

# **Improving Technical and Vocational Training in Kenya: Lessons from Selected Countries**

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## **Abstract**

*Vocational and technical education and training are important for a country's sustainable human capital and economic development. However, for Kenya's Technical, Industrial, Vocational Education and Training (TIVET) system to play these roles, it needs to be reformed. Currently, the system faces a number of challenges, including fragmentation of its programmes, limited integration into the formal education system, weak linkages with local labour markets, insufficient finances, inadequate monitoring, poor wage employment opportunities for its graduates, and limited alignment with technological innovation at local and global levels. To address these challenges, TIVET reforms should include policies and strategies to tackle issues related to quality of programmes, relevance of the training offered, employability of graduates, collaboration with training institutions, and collaboration among industries and employers. It is important that the country develops national skills standards, national qualifications framework, and adequate internal and external quality assurance mechanisms. Other measures worth noting include professionalization of TIVET staff, and adequate resource mobilization for TIVET from all stakeholders. TIVET programmes should be competency-based, demand-driven, and consistent with global and national labour market needs; efficient and equitable; and of high quality. Adequate proficiency testing for learners should be provided. Industry and education and training institutions should point to the gaps of current TIVET programmes and appropriately support curriculum review. Public attitudes towards TIVET should change so that the public can view the sector as an avenue to well-paying employment, quality self-employment and higher education, as they view opportunities offered by the formal tertiary education programmes.*

## **Abbreviations and Acronyms**

|        |  |
|--------|--|
| ADB    | African Development Bank   |
| AU     | African Union  |
| CBS    | Central Bureau of Statistics                                     |
| CSOs   | Civil Society Organizations                                      |
| DIT    | Directorate for Industrial Training                              |
| EIS    | Employment Insurance Scheme                                      |
| ERSWEC | Economic Recovery Strategy for Wealth and<br>Employment Creation |
| FBOs   | FaithBased Organizations   |
| FENTO  | Further Education National Training Organization                 |
| FETAC  | Further Education and Training Awards Council                    |
| GDP    | Gross Domestic Product   |
| GoK    | Government of Kenya  |
| HETAC  | Higher Education and Training Awards Council                     |
| HRD    | Human Resource Development                                       |
| ICT    | Information and Communication Technology                         |
| ILO    | International Labour Organization                                |
| ITs    | Institutes of Technology   |
| JIVTA  | Japan Industrial and Vocational Training<br>Association          |
| KCSE   | Kenya Certificate of Secondary Examination                       |
| KESSP  | Kenya Education Sector Support Programme                         |
| KIE    | Kenya Institute of Education                                     |
| KIHBS  | Kenya Integrated Household Budget Survey                         |
| KIPPRA | Kenya Institute for Public Policy Research and<br>Analysis       |
| KNEC   | Kenya National Examinations Council                              |
| KTTC   | Kenya Technical Teachers College                                 |
| LCA    | Leaving Certificate Applied                                      |
| LCVP   | Leaving Certificate Vocational Programme                         |
| LMIS   | Labour Market Information System                                 |
| NARC   | National Rainbow Coalition                                       |
| NCKK   | National Christian Council of Kenya                              |
| NCKK   | National Council of Churches of Kenya                            |
| NGOs   | Non-Governmental Organizations                                   |
| NPs    | National Polytechnics  |
| NQAI   | National Qualifications Authority of Ireland                     |
| NQFs   | National Qualification Frameworks                                |
| NVQF   | National Vocational Qualifications Framework                     |

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|        |  |
|--------|--|
| NYP    | National Youth Policy  |
| PLC    | Post-Leaving Certificate   |
| STS    | Secondary Technical Schools                                      |
| SVS    | Secondary Vocational School                                      |
| TIs    | Technical Institutes   |
| TIVET  | Technical, Industrial, Vocational Education and Training         |
| TIVETA | TIVET Authority  |
| TTIs   | Technical Training Institutes                                    |
| TVET   | Technical, Vocational Education and Training                     |
| ULFS   | Urban Labour Force Survey  |
| UNDP   | United Nations Development Programme                             |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |
| VET    | Vocational Education and Training                                |
| WD     | Workforce Development  |
| WMS    | Welfare Monitoring Survey  |
| YMCA   | Young Men Christian Association                                  |
| YPs    | Youth Polytechnics   |
| ZIMDEF | Zimbabwe Manpower Development Fund                               |



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# 1. Introduction

## 1.1 Role of Skills in Economic Development

In a rapidly changing and competitive global economy, developing countries need to increase productivity to raise living standards and compete effectively in global markets. Improving productivity requires not only investment in physical capital, but also investment in education and training. In Africa, there is fresh awareness among policy makers and the international donor community that Technical and Vocational Education and Training (TVET)<sup>1</sup> can play a critical role in national development (African Union, 2007). There are a number of potential benefits behind the push for TVET. First, up-to-date knowledge and skills contribute to higher productivity. Related to this, is that skills acquired by one individual can have positive spillover effects on the productivity of other individuals, so that social benefits of training exceed private benefits (Ziderman, 2003; and Kimenyi *et al.*, 2006). Failure by private agents to take this into account results in under-investment in training. Second, TVET programmes are attractive because training may complement investments in physical capital (Mincer, 1995; and Barro, 1991). For example, skilled labour attracts foreign direct investment and enhances competitiveness and innovative capacity of an economy. Availability of skilled workers is also essential, especially in changing the production environment (Schultz, 1963). The introduction of new forms of work organization also relies heavily on availability of skilled workers (International Labour Organization, 1998). Third, high quality TVET can complement entrepreneurship development programmes that aim at promoting self-employment. Finally, deficient training could adversely affect the quality of goods and services produced. Where goods and services are for export markets, poor quality can adversely affect their competitiveness.

Given the potential of economic benefits from investment in training, it is not surprising that TVET is being given increased attention in Africa. This is because of the realization that the benefits would go a long way in improving productivity and standards of living for millions of Africans. The goal of policy makers and international development organizations

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<sup>1</sup> Technical and Vocational Education and Training (TVET) takes different forms in various countries. In most countries, it is referred to as TVET; in others Vocational Education and Training (VET), while in Kenya it is Technical Industrial, Vocational Entrepreneurship and Training (TIVET).

is to build relevant, effective and efficient national training systems to meet the skill needs of individuals, firms and the national economy. TVET programmes should be flexible, such that they can be delivered at any level of complexity and be responsive to industry and individual needs. They are also popular because of their orientation towards the world of work.

In Kenya, TVET programmes are referred to as Technical, Industrial, Vocational and Entrepreneurship Training (TIVET). TIVET cuts across post-primary levels of education (secondary and tertiary), and training (formal or school-based, non-formal or enterprise-based, and informal or apprenticeship and entrepreneurship). The Government of Kenya considers investments in TIVET a way of reducing unemployment and poverty. It is committed to reforming the sector so as to ensure the programmes offered are relevant, and there is adequate supply of critical skills and competencies for local and global labour markets as identified in the Kenya Vision 2030 (Government of Kenya, 2008) and Sessional Paper No. 1 of 2005 on Education and Training Policy Framework (Government of Kenya, 2005a).

## **1.2 Socio-economic Situation in Kenya**

### **1.2.1 Economic growth**

After a period of stagnation, Kenya's economic recovery began in 2002. Nominal GDP rose from 0.5 per cent in 2002 to 2.9 per cent in 2003. Growth accelerated to 5.1 per cent in 2004, 5.8 per cent in 2005, 6.1 per cent in 2006 and 7.0 per cent in 2007 (Government of Kenya, 2008). Economic recovery between 2002 and 2007 is attributed mainly to increased private consumption, fuelled by increased credit to the private sector, which was encouraged by low interest rates (Mwega and Nyangito, 2005; Wanjala and Were, 2006). The recovery also coincided with pursuit of growth-oriented policies by the NARC government, which came to power in December 2002. The Economic Recovery Strategy for Wealth and Employment Creation - ERSWEC (Government of Kenya, 2003a) was launched in June 2003. It outlined measures aimed at creating employment opportunities and stimulating economic growth. The ERS is credited with the successful economic recovery.

In 2008, the government launched a new development blueprint for 2008-2030 known as the *Vision 2030* (Government of Kenya, 2008). The aim is to transform Kenya into a newly industrializing, middle

income country that can provide high quality life to its citizens by the year 2030. The vision has three pillars: economic, social and political. Under the economic pillar, the government commits to increase and sustain annual economic growth rate of 10 per cent. The political pillar aims to create an issue-based, people-centred, result-oriented and accountable democratic political system. The social pillar aims at building a just and cohesive society, with social equity in a clean and secure environment. The TIVET sub-sector is expected to ensure development of relevant skills in the country.

### 1.2.2 Incidence of poverty in Kenya

Poverty remains a major challenge for development policy in Kenya. About 44 per cent of Kenya's total population lived below the poverty line in 1992 (Table 1.1). The proportion rose to 52 per cent in 1997. The estimate for 2000 was 56 per cent (Mwabu *et al.*, 2003). The incidence of poverty decreased from 52.0 per cent in 1997 to 45.9 per cent in 2005/06.

### 1.2.3 Employment and unemployment in Kenya

The vast majority of Kenyans, as Table 1.2 shows, are employed in the informal sector. According to Table 1.3 most of the jobs created between 2002 and 2007 were in the informal sector, while employment in modern establishments increased very slowly.

**Table 1.1: The incidence of poverty in Kenya (1992, 1994, 1997 and 2005)**

| Region         |               | WMS<br>1992 | WMS<br>1994 | WMS<br>1997 | 2005/06<br>KIHBS |
|----------------|---------------|-------------|-------------|-------------|------------------|
| Kenya<br>Rural |               | 44.8        | 40.3        | 52.3        | 45.9             |
|                |               | 47.9        | 46.8        | 52.9        | 49.1             |
|                | Central       | 35.9        | 31.9        | 31.4        | 30.4             |
|                | Coast         | 43.5        | 55.6        | 62.1        | 69.7             |
|                | Eastern       | 42.2        | 57.8        | 58.6        | 50.9             |
|                | North Eastern | —           | 58.0        | —           | 73.9             |
|                | Nyanza        | 47.4        | 42.2        | 63.1        | 47.6             |
|                | Rift Valley   | 51.5        | 42.9        | 50.1        | 49.0             |
| Urban          | Western       | 54.8        | 53.8        | 58.8        | 52.2             |
|                | —             | 29.0        | 49.2        | 33.7        |                  |
|                | Nairobi       | 26.5        | 25.9        | 50.2        | 21.3             |
|                | Mombasa       | 39.2        | 33.1        | 38.3        | 37.6             |
|                | Kisumu        | —           | 47.8        | 63.7        | 43.4             |
|                | Nakuru        | —           | 30.0        | 40.6        | 50.2             |
|                | Other Urban   | —           | 28.7        | 43.5        | 42.3             |

Source: Kenya National Bureau of Statistics (2007); Economic Survey (various); Mwabu *et al.* (2000) and Kimalu *et al.* (2002)

**Table 1.2: Total recorded employment ('000s), 2002-2007**

| Sector                     | 2002            | 2003            | 2004            | 2005            | 2006            |
|----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Modern establishments      |                 |                 |                 |                 |                 |
| Wage employment            | 1,699.70        | 1,727.30        | 1,763.70        | 1,807.80        | 1,858.40        |
| Self-employed and unpaid   |                 |                 |                 |                 |                 |
| Family workers             | 65.50           | 65.70           | 66.30           | 66.80           | 67.20           |
| Total modern establishment | 1,765.20        | 1,793.00        | 1,830.00        | 1,874.60        | 1,925.60        |
| Informal sector            | 5,108.30        | 5,546.40        | 5,992.80        | 6,396.90        | 6,814.90        |
| <b>Total</b>               | <b>6,873.50</b> | <b>7,339.40</b> | <b>7,822.80</b> | <b>8,271.50</b> | <b>8,740.50</b> |

Source: Government of Kenya (2007c)

