Vocational Training and Technical Education for a Knowledge Economy

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Abstract

The present world economic trend has given developed countries having technologically- advanced knowledge economies a comparative advantage over the other less-developed countries. This paper attempts to discuss the features of knowledge economies and the government's post-conflict policy priorities to identify the role that has to be played by the Technical and Vocational Education and Training (TVET) Sector of the country. A brief history and the present developments of TVET sector of the country are discussed. An attempt is made to identify the limitations and the challenges faced by the TVET sector to align itself with declared government policy of becoming a regional knowledge hub.

Introduction

Knowledge and innovation have been at the forefront of economic development throughout human history. Rapid advances in information and communication technology, technological innovations and globalised markets have reshaped world economic growth. The countries that acquire, create knowledge through innovation, manage and trade in knowledge have a comparative advantage over others in this present world scenario. Thus knowledge and knowledge management have become the major determinant of economic growth and development. In a knowledge-driven economy, the key resource is the knowledge that is manipulated to gain comparative advantage in a competitive global market for higher levels of productivity (Houghton and Sheehan, 2000). An economy based on creating, evaluating, and trading in knowledge is defined as a Knowledge Economy (World Bank, 2007). The four pillars of a knowledge economy are—

i. business environment,
ii. the information infrastructure,
iii. the innovation system, and
iv. human resources.

The way ahead for economic development and prosperity of any country in a globally competitive economic environment is to develop policies that strengthen these four pillars of a knowledge economy. Therefore, it is necessary for Sri Lanka to align its development agenda with this new trend to take advantage from the emerging global economic conditions.

Sri Lanka and its Present Economic Environment

The recently-launched Knowledge Economy report of the World Bank, Sri Lanka has been ranked higher than India in all the components – Economic incentives, Information and Communication Technology, Innovation, and Education. For example, in 2005, Sri Lanka had three million mobile subscribers, and as at last year, it exceeded 13 million, reflecting the level of competition between the five mobile service providers in the country. Fixed lines, with less than a million subscribers in 2005, now number more than 3.5 million, making it a total of more that 16.5 million phones in the country (Chandrasekera, 2010).

Athukorala (2008) discusses the importance of innovations in a knowledge economy and attributes reasons for Sri Lanka lagging behind the rest of the world. Plantation industry, a major export earner, is taken as the example. Lack of innovations in the tea industry is attributed as a main reason for the drop in world market share from 34.1% in 1985 to a mere 20% today. Last research and development in the industry as the fluid bed drier 20 years back and the last innovative cloned tea bush introduced was in 1974 are given as examples. It is further pointed out that the investment on Research and Development either by the government or by the private sector has not been significant to boost innovations.

Despite the war that debilitated the economy, Sri Lanka has maintained an economic growth rate of 6 -7% per annum (Central Bank, 2009). However, much of the expansion and economic activities have taken place in the services sector as shown below:

Distribution of Employed Persons in 2009

Total Employed persons ('000) in (2009):	7,603
Agriculture:	32.6 %
Industry:	25.1 %
Services:	42.3 %
Total	100.0%

The civil strife that affected the economy for over 30 years has finally come to an end in Sri Lanka. The country is now poised for moving towards a new era of economic development and prosperity with the ensuing peaceful and stable political environment. In this context, Sri Lanka has chosen the right strategy of becoming a knowledge hub in the region (Ratnayake, 2010).

The Government's policy, "*Mahinda Chinthana Idiri Dekma* (2010)" has clearly articulated the need to

develop the country into a strategically important economic centre in the region by becoming a Naval, Aviation, Commercial, Energy and Knowledge hub. In view of this, a high priority has been given in national policies to provide an enabling environment for investment. Large-scale infrastructure development, such as, road network, power generation, airports and harbours, has received priority in the national agenda for this purpose. It has also recognised the need to empower the youth with modern information and communication technologies, and that the future market for employment will depend entirely on these skills. The policy document has proposed meaningful initiatives to improve and support the education, higher education, and skills development of youth for gainful employment. In fact, the entire policy framework is to support the four pillars of a knowledge economy to take full advantage of the post-conflict developments, and these are highlighted below:

Sri Lanka's Enabling Environment for Knowledge Economy in the Sphere of Education

The Government's policy document, "*Mahinda Chinthana Idiri Dekma*" has recognised the importance of knowledge economy and has given policy priorities to support an enabling policy environment. Following are some of the government policy highlights in relation to education as outlined in "*Mahinda Chinthana Idiri Dekma*" to guide the country towards a knowledge economy.

