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TVET REFORM

BUILDING A COMPETITIVENESS FRAMEWORK FOR EDUCATION AND TRAINING IN EGYPT

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WORKING PAPER, NOT EDITED

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PREFACE

Investing in people through quality education and training is a crucial determining factor for a country's competitiveness. Human capital investments have both direct and indirect impacts on influential international competitiveness indices such as the Global Competitiveness Index (GCI). Four pillars of the GCI are directly related to education and training components. These are quality of primary education, quality of higher education, brain drain, and innovation and research. The quality of primary and higher education in Egypt are seen as major competitive disadvantages, with the country ranking in these respective pillars no more than 126th and 131st out of the 139 countries surveyed for the GCI's 2010-11 edition. Furthermore, low competitiveness in education indirectly affects all other pillars, especially labour market efficiency, technological readiness and innovation.

Recognising these challenges, the Egyptian National Competitiveness Council (ENCC) is currently developing a competitiveness strategy that could move Egypt to top competitive countries by the year 2020. Naturally, human capital investments will play a major role in achieving this vision. Conditional upon Egypt's education and training system receiving the highest rankings according to the GCI, some specialised institutions have conducted projections that involve Egypt ascending to the 46th most competitive country, even with other pillars remaining unchanged. Although this assumption is arguably unrealistic, it demonstrates the potential impact of reforms to the education and training system on the country's overall competitiveness.

Underlining the importance of human capital investments, this report contributes to a more comprehensive analysis of the interrelations between education, training and competitiveness in Egypt that informs the proposed options for reform and the improvement of the current situation. A joint initiative between the ENCC, the TVET Reform Programme and the European Training Foundation (ETF), this report aims to further explore the specific correlation between human capital development and economic competitiveness. An in-depth analysis of the impact of the education, training and labour market efficiency on Egypt's economic competitiveness is central to this, utilising indicators from the Global Competitiveness Report. This report also assesses the current status of education, training and labour market efficiency, as well as recent and ongoing reforms in these fields. In addition, it investigates and highlights the experience of reform measures taken in countries that have successfully enhanced their economic competitiveness. Finally, this report provides specific policy and operational recommendations to various Egyptian education and training stakeholders on how to improve competitiveness.

EXECUTIVE SUMMARY

Egypt's global competitiveness has long been affected by its education and training systems, as evidenced by Egypt's weak scores in the World Economic Forum's Global Competitiveness Report. Ranking low for its quality of primary education, higher education and training[1], as well as for its labour market efficiency, Egypt faces major challenges in enhancing its overall competitiveness.

A nuanced understanding of these complex challenges is required to meet the key human capital needs of the country's leading economic sectors. While relevant for overall comparisons between countries during a given period, the macro indicators of the Global Competitiveness Index cannot provide relevant information on how active reforms of the education and training system achieve results, nor can they interpret the progress or impact of these reforms on the system as a whole. The need for indicators which can measure different levels and areas of achievements in the implementation of education and training reform, in line with Egypt's economic development strategy, is thus important in order to support this strategy.

While significant quantitative achievements have been made in Egypt's education and training systems in the past few decades, the systems' inability to respond to the needs of a more advanced and open economy is reflected in unsatisfactory competitiveness rankings in the areas of human capital and labour market efficiency. Major obstacles to the reform of these systems remain, including a low level of public expenditure and the misallocation of financial resources, reflected in the low average real expenditure per students, bias against the pre-university education, low wages and greater expenditure on current costs than investment. The lack of a national employment strategy that can comprehensively and adequately address labour market inefficiencies and strengthen the relationship between education and training systems and employment also stands out as a key challenge to the improvement of Egypt's competitiveness.

Fortunately, several reforms and modernisation initiatives that have been or are currently being implemented should have a direct impact on the country's economic competitiveness. These are categorised as initiatives at the policy level, initiatives to enhance the quality and relevance of education and training, and initiatives to improve the efficiency of the labour market. However, institutional fragmentation, the absence of clear leadership and the lack of a performance assessment mechanism for the education and training systems make it difficult to assess the impacts of completed and ongoing reforms on these systems' overall performance and outcomes.

Useful models and references on how to conduct education reforms that could positively impact the Egypt's overall competitiveness exist from international experience (e.g. South Korea, China, India and Brazil). These models and references aim to extend specific operational experiences applicable to Egypt.

A number of actions could support Egyptian stakeholders in assuming higher levels of global competitiveness through education and training. These proposed actions focus on: development of human capital competitiveness indicators on the basis of a methodology that allows for developing links between sectors (macro level) and clusters or groups of enterprises undertaking complementary or common activities (meso level), as well as individual firms (micro level); taking measures to ensure improvements in the quality of education; higher levels of expenditure on education and training; supporting an institutional setting for the coordination of various reform initiatives; and the initiation of a comprehensive national employment strategy that adequately addresses education, training and labour market inefficiencies.

1 Quality of primary education: 124th out of 133; Higher education and training: 88th out of 133; Worker productivity: 114th out of 133 (down from 106th in 2008/09).

1. WORLD ECONOMIC FORUM'S HUMAN CAPITAL INDICATORS – REVIEW AND PROPOSAL

1.1 THE GLOBAL COMPETITIVENESS INDEX

The World Economic Forum (WEF) defines competitiveness as 'the set of institutions, policies, and factors that determine the level of productivity of a country'. Its Global Competitiveness Index (GCI) proceeds from this definition to develop a methodology and tools to benchmark and measure the competitiveness of a given country through 12 pillars of competitiveness divided into three groups: (i) basic requirements (institutions, infrastructure, macroeconomic stability, health and primary education); (ii) efficiency enhancers (higher education and training, goods market efficiency, labour market efficiency, financial market sophistication, technological readiness, and market size); and (iii) innovation and sophistication factors (business sophistication, and innovation).

The GCI presents human capital as one of the key drivers for national competitiveness. The different indicators used are either linked directly with education and training (primary education under pillar 4, secondary and tertiary education, research, and training services, pillar 5 under the Efficiency Enhancers Group), with labour market efficiency (pillar 6, specifically related to brain drain, also under the Efficiency Enhancers Group), or with innovation (pillar 12, under the Innovation and Sophistication Factors group). All together, the GCI uses 18 different indicators (out of a total of 110), which are directly linked to human capital. For each of these indicators weights are allocated according to the level of development of the country (a total of 16.3% for economies at the factor driven stage, as Egypt).

The WEF's Global Competitiveness Report highlights specific elements related to the impact of these indicators on the development of the competitiveness of the economy. For example, basic education is demonstrated as crucial in determining labour efficiency and a labourer's capacity to adapt to more advanced technology, with knock-on effects on the capacity to increase productivity and move up the value chain in a particular economic sector. In other words, workers with little or no formal education will have a limited capacity to adapt to more advanced production processes and techniques. Further emphasizing this point, secondary and tertiary education are also considered essential in order to ensure that individuals will be capable to adapt to new economic and technical environments, and also that new competitive industries and services can be developed. These pillars of the GCI also underline the importance of continuous in-service training so as to provide assurances that all workers are able to meet the changing needs of an evolving economy. The efficiency and flexibility of the labour market are key elements required to meet the skills and evolving needs of new economic activities. Workers must also have proper incentives to achieve increased productivity, particularly through improved salaries and work environments, which must also translate to gender equality.

1.2 EGYPT'S GCI RANKING

The 2009-10 Global Competitiveness Report section on Egypt highlights the weakness of the education sector as a whole, but also particularly with regards to the quality of the education system. Several international reviews have underlined this issue in relation to the poor performance and motivation of teachers, low salaries, inadequate pedagogy, and weak school-based management among others. While its ranking has improved in terms of quantitative indicators (e.g. the enrolment rate), Egypt remains one of the lowest performers with regards to the quality of its primary, secondary and tertiary education, as well as its training system, with strong gender and regional inequalities prevailing. The challenges of properly educating a large youth population are also important and include a limited budget with an average of expenditure of USD 280 per student per year in primary school, one of the lowest in the region, and a comparably low expenditure for students in secondary and tertiary education. Furthermore, household contributions to education and training are quite high despite strong financial constraints.

The Egyptian labour market also receives low rankings in the GCI, primarily as a result of over-regulation. While some reforms have been implemented, the rigidities primarily affect the younger population including the well-educated. One of the key consequences of this is brain drain, where Egypt ranks 123rd out of 133, which has clear repercussions on the availability of human capital. The participation of women in the labour market also remains quite low (127th), despite the reforms initiated.