**Table 1.3: Unemployment rates by age and sex (1989, 1998/99)**

| Age          | 1978*      | 1986*      | 1989**     |            |            | 1998/99*** |             |             |
|--------------|------------|------------|------------|------------|------------|------------|-------------|-------------|
|              | Total      | Total      | Male       | Female     | Total      | Male       | Female      | Total       |
| 15-19        | 26.6       | 36.2       | 13.2       | 11.9       | 12.5       | 21.8       | 26.4        | 24.3        |
| 20-24        | 18.5       | 29.2       | 12.5       | 9.8        | 11.1       | 19.0       | 33.9        | 27.1        |
| 25-29        | 4.8        | 8.6        | 6.3        | 5.7        | 6.0        | 8.2        | 21.6        | 15.5        |
| 30-34        | 2.0        | 2.7        | 3.6        | 4.1        | 3.8        | 4.8        | 16.8        | 10.8        |
| 35-39        | 1.8        | 2.1        | 2.8        | 3.4        | 3.1        | 5.0        | 11.8        | 8.4         |
| 40-44        | 0.7        | 0.7        | 2.6        | 3.3        | 2.9        | 7.8        | 10.6        | 9.1         |
| 45-49        | 1.1        | 2.0        | 2.5        | 3.4        | 2.9        | 4.9        | 12.5        | 8.2         |
| 50-54        | 1.4        | 0.9        | 2.7        | 4.4        | 3.5        | 6.3        | 11.1        | 8.7         |
| 55-59        | 1.5        | 4.1        | 3.2        | 5.0        | 4.0        | 14.2       | 12.7        | 13.5        |
| 60-64        | 3.2        | —          | 4.2        | 7.7        | 5.9        | 7.5        | 15.7        | 11.7        |
| <b>Total</b> | <b>6.7</b> | <b>9.7</b> | <b>6.5</b> | <b>6.6</b> | <b>6.5</b> | <b>9.8</b> | <b>19.3</b> | <b>14.6</b> |

Sources: \* Vandermoortele (1991), \*\* Government of Kenya (2002b), \*\*\* Government of Kenya (2003b)

Recorded employment increased by 27.2 per cent from 6.9 million persons in 2002 to 8.7 million persons in 2006. However, unemployment remains a challenge. Statistics from Urban Labour Force Surveys (ULFS) show that urban unemployment grew from 6.7 per cent in 1978 to 9.7 per cent in 1986. Overall, open unemployment increased from 6.5 per cent in 1989 to 14.6 per cent in 1998/99. A salient characteristic about unemployment in Kenya is that it has particularly been high among the youth (Government of Kenya, 2003b). It is estimated that out of 500,000 youths who enter the market every year, only 25 per cent are absorbed (Pollin *et al.*, 2007).

Previous studies and reports have identified various reasons associated with high unemployment rates among the youth. Ikiara and Ndung'u (2002) argue that there are too many young people lacking necessary education and relevant training. This seems to gain support from a report from the Ministry of Youth Affairs (Government of Kenya, 2007b) indicating that out of an estimated 1.9 million unemployed young

people, only 1.5 per cent have formal education beyond secondary school level, while 92 per cent have no vocational or professional skills training. The quality of skills development and TIVET programmes in Kenya is generally low, with emphasis on theory and certification rather than on skills acquisition and proficiency testing. Training in Kenya remains largely unrelated to labour market needs. Young people often lack access to the labour market services, and support is needed to help them secure decent and productive work (Semboja, 2005).

### **1.3 Policy Problem**

Every year, thousands of students leave the regular formal educational institutions in Kenya, but they cannot progress to higher levels of formal education. While close to 40 per cent of the graduates do not progress to secondary level, about 10 per cent of the graduates proceed to university level from secondary level. The TIVET sub-sector offers programmes that target those students who do not progress to higher levels of formal education. In this way, they too can acquire skills and competencies for engagement in wage employment or self-employment. However, for many years, the planning, financing and delivery of TIVET programmes in Kenya has been a source of concern. This is understandable, since these basic functions affect the relevance, effectiveness and efficiency of the TIVET skill formation system.

Despite past investments in Kenya's TIVET sub-sector, many school leavers fail to access TIVET, or if they do, acquire low quality training and the skills acquired fail to facilitate them from becoming self-reliant and productive in the absence of wage employment. The TIVET sub-sector currently faces many challenges related to low quality and limited linkage to the labour market, low participation rates and gender disparities in participation in various programmes, and inadequate and obsolete teaching and instructional facilities and equipment (Government of Kenya, 2005a). The sub-sector also faces challenges brought about by globalization and associated technological change. In addition, poor coordination of TIVET leads to wastage of resources, irrelevant training and turnover of personnel. This is partly due to irrelevant, ineffective and inefficient TIVET sub-sector programmes, unemployment and low productivity.

Given these challenges, improvements in planning, financing and delivery of TIVET programmes in Kenya are necessary. These improvements can be accomplished in ways that increase capacity,

enhance quality and relevance, enhance equity, upgrade learning facilities, and modernize the training and learning environment in TIVET institutions. This will ensure sufficient capacities and skills that are required for economic growth and to make the Kenyan economy more competitive. This study seeks to inform the ongoing reforms that are aimed at reviving and re-invigorating the TIVET sub-sector in Kenya, while drawing lessons from experiences of countries in different parts of the world with relatively well developed TIVET systems.

#### **1.4 Research Questions**

- (i) What is the status of TIVET sub-sector in Kenya?
- (ii) What lessons can be drawn for Kenya from other countries in coping with the challenges in the TIVET sub-sector?
- (iii) How can Kenya cope with the challenges facing the TIVET sub-sector to meet the need for skills required to enhance her global competitiveness and raise the standard of living?

#### **1.5 Objectives of the Study**

The broad objective of the study is to examine the current status of TIVET in Kenya and elsewhere and recommend strategies to promote efficient, effective, competitive, flexible and responsive TIVET system in Kenya. The specific objectives are to:

- (i) Examine the current status of TIVET in Kenya
- (ii) Examine TIVET systems in selected countries
- (iii) Identify policy measures to improve TIVET in Kenya

#### **1.6 Justification of the Paper**

Kenya's Vision 2030 and the Sessional Paper No. 1 of 2005 on Education and Training Policy Framework identify skills and competencies required by Kenya in its quest to accelerate and sustain economic growth for better quality of life. To meet the skills needed, the government is committed to implement reforms in the TIVET sub-sector to ensure that relevant, high quality and accessible programmes are offered. This study will inform the implementation of Kenya's TIVET strategy; Kenya Education Sector Support Programme (KESSP) 2005-2010; establishment of a TIVET Authority; youth training policies; and review and harmonization of education and training, and science and technology legal frameworks.

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## **2. Status of TIVET in Kenya**

Technical, Industrial, Vocational Education and Training (TIVET) in Kenya has two major roles: to provide training opportunities to the increasing number of school leavers to acquire skills and advance their careers; and to ensure adequate supply of skilled labour needed in various sectors and at various levels of the economy. Ngerechi (2003) identifies the objectives of TIVET in Kenya as:

- Development of appropriate skills at all levels through practical training and work experience
- Provision of adequate skilled manpower at all levels of the economy
- Active and continuous transfer of technology through collaborative approach between TIVET institutions and the relevant industries
- Promotion of dignity of labour and more particularly manual work
- Provision of increased training opportunities for the increasing school leavers
- Provision of continuous upgrading of skills and knowledge at the pace and ability of the trainees
- Provision of a dynamic curriculum responsive to the manpower needs of a dynamic economy.

### **2.1 Policy, Legal and Regulatory Framework**

According to Ngerechi (2003), TIVET in Kenya is influenced by the following legislation and legal instruments:

- Education Act (Cap 211)
- Higher Education Loans Board Act (Cap 213)
- Industrial Training Act (Cap 237)
- Kenya National Examinations Council Act (Cap 225)
- Local Government Act (Cap 265)

- Teachers Service Commission Act (Cap 212)
- Universities Act (Cap 210B).

The Government of Kenya has, at various times since independence, formulated or reformed education and training policies by setting up commissions, committees or taskforces and/or preparing Sessional Papers. The Ominde Report (Government of Kenya, 1964) sought to reform the colonial education system to make it more relevant and responsive to Kenya's needs. The commission recommended the conversion of the then government trade schools to technical secondary schools to prepare graduates to enter Technical and Vocational Education and Training (TVET) after graduating from secondary schools. The commission's report was incorporated into Sessional Paper No. 10 of 1965 on *African Socialism and its Application to Planning in Kenya* (Government of Kenya, 1965) as a basis for educational development in post-independence Kenya. However, it was clear that further action was required to develop the TIVET sub-sector. Therefore, the Ndegwa Commission (1970) recommended the expansion of technical education in Kenya to increase access to basic skills. Consequently, all technical trade schools were upgraded into national technical secondary schools to offer four year pre-technician programmes (Government of Kenya, 2007a). By the end of 1970, TIVET in Kenya had expanded tremendously. Many institutions countrywide provided post-secondary school technical training through community managed *Harambee* Institutes of Technology.

The Mackay Report of 1981 on the *Presidential Working Party on the Second University in Kenya* (Government of Kenya, 1981) made several key recommendations in favour of TIVET: (i) the establishment of a second university that should be technologically-based; (ii) the need to expand vocational education to increase training opportunities for the increasing number of school leavers, and; (iii) the need to enrich the school curriculum with technical subjects. As a result of the recommendations, vocational subjects were introduced into the primary and secondary school curriculum. In addition, the government upgraded technical secondary schools to Technical Training Institutes in 1986 to offer post-secondary school training.

The Kamunge Report on the *Presidential Working Party on Education and Manpower Training for the Next Decade and Beyond* (1988) also had far reaching effects on the TIVET sub-sector. The focus was on improving education financing, quality and relevance. It came at



a time when the government scheme for the provision of instructional materials through the National Textbook Scheme was inefficient. The recommendations of the Commission were used to prepare Sessional Paper No. 6 of 1988 on *Education and Training for the Next Decade and Beyond* (Government of Kenya, 1988), which emphasized the cost-sharing policy, where the government, parents and communities were to share the cost of education and training. This policy encouraged private sector investment in TIVET, leading to the mushrooming of private TIVET institutions countrywide. Sessional Paper No. 6 of 1988 also recognized the need for an umbrella body at the national level to oversee TIVET programmes. The recommendation has not been implemented, therefore the management of TIVET is still spread across government ministries and parastatals.

The government through a Cabinet directive of 1995 recommended the establishment of the National Training Strategy to guide the development and coordination of TIVET system in Kenya. Between 1996 and 2000, attempts were made to kick-start the process under the World Bank funded Micro and Small Enterprise Technical Training project, but the efforts were unsuccessful. The Koech Report on *Total Integrated Quality Education and Training* (Government of Kenya, 1998) recommended the removal of vocational/technical subjects from the curriculum in primary and secondary school levels, and rehabilitation and strengthening of post-school TIVET institutions.

Following the electoral victory of NARC in December 2002, the *Economic Recovery Strategy for Wealth and Employment Creation* (Government of Kenya, 2003a) was developed to guide economic recovery efforts between 2003 and 2007. Major reforms have been undertaken to revamp the education and training sector. In the TIVET sub-sector, reforms began with a rapid appraisal of the TIVET system, followed by a stakeholders' forum, which adopted the findings and recommendations of the rapid appraisal. Consequently, a national symposium involving all stakeholders was held in November 2003 to review the status of TIVET in Kenya and build a consensus amongst stakeholders on the strategies for reform.

The most recent policies and strategies for TIVET are in the Sessional Paper No. 1 of 2005 on *A Policy Framework for Education, Training and Research* (Government of Kenya, 2005a). The objective of TIVET as spelt out in the Sessional Paper is to improve access, quality and relevance of skills development in Kenya. The measures to address the challenges

facing the TIVET sub-sector include:

- Involving relevant stakeholders and private sector in the development of a comprehensive national skills training strategy;
- Providing scholarships and other merit awards for staff and students to promote excellence in creativity and innovation in science and technology; and
- Providing loans and bursaries to enhance access to TIVET, taking special account of disadvantaged groups such as female students and the physically disabled.

To fulfil the mission of the Sessional Paper No. 5 of 2005, the government developed the *Kenya Education Sector Support Programme (KESSP) 2005-2010* (Government of Kenya, 2005b) as the basis for joint support of the education sector for the period 2005/06 to 2009/10 by the government and other stakeholders.<sup>2</sup> The government has developed the TIVET strategy (Government of Kenya, 2007) and technical subjects have been reintroduced in the secondary school curriculum.

Additionally, Vision 2030 (Government of Kenya, 2008) proposes that to meet the skill needs of a rapidly industrializing economy, new technical training institutions should be established and there should be close collaboration between industry and training institutions. In addition, the blueprint proposes intensified application of STI to raise productivity and efficiency. To this end, it suggests that the government commits more resources to scientific research, technical capacities of the workforce and raising the quality of teaching mathematics, science and technology in schools, polytechnics and universities. In particular, curricula in universities and technical institutes are to be revised to include more science and technology subjects. In partnership with the private sector, the government also seeks to increase funding to these institutions (Government of Kenya, 2008).