Equity in Access to Education

To ensure equity in access to education, teachers are to be deployed to teach the three main subjects, English, Mathematics, and Science, within the next two years. All such teachers are to be trained and equipped with the modern methodologies of teaching. These measures are expected to create an environment for every child to be exposed to subjects, such as, Information Technology, Computer and Communications, technological and productivity enhancement skills from the school level.

The policy provides opportunities for youth to follow internationally-reputed training programs and tertiary education programs that assist them to acquire internationally-recognised qualifications to equip them to meet the demands of the global workforce. The policy is inclusive of enhancing the knowledge and experience of youth by sending them on International Youth Exchange Programs.

It is envisaged to introduce effective Language Teaching Centres equipped with modern technology to achieve the objective of providing access to English language as an essential requirement to all to overcome the challenges of the modern world. Setting up Language laboratories equipped with all modern state-of-the-art facilities in all Universities and Higher Educational Institutions is a measure to ensure that all graduates acquire proficiency in the English language within three years. Establishing one such state-of-the-art Language laboratory in every education division to provide opportunities to learn not only the English language, but also Sinhala, Tamil and other languages is another goal that has been stipulated.

Promotion of Innovation and Research

Recognising that the mother tongue reflects one's national identity and aspirations for innovation and creativity, policy measures are to be implemented to ensure that every person has the right to pursue education from primary level to a degree level in his or her mother tongue. The policy also proposes to develop an operational plan to make this country a local and international research and training centre for knowledge within this year. To achieve this objective restructuring the University Grants Commission to enable the structural necessities and providing opportunities to the lecturers to pursue postgraduate education in Sri Lanka and in leading foreign Universities and Research Institutions to improve the quality of University education is considered as an alternative. The policy also proposes to enact necessary legislation to facilitate lecturers and executive staff in the Universities to work as consultants in Government Ministries, Departments or Corporations and Statutory Boards during their Sabbatical Leave.

Information and Communication technology and Employment Aspects

Government policy on Information Technology (IT) is having a national initiative to eliminate legal drawbacks in the field of IT and establishment of a chartered institute for information and communication technology (ICT). It is envisaged to implement a six-fold policy for communication technology development and information technology literacy rate will be improved up to 75% by 2016 by modernisation of *Vidatha* and *Nena Sala* and by combining them with the *Gama Neguma* program. Policy also provides for a minimum of 10 e-life Centres to be established in each Divisional Secretariat to match with the youth population in the country and establishment of IT centres in 25 main cities of the country.

Technical and Vocational Skills Development

With regard to TVET policy measures, an Employment and Entrepreneurship Management Centre is to be established to reduce youth unemployment and generate economic activities for youth. A program is to be launched to direct skilled youth for foreign employment and promote the establishment of Business Process

Outsourcing (BPO) through international institutions to create new employment opportunities for the youth. Other policy measure includes introducing the concept of "Industrial Villages" to channel small-scale foreign investment directly to the villages, establish a Higher Technological and Professional Training Institution for acquiring new knowledge. The courses in these Institutions will target the foreign employment market with high demand. The policy also envisages creation of a manpower reserve of 150,000 within this year to ensure that rural youth acquire the necessary training to secure highly-paid jobs. This reserve will comprise :

- 25,000 with knowledge and skills in Accounting and Technology,
- 25,000 in Information Technology,
- 25,000 in the Tourism Sector,
- 25,000 in the Construction Sector,
- 15,000 in the Health Sector,
- 10,000 in the Beauty Culture Sector, and
- 25,000 in other specialised areas.

Outlining all these policy measures, government has very clearly articulated its desire to become an international knowledge hub. Given this economic policy environment, the objective of this paper is to discuss the Technical and Vocational Educations system in the country with respect to its limitations and the challenges it has to face in meeting government policy initiatives.