1.3 REVIEW OF THE GCI METHODOLOGY

The GCI is used as a key reference worldwide for the rankings of countries' competitiveness. Annual updates allow countries to measure the impact of their reforms compared to those of others. The use of benchmarks in the GCI is justified to assess competitiveness on the basis of well-defined and measurable factors of competitiveness. However despite the macro relevance of such an approach, there have been numerous reviews and critical assessments of the methodology used by the WEF.

At the methodological level, one of the key questions raised refers to the coherence of developing a competitiveness analysis based on a strategy analysis structured on the basis of growth economics. While they can be seen as complementary approaches in macro as well as microanalysis of competitiveness, the two approaches are essentially different, impacting the coherence of different indicators and variables used. Thus, measuring a country's competitiveness by balancing indices between macroeconomic management and micro-competitiveness actions becomes questionable.

Other, more technical critiques involve the types of tools used to inform the indicators used in the GCI. Data sources may be limiting factors for four out of 18 indicators that are designed to assess human capital are based on hard data. The remaining 14 indicators rely on the Executive Opinion Survey, which may not include a representative sample of the productive sector or reflect a sufficient level of specific competence as to the indicator analysed (company executives may not have the requisite knowledge or experience to establish links between companies' activities and the indicator in question). In its 2007-08 edition, the WEF changed its methodology with regards to the structure and weighting of the model used by moving from 9 to 12 pillars. While this was an improvement from the previously applied methodology, it raises the question of the comparability of GCI rankings. Despite these adjustments, the GCI still lacks specific indicators on technical and vocational education, a sector that establishes core skills and competences for technical jobs. Finally, the relevance of the data used for all indicators of the GCI has been questioned due to the delay between its collection and its application, which can reach up to two or three years.

Despite these criticisms, the GCI does highlight the importance of human capital in the development of competitive economies. Indeed the purpose is to use these different general benchmarks from the 12 pillars noted above to compare the countries' progress in achieving different reforms, including education, labour market and innovation. Economists and strategy specialists are generally in agreement on the central role of human capital in the development and sustainability of competitiveness despite their understanding of the limits of the GCI index with regards to the evaluation of human capital rankings, especially for transition countries.

According to the Global Competitiveness Report, the impact of human capital on competitiveness remains a constant challenge for. With regards to Egypt, skills shortages have been singled out as a persistent obstacle in the development of the country's competitiveness. Studies have shown that economic growth in Egypt has been driven substantially by investments. Many investments are capital intensive, with a decrease in labour utilisation. This relates to the modernisation of the industrial and service sectors being primarily structured with a view to upgrading towards medium technology levels in order to meet a growing demand for personnel with medium skills levels. The result has been skills shortages and capacity constraints, while the number of newly created jobs remains inferior to the number of new entrants in the labour market. As evidence of this, core indicators such as GDP per capita, labour productivity, and total factor productivity[2] have showed a significant drop since mid-2008 and throughout 2009 (Economist Intelligence Unit). This raises the question of the relevance and quality of the education and training system, and consequently on the capacity to develop competitive industries in key sectors without a strong human capacity development policy.

Egypt is currently in the process of transition, supported in recent years by strong proactive reforms and policies to establish a more efficient and attractive business environment. Core elements of the reforms aim to develop solid human capital grounding. Egypt has launched important reforms in education as well as in training. Primary education has shown significant quantitative progress, and important steps have been taken in the development and implementation of programmes targeting the skills needs of key economic sectors. An education and training reform strategy covering the various components of these systems is currently being prepared through cooperation between the different ministries involved (cf. Chapter 2). The proposed reforms include a common framework for qualifications in all tracks with the possibility to bridge to other education or training tracks.

1.4 ECONOMIC DEVELOPMENT IN TRANSITION COUNTRIES AND HUMAN CAPITAL INDICATORS

The structure and operating processes of the global economy have evolved significantly during the past two decades. The human factor has become more and more important at all stages of economic production, for services as well as industrial production, and is applicable to countries in different stages of development. The competitiveness of

2 Total factor productivity is a critical measure of growth and competitiveness and comes out stronger when physical and human capital interacts more efficiently.

economic sectors and enterprises is increasingly dependent on the skills, the competences and experience of their employees and managers to create competitive advantages, at all levels of the value chain. Developing and upgrading appropriate human capital is the major challenge for current and future competitiveness. Higher productivity can be achieved through investments in physical and human capital, but primarily through the efficiency in which physical and human capital interacts (which is measured by the total factor productivity).

According to their level of human capital development, countries will go through different processes to develop or integrate new technology in their industrial production and services. These countries require the capacity to develop new technologies, which generally implies, in the sector covered, strong experience in research and development of new products, management, etc. Efficiency in this regard can only be attained if the required human capital is available, at all levels of operations. This implies a good level tertiary education and research capacity in the fields covered, with the availability of high-level technicians, engineers, management, as well as workers with good levels of education (secondary, technical), and efficient in-service training. The aforementioned capacity can be specific to target sectors rather than the whole country's activities (e.g. India and the information and communication technology (ICT) sector).

However, less developed countries typically acquire and adapt technology from other countries, primarily through foreign direct investment (FDI) or trade. The transfer of technology generally requires upgrading the technical capacity of workers directly involved (e.g. working with new equipment or machinery). It also implies upgrading managerial capacity to adjust and adapt according to the specific conditions of production of goods or services. The level of education and training required of the workforce (technical and managerial) is dependent upon the level of technology and knowledge involved. Technology transfer also relies upon the diffusion of technology already existing in the country, which necessitates sufficient educational levels to efficiently operate this technology, as well as greater competences that potentially be used to adapt or improve its uses and content respectively. In all cases, investment in new technology needs appropriate human capital and active and efficient interaction with other investments to ensure increased productivity and competitiveness.

That said, developing the appropriate human capital to meet the needs of various economic sectors is not simply a process of matching step-by-step progress in the national system of education and training with comparable economic development. Education reforms need to be efficiently structured and implemented on the basis of an analysis of the country's situation, with its progress and achievements evaluated in terms of the quantitative and qualitative outputs of the system as a whole. Economic growth is linked to this reform process, however growth may not be immediate and generally occurs in stages.

Many countries in transition demonstrate various approaches to the development of competitive economies. Some countries that have launched comprehensive education reforms starting in the 1950s (e.g. South Korea, Singapore) and the 1970s (e.g. China) have also developed a solid foundation in human capital that has contributed to their respective competitive economic position. Other countries, including most developing countries, implemented these reforms later or at a slower rate because of economic and political constraints. The focus of some of these countries has been on growth in specific sectors with particular competitive advantages. As a result, the development of human capital in these countries, together with the reform of the education system as a whole, has been structured on 'priority economic sectors', albeit with significant differences in the level and quality reflected in the progress of economic development (cf. Chapter 3). This approach has been favoured by countries with competitive potential in specific sectors and a strong national policy for economic development. Two BRIC countries, Brazil and India, are particularly good examples of this as in the development of high technology sectors (e.g. ICT, aircraft manufacturing, and energy). When the development of these sectors began, these two countries were human development rankings were low according to the GCI, however while they remain relatively weak in these areas targeted development in education, training, and innovation has supported their respective strategies. A research study on human resources, technological capacity and competition in Latin America (Beverly Carlson, cf. Chapter 3) noted: 'In other words, the most competitive countries in the Latin American region, are able to compete in spite of the burden of inadequate and inequitable skilled human resources and use of technology and scientific research. It is very notable that for all the six Latin American countries participating in the IMD study, secondary or technical educations are listed by reporting partner institutes as a major weakness or a major challenge.' Some Mediterranean countries have also developed focused strategies for the development of specific sectors (e.g. Morocco's 2006 Emergence Strategy, focusing on eight sectors as 'engines of growth'), and it is worth noting that in terms of human development these countries rank close to Egypt on the GCI.

For its part, Egypt has launched major reforms in macroeconomic policy to improve its economic development and competitiveness. However the education and training system, despite ongoing reforms at all levels (primary, secondary, tertiary, and lifelong learning), has to a large extent yet to adapt to Egypt's new economic challenges. This continuous reform process will require more time to be fully operationalised in light of particular constraints upon these sectors. However, the focus on priority sectors to support economic growth will also likely emphasise the reforms needed for the development of effective human capital and prepare the country for the challenge of international competitiveness and the development of a knowledge economy.