## **2.2 Potential Demand for TIVET**

TIVET programmes in Kenya target the youth who, for various reasons, do not continue to enrol in the regular education system either at primary, secondary or university levels. Table 2.1 shows the survival rates of young people who enrolled in Standard One in 1994 to university in 2007. The

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<sup>2</sup> Individuals, communities, the private sector, non-governmental organizations (NGOs) and development partners.

**Table 2.1: Survival rates and potential for TIVET (1987-2007 school cohorts)**

| Survival rates                          | 1987-2000 Cohort |                   |                         | 1989-2002 Cohort |                   |                         | 1994-2007 Cohort |                   |                         |
|---|------------------|-------------------|-------------------------|------------------|-------------------|-------------------------|------------------|-------------------|-------------------------|
|   | No. of students  | Survival rate (%) | Potential for TIVET (%) | No. of students  | Survival rate (%) | Potential for TIVET (%) | No. of students  | Survival rate (%) | Potential for TIVET (%) |
| Std 1 (1987, 1989,1994) to Std 8        | 918,300          | 43.9              | 56.1                    | 939,500          | 44.3              | 55.7                    | 954,400          | 53.3              | 46.7                    |
| Std 8 (1994, 1996, 2001) to Form 1      | 402,800          | 44.7              | 55.3                    | 416,300          | 44.9              | 55.1                    | 508,300          | 42.4              | 57.6                    |
| Form 1 (1995, 1997, 2002) to Form 4     | 180,000          | 84.5              | 15.5                    | 187,101          | 99.0              | 1.0                     | 215,466          | 97.1              | 2.9                     |
| Form 4 (1998, 2000, 2005) to University | 152,100          | 7.0               | 93.0                    | 185,184          | 6.0               | 94.0                    | 209,276          | 5.9               | 94.1                    |

*Source: Economic Survey (various) and authors' computation*

table also shows the percentage of students who did not continue regular education system either at primary, secondary or university levels. This proportion presents part of the potential demand for TIVET in Kenya. Out of the total number of pupils who enrolled in Standard One in 1994, only 53 per cent progressed to Standard Eight in 2001. At this level, the potential demand for TIVET is 47 per cent. Similarly, out of the total number of pupils who survived through Standard Eight, only 42 per cent entered Form One in 2002, while 58 per cent might have dropped. The latter generates a potential demand for TIVET at this level. On the other hand, of those who entered Form One in 2002, 97 per cent of them completed Form Four in 2005. However, only 5.9 per cent of those who completed Form Four progressed to university level. Thus, about 94 per cent of secondary school leavers constitute additional potential demand for TIVET.

### **2.3 Student Enrolment and Characteristics**

Enrolments in TIVET institutions have grown over time. In addition, a number of NGOs and faith-based organizations sponsor TIVET programmes. There is also informal training within the informal sector, where trainees undergo apprenticeship with experienced artisans and craftsmen prior to venturing on their own. However, accurate data on enrolment and quality of training in the NGOs, FBOs and informal sector is lacking (Haan, 2001; and ILO, 2001). Total enrolment in TIVET institutions grew from 47,558 students in 2001 to 71,167 in 2006. The largest increase was in the technical training institutes (TTIs) and institutes of technology (ITs), where enrolment grew from 17,801 in 2001 to 27,721 in 2006, an increase of 59.8 per cent.

A noticeable feature of enrolment patterns in most TIVET institutions in Kenya is the relatively lower female participation in technical training (Ngware, 2002). Most TIVET institutions offer engineering courses alongside science and business studies. However, data on student enrolment by department/course and gender shows an acute female concentration in non-engineering courses (Government of Kenya, 2003b). Business studies and management courses are perceived as female-oriented and record high female enrolment. A number of reasons have been put forward to explain why female participation in technical and vocational education and training institutions is low. First, women resist taking up technical training due to gender stereotyping attributed to the deeply rooted socio-cultural norms and ideals for male and female behaviour. Generally, girls think that technical education is a male-oriented field that leads to jobs that are ‘dirty’. Such gender stereotyping is reinforced rather than broken in the formal education system. This gender stereotyping has been reinforced by parents’ negative attitudes towards girls’ vocational training. Vocational training is perceived to have low return compared to other opportunities. This is partly due to ignorance of vocational opportunities, particularly in the rural areas and the opportunity cost in girls’ labour (Mbughuni, 1991).

In addition, fewer female students take sciences and technical subjects at secondary level (Table 2.2) and for those who do, they perform poorly in national examinations. Yet, admission in national polytechnics and TTIs is based on high good grades, especially in science subjects at secondary level. A combination of these factors explains why the enrolments of female students in youth polytechnics that offer courses with low technology content and employability, such as tailoring, dressmaking, knitting and home economics are high.

**Table 2.2: Enrolment in selected TIVET subjects by gender**

| Subjects                | 2004   |        |        | 2005   |        |         | 2006   |        |         |
|-------------------------|--------|--------|--------|--------|--------|---------|--------|--------|---------|
|                         | Female | Male   | Total  | Female | Male   | Total   | Female | Male   | Total   |
| Home science            | 9,323  | 551    | 9,874  | 9,930  | 593    | 1,0523  | 9,987  | 596    | 10,583  |
| Art and design          | 378    | 697    | 1,075  | 376    | 664    | 1,040   | 378    | 668    | 1046    |
| Agriculture             | 43,062 | 51,651 | 94,713 | 44,701 | 58,428 | 103,129 | 44,957 | 58,763 | 103,720 |
| Woodwork                | 13     | 1,188  | 1,201  | 23     | 1,028  | 1,051   | 23     | 1,034  | 1,057   |
| Metal work              | 5      | 359    | 364    | 2      | 309    | 311     | 2      | 311    | 313     |
| Building & construction | 11     | 716    | 727    | 20     | 608    | 628     | 20     | 612    | 632     |
| Power mechanics         | 4      | 319    | 323    |        | 212    | 212     | 2      | 213    | 215     |
| Electricity             | 22     | 476    | 498    | 13     | 430    | 443     | 13     | 433    | 446     |
| Drawing                 | 39     | 1,525  | 1,564  | 18     | 1,304  | 1,322   | 18     | 1,312  | 1,330   |

*Source: Government of Kenya (2008)*

## **2.4 TIVET Delivery Systems**

### **2.4.1 Institutional structure and levels of training**

Public technical and vocational education and training in Kenya is offered at four levels:

- Artisan level in youth polytechnics and on-the-job training in the formal sector and informal sector (Jua Kali apprentices).
- Craft level in technical training institutes (TTIs) and institutes of technology (ITs).
- Technician level in national polytechnics (NPs) and a few selected TTIs and ITs.
- Technologist level in national polytechnics and university.

Until 2008, Kenya had four national polytechnics, 17 institutes of technology, 1 technical teacher's training college, 21 technical training institutes and over 800 youth polytechnics. National polytechnics offer advanced courses leading to diplomas in technology, while the technical teachers colleges offer pedagogical training to qualified and experienced technical personnel who eventually qualify as teachers in their specialized areas. At the university level, public universities also offer a wide range of technological programmes and technical and vocational teacher education (Government of Kenya, 2005a and 2007a).

Technical institutes offer craft, technician, diploma and certificate commercial courses that take four years. The courses at this level are expected to produce middle-level skilled manpower for the modern sector. They are mostly theoretical programmes, although they also provide some introductory training in workshop technology. Training includes attachment to an industrial firm. Graduates from TTIs qualify to enter national polytechnics.

Institutes of technology sprung up as a result of a community response to the demand for post-secondary education and training opportunities. They also offer craft, technician, diploma and certificate commercial courses that take three years for secondary school leavers, including one year industrial attachment (ILO, 2001). Studies show that upon graduation, many of the students fail to establish their own businesses, and less than 10 per cent become self-employed. The skills obtained in ITs refer to relatively capital-intensive equipment, which means that the graduates require considerable amounts of capital to start a business, and

since this is not available, many of them try to find wage employment (ILO, 2001).

Upon completing primary school, the school leavers can enrol in one of over 600 youth polytechnics offering artisan courses countrywide. Youth polytechnics, previously known as village polytechnics, were first developed and popularized in the mid 1960s by the National Christian Council of Kenya (NCCCK) as a solution to the problem of education and employment of primary school leavers (Mawiyo, 1990). They are designed to provide practical training linked with production, so as to assist in the formation of a cadre of trained artisans and other self-employed workers (especially for the rural economy). Most of them are small training centres that provide local youth with an opportunity to learn practical skills usually in masonry, carpentry, tailoring, dressmaking, knitting, home economics and livestock raising (Government of Kenya, 2005a). However, studies have shown that school-leavers were unable to become self-employed or get wage jobs because of inadequate education and training (ILO, 2001).

Besides the formal TIVET institutions, there are several non-formal institutions run by government and parastatal firms and private institutions and universities. They include agricultural colleges, Kenya Railway Training School, Kenya Institute of Mass Communication, the National Youth Service, Industrial Training Centres, YMCA Vocational Training Centres and Christian Industrial Training Centres. There are also various TIVET institutions run by private individuals, NGOs and religious institutions. In the informal sector, trainees undergo apprenticeships with experienced artisans and craftsmen prior to venturing on their own (ILO, 2001).

In the informal sector, apprenticeship training involves on-the-job training in the formal sector and informal sector (*Jua Kali* apprentices) by the private sector, which in recent years has filled part of the gap left by the public sector. They include various church-owned and other NGO training centres; private-for-profit training providers, many of whom have come up in recent years and focus on the development of business skills; and the traditional apprenticeship system. Most of the technical training in the *Jua Kali* sector is carried out through the traditional apprenticeship system, particularly in manufacturing and services. A study carried out by the World Bank in 1992 estimated that 40 per cent of all trainees acquire their skills through apprenticeship. The 1999 MSE Baseline Survey registered a total of almost 53,000 apprentices. Most

of them were in woodwork (41%), retail (32%) and repair services, with minor numbers in pottery, construction and textiles (ILO, 2001). Baiya and Jeans (1998) estimate that the average period of the traditional apprenticeship depends on the economic activity. For example, it is 6-12 months in textiles and 12-18 months in metal and woodwork.

## **2.5 Administration and Management**

The management of TIVET is under different government ministries. This makes coordination and maintenance of training standards difficult. The ministries involved are ministries of Science and Technology; Labour and Human Resource Development; State Affairs and Youth. For instance, national polytechnics and technical training institutes are under the Ministry of Higher Education and Science and Technology; the Ministry of State and Youth Affairs oversees youth polytechnics, and the Ministry of Labour and Human Development is responsible for national industrial training centres. In addition, individual ministries run sector specific TIVET programmes in health, agriculture and trade, among other areas. There are an increasing number of institutions run by private operators. To a large extent, supervision of the institutions is often left to individual ministries and the private sector, which often have limited capacity to assure quality and high standards (Government of Kenya, 2005a).

## **2.6 Curriculum and Examinations**

Several educational commentators agree that at independence, African educational policies were refocused on the priority of national development, which encompassed the goals of Africanization, national unity and national growth. Educational policy in Kenya was concerned with using schools to develop manpower for economic development and Africanization of the civil service. Consequently, in Kenya, expansion of secondary and tertiary education was top priority, with less concern for basic primary education (Woolman, 2001). Curriculum revision formed an important element of this educational reconstruction. The shortage of skilled labour in fields based on mathematics, science and technology resulted in immediate efforts to improve the mathematics-science curriculum in the 1960s. The Kenya Institute of Education embarked on producing new curriculum, and Africanized textbooks were published by the Jomo Kenyatta Foundation. The Voice of Kenya provided broadcast radio programmes for schools (Woolman, 2001). Primary

school curriculum was revised between 1965 and 1975 by fusing locally-produced materials in teaching of subjects such as history, geography and music (Kay, 1975).

In 1985, both the primary and secondary school curriculum were substantially revised with the adoption of the 8-4-4 system of education. A key element of this revision was the vocationalization of the curriculum to improve the correlation of schooling with the world of work, and make learners self-reliant and self employed. There was emphasis on practical subjects such as metal/woodwork, carpentry, home science, art and music, among others. Other related vocational secondary school programmes are craft apprentice, artisanship, commercial trade, nursing and veterinary studies. Polytechnics and technology institutes were created to teach secondary school dropouts.

