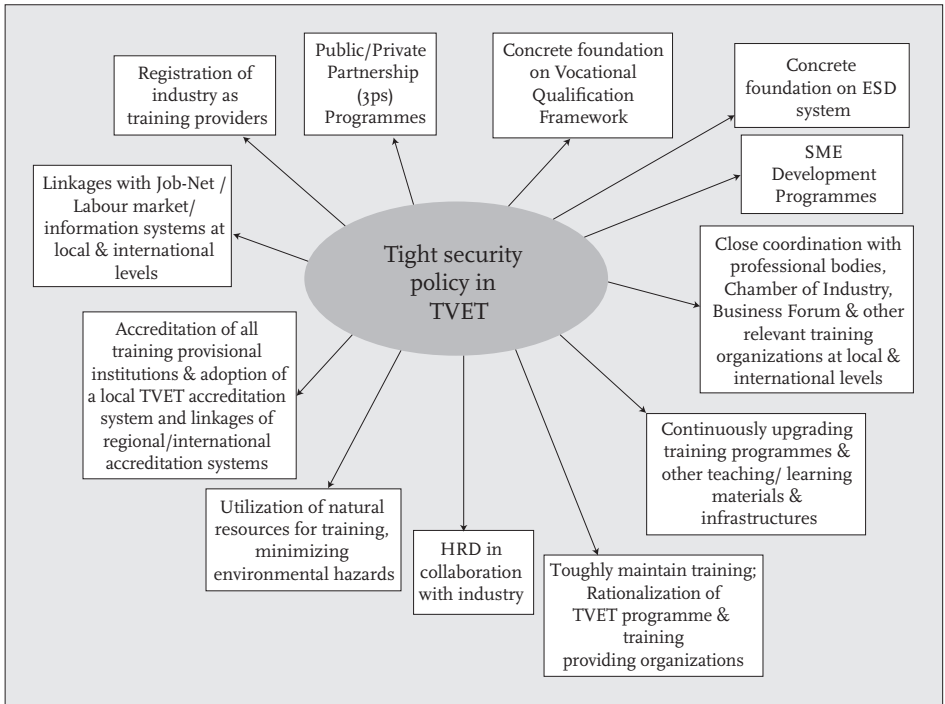
- Identify two pathways of TVET development:
  - Studies/ training must focus on specific skill trainings directly based on national/ regional skill standards
  - Studies/ training must focus on multi skill training with entrepreneurial skills development.
- Promote industrial linkage with TVET the sector.
- Open direct avenues to school leavers from any stage or level of the secondary education system to Vocational/Technical Training system and parallel lateral entries as well.
- Identify the national Vocational/Technical Education system from the lowest level training (craftsman) to the top level training (technologist).
- Introduce horizontal and vertical linkages between craftsman and technician levels under The National Vocational Qualification Framework (upward mobility of TVET sector) – NVQ system with maintenance of TVET sector upward mobility discipline or maintain the institutional rationalization policy.
- Introduce continuous upgrading systems in TVET programmes through curriculum development, training and specially research in TVET sector.
- Continue upgrading standards of HRD.
- Identify local/national/regional/global needs of TVET sector.
- Maintain tight relationships with organizations in TVET sector at regional/international levels.
- Produce well-qualified trained academic and training staff for TVET sector to fit with the regional and global economic trends.
- Implement industrial research through TVET sector introducing and promoting innovations.
- Fulfill the infrastructure development and provide relevant physical resources for high quality training programmes according to the local and regional industrial needs, and the global market changes.
- Have a policy that Vocational Training at institutional level should be maintained along with the industrial training or using implant training, dual training according to the rates of the industrial development of the said country.
- Continuously collect labour market information and develop a labour market information system, linking with the job-net or any other source in job market information network, locally, nationally and sometimes regionally, together with career guidance, job placement programmes and feedback/monitoring systems.
- Provide facilities to have Public-Private Partnership training programmes and training centres that can be used as production based units for self-learning in entrepreneur skill training and make income generation for maintenance.

## 5.0 The Most Important Issues among Them

- Global economic trend;
- Envisaging industrial trend at regional/international levels;
- Continuing to upgrade curriculum development and Technical Education research;
- Utilizing natural resources in minimizing environmental hazards;
- Enhancing the knowledge and continuously upgrading trainers' skills;
- Upgrading physical resources for training up to regional/international standards;
- Having proper linkage continuously with local industries and foreign training institutions;
- Creating links with the industry in financing the training programmes; and
- Establishing international training centres and convention centres with TVET trainings provided at regional levels – Conducting national, regional and international seminars, workshops, conferences, symposia and exhibitions in TVET.


## 6.0 Strategies

- Developing of a TVET policy that fits with the industries or at least with their regional standards.
- Changing the management operation in TVET sector at every management levels.
- Having direct involvement in industries in TVET sector and making an industrial linkage policy with TVET sector.
- Introducing micro financing systems for trained students. (Bursaries, Training Levies, Voucher scheme, Student loan scheme, Employer financing system).
- Tight security policy system for TVET sector at the local level (However this tight security policy system should be flexible enough to face the industrial changes).
- Promoting SME policy through governmental, non-governmental, private organizations and sustainable bank or credit systems for entrepreneurs in SME.
- Identifying a national certification system for NVQ or any other recognized vocational qualification framework.
- Reorganizing and stabilizing the TVET policy framework.
- Having a hard policy on rationalization of TVET Institutes/organizations.



## 7.0 Conclusion

1. Have a tight security policy system for TVET to survive the main key entries to the TVET sector.
2. Establish a national TVET policy introducing upward mobility of TVET programmes at different skill levels and introduce a system for unified certification.
3. Establish two main training pathways as the Entrepreneur Skill Development (ESD) system and the skill training system, while introducing skill standards at different skill training levels. National Vocational Qualification (NVQ) System.
4. Maintain a system in Institutional Rationalization and Network covering the entire TVET sector, industry and labour market information system at the local and national levels and sometimes at the regional level.