Egypt's economy is characterised by the development of economic sectors that have already achieved strong competitive positions or are in the course of developing their competitiveness at national and international levels.

An example of this from the service sector is Egypt's ICT sector, which has in a few years, developed a strong competitive position both nationally and internationally. As evidence of this, the London School of Economics January 2009 report entitled Beyond BRIC, Off-shoring in non-BRIC Countries stated that Egypt 'provided the highest market potential of any country studied in the report' due to its cultural fit with Western European countries, its strong language fluency, its 'convenience for cost-effective "nearshoring" for European business' and its ability to act as a gateway to the Arab world. Leveraging these competitive advantages, the Ministry of Communication and Information Technology and the Information Technology Institute have developed programmes and international partnerships to ensure the availability of the needed human capital *inter alia* for the development of new enterprises through entrepreneurship programmes, for in-service training of ICT companies employees, and for the training of students in Egyptian universities in soft skills, languages and technical competence through EduEgypt (the Education Development Programme for Egyptian universities). As an example of good practice to achieve the human capital needs of industry and prepare for future needs in line with the international and local market opportunities, 'EduEgypt can be considered a milestone in national efforts to bridge the employability gap that graduates can face upon entry into the workforce'.

Economic analyses provide strong evidence that ICT plays a key role in the transition to knowledge-based economies. A 2007 ESRI study on OECD countries concluded that: (i) on average, other things equal, in countries with an ex-ante high stock of human capital, ICT producing manufacturing and ICT using services grew faster; (ii) in countries with high human capital accumulation, ICT producing manufacturing services grew faster; and (iii) human capital stock and human capital improvement had a positive and significant effect of physical capital investment. The development of ICT also provides an important source for the development of human capital, as presented in a study of ICT in transition countries (World Bank, 2007): 'The opportunities for learning are also enhanced by the emergence of ICT, with the new technologies enabling learning in a range of new ways and environments. ICT is thus said to offer a host of new e-learning opportunities. In order to exploit the new education and training possibilities offered and necessitated by ICT, governments need to increase levels of investment in human capital in general, and in ICT related skills in particular. Moreover, the policy and regulatory environment should encourage firms and private individuals to invest in their human capital.'

Several sectors in Egypt have developed strong competitive standing but need to reinforce their position through *inter alia* enhancements to the level of skills and competences, and the quality of human resources. For example, tourism is a key sector with a strong competitive position and growth potential, but with important human resources needs focused on reinforcing quality and following quantitative development objectives. Other sectors demonstrate strong potential for international competitiveness but need to adjust and upgrade their position in the value chain and modify their production processes. The ready-made garments sector is a prime example of this, requiring human resource development to upgrade the sector's position (as demonstrated by some of the more dynamic enterprises in the sector). Some other major sectors, for example construction, also face considerable skills shortages despite market demand (however there are initiatives in the construction sector to manage this situation). Importantly, industries that utilise FDI, such as the automotive industry, also have developed approaches to meet such specific skills demands. However, other sectors with strong potential (e.g. agriculture, food processing, renewable energy) still need to develop the relevant human capital to be able to grow and be competitive within their respective value chains.

Egypt requires strong pro-active policies to ensure the availability of the necessary human capital in order to develop an economic development strategy anchored on developments in key sectors. The education and training system as it is currently structured and operating does not have the capacity to meet the needs of leading sectors or support the development of new competitive activities without such targeted pro-active policies. As such, the reform of the education and training system is a requirement for the achievement of sustainable economic competitiveness in Egypt. Such deep reforms require considerable human, material, and technical investments in order to develop relevant and efficient programmes and pedagogy that adapt to the needs of the labour market and ensure a relevant lifelong learning system which can adjust to new technologies and challenges from competitors. This is especially valid for transition countries like Egypt with strong potential for national and international market competitiveness. However multiple investments of this character require time to yield operational results. In the short-term a country which pursues these investments needs to focus on key competitive sectors and ensure that the needed human capital will be available. Thus it becomes clear that economic and social development is built on the prioritisation of competitive sectors and provides for a dynamic process for reforms of the education and training system.

The ENCC has identified a number of key sectors for Egypt's development in its yearly reports. A well-defined national strategy based on the development of sectors selected for their current and potential competitiveness should be formulated on the basis of these analyses. Sectors should be selected as priorities not simply on the basis of their capacity to produce the necessary human capital for the respective sector, but also on their potential wider impacts on national human capital development (e.g. ICT sector and its direct and indirect impacts on knowledge development).

Targeting human capital development on particular prioritised sectors can benefit systemic reforms in education and training through the potential for experimentation with new programmes and pedagogy (e.g. content and structure of the programmes, links with practical field research, alternate training). The development of best practice from the results of this piloting experience can be mainstreamed into systemic reform programmes and serve as a general reference for

widespread implementation. It can also reinforce coordination between different tracks in the education and training systems in common fields of study. Furthermore, new, higher quality programmes and potentially higher probabilities of employment can also offer a more attractive model of technical education and training for employers and young people.

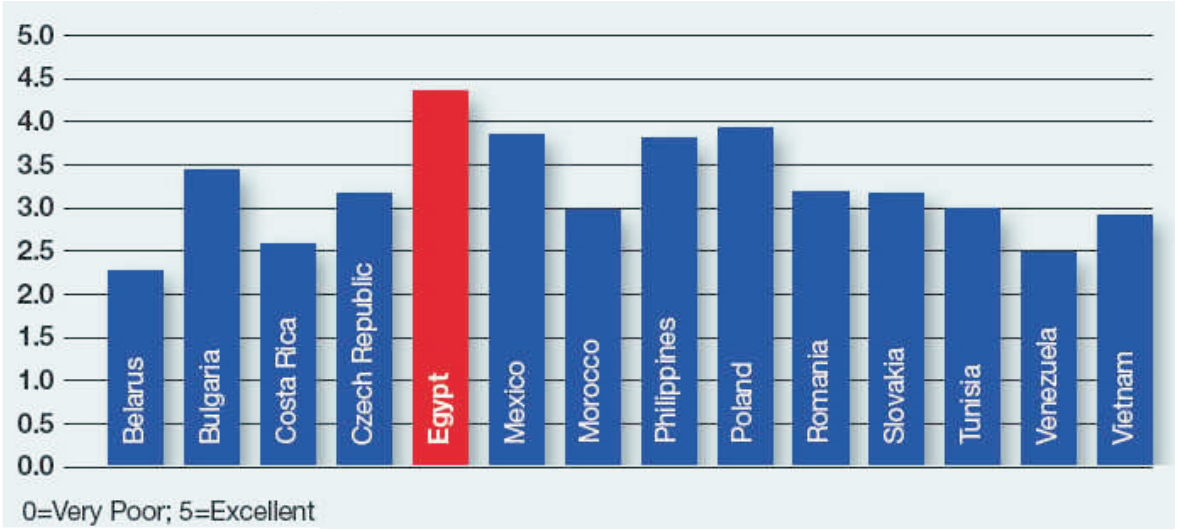
Considering the level of methodological depth required for the above, the macro indicators of the GCI cannot provide relevant information on how active reforms in the education and training system progress, achieve results, and impact the system as a whole. These indicators have not been defined in terms of this more specific and complex source of information. However, this does not take away their relevance for macro, overall comparison with other countries. That said, there is a need for indicators which can measure various forms of achievement in the implementation of education and training reform in line with a country's economic development strategy. Further, it is important to be able to ensure the capacity to meet key human capital needs in leading sectors that support this strategy.

1.5 PROPOSAL FOR A METHODOLOGY OF HUMAN CAPITAL INDICATORS APPLICABLE TO EGYPT IN ITS ECONOMIC TRANSITION PROCESS

Appropriate information and indicators can be designed through comprehensive national sector strategies developed with strategic management approaches as conceived and applied by leading international business schools, institutions and research centres. These analyses can cover all key components of the implementation and management of these strategies including human capital development elements (education, training, research, etc.), as well as the capacity for and potential impacts of these elements on the sustainable implementation of these strategies. These approaches should also stress the importance of various competitiveness factors (e.g. firm strategy, market structure, technology) and the need for complementarity to achieve competitiveness. This underlines the potential to increase competitiveness in spite an immediate dearth in some requisite elements while simultaneously developing the necessary capacity to progressively integrate these elements. For example, this approach is in line with the Egyptian ICT sector strategy programme and the activities that have been operationalised to make the needed human resources available.