However, the process of curriculum reconstruction faced a number of challenges, including implementation without proper testing, and lack of teachers, workshops and equipment to implement practical education (Kamau and McLean, 2001). It turned out to be an expensive system to implement for parents already burdened with other education responsibilities, particularly with the onset of cost sharing. The contents of the new programme were hastily disseminated from a very high level, and the transition particularly towards new vocational and practical subjects was carried without adequate consultation with the key stakeholders outside government (Miraria, cited in UNESCO-UNEVOC, 2005). This led to weak assessment of vocationalized learning and under-developed linkage between performance in these courses at one level and entry into the next level. Despite the emphasis placed on technical skills, technical subjects formed only a small part (15% of learning hours) of the curriculum offered in primary schools; and the curriculum appears to have been made without taking into consideration the skill needs of the informal sector (Oketch, 1995). Furthermore, most of these subjects tended to be popular with academically weak students, tended to cater for male learners, and were more popular with students from weak backgrounds (Miraria, cited in UNESCO-UNEVOC, 2005). In 2003, most of the vocational subjects were removed from the curriculum following heavy criticism of vocationalized curriculum and the 8-4-4 system in general.

The curriculum and examinations for primary, secondary and TIVET institutions is now centrally coordinated and controlled for quality by the Kenya Institute of Education (KIE) and Kenya National Examinations



Council (KNEC), respectively. The KIE was established under Section 23 of the Education Act Cap 211. The Act also provides for the establishment of a council comprising of various TIVET stakeholders appointed by the Minister of Education, to be in charge of the management of the institute. During curriculum development process, KIE serves as a secretariat by providing coordination and facilitation logistics to the various sub-committees. Each sub-committee comprises members drawn from various stakeholders. The curriculum design advocates for the acquisition of both manipulative and analytical skills (Ngerechi, 2003). TIVET programmes are structured to produce graduates who are responsive to the rapidly changing technological and industrial environment and who can survive as self-employed or salaried citizens. The programmes place premium on personal and social development of the trainee, allowing faster integration into the society. To this end, subjects such as life skills, entrepreneurship and communication skills have been incorporated in the curricula (KIE, 2007). Table 2.3 shows the skill content and time allocation for technical education.

There are challenges with regard to vocationalized curriculum offered by TIVET institutions. TIVET in Kenya cuts across all levels and segments of education. However, there is a weak link between the development of primary and secondary curricula and TIVET curricula. Whereas the curricula for TIVET, secondary and primary institutions are nationally designed by KIE, universities implement their own curriculum, which is internally designed. Even with the 8-4-4 curriculum, the universities lagged behind in the implementation of technical education curriculum (Kamau and McLean, 2001). This means that admission of graduates from TIVET into appropriate courses at universities is difficult. Lack of an overall national policy and training framework to guide the various TIVET providers has also resulted to different institutions following different curricula, including foreign curricula.

Although the curriculum design emphasizes both manipulative and analytical skills, there is concern about relevance and quality. The current curriculum is inflexible (Government of Kenya, 2005b). The

**Table 2.3: Structure of TIVET curriculum**

|                       | Practical skills (%) | Theoretical skills (%) | Total time allocation (%) |
|-----------------------|----------------------|------------------------|---------------------------|
| Artisan               | 90                   | 10                     | 100                       |
| Craft                 | 80                   | 20                     | 100                       |
| Technician            | 60                   | 40                     | 100                       |
| Technologist          | 40                   | 60                     | 100                       |
| Advanced technologist | 20                   | 80                     | 100                       |

*Source: Kenya Institute of Education (2007)*

government also acknowledges that TIVET curriculum development is under-funded and has not received input from employers. High costs of training materials and textbooks, inadequate physical facilities and insufficient modern equipment in most TIVET institutions have adversely affected the curriculum implementation (Government of Kenya, 2007a). Similarly, the training offered in most TIVET institutions refer to relatively capital-intensive production processes. This means that the graduates from these institutions require considerable amounts of capital to become self-employed. However, faced by credit constraints, such graduates have failed to start their own businesses, and few of them are self-employed.

## **2.7 Financing Mechanisms for TIVET in Kenya**

Financing of education and training in Kenya is jointly undertaken by the central and local governments, the private sector, NGOs, households, communities and international development partners. TIVET in Kenya is financed from public financing, private financing and international donor assistance. The sources of private finance include households and communities, non-governmental and faith-based organizations, and private industries.

Involvement of the private sector in TIVET started in the 1960s as a result of the local community response to the demand for post-primary and secondary education and training opportunities. Sessional Paper No. 6 of 1988 on *Education and Training for the Next Decade and Beyond* underscored the need for private sector involvement in educational provision (Government of Kenya, 1988). The principle behind this policy was to reduce government spending in education and transform communities and parents into active partners in educational development and reform. Since then, the government has been meeting the costs of salaries and equipment, while tuition, operational and accommodation costs are met by households and communities. Even though reasonable, these costs have been too high for poor households, leading to poor access and retention in TIVET (Abagi, 1997).

Private sector institutions are involved in supporting TIVET education through various ways. Majority of TIVET institutions were started through the *Harambee* initiatives, and are managed and funded by the communities. These are mainly the youth polytechnics, which form majority of the TIVET institutions in Kenya. Some industries support

students taking technical subjects at national polytechnics. Religious, NGOs and private-for-profit training providers have over the years been involved in on-job-training (apprenticeship training) in the formal and informal sector (Haan, 2001). The challenge is that there is no data on resources invested by the various private sector institutions.

International development partners have also offered financial support for TIVET. For instance, the Kenya Technical Teachers College (KTTC) was built through financial assistance from the Canadian government. In 2005, the Ministry of Education, Science and Technology in Kenya requested for technical and financial assistance from the development partners and the government to strengthen and re-orientate technical and vocational education and training in the country (Government of Kenya, 2005b).

TIVET in Kenya is mainly financed through public spending. In most countries, the budget for TIVET from public sources is relatively small, ranging from 1 to 12 per cent of the current expenditure on education (UNESCO, 1993). This is also true of Kenya. Table 2.4 shows expenditure to education by function. Despite the government's emphasis on the importance of TIVET in achieving industrialization, funding for this sub-sector has not been accorded due significance.

The recognition of the important role that TIVET plays in the nation's development has been echoed in several government sessional papers and policy documents in Kenya. It is even acknowledged that for Kenya to achieve its vision of industrialization by 2020, it will require a vibrant technical sector. However, funding for this sector has been low given the importance of technical education in development. Current funds' allocation trends are therefore worrying. Expenditure on technical education as a percentage of total education sector rose from 1.6 per

**Table 2.4: Ministry of Education TIVET allocation (2001/02-2006/07), Ksh (million)**

| Category                                | 2001/02  | 2002/03   | 2003/04   | 2004/05   | 2005/06   | 2006/07   |
|---|----------|-----------|-----------|-----------|-----------|-----------|
| MoE recurrent                           | 52,608.1 | 60,892    | 68,216    | 77,219    | 86,276    | 93,751    |
| MoE development                         | 825      | 2,548     | 4,077     | 2,864     | 6,449     | 6,037     |
| Total MoE expenditure                   | 53,433   | 63,439    | 72,292    | 80,083    | 92,725    | 99,787    |
| Gross Domestic Product                  | 878,730  | 1,022,208 | 1,136,288 | 1,301,000 | 1,415,156 | 1,561,527 |
| Expenditure on technical education      | 888.3    | 889.9     | 1,175.60  | 1,691.30  | 2,619.56  | 2,724     |
| TIVET salaries**                        | 773.2    | 770.4     | 875.5     | 1,211.10  | 1,583.00  | 1,646     |
| Technical as % of total MoE expenditure | 1.66     | 1.40      | 1.63      | 2.11      | 2.83      | 2.73      |
| Technical as % of GDP                   | 0.10     | 0.09      | 0.10      | 0.13      | 0.19      | 0.17      |
| TIVET salaries as % of total TIVET      | 87.04    | 86.57     | 74.47     | 71.61     | 60.43     | 60.43     |

Source: Ministerial Public Expenditure Review (2007); \*\* Includes Ministry headquarters salaries

cent in 2001/02 to 2.1 per cent in 2004/05, before rising to an estimated 2.8 per cent in 2005/06. Even with the seemingly increasing allocation, Kenya only allocated an average of 1.92 per cent of its education budget on TIVET from 2001/02 to 2006/07. Much of this expenditure on TIVET goes to salaries, which consume an average of 76 per cent of total expenditure on TIVET. Similarly, only 0.12 per cent of the GDP is allocated to TIVET.

According to UNESCO (1996), the costs of TIVET compared with general education are 2 to 3 times higher as classes are supposed to be small, with instructor trainee ratios of 1:7. This increases the unit teaching costs. Expenditure on equipment, infrastructure, consumables such as raw materials and spare parts is also much higher. In Kenya, the TIVET sub-sector is laden with numerous programmes such as the completion of stalled projects, creation of centres of excellence, upgrading of TTIs into National Polytechnics, and National Polytechnics into university colleges and the rehabilitation of TIs. All these require colossal spending, and progress has been seriously hampered by shortage of funding.

Even with the constrained public spending on TIVET, the government has not been able to mobilize funds through private sector inducement because of lack of a policy and legal framework to guide this engagement (UNESCO, 1995). The involvement of enterprise/employers in supporting TIVET is evident in many countries. Commonly known as social partnerships (Hawley, 2005), this type of financing mechanism is common in countries such as Japan, USA, Malaysia, and South Korea. It involves enterprises conducting the vocational training of the labour force directly and bearing the entire costs of training (UNESCO, 1996). Social partnerships have worked well in countries where governments take an increasingly active role in promoting this kind of enterprises involvement, as is the case of East Asian countries (World Bank, 1993; and Hawley, 2005). In Kenya, only few medium and large enterprises

**Table 2.5: TIVET investment and recurrent costs (Ksh million)**

| TIVET Investment Programme                   | 2005/06 | 2006/07 | 2007/08 |
|--|---------|---------|---------|
| Developing national skills training strategy | 120     | 80      |         |
| Revitalizing youth polytechnics              | 35      | 90      | 355     |
| Establishing centres of excellence           | 265     | 565     | 715     |
| Bursary awards                               | 286     | 286     | 286     |
| Creation of industrial incubators            | 129     | 157     | 163     |
| Grants to training institutions              | 300     | 300     | 300     |
| Total development                            | 420     | 735     | 1,070   |
| Total recurrent                              | 715     | 743     | 749     |
| Total expenditure                            | 1,135   | 1,478   | 1,819   |

*Source: Government of Kenya (2005)*

have some interest in training. Training is expensive, and since most of these enterprises are foreign-owned, they are more conscious about the profit margins and would thus avoid any cost. Table 2.5 provides details of the TIVET investment programme (and costs) and the recurrent costs of the programme. The government is committed to ensuring relevant, high quality and accessible TIVET programmes are offered.

## **2.8 Roles of Stakeholders in TIVET in Kenya**

In Kenya, major TIVET stakeholders include: the government, tertiary education institutions, parents and guardians, development partners and donor community and employers (private and public).

### **(i) Government**

This includes ministries of Higher Education, Science and Technology; Labour and Manpower Development; and Planning and Economic Development; among others. Their roles include:

- Develop and support implementation of national TIVET policies
- Improve coherence of governance and management of TIVET
- Design policies and incentives that encourage sustainable support from private sector participation in TIVET development
- Improve capital investment in TIVET and increase funding support for the sector
- Establish TIVET management information systems and labour market information system
- Institute measures to reduce gender, economic and geographical inequalities in TIVET provision and financing
- Design sustainable financing schemes for TIVET
- Ensure effective leadership and management of TIVET programmes consistent with technological advancement and national development agenda
- Mainstream TIVET courses in the formal education and training system
- Carry out informed and regular TIVET curriculum review
- Consistently monitor and periodically evaluate the performance of TIVET programmes, and apply corrective measures to ensure

that TIVET programmes are demand-driven and consistent with labour market needs

- Undertake and regularly review skills inventory for the country
- Ensure efficient placement of TIVET graduates by supporting establishment of relevant employment bureaus both by government and the private sector.