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5. Establish a National Accreditation System and maintain it in all public and private trainings, provide institutions or organizations accordingly and establish linkages with regional/international accreditation systems.
  6. Provide facilities such as physical resources and infrastructure facilities frequently to upgrade all training programmes in order to adapt them to the global economical development and the vast development in the modern industrial technology. Attention must be paid to incorporate environmental concepts into all TVET curricula.
  7. Establish a national/regional HRD system that fits with the industrial needs at the local and global levels, in the TVET sector.
  8. Change the Management process in TVET continuously through the Quality Management System (QMS).

Finally it is envisaged that the implementation of the above-mentioned steps would create a situation where one could make essential decisions regarding Vocational/Technical Education development Training for sustainable development in TVET which would ultimately turn out to be a tool of poverty alleviation, peace promotion among different nationalities, and the main tool of strengthening the world economy and social integrity.

# Country Paper

## Thailand

### INNOVATIVE PRACTICE IN TVET TOWARDS EDUCATION FOR SUSTAINABLE DEVELOPMENT IN THAILAND

**DR. (MS.) SIRIRAK RATCHUSANTI**

Senior Advisor for Vocational Education Standard  
(Business & Hospitality),  
Office of the Vocational Education Commission  
Ministry of Education  
Kingdom of Thailand


#### ABSTRACT

Thailand, a constitutional monarchy with a prime minister to lead the government, is located in Southeast Asia with a total land area of 513,115 square kilometers, geographically divided into 6 natural regions: Central, East, West, North, Northeast and South. The total population in 2007 was 65.2 million with the number of females slightly higher than that of male, growing at an annual rate of 0.4%,

In 2008, 36.8% of the population was in the labour market, 13.7% in the agricultural sector and 23.1% in the non-agricultural sector, and the unemployment rate is 1.4%. Reported in 2006, the literacy rate of people was 96% while life expectancy for male was 65.2 and for female was 73.4. Buddhism is the national religion, practiced by 95% of the total population. Thai is the national and official language, while different dialects prevail in rural areas. The political system in Thailand has largely changed when the 1997 Constitution increased the rights of people in the areas of political participation and voice public opinions.

The Eighth National Economic and Social Development Plan (1997-2001) advocated a holistic people-centered development approach. In the Ninth Plan (2002-2006), a strategic plan, the major emphasis is placed on balanced development of human, social, economic, and environmental resources. The plan advocated good governance at all levels of Thai society in





order to achieve real sustainable, people-centered development. It adopts the philosophy of economic sufficiency bestowed by His Majesty the King to his subjects as the guiding principle of national development and management. This philosophy is based on adherence to the middle path, is advocated to overcome the current economic crisis brought about by unexpected change caused by rapid globalization, and to achieve sustainable development (NESDB, 2008).

The Tenth Plan (2007-2011) also mentions that Human Resource Development is a critical issue for the development of the economy. In the frame of the education policy, the government aims at emphasizing the quality of education both in the formal and informal educational systems, supporting the production and the development of the workforce responsive to the structural changes in the manufacturing and services sectors. In order to maintain and increase Thailand's share in the world market through continuous innovation and better technology, there is a need for qualified manpower. Shortage of middle level or skilled and technician manpower has been considered in Thailand. This resulted from the fact that only 40% of those who graduated from the lower secondary education attended TVET programmes. Furthermore TVET graduates preferred to continue their education in the higher level rather entering the labour market. There are needs to attract more students to TVET programme and have them entering the labour market. According to the 10th National, Economic and Social Development Plan, the number of TVET students at upper secondary level is expected to increase to 50% by the year 2011. Within its policy framework, the government is willing to strengthen its cooperation and collaboration with the industrial groups and all the stakeholders, and is considering the importance of TVET and the competency standards needed. Therefore, the TVET Act 2008 has been enhanced to be put into implementation as soon as possible, so that the TVET system would meet the economic requirements as well as the individual needs.

For those who are already in the labour market, it was found that a skill gap was prevailing in many fields of occupation. This resulted from the rapid change in technology and in the nature of work in competitive business and industries. The knowledge based economy and society require a knowledge-based multi-skills workforce. TVET initiators need to be kept abreast with the changing world of work and technology. A flexible programme has been designed to meet the needs of the people in the labour market. A programme for validation of experiences or recognition of prior learning has been implemented for them. They would be able to upgrade and update their knowledge and skills and receive qualifications. The widening participation in TVET programmes in Thailand will significantly contribute to the increase in human capabilities and national products, as well as the eradication of poverty.