These analyses should be structured around common strategic approaches in different countries, facilitating the use of comparative competitiveness indicators. These indicators are structured on specific empirical elements of the strategy, including the human capital dimension, and so analyse the weight and potential impact(s) of these dimensions on competitiveness. As an example, the European Commission has developed EU sectoral competitiveness indicators to analyse and compare the performance of industry and service sectors in Europe (it is worth noting that these indicators are also applicable to other developed countries (cf. Chapter 3). The OECD also has developed specific human capital indicators. Other competitiveness indicators using human capital indicators as part of the analysis have been developed by university research centres, for example, the London School of Economics' comparative analysis of the attractiveness of non-BRIC countries as outsourcing sites.

FIGURE 1.1 ATTRACTIVENESS OF NON-BRIC COUNTRIES AS OUTSOURCING SITES



Source: LSE Outsourcing Unit

The process of developing and structuring human capital indicators for the main competitive sectors in the Egyptian economy should be matched with data and indicators specific at the subsector, business cluster, and individual firms levels. As most of these sectors and their constituent enterprises are currently in the process of developing or adjusting their respective strategic positions within value chains in international and national markets, their human capital needs are specific to particular types and levels of skills and competences. Moreover, because of their ever-evolving requirements to meet international and national challenges, enterprises' have a continuously growing need for the upgrading of skills and competences. In this context, the link between competitive advantages at the firm level and those at the national and international level become very important, and, consequently, so does defining human capital needs and their corresponding indicators.

Considering Egypt's current economic transition process and the capacity of its education and training system to respond to skills needs at the requisite quantitative and qualitative levels, it is essential to establish specific links between the human capital demands of competitive enterprises and the education and training system. This approach may contribute to the development of education and training institutions' ability to provide needed programmes, with appropriate content and pedagogy, more efficiently. However this requires support from the government (as in the ICT sector) and close cooperation with industry. Public-private partnerships of this type are needed at all levels in education and training (including in-service training), as well as in technical and managerial research and development at the tertiary education level. Links between the public and private sector are also part of a key approach to develop and reinforce cooperation between local and foreign education and training institutions.

Human capital competitiveness indicators should be developed on the basis of a methodology that takes into account the developing links between indicators for entire sectors (macro level) and clusters/groups of enterprises in complementary or common activities (meso level), as well as individual firms (micro level). Sector indicators, drawn from international sources (including those on analyses of sector strategies), can serve as an overall reference to develop specific meso and micro level indicators. In general, surveys are used to develop these indicators by first identifying key human capital indicators in relation to core competitive factors, and then developing the specific content of these indicators (e.g. in a service sector, the different types of technical, behavioral, etc. competences required and indicators that can measure them). These surveys are then applied to representative sample groups that provide a relatively reliable signal as to the most essential indicators and how to measure them. This approach is applied in transition as well as developed countries to measure human capital and potential links between the private sector and the education and training sector (particularly in the assessment of the latter's effectiveness in meeting market needs for skills and competences).

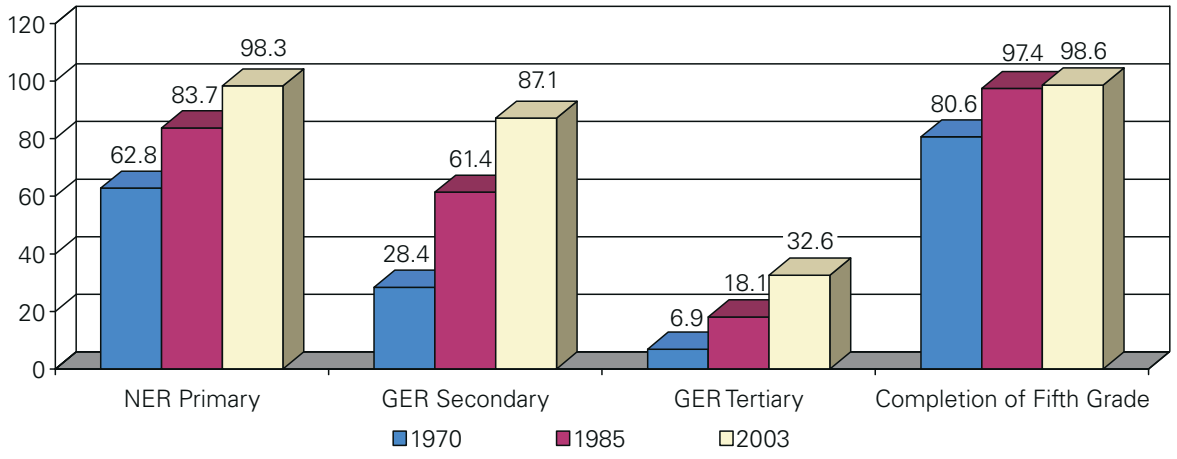
In order to assess and provide inputs to reinforce and adjust reforms in education, the labour market, and social development, it becomes necessary to develop the capacity to link these human capital competitiveness indicators to indicators specific to education and training (primary to tertiary, lifelong learning, in-service training), labour market operations and regulations, and social programmes (active labour market programmes targeted to specific populations). This implies the use of applicable international indicators for education, training, the labour market, etc. For example, many international organisations (e.g. OECD, PISA, UNESCO, World Bank, ILO) have indicators with international benchmarks and have been applied in Egypt. This comparative research would focus on specific factors, for example in education and training: access, repetition and dropout rates, curriculum content, costs, as well as wider issues such as the qualification system and framework, and governance. The results of this comparative analysis will contribute to definition of the potential impacts of the reforms intended to develop human capital for Egypt's economic growth and competitiveness (cf. Chapter 3 for examples).

2. EGYPTIAN EDUCATION AND TRAINING SYSTEMS AND REFORM INITIATIVES

2.1 AN OVERVIEW OF THE CURRENT EDUCATION AND TRAINING SYSTEMS

The Egyptian education system is the largest in the Middle East and North Africa region. More than 20 million students are currently enrolled in different levels and types of education, almost 90% of them in pre-university schools. The system encompasses more than 43,000 schools, 35 universities (17 public, 17 private, and Al-Azhar), 8 public technical colleges, 121 private higher institutes, 22 private middle institutes, and almost 1.7 million personnel (teaching and non-teaching staff). Over the past few decades, the country has achieved a significant progress in terms of educational enrolment. As **FIGURE 2.1** shows, the net enrolment rate in primary education has jumped from less than 63% in 1970 to almost 84% in 1985 and, then, to more than 98% in 2003; indicating that Egypt has almost achieved universal enrolment in primary education. Moreover, the percentage of those in the relevant age group who completed the fifth grade has also increased from less than 81% to more than 97% and almost 99% in the three mentioned years, respectively. Similarly, the gross enrolment rates in both secondary and tertiary education have witnessed significant increases during the same period 1970-2003. As the same figure indicates, the gross enrolment rate in secondary education has more than doubled between 1970-85 (61.4% as compared to 28.4%) and, then, exceeded 87% by the year 2003. The corresponding figures in tertiary education are 6.9, 18.1, and 32.6%, respectively.

FIGURE 2.1 ENROLMENT RATES BY EDUCATION LEVEL AND COMPLETION RATE OF FIFTH GRADE, 1970-2003



NER: net enrolment rate; GER: gross enrolment rate
Source: World Bank, 2008, pp. 13 and 15

Unfortunately, these significant quantitative achievements have not been accompanied by qualitative enhancement. It is well evidenced that the education system in Egypt has failed so far to produce what the more-advanced and open economy needs. This 'mismatch' phenomenon has been reflected in many major and structural problems, among which is the unsatisfactory competitiveness ranking in the areas of human capital and labour-market efficiency. Poor-quality education is usually attributed to such factors as: absence of a comprehensive reform strategy, lack of political will, highly-centralized system, insufficient financial resources, inefficient public allocations, lack of effective monitoring and evaluation systems, input rather than output or results-based management, and lack of accountability.