**(ii) *Universities***

- Design and deliver flexible and demand-driven TIVET training programmes
- Develop business plans and income generating programmes to subsidize TIVET costs
- Ensure strong linkage and collaboration with employers and industry
- Ensure quality TIVET programmes through periodic reviews and mainstreaming ICTs and gender in TIVET
- Involve all stakeholders, including communities and guardians/parents in the training programmes

**(iii) *Parents and guardians***

- Support children through guidance on choosing vocational career paths
- Eliminate the view that TIVET is a dead-end for the less academically endowed and an alternative for formal education and training; while making TIVET an avenue for well-paying employment, self employment and high level skills specialization
- Support TIVET activities at institutional level

**(iv) *Development partners and donor community***

- Support development and implementation of national TIVET policies and strategies
- Fund business development and research
- Support capital investment and TIVET equipment
- Support employment of TIVET graduates, including business start-up
- Share best practices on TIVET from other countries

- Support TIVET advocacy initiatives, motivation campaigns and programmes

**(v) *Employers (private and public)***

- Support linkage between TIVET institutions and industry
- Deliver workplace training for TIVET trainees and provide appropriate employment for TIVET graduates
- Provide industrial attachment and internship for TIVET trainees
- Contribute to TIVET curriculum review, design and implementation of national qualifications survey and national skills standards framework
- Establish employment centres

### **3. TVET Systems in Selected Countries**

In the context of globalization,<sup>3</sup> TVET systems face many challenges in developing skills required for improving productivity and global economic competitiveness. As a result, economies are changing into knowledge-based economies, giving TVET a face of technology orientation that requires individuals to acquire specialized, practical knowledge and life skills. This section presents international comparison of TVET systems in selected countries, focusing on legal and institutional framework, service delivery, financing, curriculum and relevance to labour market.

#### **3.1 Legal and Institutional Frameworks**

In many developed countries, TVET is supported by a strong legal and institutional framework. For example, the famous dual system of VET in Germany is anchored in a law enacted in 1969. In addition, VET rests on four Acts of Parliament: Vocational Training Act, Employment Promotion Act, Coordination Training Regulations, and Federal Government Planning and Research Act (Hippach-Schneider *et al.*, 2007). A Federal Institute for Vocational Training is empowered to conduct research on vocational education and training, develop vocational education and training, serve in an advisory capacity and provide services.

In South Korea, diverse laws and regulations support industrial training. However, the VET system is largely developed and run by government. The Industrial Education Promotion Act, Vocational Education and Training Promotion Act, and Framework Act on Qualifications form the legal basis on which vocational education is shaped and administered (Hawley, 2005). The Industrial Education Promotion Act was enacted and promulgated in September 1963 to promote industrial education needed for fostering industrial manpower that can contribute to the development of the national economy. The national Ministry of Education and Human Resource has the primary responsibility for vocational education. Policies are nationally enacted, and the local administration has relatively little autonomy historically in changing curriculum, teacher requirements, or other core aspects of schooling.

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<sup>3</sup> Globalization involves increasing integration of national economies, free information exchange, ease of capital flows, migration of people, labour, goods and services across countries.



China has a two tier TVET system, central and provincial. Each province has its own autonomous jurisdiction. Both the central and local tiers have regulations and decisions concerning the structure, instructions, administration, school teachers and teaching materials among others, of technical and vocational education and the placement of graduates (Zuguang and Zida, 1996). However, all these documents tend to be administrative rather than laws and decrees for technical and vocational education. For example, the government of Shandong province has issued successively more than 30 documents such as ‘Regulations of Secondary Technical and Vocational Education in Shandong Province’. In 2006, the central government started developing ‘Technical and Vocational Education Law’. After several revisions, the draft law will be advanced to the Standing Committee of the National Peoples’ Congress for approval.

### **3.2 Types of TVET Delivery Systems**

Work-related knowledge, skills and attitudes are acquired through a variety of systems. The organization of typology of training systems is based on training location. Three main types can be distinguished: school-based VET, formal sector firm-based VET, and non-formal training centres.

#### **(a) The German model**

The Germany system of training stands out among VET systems in the world. In this system, responsibility is shared among various levels from the Federal level (Federal Ministry of Education and Research and Federal Institute for Vocational Training), Federal State level (Ministries of the State Level–Education and Cultural Affairs, Economic Affairs), Regional level (Chambers and other competent bodies) and Company level (training companies and vocational schools) (Hippach-Schneider *et al.*, 2007).

The German system is described as dual because training is conducted in two places of learning: companies and vocational schools. It gives a coalition of labour representatives, businesses, and educators the responsibility to develop the curriculum and administer its assessment (Hippach-Schneider *et al.*, 2007; and UNESCO, 1996). About 70 per cent of school leavers aged 15-19 years participate in the dual VET system. The system has direct links to the labour market and is, therefore, popular.

In this system, VET is delivered in three channels:

- (i) Company model where students attend in-company education and training.
- (ii) Cooperative model where students are trained at a training company and a vocational school, or students are trained at a training centre and a vocational school.
- (iii) School model where students attend specialized vocational schools or external training centres sometimes with work placements.

The Germany system consists of a 2-3 year programme that combines work and learning. Completion of upper secondary education leads to qualifications required for entrance to higher education track or to vocational education qualifications entitling students to take up employment as qualified skilled workers. Delivery involves public-private partnerships to ensure broad-based VET, and the qualifications and competencies required to practice an occupation as a skilled worker.

Analysts argue that the system is rigid and cannot allow adjustment of training to the new technologies. Others contend that the dual system performs well for the manufacturing industries, but less for the service sector, which essentially includes small and medium-sized businesses requiring more flexibility. The Germany model has proven difficult to replicate locally and internationally. Unless companies see participation in their best interests, they will not participate in and ultimately pay for training and hiring of vocational education graduates. Although some East Asian countries such as Thailand and Korea have managed to put into place a small number of dual system places, the former Eastern Germany has had challenges in extending the dual system (Hawley, 2005). While in the former West Germany much emphasis lies on promoting individual mobility, in former East Germany, trainees work directly in the firm's production activity and often perform heavy tasks that have little training values. Analysts argue that introduction of the former West Germany model has drastically disrupted former East Germany's vocational training practices. In addition, due to lack of medium-sized firms to replace the large state industries that had closed down following the reunification of Germany, the dual system has witnessed several structural problems such as unemployment and a shortage of training places in skilled jobs, particularly in the former East Germany (Tremblay and Bot, 2003).

**(b) The Irish model**

Training in Ireland is delivered at four levels: secondary-level education; vocational training, including apprenticeship; further education; and higher education (McGinn and Buck, 2005). At the secondary level, after sitting for the Junior Certificate Examination, the main forms of training are the Leaving Certificate Vocational Programme (LCVP) and the Leaving Certificate Applied (LCA). The latter was developed in 1995 and consists of a two-year course of study in three areas: general education, vocational education, and vocational preparation. The former is the main course of study in VET and offers a range of areas of study. The Leaving Certificate programme is another form of training. It is mainly an academic and non-vocational programme taken by majority of upper secondary school pupils (Hawley, 2005; and McGinn and Buck, 2005).

An important aspect of Ireland's TVET is the apprenticeship programme. First, apprenticeship generally takes over four years and is organized by the National Training and Employment Authority - FÁS, in cooperation with the Department of Education and Science, employers and trade unions. Second, the apprentices, who must be at least 16 years old and have gained a pass in the Junior Certificate examination or equivalent, are recruited and employed by companies in different sectors. For instance, *Teagasc* (the Agriculture and Food Authority) administers a three year Farm Apprenticeship scheme. Entrants must have completed a one year course at a residential agricultural college and have reached the set standard in its examinations. Apprentices are placed for one year on each of the three master farms.

For persons in further education (post-secondary and non-tertiary education), there are a range of TVET possibilities. The two largest programmes are the Post-Leaving Certificate courses (PLCs) and specific skills training courses provided by FÁS and other sectoral organizations; *Teagasc* (agriculture), *Fáilte Ireland* (hospitality) and *Bord Iascaigh Mhara* (fishing), for young job seekers. Traineeships are another form of provision at this level. They involve employers and FÁS working together in a dual system of occupational training leading to a qualification. They combine workplace training with formal off-the-job tuition in a FÁS training centre.

The institutes of technology have the main responsibility for TIVET at this level, and at the higher level of education. Entry to courses in the institutes of technology is based on 'points' gained in two of the Leaving Certificate examinations, the LCVP and the Leaving Certificate

(established). Appropriately qualified students from PLC programmes can also access institute of technology and university courses (Hawley, 2005).

**(c) *The Malaysian model***

The Malaysia education system consists of six years of primary, three years of lower secondary, and two years of upper secondary education. Formal TVE starts at the upper secondary level to prepare students for further technical education at the tertiary level or for entry into the labour market. There are two types of vocational schools: Secondary Vocational School (SVS) and Secondary Technical Schools (STS). The former puts more emphasis on academic subjects in addition to vocational subjects (selected by students based on the vocational course). Skills training stream students follow courses with more practical work to acquire skills relevant to industry. They take an exam called *Peperiksaan Majlis Latihan Vokasional Kebangsaan Asas (MLVK)* at the end of the training period. Although students in the skills training programme have the opportunity for advanced and specialized training, most completers join the labour market. In STS, subjects are more science and mathematics-based and technical subjects are less practical. Technical studies comprise only about 17 per cent of the total course content in STS (African Development Bank, 2004).

Malaysia reformed the training system in the 1990s with more emphasis on technical than vocational skills. By 2000, there were over 70 technical schools and only four vocational schools (Hawley, 2005). Technical subjects were also introduced to general secondary schools to improve the preparation for the labour market. These reforms were motivated by three reasons. First, Malaysia's economy was growing rapidly in the 1990s, particularly in sectors requiring highly educated labour. Second, there was rapid increase in the average educational attainment of the population. Finally, the government made a strategic decision that industry could train workers in the "blue collar" professions, a task that used to be the work of vocational schools (Mustapha and Abdullah, 2001 cited in Hawley, 2005).

**(d) *The Japanese model***

The Japanese model of skills development consists of vocational tracks in regular schools and enterprise-based training. The latter is the hallmark of the Japanese system of training, especially for large firms (Kariya and Rosenbaum, 2003 cited in Hawley, 2005). Vocational education is built

on strong links between educators and employers. High schools are a source of the labour force for the manufacturing industry, and have a network of relationships with hiring managers/employers. Both schools and industry players are then able to place accomplished students in their preferred positions.

Employers in Japan prefer to recruit fresh school leavers with general education and then provide them with continuous training within the enterprise. Training is given on the assumption that employees will continue to work for the same company. In most cases after training, a person devotes his whole life to working in the same company. This is reinforced by Japanese people's strong influence of culture derived from Buddhism, Confucianism and Shintoism, which teach them to achieve high standards through hard work and have lasting obligations to the school group, family and company (Lauglo, 1993 cited in UNESCO, 1996). As noted earlier, most large Japanese companies organize their own vocational training and outlays for in-house vocational training, and this is considered as part of the labour costs. Smaller companies with fewer resources rely on training facilities outside the company and are supported financially from proceeds of the unemployment insurance funds to which the government and employers equally contribute to resources.

The Japan Industrial and Vocational Training Association (JIVTA) is the main organization in Japan concerned with training within industry. It is a private association of employers and it has a constitution and a budget supervised by the Ministry of International Trade and Industry. JIVTA policy is developed by close to one thousand company representatives, of which 60 per cent are from large companies and 40 per cent from small companies. The government does not provide funding to JIVTA. Twenty five (25) per cent of its budget is collected from membership fees and 75 per cent is generated from course fees. In the last 30 years since 1966, JIVTA trained 30,000 persons as training leaders who in turn trained more than 1 million trainees in their own industries. JIVTA has given a unique direction to the employers about an independent approach in vocational training (UNESCO, 1996). Employers consider training as an investment. They provide training in accordance with their own needs and this has resulted in developing effective policies.

### **3.3 Financing Mechanisms for TVET**

Many financing strategies exist for VET in different parts of the world.

Perhaps the clearest way is to define financing according to the source. One can distinguish three types of financing mechanisms: public financing, enterprise financing and international donor assistance. This section is mainly based on the review of different TIVET financing mechanisms through a study by UNESCO (1996).

**(a) *East Asian model***

The Human Resource Development (HRD) or Workforce Development (WD) strategy that originated from East Asia involves collection of tax revenue from firms (usually set at some percentage of the firm's labour costs) to fund in-house training (World Bank, 1993). The aim is to support training that companies feel will enhance skills of their labour force. In this case, governments need to develop an accountability system that will measure how firms spend resources provided to them. South Korea, Malaysia and Singapore have adopted this system.

A key feature of this financing system is that public-private partnerships are based on legislation. In Malaysia, the Human Resources Development Act of 1992 established the Human Resource Development Council composed of representatives from the government, employers and independent members. Its primary responsibility is to collect levy from the employers and provide the money back to the companies to pay for training in their work places (Hawley, 2005). In South Korea, private sector involvement in VET is also supported by social partnerships through the Ministry of Labour and the Employment Insurance Scheme (EIS), a broader policy to support industry level training. The EIS supports training and re-training of workers through a tax on firm level wages. Such programmes are designed to support job creation and vocational training. The Vocational Training Partnership Act enacted after the 1997 financial crisis has gone a long way in encouraging such partnerships.