## 2. Present Status on TVET Programmes in Relation to Education for Sustainable Development (ESD)

### 2.1 The System of Vocational Education in Thailand

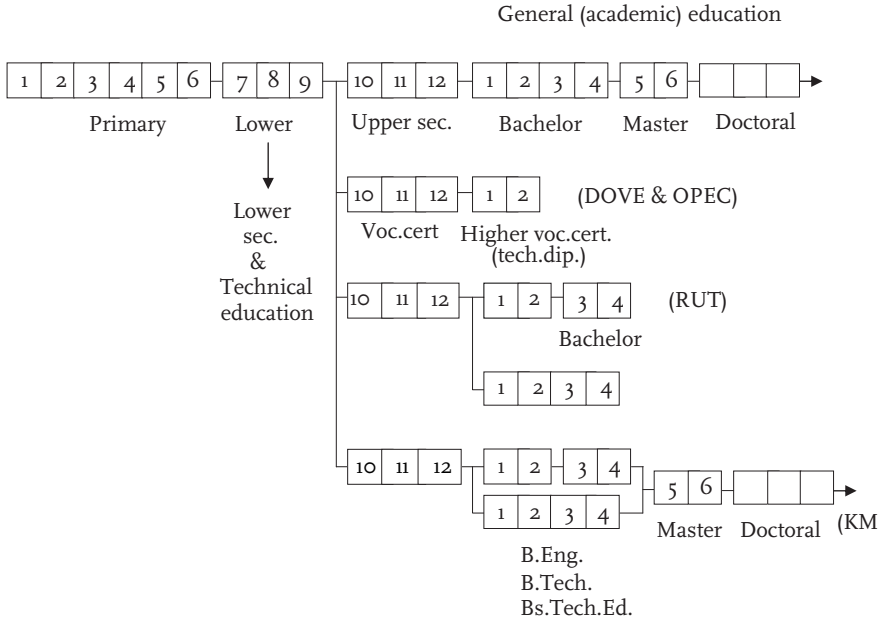
Under the present education system, resulted from the Constitution of the Kingdom of Thailand (1997), the National Education Act of 1999, amended in 2002, and the educational reform plans, various types and methods of learning, are offered for learners regardless their economics, social and cultural backgrounds. Education approaches are classified as formal, non-formal, and informal. All types of education can be provided by education institutions as well as learning centres, organized by individuals, families, communities or private groups, local administrations, professional bodies, religious institutions, welfare institutes, and other institutions. Formal education services are divided into basic and higher education. Basic education, that shall be provided free of charge, covers the pre-primary education, the 6 years of primary education, the 3 years of lower secondary education, and the 3 years of upper secondary education. The upper secondary level is further divided into two parallel tracks: the general and vocational streams. The current compulsory education covers 6 years of primary and 3 years of lower secondary education, and is therefore meant for 7-to 16 year-old children. Higher education, diploma and associate's degrees are provided in universities, institutes, colleges, and other types of institutions. Carried out in accordance with the 1999 National Act and the 2002 Bureaucratic Reform Bill, the major reform of educational administration and management has been the merging of three main agencies.

The Ministry of education is responsible for:

- the promotion and the management of all levels and types of education under the administration of the state;
- the formulation of education policies, plans and standards,
- the mobilization of resources for education;
- the promotion and coordination in religious affairs, arts, culture and sports in relation to education; and
- the monitoring, inspection and evaluation of the educational provision.

For local (municipal) education, the administration is under the Ministry of Interior. Other ministries undertake the management of specialized fields of education for their specific purposes.

The vocational education system in Thailand is shown as figure below:



## 2.2 Types and Levels of TVET

The provision of Vocational Education varies according to the types and programmes of Vocational Education and fields of study, following the Act and the Educational Reform. The TVET programmes, therefore, are diversified and offered in formal and non-formal institutions and in the workplace or dual courses as followed:

### 2.2.1 TVET Level

- 1) TVET programmes at upper secondary level (grade 10-12 ) lead to Certificate in Vocational Education (Cert. Voc.). This program is offered tfor the students who have completed lower secondary education (grade 9). This programme is diversified into the following types :
  - Certificate in Vocational Education (Cert. Voc.), the regular course.  
Students completing the lower-secondary level are able to study in this three-year formal programme consisting of theoretical and practical subjects and a semester spent in the workplace.
  - Certificate in Dual Vocational Education (Cert. Voc.-DVT).  
DVT is a three-year programme for students who have completed lower secondary

education (grade 9). The learning and training takes place at two venues, a college and a company, with which students conclude a contract for training. During the training, students receive an allowance from the company. Upon completion of a certificate, equivalent to the certificated of Vocational Education is awarded.

- Certificate in Vocational Education: Credit Accumulating System (Cert. Voc.- CAS). This programme provides 3-to-5-year courses for adults who are not able to participate in full-time study in an institution. An assessment system to evaluate their knowledge and skills for validation of their experience is provided. In addition, accumulated credit can be transferred within the same or between different institutions.
- Certificate in Vocational Education: Evening Class (Cert. Voc.-EC). This programme is similar to the Cert. Voc. - CAS. It is specially designed for those who are in the labour market and wish to study in the evening after work.
- Non-Formal Programme for the Certificate in Vocational Education. Non-formal education activities leading to the Certificate in Vocational Education are available to lower secondary school graduates through distance learning approaches. Both employed and unemployed adults can participate in this programme, which requires at least 3 years of study, except when there is a transfer of academic performance or experience. Polytechnic, Industrial, and Community Colleges under OVEC, as well as the Office of the Non-formal Education Commission, are basically the ones offering this type of programme.

2) Diploma in Vocational Education (Dip. Voc.).

Admissions are accepted through a competitive entrance examination for those who have completed Cert. Voc. or upper secondary education. This programme is offered in various types as in Cert. Voc. Level.

3) Higher Diploma in Technical Education.

This three-year programme is designed for those completing a Diploma in Vocational Education who plan to teach in Vocational Education institutions; it is offered at the university level, leading to a higher technical diploma or a degree.

4) Bachelor Degree in Technology/Performance.

This two-year programme is designed for those completing a Diploma in Vocational Education, focusing on a dual system and will start in 2011.

5) Short-Course Vocational Training.