The public sector is still the main provider of educational services; where almost 93% and 80% of those who are enrolled in pre-university and higher education, respectively, are registered in public institutions. Consequently, the public budget is the main source of financing education in Egypt. Over the last few decades, the numbers of students and enrolment rates have significantly increased, the budget deficit has largely inflated and, consequently, the quality of

education has been compromised. Several evidences for poor-quality education can be provided. High rates of unemployment among highly educated job seekers, low private rates of return on education, increasing trends of informality in the labour market, the continuation of the public sector as the main formal job provider, and low-levels of labour productivity, are indicative examples. In addition, still at least 34% of those in the age group (6-23-year-olds) have chosen to either not to go to schools or to drop out of the educational system in the early stages. This has resulted in high rates of adult illiteracy (around 29%), low average years of schooling, and scarcity of skilled workers who match the needs of a more competitive and globalised economy.

Technical and vocational education and training (TVET) is a major concern in Egypt. TVET is widely recognised as a major challenge before the country's efforts to enhance its global competitiveness. The Ministry of Education administers a total of 1,600 technical, commercial and agricultural secondary schools with more than 2.2 million students enrolled in three-year technical diploma or five-year advanced technical diploma tracks. Most TVET graduates are obliged to enter the labour market directly and have very limited opportunity for access to university.

On the higher education level, there are eight regional technical colleges, which include 45 middle technical institutes, administered by the Ministry of Higher Education. The TVET system also includes a number of industrial education colleges, supervised by the ministry, which offer four-year programmes to train technical teachers for secondary schools, leading to a Bachelor of Technology. The industrial education colleges accept graduates of technical secondary schools (both three and five-year systems) and graduates of the industrial technical institutes.

In addition, TVET encompasses other middle-level technical institutions affiliated to other ministries such as Defence, Communications and Tourism, which provide technical education and training specific to their sector. Other forms of training include training through industry attachments (e.g. dual system and apprenticeships schemes), in-service training and re-training of both employed and unemployed workers in the labour force. Entry-level vocational training is provided to more than 60,000 trainees a year in 232 vocational training centres managed by six sectoral ministries (Industry, Housing, Manpower, Agriculture, Health, and Culture). Unfortunately, information on in-service training in the private sector is limited.

Unlike the general education system, financial resources for TVET are relatively abundant. Instead, the lack of coordination among different TVET bodies, as well as a dearth in the accreditation system, are the major challenges. These deficiencies have been reflected in major failures documented by recent field surveys and studies. These surveys reveal that most TVET institutions are: supply-driven rather than driven by market demands; public funded with annual budgets factored against previous year's expenditure rather than overall actual performance; lacking clear standards for curriculum development and training delivery; lacking practical 'hands on' training; utilising outdated curriculum; short on modern and advanced specialisations; utilising obsolete equipment; underutilising available modern equipment; misallocating resources; overcrowding practical training workshops; and excessively expanding theoretical parts of the curricula.

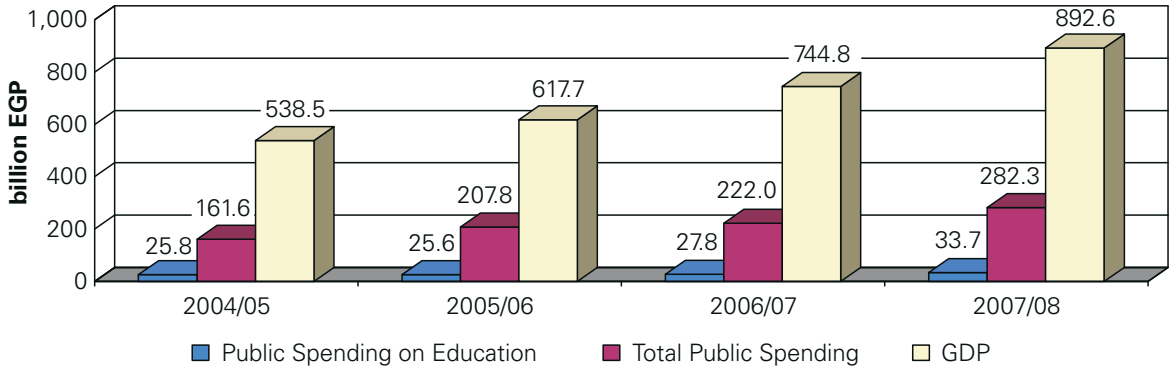
In addition to its failure to identify real training needs, the TVET system and its shortcomings have resulted in a wide gap between the skills produced within the TVET framework and those needed in the labour market, especially in the more advanced industrial sector. These shortcomings include a lack of follow-up and evaluation after the completion of TVET and ineffective coordination among TVET bodies and these bodies in governorates and sectors.

2.2 PUBLIC EXPENDITURE ON EDUCATION AND TRAINING

Public spending on human capital formation is best regarded as an investment in people whose returns are higher productivity, more competitiveness, higher growth rates and better living conditions. In Egypt, a lack of financial resources allocated to the human resource sectors, along with a misallocation of these resources, are the major obstacles that hinder all reform plans. The total public expenditure on education in Egypt reached EGP 33.7 billion in 2007/08, representing just 12% of the total public expenditure in that year, compared to 17% in 2000/01, 16% in 2005/06 and 12.5% in 2006/07. In addition, the ratio of this expenditure to GDP decreased from 5.3% in 2000 to almost 3.7% in the last two years. This declining trend indicates that education is not a top priority on the government's agenda.

Comparing these shares of public expenditure on education in Egypt with corresponding statistics in similar countries clearly underlines this conclusion. For example, lower-middle-income countries, on average, allocate about 4.5% of their GDP and 15.2% of total public spending to education. Moreover, Arab countries such as Syria, Morocco, and Tunisia allocate almost 4.9, 5.9 and 7.4% of their GDP and 16.7, 27.2, and 23.4% of total public spending, respectively, to education.

FIGURE 2.2 PUBLIC EXPENDITURE ON EDUCATION, TOTAL PUBLIC EXPENDITURE, AND GDP, 2004-08



Source: Ministry of Finance, Final accounts

A more important indicator in this regard is the average public expenditure per student. As **TABLE 2.1** shows, the value of this indicator in Egypt was estimated to be (PPP USD) 282, 405, 394, and 902 in primary, preparatory, secondary and tertiary education, respectively. All these values are far below their corresponding ones in such countries as Jordan, Malaysia, Peru, Philippines, Chili, and India.

TABLE 2.1 CROSS-COUNTRY COMPARISON OF PUBLIC EXPENDITURE PER STUDENT (PPP USD)

Country	Year	Education level			
		Primary	Preparatory	Secondary	Tertiary
Jordan	2004	855	872	865	NA
Malaysia	2004	1,552	2,439	2,439	8,997
Peru	2005	479	703	703	1,222
Philippines	2004	458	456	480	1,661
Chili	2005	2,120	2,106	2,062	6,873
India	2003/04	484	524	524	3,668
Mean of 16 WEI countries	2004	1,050	1,131	1,131	3,877
Mean of OECD countries	2004	5,832	6,909	7,884	11,100
Egypt	2004/05	282	405	394	902*

Source: El-Baradei, 2010; (*) El-Araby, 2010

Moreover, public expenditure on education is biased against the pre-university education. As **TABLE 2.2** shows, while students in this level of education represent about 88% of total students, the share of this level of education in total public spending on education is almost 72%. On the other side, higher education whose share of total students is around 12% receives almost 28% of total public expenditure on education. This type of bias against the pre-university education implies another bias against the poor. It is well documented that poor student is less likely to continue their education beyond the compulsory level. While access to basic education is relatively equal across income quintiles, this is not the case with higher education. While the net university enrolment rate for the richest quintile reached 47.95% in 2004/05, the poorest income quintile had a net university enrolment rate of just 9.07%. This unequal access to higher education has impacted negatively on Egypt's overall competitiveness through the reinforcement of existing social inequalities, which is in turn correlated to lower levels of productivity, slower rates of growth and lower competitiveness (El-Baradei, 2009).