However, the HRD/WD strategy has been criticized. First, it is said to benefit only large firms while leaving out small and medium-sized companies. Second, if firms use funds to provide firm-specific skills, the state subsidizes training that firms would undertake on their own. Third, few countries have strong fiscal management systems to monitor how firms are using funds given to them (Ziderman, 2001 cited in Hawley, 2005).

**(b) *The German model***

The public-private sector partnership funding model for VET is slightly

different from the East Asian model. VET is financed through a partnership of various public and private institutions (Hawley, 2005; and Hippach-Schneider *et al.*, 2007). They include the Federal Ministry of Education and Research (BMBF); the Federal Ministry of Economics (BMWi); the Federal Agency for Employment (BA); the land ministries of employment, economics, education or cultural affairs; the European Union; local authorities; companies; unions, chambers, associations, private institutions and the individuals themselves.

Financing of vocational education is at three levels. At the initial level of vocational training (school-based element of dual vocational training), *Länder* is responsible for internal costs of school affairs, while local authorities are responsible for financing external school affairs. In addition, enterprises independently finance in-company training in occupations of their choice and to a given number of trainees within a set budget. Supplementary instruction of trainees within SMEs also provides funds through subsidies from Federal Agency for Employment, the Federation, the *Länder* and BMBF (Hippach-Schneider *et al.*, 2007).

At the continuing vocational training levels, financing of vocational education is a shared responsibility of enterprises, the state, the Federal Agency for Employment and private individuals. While enterprises fund majority of in-company continuing training for their employees, the Federation; *Länder* and local authorities make funding available from their budgets primarily for continuing training of public sector employees. There are also state-subsidized continuing training programmes. For instance, BMBF has been offering gifted young workers a grant for individual continuing training. Through the Support for Further Training for Advancement Act, craftsmen and other skilled workers have a statutory individual entitlement to financial assistance with further training for advancement, which is jointly financed by the Federation and the *Länder*.

Another feature of the VET financing in Germany is the special financing mechanisms for the unemployed and other groups at risk as well as for disabled persons. This is entrenched in law. The Federal Agency for Employment (BA), and the Federation support a scheme for the disadvantaged young people and young adults who, at the end of their compulsory education, are unlikely to find training places or jobs without specific help.

Finally, although firms are not obliged to train, it is evident from the number of companies that participate in dual training programmes that

they have economic benefit from training their own workers (UNESCO, 1996). The strategy has succeeded because when firms train their future employees, they are assured of high quality labour. In large industries, about 80 per cent of the apprentices are absorbed by the company in which they trained (UNESCO, 1996).

**(c) *The Japanese model***

Japan has a slightly different form of private-public partnership of TVET financing mechanism. Individual employers provide training and bear all the costs independently. Employers work directly with schools by recruiting fresh school leavers with general education, and then providing them with continuous vocational training within the firm. Large companies organize their own vocational training, and the outlays for in-house vocational training are considered a part of the labour costs. On the other hand, smaller companies with fewer resources rely on training facilities outside the company and are supported financially from proceeds of the unemployment insurance funds to which the government and employers contribute half and half (Hawley, 2005).

Enterprises can also pay to get membership of outside training organizations and can thus use their facilities for training. The Japan Industrial and Vocational Training Association (JIVTA) is the main organization in Japan concerned with training within industry. It is a private association of employers and has a constitution and a budget supervised by the Ministry of International Trade and Industry. Corporations that meet standards laid down in the Vocational Training Law and obtain approval from the municipal governments also qualify for various financial and other forms of assistance.

**(d) *Other financing mechanisms for TVET***

In some countries, Vocational Education and Training (VET) is financed through the involvement of NGOs and other voluntary organizations. For example, in India and the Philippines, the government and NGOs share the costs. In this set up, the central government or other agencies give grants but the NGOs bear responsibility for part of the costs. This financing strategy is popular in countries where government resources are strained. Moreover, since NGOs work for the lowly in the society, their involvement in VET helps to equalize opportunity in training for all and contribute to social development.

Another financing mechanism used in some countries is paid education leave. In this strategy, employers continue to pay employees



while they receive part time or full time vocational education. In France and Sweden, there is a legislation which gives the right for paid education leave for workers. However, this system, especially when enacted through legislation, can be regressive to firms/employers as it shifts the burden to them. Nevertheless, paid education leave is a good way to upgrade the skills of an employee. It motivates workers to enhance their skills and qualifications (UNESCO, 1996).

Some countries also finance TVET through apprenticeship. In this case, there is a formal contract between an employer and a trainee under which the trainee agrees to work for the employer in return for practical experience. During the training period, the apprentice receives little or no pay until he/she reaches the level of a skilled worker. Thus, the tradition of financing apprenticeship involves sharing costs between employers and trainees. In India, companies are obliged under the provisions of the Apprentices Act to accept a certain percentage of trained technical people for apprenticeship, ranging from one to two years. The apprentices are paid a stipend by the company and the government on a sharing basis.

Some countries have used other forms of TVET financing where a fund is set up to support TVET. The fund receives contributions from payroll levies or government subsidies. This financing mechanism has previously been used in Zimbabwe where companies, by an Act of law, contribute one per cent of their wage bill to a fund - the Zimbabwe Manpower Development Fund (ZIMDEF) under the Ministry of Education. The fund is used for financing vocational training activities such as apprenticeship training for various categories of trainees, and upgrading training of skilled workers. Also, companies that provide 'on the job' training to apprentices can claim rebates from this fund at a prescribed rate. Management of funds can be handled by the concerned ministry, the employers association and the workers' unions. This is a useful way because such cooperation facilitates formulation of appropriate training policy (UNESCO, 1999).

Finally, donor support plays an important role in developing VET systems in many developing countries. Large amounts of international aid has been used to support infrastructure and facilities, staff training and implementation of instructional systems. However, most donors provide financial resources for capital costs, and it is limited for short periods (Herschbach, 1993).

### **3.4 Skills and Qualifications Frameworks in VET**

The quality of VET has historically been considered from pedagogical, economic, sociological, customer and management perspectives. In the past two decades, there has been increasing interest in the development of more effective, systematic and scientific means of monitoring the performance and outcomes of education systems, with a particular emphasis on the effectiveness of teaching and learning processes, as well as educational outcomes for students (Irving, 1992). National Qualification Frameworks (NQFs) are developed to provide a basis for recognition of education and training, and progression to higher levels of education and training. However, implementation of NQFs requires strong institutional capacity. This section borrows heavily from a review by Meyers and Blom (2003) on the quality indicators in vocational education and training from different countries.

#### **(a) *The Irish framework***

The National Qualifications Authority of Ireland (NQAI) has developed a ten-level National Qualification Frameworks (NQFs) from foundation level to doctoral level. The Further Education and Training Awards Council (FETAC) and the Higher Education and Training Awards Council (HETAC) provide national certification for all education and training provided by the state other than that provided in the primary and post-primary sectors, the Dublin Institute of Technology and the universities. The State Examinations Commission is responsible for awarding of qualifications at secondary level of education.

The LCVP is fully accepted as a basis for entry to third level education/training, while the LCA enables entry into a wide range of Post-Leaving Certificate courses from which entry to third level may subsequently be gained, if appropriate. The LCA and the LCVP would be equivalent to a Level 4 and Level 5 award within the NQFs.

The majority of accredited TVET programmes fall under FETAC and the qualifications are located at different levels within the ten-level NQFs. Certification for youth reach is provided at level 3 and 4 (options in the Junior Certificate and LCA are also available). Traineeships and FÁS specific skills training are placed at Levels 4, 5 and 6. Apprenticeship and PLC certification is placed at Level 6. Certification for TVET at higher level education is provided by HETAC and qualifications are located generally at Level 6 and 7 within the NQFs.

**(b) The England framework**

England has had various institutions that develop and monitor quality indicators. The Quality Assurance Agency for Higher Education, which assesses the quality of higher education in England (and Northern Ireland), has developed institutional level quality indicators and a set of quality indicators that focus on the learning process. Besides, the Further Education National Training Organisation (FENTO) is one of the 80 National Training Organizations across the United Kingdom established to promote competitiveness by raising education and training standards in the industries and occupations they represent.

The Training Standards Council, which has a contract with the Department for Education and Employment to inspect work-based training, has developed a range of institution-level quality indicators. The quality indicators have been incorporated into a framework that focuses on the quality of seven aspects of training provision. The first three aspects of the framework contain the main guidelines for judging the quality of occupational areas (training and assessment, trainees' achievements and resources). The four remaining aspects are generic and each leads to a grade for the training organization as a whole (equal opportunities, trainee support, management of training, and quality assurance).

In 2001, the Learning and Skills Council was established to raise participation and attainment through high quality education and training. It has developed a national framework for reviewing the performance of training providers. Quality indicators within the framework are focused on ten key areas: quality of education, training and the standards achieved by learners; continuous improvement; other aspects of the leadership and management of learning; quality of planning; data management; financial viability and assurance; delivery of the volume of provision agreed with the local Learning and Skills Council; learner health and safety; equality and diversity; and other national or local priorities.

Besides the Learning and Skills Council is the Adult Learning Inspectorate set up in 2001 to support the work of the Learning Skills Council. Quality indicators developed by the learning inspectorate are focused mainly on the experience of learners. The inspectorate has developed a framework for inspection of education and training with a focus on providers, learners, trainers, learning goals, and personal and learning skills. Inspections focus on the experiences and expectations of individual learners through the evaluation of standards reached and the

learners' achievements; the quality of teaching, training, assessment and learning; other aspects such as the range, planning and content of courses or programmes, resources and the support for individual learners; the effectiveness of provision, its quality assurance and improvement, and how efficiently resources are used to ensure that the provision gives value for money; and the extent to which provision is educationally and socially inclusive, and promotes equality of access to education and training.

**(c) *The Danish framework***

Denmark has developed a quality strategy plan established in 1995, which lists the institution-level quality indicators that measure the performance of vocational training providers. They include:

- (i) Management instruments in terms of strategic management, adaptation strategies to changing goals and needs, educational plans and curricular work and budgeting issues.
- (ii) Educational indicators in terms of student consultation, educational culture and environment.
- (iii) External contacts in relation to cooperation with local education and training committees, collaboration with other colleges locally, regionally, nationally and internationally.
- (iv) Resource parameters (allocation) such as planning of supply of courses and services, economic management and cash flow control, staff recruiting and policy, equipment and physical facilities, and registration of students throughout, and completion rates.
- (v) Resource parameters (operational aspects) in relation to induction/guidance, special educational assistance, safety/working environment, organization of examinations and outreach.
- (vii) Innovative and developmental activities concerning organization of learning, human resource policies, professional development for trainers, and innovation of education.

**(d) *The German framework***

In Germany, the central goal of the federal government's VET policy is to provide learners with long-term employment opportunities through initial and continuing education and training. In this case, the government emphasizes on the provision of enough numbers of

training places with adequate materials and human resource. On their own, the access of training places with adequate materials and human resource are important indicators of quality in the German VET system (Federal Ministry of Education and Research, 2002). A vocational training law provides the framework for initial vocational training, but the actual implementation is the responsibility of training organizations, professional bodies and trade corporations. Companies offering traineeships are subject to regulation. Continuing vocational training is based on a combination of publicly and privately-funded (employer or employee) training provision (Gutschow, 2001).

The standard for the in-company training is the training regulation (federal law) that monitors quality using the following indicators:

- The designation of the occupation requiring formal training
- The duration of training
- The skills and knowledge to be acquired
- Instructions concerning the training content and timetable for obtaining these skills
- Knowledge (general training plan)

Increased cost pressure on vocational training providers has seen an upsurge in interest in quality measures. Some institutions implement quality measures as a money-saving strategy, while other providers implement process-oriented quality control systems on the basis of ISO 9000 (Seyfried *et al.*, 1999). At the continuing vocational training level, quality assurance for in-company vocational training or training funded by companies for their employees often relies on total quality management and certification in accordance with ISO 9000 or other internationally recognized systems of quality assurance (Gutschow, 2001). Continuing training sponsored by the Federal Labour Office (mostly for the unemployed) has independent instruments for checking and assuring the quality of continuing training that it sponsors. At the heart of these standards are (traditionally input-oriented) criteria that training providers have to meet, for example, for teaching methods or the qualification of staff. These standards are updated regularly (Gutschow, 2001).