At present, the short-course vocational training programmes are offered by both public and private institutions and are designed to serve the needs for self-employment and to articulate with normal programmes that encourage lifelong learning. Pre-employment trainings and upgrading courses range from 6 hours to 255 hours, depending on the content and objectives. The types of Vocational Training are as follows:

- Short-Training Course Programme (225 Hours): the only prerequisite for admission is the completion of primary education. No entrance examination is required. The students must complete 225 hours, and upon completion, a certificate will be awarded. The Starting salary for the graduates of this certificate level depends on their skills and ability.
- Short-Training Course (6-225 Hours): in addition of the 225 hour-programme, there is a variety of short-courses trainings in different areas. The duration of the courses ranges from 6 to less than 225 hours. The course duration and its contents will depend upon the interest and need of the local people and the community.
- Cooperative Study Training (CST): trainings for students from general secondary schools who select vocational subjects as their major, minor or elective.
- Agricultural Short-Course Training: each College of Agricultural and Technology provides a short-course training (7-8 days) for local farmers. The course contents vary according to the farmers' need.
- A Special Vocational Education Programme (for young farmers): the programme is designed with the aim of upgrading young farmers between who are 15 and 25 year-old. Young farmers with compulsory education can go to any college of agriculture and technology to study in their spare time. Upon completion of all the subjects acquired, they will be awarded a special certificate, equivalent to the Certificate in Vocational Education.

#### 2.2.2 Types of TVET Institutions and Areas of Speciality

There are 415 public TVET Colleges under OVEC, the main authority responsible for TVET. TVE is also offered at 412 Private vocational schools that have been taking care by the Office of the Permanent Secretary, Ministry of Education. Furthermore TVE is provided to adults and out-of-school youths through the non-formal or short-course training. The Non-Formal Education Department in the Ministry of Education, the Department of Skill Development, the Ministry of Labour and other ministries provide short-course vocational trainings as required by local areas.

There are 10 types of colleges under OVEC: 106 Technical Colleges, 40 Vocational Colleges, 47 Agricultural and Technological Colleges, 144 Industrial and Community Colleges, 54 Polytechnic Colleges, 4 Business Administration and Tourism Colleges, 3 Industrial and Ship Building Technological Colleges, 2 Arts and Crafts Colleges, 3 Fisheries Colleges, 1 Royal Goldsmith College and 11 Technology and Management Colleges.

#### 2.2.3 Types of Courses-

OVEC provides 9 types of courses, namely Industry, Agriculture, Home Economics, Arts and Crafts, Commerce and Business Administration, Fisheries, Textile, Tourism and Hospitality and Information Technology. Under those types of courses, there are many branches which are specific in occupation and relevant to the markets' needs, such as Automobile, Gem & Jewelry and Accounting.

### 2.3 TVET's role for sustainable development

TVET takes on a complex and distinctive character with regard to sustainable development. The empirical sustainability and sustainable development aims to integrate economic, environmental and social aspects within TVET programmes. Thailand recognizes the important role of TVET as a vital tool for producing manpower with the necessary skills required for employment and/or entrepreneurship as well as for poverty alleviation. TVET by OVEC has made a lot of progress and accomplishment during the past decades, especially in terms of providing skills for work, continuing education, raising quality of life, and sustaining the labour force. The integration of sustainable development in TVE has been considered by the agencies to strengthen TVET so as to increase the skilled manpower in both production and service sectors. This implies the improvement of curriculum and instruction, establishment of Thai Vocational Qualification, validation of experiences, research and innovation, and career development.

Reorienting TVET towards sustainable development is enabled through:

- (1) the decentralization of the education system and the creation of policy units through colleges and institutions;
- (2) Vocational Education for youth and workers according to their aptitude and interest, providing them with a bachelor degree;
- (3) the participation of the community and the enterprise in providing policy on producing and developing manpower and also providing Vocational Education standards;
- (4) a continuous transfer of learning outcomes and personal work experiences,
- (5) a system encouraging the enterprise to participate in Vocational Education and Training management; and
- (6) the continuous adaptation of OVEC teachers and staff to the technological change.

According to the needs and strategy for potential development of the country's is, the quality and quantity of TVET with regard to the occupational competencies and skills requirements is accomplished by four key strategies: increase in TVET participation, social services, research innovation and entrepreneurship development and quality improvement. These strategies imply the following issues:

- Increase in TVET Participation: Flexibility, TVET in Secondary Schools, Accreditation and Recognition of Prior Learning, Partnership, Earning-while-Learning increase opportunities, ICTs, and Distance Learning;
- Social Services: Poverty Alleviation, Fix-It Centre, Learning Pathways, Partnership and Environment;
- Research Innovation and Entrepreneurship Development: Strengthening Staff Capacity, Changing Paradigm, Networking & Partnership, Enhancing Knowledge Management, Development Linkages with Industries and Indigenous Knowledge, Organizing Skill Development in Research and Entrepreneurship for TVET students; and

- Quality Improvement: alternatives to TVE programmes, Learning by doing, Quality Assurance, Standardization, Networking and Partnership, Knowledge Management System, Competency-Based Curriculum, Career / Vocational Education and Providing Qualification for e-learning.

OVEC provided 3 main TVET standards, namely: Occupational Standard or Competency Standard, General Vocational Education Qualification, and Institute Standard or Vocational Education Standard. The competency-based curriculum is developed from Competency Standards and includes life skills and the general academic programme that is now meeting the General Vocational Education Standard. As far as the internal quality assurance of the system is concerned, students will be provided by the provincial college committee with a General Standard test. The Vocational Education system in Thailand will be of better quality and the workers more competitive, once the country will have established the National Qualification Standards and the Institute of Vocational Qualification. Every organization has already developed its qualification framework, but still needs to complete it. OVEC provides Internal Quality Assurance on 6 standards and 34 indicators for institute standards or Vocational Education Standards. The 6 standards concern: the students and the gradulators, the curriculum and teaching learning resources, the students' activity development, the innovation and research, the social services and the leadership. These are the frameworks in which the colleges must be involved to be qualified and accepted by the Internal and External Auditing in Educational Quality Assurance system.