TABLE 2.2 NUMBER OF STUDENTS AND PUBLIC EXPENDITURE BY EDUCATION LEVEL, 2007/08

	Education level		
	Pre-university	**Higher education**	**Total**
Number of students (million)	17.97	2.47	20.44
Public expenditure (billion)	23.14	9.03	32.17
% of total students	87.9	12.1	100
% of public expenditure	71.9	28.1	100

Source: Ministry of Finance and CAPMAS, Egypt in figures, March 2009

Nonetheless, more than 92% of total public spending on education is allocated to current expenditures while only less than 7.5% goes to investment expenditures, a percentage that drops to only 2% in the pre-university level. **TABLE 2.3** also reveals that at least 80% of total public spending on education is allocated to salaries and wages. The main problem is that large proportion of wages to total expenditure on education does not reflect higher wages for teachers and academicians but, rather, reflects the high ratio of non-academics and administrative workers to the total workers in the field of education. Also, the expenditure on the provision of goods and services is one of the important items for improving the quality of education; its share is only less than 11% of the total public expenditure on education, and less than 10% in pre-university and it rises to more than 14% in higher education.

TABLE 2.3 PUBLIC EXPENDITURE ON EDUCATION BY LEVEL AND TYPE OF SPENDING, 2007/08 (MILLION EGP)

	Pre-university		**Higher education**		**Total**	
	Value	**%**	**Value**	**%**	**Value**	**%**
Wages and salaries	20,409.3	88.19	5,347.1	59.22	25,756.4	80.06
Purchase of goods and services	2,183.6	9.44	1,299.5	14.39	3,483.1	10.83
Interests	13.1	0.06	15.3	0.17	28.4	0.09
Subsidies and social benefits	48.3	0.21	420.0	4.65	468.3	1.46
Other expenses	2.6	0.01	38.9	0.43	41.5	0.13
Investment	484.8	2.10	1,908.0	21.13	2,392.8	7.44
Total	**23,141.7**	**100**	**9,028.8**	**100**	**32,170.5**	**100**

Source: Ministry of Finance, Final accounts, 2007/08

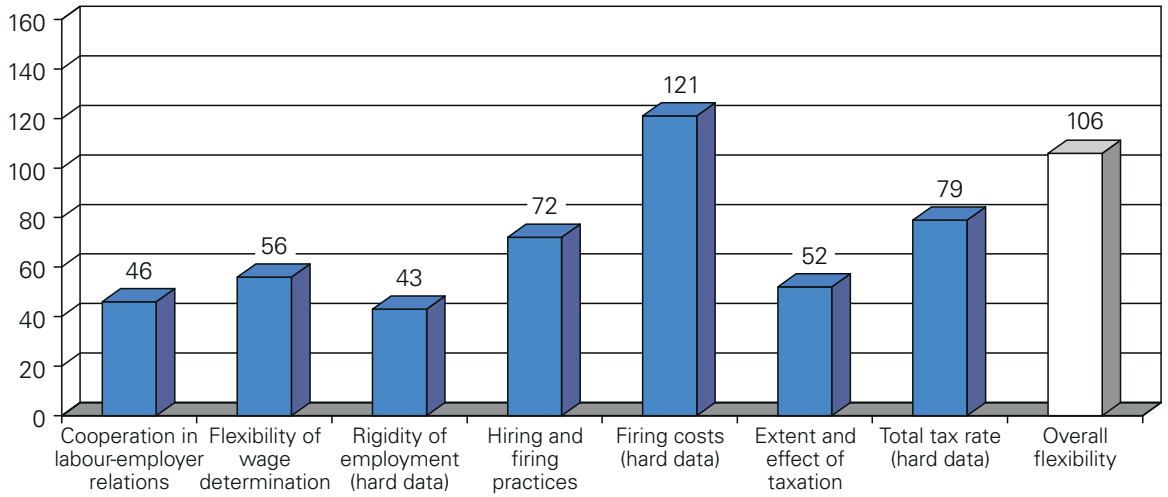
2.3 INTERRELATIONS WITH THE LABOUR MARKET

Labour market efficiency is a major challenge in Egypt. According to the latest Global Competitiveness Report, Egypt is ranked 126 out of 133 countries in the labour market efficiency pillar. This ranking reflects such challenges as heavy regulations, brain drain and low female participation in the labour force. The Egyptian labour market is perceived as highly inflexible, ranked 106 among 133 countries, and Egypt ranks among the worst performing countries in efficient use of talent (ranked 130 among 133 countries). **FIGURE 2.3** shows the detailed ranking of Egypt in all indicators that are considered in its overall ranking in the labour market efficiency pillar.

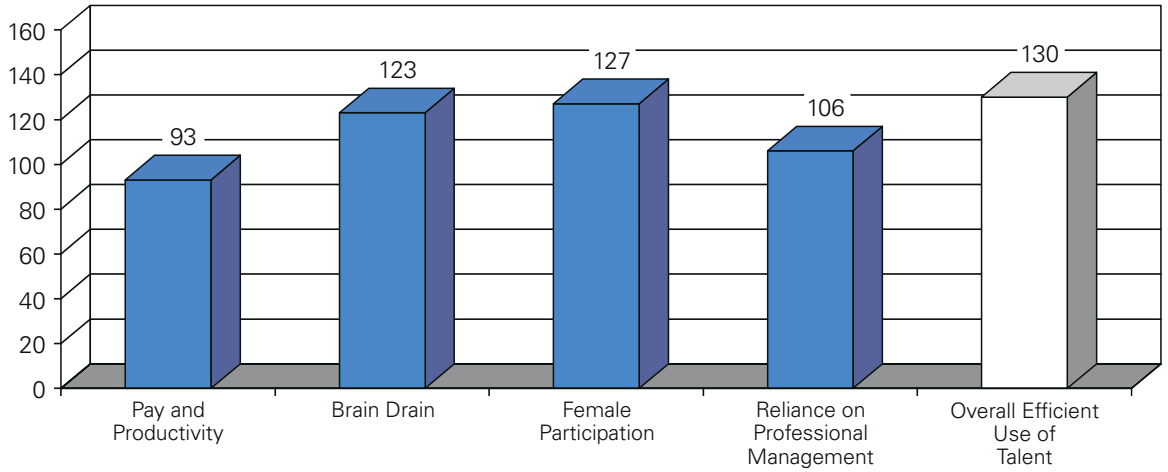
Moreover, Egypt's labour market policies in the last five decades have proved to be inefficient in creating enough productive and decent jobs for all job seekers, especially fresh graduates and young females. Lacking a comprehensive national employment strategy that is adequately integrated into an overall national development strategy is well documented. This deficiency has been reflected into several structural challenges.

FIGURE 2.3 EGYPT'S RANKING IN THE INDICATORS REFLECTING ITS OVERALL RANKING IN THE LABOUR MARKET EFFICIENCY PILLAR, 2009/10 (OUT OF 133 COUNTRIES)

FLEXIBILITY



EFFICIENT USE OF TALENT



Source: ENCC, The seventh Egyptian competitiveness report, May 2010, pp. 58-59

Integrating at least 700,000 new entrants to the labour market into productive and decent jobs every year is a major challenge. Government statistics reveal that almost 93% of those who are currently unemployed are first-time job-seekers. This failure can be mainly attributed to such factors as: insufficient levels of investment; inefficient allocations of these investments; inappropriate production technologies; limited banking credit; a high inflation rate; a large budget deficit; an inadequate business environment for micro, small, and medium enterprises; lack of entrepreneurial spirit; and, most importantly, poor-quality education and training systems that fail to meet market demand.

High female unemployment and the low participation of women in the labour force remain important challenges. Women represented less than one quarter of the Egyptian labour force in 2009, with a labour force participation rate of only 16% compared to a rate of approximately 50% for their male counterparts. With the decline of job opportunities in the public sector, many educated young women have decided to stop actively searching for jobs, a trend that resulted in lower participation rates between 1998 and 2006. This can mainly be attributed to discriminatory employment practices in the private sector. Unsurprisingly, government data confirms that females are more to likely than their male counterparts to be unemployed. While the overall unemployment rate in 2009 was almost 9.4%, the female unemployment rate reached almost 23% and exceeded 60% among young females (15-25-year-olds).

Egypt's labour market is highly segmented. Despite the abolishment of guaranteed employment schemes more than two decades ago, the government and public sector still employs almost 27% of all workers and 44% of waged workers. Another 23% of all workers are working in private sector establishments and about 48% of all workers are

classified as private sector workers who work outside recognised establishments. Almost 62% of those who were employed in 2009 were waged workers while the remaining 38% were non-wage workers. This segmentation is very problematic, especially when trying to design national comprehensive labour and wage policies.