Technical and Vocational Education System of Sri Lanka

Technical education in Sri Lanka has a history of over hundred years with the first institution for formal technical education in Sri Lanka was established in 1893, then known as the Government Technical School. Since then, many changes have taken place in the sphere of technical and vocational education to provide opportunities for school leavers to join the national workforce. However, it has not been successful in increasing the opportunities for upward mobility for those employed in the vocational and technical sector and has remained less attractive for youth to take up. Vocational qualifications have received lesser recognition in comparison to degree-level education leading to this poor image (NECSL, 2009).

During recent decades, attempts have been made to reform the vocational and technical education sector with the Skills Development initiative from the Asian Development Bank (ADB). These developments have taken place by taking into cognizance the fact that in the new world economic order, country's education system has to produce skilled, knowledge workers to contribute to the economic development of Sri Lanka.

Current education system in Sri Lanka is not capable of delivering the expected results, unless it is modified to meet the present challenges (Ratnayake, 2010). Given the emerging economic trends in the country with an expanding service industry as shown above, primary and secondary education should focus on providing students with life-long learning skills to make them more adaptable to the rapidly changing needs of the employment market. Since tertiary education system of the country offers only limited opportunities for those qualify, it will be increasingly important for Sri Lanka to invest on the TVET to supply the workforce required by the services industry with individuals who possess specific demand-driven skills.

Vision 2010, the development strategy of the government, identifies three main challenges facing the TVET sector as—

i. qualitative and quantitative mismatches in certain areas of skills demand, external and internal inefficiencies in the sector with duplication of courses, outdated curricular and equipment, shortage of good trainers, and high dropout rates.

ii. absence of sound data on the effectiveness of these training courses.

iii. incomplete monitoring and evaluation of TVET institutions and their course offerings based on poor data, particularly, regarding training by private sector training providers and employers.

The National Policymaking Body of the TVET Sector

Tertiary and Vocational Education Commission (TVEC) established by Tertiary and Vocational Education Act No.20 of 1990 is the apex body in the TVET sector with the mandate of policy formulation, planning, quality assurance, coordination and development of tertiary and vocational education across the country. This Act was revised by Amendment Act No.50 of 1999 to provide additional powers for funding and research. TVEC is also responsible for assessments for registration of vocational training institutions and for accreditation of vocational training courses mandatory for all institutions offering vocational training courses to government-recognised standards. TVEC monitors the maintenance of quality and standards at registered and accredited institutions. TVEC focus on these aspects is meant to overcome the above-identified shortcomings in the TVET Sector.

National Vocational Qualification Framework

An important milestone for the education, economic and social development of Sri Lanka is the introduction of National Vocational Qualifications (NVQ) framework in 2005 by, the Ministry in charge of the subject at that time, the Ministry of Vocational and Technical Training (Presently the Ministry of Youth Affairs). The Tertiary and Vocational Education Commission (TVEC), in association with the Skills Development Project (SDP) funded by the Asian Development Bank (ADB, 2007), introduced the national certification system for the Technical and Vocational Education and Training (TVET) sector of Sri Lanka, which is called the National Vocational Qualifications (NVQ) framework.

It is mandatory for all institutions providing vocational training

courses to register with TVEC and acquire accreditation of individual training courses in order to conduct nationally- recognised vocational and technical training and provide NVQ certificates under the NVQ framework. The NVQ system attempts to address the following issues:

- the perceived mismatch between training offered and the requirements of the labour market, and
- the duplication of training provided by institutions and the lack of consistent training standards and delivery.

The NVQ framework consists of seven (7) levels of instruction. NVQ levels 1 to 4 are for craftsmen designation and successful candidates are issued with National certificates. NVQ levels 5 and 6 are Diploma level, whereas Level 7 is for degree equivalent qualifications (See Figure 1).