#### 2.4 Partnership and Networking

All TVET institutions or providers, both public and private, are required to involve industrial groups and local agencies in development of policies, guidelines and curriculum. Partnership and networking with enterprises are extensively enhanced. In order to make TVE more attractive, guidance and counseling are particularly focused on the importance of work-based learning, earning a living during they learn, opportunities for employment as well as the extension of education in the higher level. The creation of partnership and networking is not only meant to provide students with training places or to produce manpower but also to identify the competencies required by the enterprises. At present, in the main industrial groups with strong and well-developed partnership and networking are to be found, for example, in the Petrochemical, Gems and Jewelry, Textile and Garments, Automobile, Tourism and Hospitality, Food, etc. This partnership system enables the organization and implementation of teacher trainings curriculum development, and competency-based trainings.

### 3. Best Practices on ESD in OVEC, Thailand

OVEC is a leading organization responsible for developing Technical and Vocational Education (TVET) policy and standards, allocating resources and coordinating projects to promote TVET. OVEC also produces required TVET manpower for the labour market and self-employment, provides social services and facilitates poverty alleviation. OVEC policy consists of important projects and activities based on four main targets, towards which 415 institutions are working:

- Developing skills for employability;
- Fostering new entrepreneurship or self-employment;
- Serving society / local community; and
- Conducting research for new knowledge and innovation/technology.

#### 3.1 Developing Skills for Employability

TVE programmes in Thailand are provided mainly in the areas of Trade & Industry, Business, Agriculture, Home Economics, Arts and Crafts, Fisheries, Textile, Garments, Jewelry, Tourism and Hospitality at upper secondary, and post-secondary levels. TVE short-course programmes are also offered for younger students and adults.

As one of the national strategies is to increase competitiveness capacity, it is necessary to identify manpower demand in some specific areas needed. For TVE, there are urgent requirements especially in the areas of Food Industry, Tourism Industry, Textile & Garments, Fashion Design, Software and Petro-chemical Industry, both in terms of quality and quantity.

##### 3.1.1 Strengthening Partnership with Industries

Joint committees between OVEC and industrial clusters are organized under cooperative projects to identify competencies required by each industrial cluster and career path. This is an attempt to develop a sense of ownership in TVE of industrial clusters and encourage them to work closely with OVEC in developing and producing qualified TVE graduates.

##### 3.1.2 Expanding Dual Vocational Training (DVT)

During the 2005-2006 academic years, there were more than 12,000 companies working with OVEC in providing Dual Vocational Training Programmes for 40,000 students at both secondary and post-secondary levels. OVEC works closely with all stakeholders to increase the number of DVT students as required by the industrial, agricultural, and service sectors.

##### 3.1.3 Enhancing the Changes in Teaching, Learning and Testing Methodologies

Strategies for changing in teaching, learning, and testing methodologies are enhanced in order to provide students with required competencies as identified by industrial clusters or occupational groups. Students learn to integrate and apply related subjects through project-based and problem-based assignments. Learning by doing in the real working situation is strongly emphasized.



### 3.1.4 Making TVE more Attractive

Incentives are provided so as to attract more TVE students, by offering various models of learning as well as providing continuing counseling and guidance in order to make them keep abreast with the changing labour market and career paths. The following are different means of TVE processes to attract more students:

- Earning while learning in relevant areas of occupation;
- Transferring and accumulating credit hours;
- Offering TVE programme in secondary schools;
- Learning through distance programmes;
- Learning in company or work-based learning; and
- Accrediting all prior learning and experiences.

### 3.1.5 Promoting Brand “R People”

OVEC has enhanced an important project on improving the image of TVE students. The main objective is to provide a good public image and a new paradigm of TVE students. A number of TVE students from both public and private institutions are selected as prototypes or models to represent other TVE students to the public. They must possess 5R characters, including: Relation, Responsibility, Refresh, Representative and Rescue; therefore, they are called “R People” or prototypes of TVE students.

### 3.2 Fostering Entrepreneurship or Self-Employment

OVEC has implemented the following activities to foster entrepreneurship or self-employment:

- Creating chains of business partnerships to support OVEC programmes;
- Providing information in business opportunities;
- Establishing incubator training centres in the colleges;
- Developing staff capacity;
- Changing teaching, learning and testing methodologies; and
- Developing pilot projects on “One College One Business”.

The students who are interested in self-employment will have facilitated access knowledge, skills and experiences in organizing and implementing small businesses, but will also have facilitated access to funding sources. Team working is also encouraged.

For example :

Creating Chains of Business Partnerships to Support OVEC Programmes

One of the strategies of OVEC consists in strengthening its partnership with private and public organizations. The organizations cooperating with OVEC for supporting

Entrepreneurship Programmes are: the Stocks Exchange Market of Thailand, the Office of Transforming the Property to the Capital Investment Loans Administration, the SME Bank, the Saving Money Bank, the Agricultural Land Reform Office and the Agricultural and Cooperatives Ministry. Here are examples of the projects undertaken by OVEC and its partners:

- 1) Developing the Curriculum - the cooperation between OVEC and the Stocks Exchange Market of Thailand. The two subjects, “The SME Management” and “The Value of Currency”, have been established in the group of vocational basic subjects in the Certificate level since 2006.
- 2) Project: “Planning for Entrepreneur through TVET” - the cooperation between OVEC, the Office of SME Promotion and the Stocks Exchange Market of Thailand. This project is to initiate a business plan competition among the colleges. The team consists of the students and an advisory teacher. The winner team will receive the reward and will go on a study visit to Singapore.
- 3) Project: “Smart SMEs” - cooperation between OVEC and SME Bank. This project aims at helping the students having good basic business skills and to develop their knowledge and competency in entrepreneurship. Each year, these students have to create their business plan for the competition. The top three students receive the reward and budget to support the start-up of a small business.
- 4) Project: “Developing the Agricultural New Generation” - cooperation between OVEC and Agricultural Land Reform Office. The objective is to create a new agricultural generation with leadership abilities, creative thinking, and ready to use new technologies to make benefit and utilize the land. They have to live and study in a real situation, in the land reform areas. They will have the right to legally keep the land by a Sufficient Economic Union when the Agricultural Land Reform Office is satisfied with their work.
- 5) Project: “Transform the Occupational Skills to Capital Investment Loans” – the cooperation between the Office of Transformed the Property to the Capital Investment Loans Administration, the SME Bank, the Saving Money Bank and OVEC. The target groups are the In Wall Incubation and Out Wall Incubation. Through this project, the colleges are meant to become centres of knowledge and technology in producing, transfiguring, servicing, selling and working in order to develop a sense of entrepreneurship, promoting and developing the creation of added value added in a sustainable entrepreneurial community, enhancing In Wall Incubation and Out Wall Incubation in order to attain capital investment loans and creating competitive entrepreneurship.