Another challenge that has become increasingly important in the last decade is the inefficiency of the institutional framework for the resolution of emerging labour disputes. In recent years there has been an increasing trend in the number and scale of workers' strikes. Although such movements, in of themselves, are a positive indication of democracy and progress, many of these strikes reflect the denial of workers' legal rights over prolonged periods before their resolution or rectification. In most cases, the president himself introduces solutions. This mechanism reflects a large degree of mistrust between employers and employees and the lack of a healthy dialogue between these groups. It also implies, to a large extent, the inefficiency of the current labour syndicates and unions, which are largely controlled by the government.

In general, the relationship between education and training systems and the labour market in Egypt is still weak and the separation between these systems and employment has not been bridged. In 2009, almost 84% of the total unemployed were in the age group 15-30 years. In addition, at least 77% of those who are currently enrolled in university education are registered in theoretical specialisations that are not needed in the more liberal and open economy. As a result, the share of the highly educated unemployed represents almost 36% of the total unemployed. Adding the graduates of technical middle education, this share jumps to 83%. Moreover, while the average unemployment rate in the country rests around 9%, it exceeds 16%among highly educated job-seekers, followed by the groups of those who completed their middle and above-middle education (almost 14.6% each). In contrast, those with lower educational attainment face relatively fewer problems with unemployment.

The employment challenge in Egypt is not only about creating more jobs but also about the quality of these jobs. It is estimated that only 10% of the labour force is employed in the modern sectors, vis-a-vis other traditional and government sectors. Although millions of jobs have been created during the last decade, most of these jobs are in the informal sector and are dominated by low productivity and low pay (not 'decent work'). It is estimated that almost 75% of the jobs created between 1998 and 2006 were found in the informal sector. In 2006, about 58% of those who were employed in the private sector were in the informal sector, a percentage that jumps to 92% when the agriculture sector is excluded. In addition, only one-third of total paid-employed youths have legal contracts, with those who have social and medical insurance representing only 30 and 21%, respectively. Furthermore, only 15% of them are members of a labour syndicate or a union and just 23% are entitled to paid holidays and sick leave. In addition, it is difficult to measure and evaluate access to basic training and life long learning of workers in the informal sector.

Perhaps more importantly, labour productivity in Egypt is amongst the lowest in the region. Despite the fact that the cost of labour in Egypt is less than a quarter of the average prevailing in the Middle East and North Africa, the average of the unit-labour cost in Egypt approaches that of the regional average. While the average wage of a worker in Jordan and Israel was 1.5 and 11.4 times, respectively, that of his counterpart in Egypt, the average per unit costs of production in these two countries relative to that in Egypt are 0.55 and 1.9, respectively. This low labour productivity has been reflected in another major challenge: low rates of return on education. Recent studies reveal that, on average, each additional year of schooling in Egypt results in less than a 5% wage increase for a worker in the Egyptian labour market, compared to almost 7% in the Middle East and North Africa region and 11% in low and middle-income countries.

Overall, Egypt lacks a national employment strategy that comprehensively and adequately addresses the above-mentioned challenges. Rather, the government applies different ad hoc policies to overcome each of these challenges separately. For instance, the guaranteed employment policy in the 1960s was introduced to overcome the failure of creating enough productive jobs in the real economy. Having such a policy without a clear strategic vision has resulted in several problems including disguised unemployment, deteriorating productivity, and unsatisfactory overall economic performance. After abolishing this policy in the late 1980s, the government initiated the Social Fund for Development to help those who lost their jobs in this change or were searching for new ones outside the government and public sector. A new scheme for micro, small, and medium enterprises was introduced, without creating a conducive business environment. These enterprises suffer from major problems, including over-regulation, lack of human and financial resources and technical support, and difficulty in complying with different laws and regulations. As a result, most of these enterprises choose to join the informal sector and, hence, their impacts on job creation, job sustainability, and development in large are still limited.

One important labour market policy is to provide accurate and up-to-date information about the market. At least three main government entities produce this type of information. Local employment offices, affiliated to the Ministry of Manpower and Migration, provide information about job vacancies. In addition, the Education, Training and Employment Observatory initiated by the ETF in collaboration with the Information and Decision Support Centre and steered by the main stakeholders, provides useful information about the labour market and training system. Moreover, the Central Agency for Public Mobilisation and Statistics (CAPMAS) produces three main publications; the quarterly LFS, the annual bulletin on Wages, Employment and Working Hours, and finally the population and establishments census that is undertaken every ten years. This should indicate the availability of labour market information. However, there is a lack of

coordination between these three bodies and other entities responsible for providing data and information and the quality of the data produced remains questionable.

On another front, different policies are currently applied in the area of human resource development, particularly education and training, to upgrade the skills of young people to better match the needs of the competitive and global labour market. These initiatives have almost no link with the overall employment and development strategies. In fact, Egypt lacks assessment surveys that accurately specify the current and future skills required in the labour market, both domestically and globally. Without such needs assessment and gap analysis, all reform initiatives in the area of human capital development will continue to have minimal impacts on the employability of job-seekers. Moreover, the lack of coordination between the two ministries of education, and among different entities that provide general and vocational training, is a major shortcoming that hinders all reform initiatives. Although the Prime Minister's Cabinet has initiated a Ministerial Sub-Group for Human Development and Supreme Council for Human Resource Development to coordinate such policies and initiatives, these entities are still not very efficient in handling their mandates.

The institutional and regulatory framework is crucial for any efficient labour market policy. Labour relations in Egypt are mainly governed by two laws: Law No 12/2003 for private sector workers and employees, and Law No 47/1978 for civil servants and public sector workers. While the former is widely recognised for its relative flexibility and fairness, there is a great deal of evidence that it is not strictly enforced. For example, it is common practice in many private enterprises to force their new job applicants to sign their resignation beforehand in order to be able to dismiss these workers and deny them their legal rights. Although the 2003 Labour Law represented a major reform initiative compared to the law which it replaced, it is still recommended that it be revised to ensure that firms, and particularly micro, small, and medium enterprises can easily exit the market and dismiss workers if there are reasonable economic justifications. It should also be revised to include more incentives for employers to increase employment, especially for women and young graduates.

In contrast, the 1978 law for civil servants and public sectors workers is quite outdated and should be entirely revised to better suit the tremendous economic, social, and political changes during the last three decades. Although the government has produced a draft law to replace the existing one a few years ago, opponents of the proposed draft law succeeded in creating government reluctance to send it to the. Job stability, guaranteed by the existing law, is the major concern of those opponents and largely explains the attractiveness of public sector jobs for new entrants to the labour market, in spite of the poor wage scheme. However, it should be highlighted that further delay in the revision of the existing law will have severe negative effects on labour productivity, resource allocation, competitiveness and poverty, not to mention leaving the door open to further corruption.

One important labour market policy that affects market efficiency is the minimum wage policy. According to the Law No 53/1984, the minimum wage is set at EGP 35 per month. Because of the cumulative annual percentage increases over the last 25 years, the actual minimum salary in the government and public sector enterprises was estimated to be around EGP 250 in 2009. This amount is widely believed to be very low, considering the cost of living, and not related to any economic or social targets. Although Labour Law No 12/2003 initiated the National Council for Wages, representing all relevant parties and with a responsibility to periodically propose a new minimum wage in accordance with the changes in living costs, this council has proved to be inefficient and ineffective in handling this mandate. A new comprehensive and developed national wage policy is thus a pressing matter.

2.4 ONGOING INITIATIVES TO REFORM EDUCATION AND TRAINING

Education and training have recently become among the highest priorities of the Egyptian government, recognised as being key to Egypt's desire to become more competitive and pivotal in its prospects for continued economic and social development.

Serious reforms and modernisation initiatives are currently being implemented that should have a direct impact on the country's economic competitiveness. The most outstanding of these initiatives could be categorised under three main types: initiatives at policy level; initiatives to enhance quality and relevance of education and training; and initiatives to improve labour market efficiencies.

2.4.1 Initiatives at policy level

There have been recent efforts to reactivate the Supreme Council of Human Resources Development within the Ministry of Manpower and sectoral training councils (Industrial Training Council, Tourism HRD Council and Building Skills Development Council) have been established. Yet the clarity of roles among these entities in terms of policy directives and priority settings is yet to be firmed up.

Both Ministries of Education and Higher Education have proposed new comprehensive **National Strategic Plans for Reform** in 2007/08. The plans have three fundamental policy goals: (i) ensure high levels of quality education performance by strengthening quality, relevance, social outreach of education; (ii) ensure an efficient system of management, effective community participation, through decentralisation, medium-term finance planning, result-focused planning and implementation monitoring; and (iii) ensure equal education access for all.