The introduction of this unified system of NVQ system enables youth to select a prospective career path providing nationally-recognised qualifications. The system also assists employers at recruitment level to recognise certificates complying with industry requirements which will ensure that the prospective employers employ the best-fit employees in their industries. A major requirement in developing the system is to unify NVQ with internationally-recognised levels of knowledge and skills to ensure national and international recognition for NVQ system that will provide mobility to those acquiring NVQ qualifications.

The advantage of the system is that it provides a pathway to those who have skills and competencies to acquire nationally-recognised competency certificates to advance their careers in a chosen field. Individuals with skills and competencies acquired through informal or non-institutional learning also have an opportunity to obtain NVQ by Recognition of Prior Learning (RPL) where the skills and competencies of the individuals are matched with the national skill standards leading to qualifications of the NVQ framework.

Table 1 provides a list of major public sector TVET NVQ level 1-4 certificate-level training providers. In addition, there are many TVEC-registered private sector training providers adding a large number of technically-skilled personnel (well over 70,000) to the labour market annually. Those who wish to advance their knowledge beyond certificate level have the opportunity of joining either a government or private sector vocational and technical training providers up to NVQ level 5 and 6 at Diploma level. The Department of Technical Education and Training has upgraded 9 Technical Colleges to Colleges of Technology providing NVQ level 5 & 6 Diploma-level technical education. The University of Vocational Technology provides degree-level at NVQ level 7 and postgraduate-level advancement of knowledge to those who seek to pursue advanced career paths.

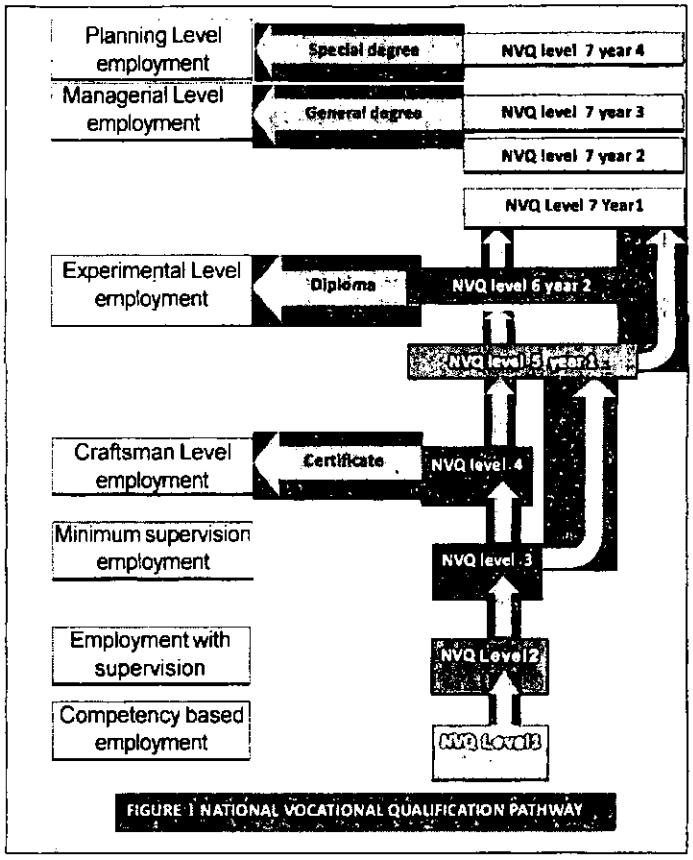

FIGURE 1 NATIONAL VOCATIONAL QUALIFICATION PATHWAY

Limitation to Furthering Vocational and Technical Education

A major limitation in providing Vocational and Technical Education as at present is the shortage of competent and qualified teachers in the public sector training providers. Despite reforms introduced in recent times to the vocational and technical education sector, this aspect has remained a stumbling block to increase the output of technically-skilled individuals to the labour market at higher NVQ level qualifications. University of Vocational Technology established by University of Vocational Technology Act No. 31 of 2008 has taken up the responsibility of training the trainers up to Bachelor of Education in Technology degree level from former National Institute of Technical Education from 2008. However, the requirements of such training are immediate to ensure the quality of the output of NVQ level 5 and 6 Diploma holders.