### 3.3 Serving Society / Local Community

An important policy of the government is to eradicate poverty, especially in rural areas. TVE has become an important tool for this policy. The main target groups are the students and the

people from the rural areas. The eradication of poverty implies three main steps:

- Increasing the income through developing skills, finding markets and creating jobs;
- Reducing expenses by increasing the autonomy of local people, making them able to repair their own home appliances or build local public utilities; and
- Extending opportunities for earning a better living by providing necessary information, developing quality of the products and providing skills required.

OVEC has played important roles in the development of the government policy on poverty alleviation through the following activities.

### 3.3.1 Fix It Centre

According to the initiative of the government, OVEC has worked with local agencies in setting up “Fix It Centres” in rural areas. The purposes of these centres include:

- Integrating occupational training in specific areas;
- Working cooperatively with other agencies;
- Providing skills needed for earning a living in rural areas;
- Providing advice and coaching in occupational areas;
- Distributing information on skill-training opportunities;
- Organizing mobile training units for remote areas; and
- Topping-up technology on “One Tambon, One Product (OTOP)”.

Fix It Centres have made TVE become popular in helping rural people and in turning communities into active practical classrooms giving students a greater learning experience. The activities and benefits include:

- Providing maintenance service for occupational tools, agricultural machines and household appliances;
- Providing the students with practical and real-situation trainings;
- Enhancing student value on social services;
- Providing good attitude towards TVE;
- Providing “Problem-Based Learning”;
- Extending the life span of equipment and machines;
- Developing occupational KM system in community
- Establishing occupational profiles and learning system; and
- Promoting sufficiency economy.

### 3.3.2 The Post-Tsunami Reconstruction

During the Post-Tsunami Reconstruction, TVE students played important roles in both helping local people and working cooperatively with other agencies in the following activities:

- Repairing and constructing houses,
- Repairing occupational tools, cars, ship engines, and fishing boats;
- Training for needed skills;
- Organizing information systems; and

- Providing food, services and shelters for the people who had been affected by the Tsunami.

OVEC has made an attempt to create a good image of TVE students. For this reason, during the post-tsunami period, TVE students were assigned and played an important part in the reconstruction. Through these activities, TVE students gained the recognition of local communities, as well as some learning experiences and problem solving skills in a real situation.

### 3.3.3 Repairing and Constructing Schools

In cooperation with the Basic Education Commission Office, TVE colleges have played an important role in repairing and constructing primary schools in rural and risky areas. This activity helps students to learn more on the job and earn an income.

### 3.3.4 Conservation of Energy and Related Services

TVE Colleges are also active in helping to conserve energy. There are continuing projects with the Ministry of Energy in cleaning air conditioners of public offices, learning to save electrical energy, and, at the same time, making the public realize the importance of energy conservation. Services in cleaning home air conditioners are also offered by TVE colleges.

### 3.3.5 Safety Traveling Campaign

TVE students also provide services for safety traveling during long holidays. Car services (e.g. check up, fixing engines, etc.) are offered to those travelers during the long holidays, in cooperation with PTT Public Company Limited and other private organizations.

## 3.4 Conducting Research for TVE in the field of New Knowledge and Innovation/Technology

OVEC has encouraged administrators and teachers to carry out research work in the field of new knowledge and innovation/technology in order to ensure sustainable development. Through these activities, OVEC wants to inspire TVE teachers to continue to improve their performance through data collection and to make use of it. Students are also supported to work on project-based learning to contribute to the field of technology/innovation, according to their areas of specialty. Furthermore, they are also encouraged to create new inventions and to participate to the national competition held every year.

The cooperation with the industries and other agencies on R & D is strengthened, especially in regards to the new occupations required by the labour market. TVE Knowledge Management Systems have also been developed to ensure and facilitate the exchange of TVET knowledge, experiences and best practices.

#### 4. Issues and Challenges

According to Thailand's „Sufficient Economy“, derived from His Majesty King Bhumibol Adulyadej's Philosophy to become a means for sustainable development, every individual needs to learn continuously to improve himself and adapt himself to the rapidly changing environment he is part of. In the frame of its policy, the government integrates TVET programmes within teaching and learning methods to help people have a better life.

Since the last three-year plan (2006-2008), the Fix It Center Project has become well-known in the country. The government planned in 2009 to continue the project until 2011. In 2009, as the country was going through an economic decrease, the government has the policy to continue this project for three years from 2009 to 2011. In this year (2009), the economics of the country are decreasing, the government settled the Career Seedling Project, to give training to the unemployed and the new graduates. The colleges under OVEC represent some of the organizations training those people.

The Ministry of Education's policies have resulted in the 3D Institution: Democracy, Decency (moral & ethics) and Drug Free. Each organization under the Ministry of Education monitors the schools/colleges to make sure that they are working towards the policy. As an example can be named the Loving in Reading Project and the 3D Library Project which both have the goal to built up young people which are proud to be good students and good Thai citizens. All of these contribute to the sustainable development of the country.