**(e) The South African Danish framework**

South Africa's NQFs outline institution-level quality indicators that guide quality in provision of VET. Institutions can only be accredited

if they have a quality management system that includes clear aims and policies, and if they have procedures and review mechanisms. They must also have the necessary financial, administrative and physical resources to develop, deliver and evaluate specified learning programmes that allow attainment by students of registered qualifications (South African Qualifications Authority, 2001). For evaluating quality, programme-level quality indicators have been developed in areas such as: programme/course development and design, materials development, learner support, access issues relating to equal opportunities, and internal quality assurance mechanisms.

**(f) The Swedish Danish framework**

In Sweden, vocational training and general education are not clearly distinguished, and the Swedish education system seeks ‘to narrow the gap between vocational and general education as much as possible’ (Abrahamsson, 1999). Vocational programmes at the upper secondary level are considered to be initial vocational training, and all other forms of training from labour market through to professional degrees at university are regarded as continuing vocational training. An annual survey of training needs conducted by an association of small enterprises, which operates as a *de facto* quality assessment mechanism, guides education institutes.

### **3.5 Curriculum and Linkage to Labour Markets**

To ensure that the curriculum offered by TVET institutions is linked to the labour markets, many countries have put in place strategies, including involvement of the employers, in the curriculum development and general management of the TVET systems.

**(a) Japan**

Japan’s educational system emphasizes general education in the secondary system and tertiary sector. The core curriculum in the junior and secondary school system emphasizes a spread across Japanese language, mathematics, science, social studies, and a foreign language mainly English (Leclercq, 1989). The entrance examinations to the national universities assess competence across this broad spread of subjects, although applicants to private universities can specialize more narrowly in three subjects.

At the tertiary stage, the Ministry of Education, Science and Culture

lays down credit requirements to be fulfilled by students before graduation. Most universities provide more than the 124 credits required by the ministry, typically asking for 130-140 credits. From his outline of engineering education at Kobe University, Kinmonth (1986) shows those students will carry general education in the form of humanities or social science (12%) and a foreign language (10%) in addition to the engineering specialty courses (54%), mathematics and natural science (17%), and a graduation thesis in the specialty (7%).

Japan has also ensured relevance of the TVET curriculum through a network of relationships between schools and hiring managers in the manufacturing sector. This system is based on a local relationship and depends on high school staff correctly analysing the skills of potential graduates and their fit with the academic and vocational needs of employers. The Japanese system is similar to that used in the US vocational schools, but only in those that are of very high quality. In both cases, the high quality vocational schools have established strong relationships between educators and employers (Hawley, 2005).

### **(b) Germany**

At the core of the Germany system is delegation of responsibility for curriculum and assessment to a coalition of labour representatives, businesses, and educators. The business associations play a particularly complex role, managing the system by monitoring the quality of training provided by firms in the dual system (Brand, 1998; Gill and Dar, 2000; Rauner, 1998), thereby ensuring that the curriculum offered correlates with the needs of the labour market.

Germany's dual system where training is conducted in companies and vocation schools concurrently provides a broadly-based basic vocational training and the qualifications and competences required to practice an occupation as a skilled worker in a changing world of work. In-company training programmes in Germany are supported by federal and legally set training regulations. This includes a recognized occupational title, a specific duration of training, a recognized occupational profile, a general training plan, and examination requirements. Graduates are typically employed in their places of training. Consequently, schools TVET curriculum is developed based on a legally set framework consisting of thematic fields of learning, results-oriented learning goals, technical study contents and rationalized curriculum, time allocation with a third of instructional time being spent on general studies (social studies, German, foreign language, sports/religion) and two thirds of

instructional time on technical, technology-oriented and economic fields of learning. Vocational schools decide on how much to allocate teaching in consultation with training enterprises, the schools inspectorate and the competent industrial bodies. The aim of the various organizational form is to ensure that trainees spend as much time in the enterprise as possible, while at the same time allocating teaching in a way that is tenable in terms of both pedagogies and the psychology of learning.

**(c) *Malaysia***

Malaysia experienced rapid economic growth in the 1990s and an increase in the average educational attainment of the population. In order to make TVET curriculum relevant to the labour market, the government converted many of the vocational schools to technical schools in the 1990s. By 2000, there were over 70 technical schools and only four vocational schools for the whole country of over 20 million people. In this case, much of the curriculum emphasized on technical education, which focuses on technologies and related sciences. Moreover, some technical subjects were introduced to general secondary schools to improve the preparation for the labour market in general secondary education. The government also made a strategic decision that industry could train workers in the “blue collar” professions that used to be the work of vocational schools (Mustapha and Abdullah, 2001).

**(d) *Brazil***

Brazil, the National Industrial Apprenticeship Service, which is responsible for training manpower for the economy, including TVET education, works closely with business representatives in developing the curriculum, recruiting apprentices, and providing part-time instructions. It also involves them in technical advisory boards of the training centres. This close linkage is largely also due to the financial participation of the employers and the design of the governing bodies (UNESCO, 1996).

**(e) *Korea and Singapore***

In Korea and Singapore, the state highly regulates the labour market through education and manpower development. This ensures adherence to quality standards in education delivery. In Korea, the Ministry of Education lays down and controls standards in both public and private institutions. Furthermore, majority of vocational training in Korea is provided by the private sector, a pattern that reflects the government’s policy to increase private sector responsibility in view of fostering a more demand-driven system. In Singapore, the Institute of Technical



Education, responsible for the overall training system, is a tripartite body with a board which includes the government, employee and trade unions.

### **3.6 Overview of the International Experience**

First, TIVET should be anchored on a strong legal and institutional framework. In this case, it should be supported by laws and acts of the country so as to inform the basis for its existence. Based on experiences from other countries, it is evident that public-private partnerships, or social partnerships, are critical to the development of high quality vocational education and training. Public-private partnerships play a big role in linking the education sector and employers. The partners in this case include government, civil society organizations, enterprises, labour representatives and the educators (educational institutions). Such partnerships should be aimed at, for instance, developing, administering and assessing the curriculum, as well as devising financing mechanisms. Furthermore, these partnerships should be based on law.

There is need to develop a more effective, systematic and scientific means of monitoring the performance and outcomes of TIVET programmes with emphasis on the effectiveness of teaching and learning processes, as well as educational outcomes for students. As this review shows, there are a range of countries that have developed yielding NQFs that Kenya can learn from. The implementation of such NQFs requires a strong institutional capacity.

## **4. Challenges and Strategies for Improving TIVET Sub-sector in Kenya**

This section outlines the challenges facing TIVET in Kenya, followed by a review of strategies that aim to improve TIVET financing, delivery and management to ensure a relevant, effective and efficient skills formation system.

### **4.1 Challenges Facing TIVET in Kenya**

#### **(a) *Slow growth in wage employment opportunities***

Although the economy grew at over 5 per cent between 2003 and 2007, wage employment did not grow as fast. About 85 per cent of the workforce is in the informal and non-wage employment sector. For instance, the country created about 500,000 jobs during the ERSWEC timeframe (2003-2007), with more than 70 per cent of these jobs being in the informal sector.

There are large numbers of unemployed youth with limited employable skills. Kenya's literacy level is about 70 per cent, with low secondary NER (23%). A large number of youth graduating from the formal education system are unemployed. There is apparent mismatch between training and skills demand in the labour market. This can partly be attributed to the limited input from employers/industry to curriculum design in universities and TIVET institutions, including middle level colleges.

#### **(b) *Weak coordination, regulation and fragmented TIVET delivery system***

As indicated earlier, TIVET programmes in Kenya are spread over a range of government ministries and organizations. In addition, there is multiplicity of testing and certification standards. This situation has led to weak standardization of training programmes, low cost effectiveness, lack of quality assurance, limited mechanisms for skills needs identification prior to training, and limited framework for mutual recognition of TIVET qualifications. The diverse nature of TIVET management structures and segmentation of training constrains effective coordination within the system.

#### **(c) *Low quality of TIVET programmes***

High quality training programmes require qualified instructors, appropriate workshops equipment, supply of adequate training materials

and practice by learners. However, the quality of TIVET programmes in Kenya is generally low, with emphasis on theory and certification rather than on skills acquisition and proficiency testing. This can be attributed to the inadequacy of instructor skills training, obsolete training and instruction equipment, and lack of relevant instructional materials.

**(d) *Poor public and private perception of TIVET programmes***

For many years, TIVET in Kenya has been perceived as a career path for those with low academic qualifications and limited prospects for further education and professional development in formal education. To some extent, this impression is created by the public that the primary objective of TIVET is to absorb those who either drop out of basic education, do not qualify for secondary education, do not qualify for university admission, and in some cases the marginalized youth who want some basic skills for survival. This problem is worsened by the fact that there are limited and/or no entrepreneurial motivation campaigns, and the status of most TIVET institutions is relatively low.

**(e) *Weak monitoring and evaluation***

Non-targeted skills development is one of the major weaknesses of TIVET in Kenya. The programmes are mainly supply-driven and are not designed to meet the projected and observed demand of the labour market. There is also no framework for training institutions to track their graduates in the labour market. This leads to lack of opportunity for trainees to give their feedback on quality of training attained and relevance to labour market, which would otherwise be utilized to review the curriculum and training packages. Tracer studies as a tool to improve the market responsiveness of training programmes is rarely used by TIVET institutions.

**(f) *Inadequate financing***

According to recent estimates, Kenya spends about 4 per cent of the education and training budget and 0.002 per cent of GDP on TIVET programmes. On the other hand, unit costs for TIVET programmes are high due to the small student-teacher ratio, expensive training equipment and costly training materials.

## **4.2 Strategies for Improving TIVET in Kenya**

The challenges highlighted in the foregoing section show that revitalization of TIVET programmes will require improving the status

of TIVET, developing skills qualification strategy, improving resource mobilization, making TIVET attractive and ensuring employability of TIVET graduates. These proposals are not mutually exclusive, instead they complement each other. This means there is no single measure that can deal with all the challenges facing TIVET in Kenya.

**(a) *Improve status of TIVET programmes***

This largely involves ensuring that the relevant outcomes are in line with Kenya's socio-economic context. In particular, there is need to promote training for the informal sector and ensure there is a linkage between industry and employers. This would provide opportunities for trainee exposure to the work environment, and a channel for feedback. To improve the status and attractiveness of TIVET motivation, campaigns should be mounted to sensitize the youth and parents of the potential long-term benefit of acquiring skills. In addition, TIVET programmes should be redesigned to complement formal education rather than substitute the less academically endowed.

There is need to strengthen TIVET institutions and their role in industrial and technological development, re-engineer their training programmes for greater relevance and higher quality, while making them attractive to primary, secondary and even university graduates who wish to pursue technical and skills-oriented programmes. Singapore, Korea and Japan have employed these strategies. The recent upgrading of the status of Kenya Polytechnic and Mombasa Polytechnic to offer degree programmes in technological and technical areas may contribute to improved skills training.

**(b) *Enhancing the quality of TIVET programmes***

For TIVET programmes to impart high quality skills, they require appropriate training equipment and tools, adequate supply of training materials for learners, and appropriate practice by the learners. Other materials include relevant textbooks and training manuals. In addition to academic qualifications, instructors should also have adequate enterprise-based experience in relevant fields supported by good TIVET systems and industrial growth. However, since well qualified instructors with industry-based experience are also in high demand in the labour market, TIVET institutions should offer competitive pay and/or hire qualified instructors on part-time arrangement. The institutions should also put more emphasis on quality assurance.

However, it should be realized that emphasis on access may jeopardize quality of training, given scarce resources. Better quality training provides greater scope for producers to use well-trained workforce as a source of competitive advantage.

**(c) *Integrating TIVET in national development agenda***

TIVET programmes should be adequately integrated into the national development strategies, including employment and socio-economic development. TIVET should give priority to training for such sectors as tourism, agriculture, information communication technology and modern infrastructure development that are the main drivers for the attainment of Vision 2030. TIVET should also train for high level technical skills necessary for efficient financial and transport and communication systems, reliable water and energy supply, and food security. The measures towards improving TIVET should also take into account regional and international policies of skills development, particularly as articulated by the International Labour Organization, Education for All, and Millennium Development Goals.

**(d) *Recognize the potential implications of globalization and technological change***

Besides developing large stocks of literacy and basic skills, Kenya should support development of high level technical skills for increased competitiveness. This was the case for Singapore and Malaysia, whose industrial take-off was preceded by accumulation of large stocks of literacy and basic skills. Improvement in economic performance was supported with availability of high level technical skills.