Quality assurance of the TVET sector programmes is one way to raise the poor image of TVET programmes. Introducing quality management to TVET programmes will enable the industry to hire technically-skilled individuals with confidence of performing quality work thereby creating a demand for those skills in the labour market.

As one can see the above-mentioned limitations are interlinked, i.e., without quality teachers, the quality of the NVQ programmes suffer, as such, development of a qualified and skilled teaching staff for Colleges of Technology (COTs) is a prerequisite to ensure the quality of the programmes offered by COTs.

Table 1: Public Sector TVET Training Providers, Type of Training Offered and Capacities

Ministry	Institution	No. of institutes	Student Capacity	Type of Training	*Area of Operation*
Youth Affairs	Department of Technical Education & Training (DTET)	38 Technical Colleges 09 Colleges of Technology	20,000	NVQ 1-4 Certificate & NVQ 5-6 Diploma	Islandwide
Youth Affairs	National Apprentice & Industrial Training Authority (NAITA)	Apprenticeship training capacity a) Automobile Engineering Training Institute, b) Apprentice Training Institute c) Institute of Engineering Technology	20,000 400	NVQ Certificates & NVQ 4 Certificate NVQ 4 Certificate NVQ 5 Diploma	Islandwide
Youth Affairs	Vocational Training Authority (VTA)	240 Training Centres	20,000	NVQ 1-4 Certificate	Islandwide
Youth Affairs	National Youth Services Council (NYSC)				
Youth Affairs	University of Vocational Technology	One	210	NVQ 07 B.Tech Degree	Ratmalana
Youth Affairs	Ocean University	One	200	NVQ 07 Degree	Crow Island
Higher Education	Sri Lanka Institute of Advanced Technical Studies	12 Institutes and 6 sections affiliated to Technical colleges		Higher National Diploma & Diploma	Islandwide
Higher Education	Institute of Technology, University of Moratuwa			National Diploma in Technology	Moratuwa
Transport & Highways	Ceylon German Technical Training Institute		300-400		Moratuwa

The tendency of the labour market to provide comparatively less remuneration to those with TVET qualified than university degree holders also had been another barrier for the youth to readily accept TVET training (National Education Commission, 2009). A sound government policy supporting NVQ standards for employment in different industrial sectors will greatly improve the situation so that skilled professionals are recognised, are in demand, and are accordingly remunerated.

Where Do All These Fit in with a Knowledge Economy?

The TVET system combined with the NVQ framework provides an opportunity to develop human capital that has the right balance of knowledge and skills. In a knowledge economy, employment prospects are brighter for individuals with such training because of the ease of adaptation to the rapidly changing global technology environment and their ability to continue to remain productive through Continuous Professional Development (CPD) that is possible with the TVET sector. If Sri Lanka is to become knowledge hub as envisioned in national policy, it needs deployment of a workforce with high levels of competencies in knowledge and skills to deliver the services required in an expanding labour market.

The Challenge before the TVET Sector

The challenge before the TVET sector of education and training providers is to steer towards demand-driven training. This will require continued assessment of changing labour market training needs and remaining flexible to accommodate such changes with minimum change over time before the demand is saturated.

One way to remain flexible and meet the above challenge is to identify industry requirements and offer Continuous Professional Development (CPD) training modules to upgrade skills. This will be more amenable to most industrial employers who are naturally reluctant to release their skilled workers over long periods for training.

Another alternative is to offer industry relevant training through Public Private Partnership (PPP) arrangement where a joint venture between public institution and a private sector organisation is created to provide the required training. The role of the public partner is to assure quality through curriculum development, quality management and award of the NVQ qualification. The private sector partner arranges the training following the quality standards laid down by the public partner through an income sharing arrangement to economically sustain PPP programme.

Obtaining international quality accreditation to NVQ certification becomes an important factor to

obtain international recognition for the NVQ certification to secure employment in the foreign labour market for skilled technical workforce for better remuneration. Imparting English Language skills to all such skilled workers will be another important challenge faced by the TVET sector.

The TVET sector will have to take up these challenges in the coming decade to align its programmes with the declared government policy outlined above. This is to ensure the success of the governments declared policy of becoming an internationally-recognised knowledge hub in the region.

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