Thailand's challenges in regards to TVET depend on the context:

- Strengthening Partnership with the industries, private sectors, and other government organizations;
- Repositioning colleges;
- Enhancing students morale and integrating Self-Sufficient Economics;
- Running National Qualification Framework;
- Developing a Competency-based Curriculum;
- Developing media, innovation, laboratories, schools in the factory, factories in the school, software houses;
- Participating in establishing the system of vocational qualification and occupational standards or competency standards;
- Developing the system of participative management;
- Developing the image of Vocational Education quality;
- Providing and developing personnel potential cooperative with entrepreneur in country/abroad/The Commission on Higher Education; and
- Establishing under the Vocational Education Act the Institutes of Specific Area by organizing the colleges, for example: Institute of Petrochemical, Institute of Rice, and Institute of Goldsmith and Jewelry.

However, the success of TVET programmes will also depend on the cooperation between TVET organizations in Thailand and the ones in the other countries.

## 5. Conclusion

The Office of Vocational Education Commission (OVEC) provides TVET for producing and developing skilled, technician and technologist manpower for nine major fields of course: Trade and Industry, Agriculture, Home Economics, Arts and Crafts, Commerce and Business Administration, Fisheries, Textile Industry, Tourism and Hospitality, and Information Technology. The Programmes of study include: Short-course Vocational Trainings, Certificates in Vocational Education (3 yrs. after lower secondary level), Diplomas in Technical Education (2 yrs. after Certificate level / 2-3 yrs. after upper secondary level), Higher Diplomas in Technical Education or Bachelor Degree (3 yrs. after Diploma in Technical Education), and from 2009 Bachelor Degrees in Technology (2 yrs. after Diploma in Technical Education).

The vision of OVEC, as a leading organization, to be responsible for Technical and Vocational Education (TVE), particularly with regard to equity, access, quality standards, and lifelong experience in order to equip individuals with occupational competencies and the skills needed for the labour market and self-employment relevant to the social and economic development goals of the nation. The missions are: increasing TVET participation, social services, research innovation and entrepreneurship development and quality improvement. So the important projects and activities of OVEC are based on four main targets: developing skills for employability, fostering new entrepreneurship or self-employment, serving society/ local community, conducting research for new knowledge and innovation/technology for enhancing sustainable development.

Sustainable development should be an integral aspect of TVET plans and teaching and learning processes. However, administrators and teachers are the key people for reorienting TVET towards sustainable development. They need to teach TVET students to gain knowledge, skills and attitude for developing themselves, and to get ready for living in the society.

## FURTHER READING

In Thai:

Ministry of Education (2008) Invention of the New Generation Project. Bangkok: Bureau of Vocational Education Research and Development.

Ministry of Education (2008) Guidelines for the Evaluation of Vocational Education Standards. Bangkok: Office of Vocational Education Commission.

Ministry of Education (2008) Guidelines for Vocational Education Curricula Development: Implementations of Competency-Based Curricula Development. Bangkok: Office of Vocational Education Commission.



Office of Vocational Education Commission, VEC DOC, [vec.go.th/iscripts/cmview.php?doc=doc=doc/go06/template/doctemplate.htm](http://vec.go.th/iscripts/cmview.php?doc=doc=doc/go06/template/doctemplate.htm), 2008.

In English:

Ministry of Education (2008) Education Development Framework in the Tenth National Social and Economic Development Plan (2008-2011). Bangkok: Office of the Education Council.

Office of Vocational Education , Ministry of Education, Vocational Education in Thailand, Bangkok, 2007.

Chumnum, S.; Tappakul, J. (2009) “Regional Study of Secondary Level Technical and Vocational Education Policies and Rationales for Skill Development”. Thailand.

The National Economic and Social Development Board, Social Outlook, Bangkok, NESDB, 2008.

UNESCO-UNEVOC (2006) “Orienting Technical and Vocational Education and Training for Sustainable Development: a Discussion Paper. UNESCO-UNEVOC discussion paper series. Volume 1”. Bonn, Germany.

# InWEnt – Internationale Weiterbildung und Entwicklung gGmbH

## Capacity Building International, Germany

InWEnt – Capacity Building International, Germany, stands for the development of human resources and organisations within the framework of development cooperation. InWEnt offers courses that cater to skilled and managerial staff as well as decision makers from business, politics, administrations and civil societies worldwide.

With the education, exchange and dialog programmes for approximately 55,000 persons per year, InWEnt constitutes the largest joint initiative of the German Federal Government, the Länder (German federal states) and the business community. The centre in Bonn and 30 other locations in Germany and abroad employ roughly 850 staff.

The organisation commands a total annual budget of approximately €130 million. The Federal Government is main shareholder and represented by the Federal Ministry for Economic Cooperation and Development (BMZ), which is also the main financial contributor. Approximately 40 percent of the budget is from further commissioning bodies, in particular the Federal Ministry of Education and Research, the Foreign Office (AA), the Federal Ministry of Economics and Technology, and, increasingly, the European Union (EU) as well as various further multilateral organisations. Main cooperation partners are the KfW Bankengruppe (KfW banking group), the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH (German Technical Cooperation) and private business foundations.

InWEnt was created in 2002 through the merger of Carl Duisberg Gesellschaft e.V. (CDG) and the German Foundation for International Development (DSE). In keeping with the tradition of the predecessor organisations, both Länder (German federal states) and German business are shareholders and thus ensure that InWEnt is firmly anchored in society.

Within its business fields, InWEnt amalgamates the decades of expertise and regional experience contributed by CDG and DSE. The methodological repertoire is structured along broad lines, making it possible to customise modules to fit the specific requirements of customers and tasks and provide appropriate solutions. The employment of new media permits the development and implementation of innovative knowledge management methods, the launching of international virtual learning communities and the promotion of multiplier systems.