TIVET programmes should also be characterized by a high level of application and integration of Information and Communication Technologies (ICTs). In the labour market, both nationally and globally, employees are required to have acquired and be knowledgeable in ICTs to keep abreast with the rapid technological advances, impress imperatives of quality, relevance, flexibility, technology oriented and life-long learning. These attributes are critical for skilled human resource development of any knowledge-driven economy.

On the other hand, globalization can offer Kenya opportunities for high level technical skills through technology transfer (Foreign Direct Investments inflows) and operations of technologically advanced multinational companies in the country. Within the Vision 2030 framework, the TIVET policy should emphasise provision of high-level

skills training and establishment of collaborative and practical research, and innovative training programmes with universities and polytechnics.

However, there is need to address the negative effects of globalization, including flooding of cheap products from foreign markets, which may reduce demand for locally produced products, hence a vicious cycle of lack of market and low employment opportunities for TIVET graduates.

**(e) *Developing suitable skills qualification and inspection framework***

TIVET programmes must be based on a competence framework that spells out standards, levels, skills recognition and institutional arrangements. VET students should also produce portfolio of projects undertaken during training and products produced as evidence of proficiency and proof of ability in any prescribed professional tasks. The skills standards should also be dynamic, flexible and responsive to the labour market. These should be offered in school enterprise-based training in both formal and informal sectors. A strong regulatory framework should also be developed to monitor and evaluate the training curricular, standards, qualifications and appropriate funding. On the other hand, staff charged with quality assurance responsibilities should be identified and control and review systems put in place.

**(f) *Assuring relevance and employability of trainees***

Effective and institutionalized guidance and counselling on choice of programmes based on academic skills in assuring employability of trainees is required. To this end, it is important to develop appropriate labour market information systems, undertake skills inventory to inform areas for skills training, and conduct tracer studies in order to track TIVET graduates in the labour market while giving feedback for review and improvement of TIVET programmes and employability. On the other hand, TIVET graduates who are not absorbed by the labour market and may wish to start income generating projects should be supported. Others could be supported to upgrade their skills to what the labour market demands. In other words, TIVET should be demand-driven rather than supply-driven, as is the case currently. However, for a demand-led VET system to develop, there is need for establishment of a strong Labour Market Information System (LMIS) and use of other survey instruments to enable provision of adequate data on employment levels of TIVET graduates, availability of job opportunities, and skills needs in the labour market. The critical role of LMIS would be to collect, process and transmit

information on labour needs and employment opportunities to training institutions.

The systems should also enable assessment of employment destinations for TIVET graduates, and information collected from tracer studies should inform revisions for TIVET curriculum, courses offered and other programmes in all public and private tertiary training institutions.

***(g) Strengthen management and coherence of TIVET provision***

The TIVET strategy proposes that a body –TIVET Authority (TIVETA) be established to coordinate TIVET programmes in Kenya. Its formation should take into account several issues: it should draw representation from all relevant stakeholders, including government ministries that are involved in vocational and technical education programmes, policy makers, employers, researchers, public and private training providers, civil society, faith-based organizations and development partners. This means that establishing autonomy will be a challenge, but without adequate autonomy, such a body might not be able to provide coordination for the sub-sector.

It is also important that a National Vocational Qualifications Framework (NVQF) is developed to ensure transfer of learning credit and mutual recognition of skills attained in TIVET institutions by the education and training system and industry. This framework could involve an accumulation of credit and recognition of life-long learning with support from all stakeholders.

***(h) Skills upgrading and professional development for TIVET staff***

Professional and pedagogical competency of trainers in VET is critical for the success of measures articulated on improving TIVET in Kenya. In addition to the academic qualifications, the vast changing technologies and globalization require trainers to regularly update their professional skills for effective delivery of TIVET courses. This can be achieved through exchange programmes and suitably designed refresher courses. TIVET staff should also be motivated through government subventions and development of loans for highly skilled TIVET staff. Skills for administrative staff would also need to be upgraded for effective implementation of proposed strategies, including and not limited to NQF, accreditation standards, assessment of guidelines on quality assurance and skills competence framework.

**(i) *Improving resource mobilization to the sector***

Compared to other levels of education, especially primary and secondary education, TIVET is more expensive to deliver. To mobilize more resources for TIVET programmes, public-private partnerships should be strengthened. Further, the costs of training should be shouldered by those who receive benefits from training. Public support for TIVET should be limited to dealing with market failure to ensure optimal behaviour in training markets. However, for this to be operationalized, there is need for estimates of returns to training. Experience from Asian countries indicates that the public had a major role in skill formation by filling the gap left by private employers and institutions. Additionally, full cost recovery should be carefully considered to avoid locking out 'disadvantaged' persons who are unable to pay.

**(j) *Review the training levy***

A training levy scheme has been used in Kenya for several decades. However, little is known about its success in increasing the intensity and quality of training by enterprises. However, without information on the success of the training levy, it would be difficult to support an increase. Moreover, since this is a tax imposed on enterprises towards support of skills development, employers' cooperation is critical for the scheme's success. Consequently, a review of the training levies in Kenya to understand the factors that would enhance its impact on training is recommended.

**(k) *Enhance private-public partnerships in TIVET development***

The experiences from other countries suggest that revitalization of TIVET cannot succeed without support from all stakeholders. For a country like Kenya, the private sector is the biggest consumer of TIVET. The government should increase fiscal allocation to capital-intensive and highly demanded programmes. Employers (both public and private) should contribute to the proposed levy percentage of the payroll. Development partners could also support TIVET through donations, non-cash contributions and capacity building for professional staff and exchange programmes. Training institutions can raise funds through income generating programmes, and proceeds used to subsidize TIVET programmes. Trainees should, through cost sharing, contribute to TIVET training costs. Lessons can be learnt from other countries.



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## **5. Conclusion and Recommendations**

This study has reviewed literature on TIVET in Kenya and elsewhere and drawn lessons that are relevant for TIVET reforms in Kenya. For TIVET to effectively support industrialization, economic growth and development, poverty reduction and social mobility of individuals in Kenya, its programmes must be relevant, effective and efficiently delivered. TIVET programmes must incorporate use of modern information and communication technologies. The skills developed must be relevant to the needs of industry, efficient and adaptable to vast changing technological environment. They should also help the country attain a competitive edge in the global economy by enabling production of highly skilled human capital that is able to efficiently produce high quality products.

Kenya's TIVET reforms framework needs to be linked to other national policies on education and training at all levels, industrialization and employment creation, and national development agenda in general. The Vision 2030 provides such a framework. The government initiative to establish a TIVET authority (TIVETA) is a right step towards effective TIVET reform. It is expected that it will guide TIVET policy formulation and implementation. It would also coordinate TIVET programmes currently provided by government, private sector, NGOs, and faith-based organizations, among others. It is also expected that TIVETA will guide the development of a National Vocational Qualifications Framework and proficiency levels, as well as standards for validation of training certification and accreditation of training institutions. Further research should be undertaken on the relevance of the revised TIVET curriculum in meeting the Vision 2030 goals, including promoting self employment, effectiveness in linkage with industry and other programmes.

However, TIVET alone is not a panacea for industrialization and sustainable economic growth. It is critical that the government articulates policies that stimulate growth of the economy and high-performance enterprises that demand high skilled labour, while creating employment opportunities for further technical education and training. This would ensure sustained economic growth, industrialization and increased demand for high quality technical workforce.

## **References**

- African Development Bank (2004), 'African Development Report'.
- African Union (2007), 'Framework for Post-Conflict Reconstruction and Technical and Vocational Education and Training (TVET)'. Department of Human Resource Science and Technology, Division of Human Resource and Youth, Addis Ababa, Ethiopia.
- Barro R. J. (1991), 'Economic Growth in a Cross-Section of Countries'. *Quarterly Journal of Economics* 106(2).
- Brand W. (1998), 'Change and Consensus in Vocational Education and Training: The Case of Germany's Dual System', in I. Finlay, S. Niven and S. Young (eds), *Changing Vocational Education and Training: An International Comparative Perspective*. London: Routledge.
- Gill I. S. and A. Dar (2000), 'German', in I. S. Gill, F. Fluitman and A. Dar (eds), *Vocational Education and Training Reform: Matching Skills to Markets and Budgets*. Washington DC: World Bank.
- Government of Kenya (1994, 1997, 2007). *Economic Survey*, Nairobi: Government Printer.
- Government of Kenya (2002b), 'National Development Plan 2002-2008, Effective Management for Sustainable Economic Growth and Poverty Reduction'. Nairobi: Government Printer.
- Government of Kenya (2007), 'Basic Report on Well-Being in Kenya. Based on Kenya Integrated Household Budget Survey (KIHBS), 2005/6'. Nairobi: Ministry of Planning and National Development.
- Government of Kenya (2007c), 'Economic Survey'. Central Bureau of Statistics: Ministry of Planning and National Development, Nairobi: Government Printer.
- Government of Kenya (2008b), 'Statistical Abstract'. Central Bureau of Statistics: Ministry of Planning and National Development. Nairobi: Government Printer.
- International Labour Organization (1998), 'Employability in the Global Economy: How Training Matters'. International Labour Office, Geneva.
- Kay, S. (1975), 'Curriculum Innovations and Traditional Culture: A Case History of Kenya'. *Comparative Education*, 11(3) pp 183-191.

- Kenya Institute of Education-KIE (2007), 'Technical Industrial Vocational Entrepreneurship Training Curriculum'. Nairobi: Kenya Institute of Education.
- Kenya National Bureau of Statistics - KNBS (2007), Basic Report on Well Being in Kenya: Based on Kenya Integrated Household Budget Survey (KIHBS) 2005/06. Nairobi: Kenya National Bureau of Statistics.
- Kimalu, P., N. Nafula, D. K. Manda, G. Mwabu and M. S. Kimenyi (2002). *A Situational Analysis of Poverty in Kenya*. KIPPRA Working Paper No. 6, Nairobi: Kenya Institute for Public Policy Research and Analysis.
- Kimenyi, M. S., G. Mwabu and D. K. Manda (2006), 'Human Capital Externalities and Private Returns to Education in Kenya'. *Eastern Economic Journal*, Vol. 32, No.3.
- Leclercq J. M. (1989), 'The Japanese Model: School-based Education and Firm-based Vocational Training'. *European Journal of Education*, Vol. 22, No. 2.
- Mincer J. (1974), 'Schooling, Experiences and Earnings'. New York: Columbia University Press.
- Mwabu G., M. S. Kimenyi, P. K. Kimalu, N. Nafula and D. K. Manda (2003), 'Predicting Household Poverty: A Methodological Note with a Kenyan Example'. *African Development Review*, Vol. 15, Issue 1.
- Mwabu G., W. Masai, R. Gesami, K. Kirimi, F. Munene, M. Chemengich and J. Mariara (2000), 'Poverty in Kenya: Profiles and Determinants', Department of Economics, University of Nairobi and Ministry of Finance and Planning (mimeo).
- Ngerechi J. B. (2003) 'Technical and Vocational Education and Training in Kenya'. A Paper Presented at the Conference on the Reform of Technical and Vocational Education and Training in Gaborone, Botswana.
- Ngware M. (2002), 'Gender Participation in Technical Training Institutions: An Assessment of the Kenyan Case'. *Eastern Africa Social Science Research Review*, Vol. 18.
- Rauner, F. (1998), 'School to Work Transition: The Example of Germany', In D. Stern and D. A. Wagner (eds), *International Perspectives on*

- the School-to-Work Transition. Cresskill, New Jersey: Hampton Press.
- Schultz T. W. (1963), 'The Economic Value of Education'. New York: Columbia University Press.
- South African Qualifications Authority (2001), 'Criteria and Guidelines for Providers', South African Qualifications Authority.
- UNESCO (1996), 'Financing Technical and Vocational Education: Modalities and Experiences', UNESCO-UNEVOC.
- UNESCO (1999), 'Technical and Vocational Education and Training: A Vision for the Twenty-First Century', Geneva.
- UNESCO-UNEVOC (2006), 'Participation in Formal Technical and Vocational Education and Training Programmes World Wide: An Initial Statistical Study'. UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training.
- Vandermoortele J. (1991), 'Labour Market Informalization in Sub-Saharan Africa'. G. Standing and V. Tockmal (eds), "*Towards Social Adjustment: Labour Market Issues in Structural Adjustment*". Geneva: International Labour Organization.
- World Bank (1993), 'The East Asia Miracle: Economic Growth and Public Policy, Policy Research Report'. New York: Oxford University Press and World Bank.
- Ziderman A. (2003), 'Financing Vocational Training in Sub-Saharan Africa. Africa Region Human Development Series', Washington DC: World Bank.