# UNESCO-UNEVOC International Centre

## Our Profile

The UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training was established in Bonn, Germany, in September 2000, based on a Host Country Agreement signed earlier that year between UNESCO and the Government of Germany. The Centre was inaugurated on 8 April 2002.

The Centre seeks to help UNESCO's 193 Member States strengthen and upgrade their systems of technical and vocational education and training, and to promote a greater availability of skills development options so as to implement Article 26 of the Universal Declaration of Human Rights and UNESCO norms and standards concerning technical and vocational education and training.

The Centre undertakes its activities through a world-wide network of 280 UNEVOC Centres in 165 countries. It creates synergies with UNESCO Headquarters, UNESCO Institutes/Centres and Field Offices; and works in close partnership with other international and national agencies in the field of technical and vocational education and training.

## Our Vision

The UNESCO-UNEVOC International Centre acts as part of the United Nations mandate to promote peace, justice, equity, poverty alleviation, and greater social cohesion. The Centre assists Member States develop policies and practices concerning education for the world of work and skills development for employability and citizenship, to achieve:

- access for all
- high quality, relevant and effective programmes
- learning opportunities throughout life.

The Centre contributes to increased opportunities for productive work, sustainable livelihoods, personal empowerment and socio-economic development, especially for youth, girls, women and the disadvantaged. Its emphasis is on helping meet the needs of developing countries, countries in transition and those in a post-conflict situation.



## Our Work

The UNESCO-UNEVOC International Centre acts as a key component of UNESCO's international programme on technical and vocational education and training. It also works to support UNESCO's mandate for Education for All and Education for Sustainable Development.

The Centre achieves this through taking action to strengthen and upgrade the world-wide UNEVOC Network (Flagship Programme), with particular reference to:

- Stimulating international and regional cooperation concerning human resource development
- Promoting UNESCO normative instruments and standards
- Promoting best and innovative practices in TVET
- Knowledge sharing
- Mobilizing expertise and resources
- Strengthening partnerships with other relevant agencies

## UNESCO-UNEVOC

### International Centre for Technical and Vocational Education and Training

UN Campus

Hermann-Ehlers-Str. 10

53113 Bonn, Germany

Phone: [+49] 228 8150-100

Fax: [+49] 228 8150-199

[unevoc@unesco.org](mailto:unevoc@unesco.org)

[www.unevoc.unesco.org](http://www.unevoc.unesco.org)

## Joint Publications of InWent and UNESCO-UNEVOC

- 1) Frank Bünning/Zhi-Qun Zhao (eds.),  
TVET Teacher Education on the Threshold of Internationalisation,  
Magdeburg 2006 (available as book or as CD-ROM)
- 2) Jon Lauglo,  
Research for TVET Policy Development,  
Magdeburg 2006
- 3) Frank Bünning/Alison Shilela,  
The Bologna Declaration and Emerging Models of TVET Teacher Training in Germany,  
Magdeburg 2006
- 4) Frank Bünning,  
Approaches to Action Learning in Technical and Vocational Education and Training  
(TVET), Magdeburg 2007
- 5) Alexander Schnarr et al.,  
Vocational Education and Training and the Labour Market – A Comparative Analysis of  
China and Germany, Magdeburg 2008
- 6) Chana Kasipar, Mac Van Tien et al.,  
Linking Vocational Training with the Enterprises –Asian Perspectives,  
Magdeburg 2009 (available as book or as CD-ROM)
- (7) InWent/UNESCO-UNEVOC/SEAMEO VOCKETCH (eds.),  
Corporate HRD and Skills Development for Employment: Scope and Strategies,  
Magdeburg 2009 (available as book or as CD-ROM)



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InWent - Internationale Weiterbildung und Entwicklung gGmbH  
Capacity Building International, Germany  
Friedrich-Ebert-Allee 40  
53113 Bonn, Germany  
Phone +49 228 4460-0  
Fax +49 228 4460-1766  
[www.inwent.org](http://www.inwent.org)

Division 4.02  
Modern Media and Curricula Development in Vocational Education and Training  
Schellingstraße 3-4  
39104 Magdeburg  
Phone: +49 391 5371-300  
Fax: +49 391 5371-329

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[aruge@srs-sys.de](mailto:aruge@srs-sys.de)

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## InWEnt – Qualified to Shape the Future

InWEnt – Capacity Building International, Germany, is a non-profit organisation with worldwide operations dedicated to human resource development, advanced training, and dialogue. Our capacity building programmes are directed at experts and executives from politics, administration, the business community, and civil society.

## Our Programmes

60 percent of all our programmes are implemented at the request of the Federal Ministry for Economic Cooperation and Development (BMZ). In addition, we conduct programmes for other German federal ministries and international organisations. We are also working in cooperation with the German business sector in public private partnership projects that can be designed to incorporate economic, social, and environmental goals.

The programmes for people from developing, transition and industrialised countries are tailored to meet the specific needs of our partners. We offer practice-oriented advanced education and training, dialogue sessions, and e-Learning courses. After the training programmes, our participants continue their dialogue with each other and with InWEnt via active alumni networks.

By offering exchange programmes and arranging scholarship programmes, InWEnt also provides young people from Germany with the opportunity to gain professional experience abroad.

## Our Offices

InWEnt gGmbH is headquartered in Bonn. In addition, InWEnt maintains fourteen Regional Centres throughout the German Länder, providing convenient points of contact for all regions. Our foreign operations in Beijing, Cairo, Hanoi, Kiev, Lima, Managua, Manila, Moscow, New Delhi, Pretoria, São Paulo, and Dar es Salaam are usually affiliated with other organisations of German Development Cooperation..

InWEnt – Internationale Weiterbildung  
und Entwicklung gGmbH  
Capacity Building International, Germany  
Friedrich-Ebert-Allee 40  
53113 Bonn, Germany  
Phone +49 228 4460-0  
Fax +49 228 4460-1766  
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