In addition, the Ministry of Education has put together a programme for **Enhancing General Secondary Education**, which constitutes 10 main projects to be implemented by 2014 to which the Egyptian government has recently allocated EGP 2.5 billion[3]. The vision of this programme is to systematically enhance secondary education in order to enable students to form the competences needed for continuing education including higher education, the labour market in a knowledge society, and an active citizenship.

The 10 projects for enhancing secondary education as envisaged by the programme cover the following areas: (i) qualification system and framework and graduate profiles and standards; (ii) restructuring secondary education; (iii) developing secondary school curriculum and modernising teaching and learning strategies; (iv) authentic and comprehensive examination, standardised examinations and question banks; (v) professional development of teachers; (vi) information technology infrastructure; (vii) preparing and qualifying schools for quality assurance and accreditation; (viii) developing school buildings; (ix) educational and academic guidance; and (x) social marketing for enhancement, stages and results.

The recent **establishment of the National Authority for Quality Assurance and Accreditation in Education (NAQAAE)**[4], reporting directly to the Prime Minster, aims to ensure the quality of education and its sustainable development by: (i) developing a culture of quality in education; (ii) coordinating with educational institutions to ensure access to an integrated system of standards, (iii) implementing rules, and comparisons of development mechanisms for assessing performance guided by international standards; (iv) supporting the building of capacities of educational institutions to implement self-evaluation; (v) ensuring confidence at the local, regional and international levels in the quality of educational process outputs; and (vi) implementing comprehensive evaluation on educational institutions and programmes in accordance with the standard criteria of each educational level and each type of educational institutions.

A leading **decentralisation programme**[5] was initiated, wherein decentralisation in education commenced in the second half of 2008 with piloting in three key governorates (Ismailia, Luxor and Fayoum)[6]. In July 2009 the decision was taken to scale up the initiative to all 29 governorates, and by late 2009 certain lines of funding, all the way to school level, were decentralised in all governorates.

A **Training Fund** was created, financed under the 2003 Labour Law by a 1% levy on net profits applicable to establishments employing 10 or more workers. The Training Fund is managed by the Ministry of Manpower and Migration, however it has not been operational as a number of firms have contested its constitutionality in courts of law. The TVET Reform Programme recently commissioned a team of international and local experts to conduct a participatory study for the restructuring of the fund, which is currently being reviewed by the Board of the Training Fund and, if approved, legislative procedures commence in order to implement the recommended changes.

The TVET system in any country is a cornerstone of its overall education and training system and is crucial to improving competitiveness. Below are some of the recent milestones towards TVET reform in Egypt at the policy level.

- **1992**: The Mubarak-Kohl Initiative is launched as one of the first initiatives to link education with industry through a dual system model of cooperative technical education.
- **2000**: Highest level government commitment to the restructuring of the TVET system, establishment of the Supreme Council for Human Resource Development.
- **2001-03**: International team of experts from the European Union and the World Bank conducted a comprehensive assessment of the system and proposed a concept for TVET reform to the Egyptian government. A specific financing agreement was signed between Egypt and the European Commission after a presidential decree in 2003.
- **2004:** Launch of the Skills Development Project, financed by the World Bank and the Egyptian government to create awareness of the importance of vocational training and address the urgent training needs of employers in three main sectors.
- **2005**: Launch of the national TVET Reform Programme to pilot mechanisms that lead to a decentralised and demand-led TVET system, provide capacity building and infrastructure support to TVET providers, and propose the features of a TVET Reform Policy Platform and a Master Plan for the implementation of a comprehensive TVET regulatory and policy reform in Egypt.

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3 At the same time (in 2009/10), a budget of EGP 350 million was allocated for technical education (up from an annual average of around EGP 20 million in previous years) for the first time to implement a comprehensive programme for upgrading secondary technical schools.

4 Law No 82 of 2006 and Presidential Decree No 25 for the establishment and executive bylaws of the National Authority for Accreditation and Quality Assurance.

5 Egypt's national strategy for decentralisation seeks the completion of a clear mission, that is the need to achieve strong and effective local administration through the comprehensive identification of local administration roles and the coordination between those roles and roles of central bodies in order to achieve full and sustainable development, to meet citizens' daily needs, and to enhance the provision of public services.

6 The education sector expects to continue using the original three pilot governorates as a special observatory to assess and understand how well the decentralisation process is proceeding.

- **2006**: Establishment of the Industrial Training Council to coordinate and supervise all training activities affiliated to the Ministry of Trade and Industry. Subsequently two similar councils for the Construction and Tourism sectors were also established.
- **2009**: Elaboration of a **TVET Reform Strategy** until 2025, which has been approved by the Prime Minister. The strategy provides an integrated framework for developing TVET so as to contribute effectively to the country's economic and social development, to the provision of the skilled labour needed by the labour market (both in terms of quantity and quality) and to the local, regional and global competitiveness of the country. The TVET Reform Programme, which had a leading role in drafting the strategy, is currently supporting the development of the action Master Plan for the implementation of this strategy.
- **2010**: **Establishment of the Egyptian Council for Vocational Accreditation**, affiliated to the Ministry of Manpower and Migration. The mandate of this new council is to design, coordinate, implement and monitor the national policies that aim to upgrade the skills of TVET graduates according to international standards in order to create a better match between the Egyptian labour market and the needs of advanced and global labour markets.

2.4.2 Initiatives to enhance the quality and relevance of education and training

In 2000, the **National Skills Standard Project** (NSSP) was initiated by Egypt's Social Fund for Development and supported by a team of local and international consultants (led by the British Council) in cooperation with employers. It worked in three industries (manufacturing, tourism, and building and construction) to develop: standards, catering for workers' certification as per their abilities and competences; transferable credits that carry students across education/training routes; and objective independent assessment mechanisms and accreditation procedures. It covers post-primary school qualifications (broadly equivalent to levels 1, 2 and 3 of the International Standard Classification of Education – semiskilled, skilled and supervisor).

By the end of the project in 2005, the NSSP had developed standards for around 106 trades within the construction, manufacturing and tourism sectors. NSSP had also upgraded around 50 vocational training centres that adopt the developed standards in training delivery. For some time the project was put on hold, however with the establishment of the three training councils (2006, 2008 and 2010), new resources are currently available for the updating, completion and accreditation of these standards in the three sectors.

Since 2006, the Ministry of Education has devoted a great deal of attention to training and capacity building of its most important change agents – teachers[7]. The introduction of the Teachers' Cadre and the establishment of the Professional Academy for Teachers[8] (in 2007), are important initiatives that could contribute to **enhancing teachers' professionalism** in pre-university education (both general and technical education). Linking incentives, salaries and promotions to performance and standards, as well as providing a professional framework for the development of teachers are the core components of these initiatives to improve the quality of teachers' performance.

In parallel with the establishment of NAQAAE, in 2006, the Ministry of Education established the **Quality Assurance Division** at the central level and quality assurance units at both the Idarah and the Muddiriya levels. The director of the Quality Assurance Division reports directly to the Minister of Education and is responsible for supporting schools, while the Idarah and the Muddiriya levels are responsible for complying with the quality standards set by NAQAAE for accreditation.

In order to **modernise curriculum**, the philosophy adopted by the Ministry of Education for curriculum reform is to 'follow successful international experiences' in developing standards-based curriculum defined from learning outcomes developed by NAQAAE. The objective is to prepare students for university, the labour market, and life.

Within this initiative, the Ministry of Education is also encouraging a pedagogical paradigm shift that aims to move away from a traditional rote memorisation approach with strong focus on content to an approach which supports learner-based education, active learning and comprehensive assessment. With regards to ICT, the overall goal is to develop, create and maintain the infrastructure and technical support needed to implement and sustain modern pedagogy, effective education management and planning. This is developed further with objectives such as modernising and strengthening the technology infrastructure in all schools, activating the role of information system management in the educational process, providing 301,131 PCs in schools, connecting 25,800 schools to the internet, increasing the number of Egyptian Education Initiative (EEI) schools to 2,000 preparatory schools, increasing the number of 'Smart Schools' to 173, increasing the number of teachers trained on ICDL to 240,000, and teachers trained on the Learning for Future Programme to 266,000[9].

Since 2006, adopting a school-based reform approach has been at the core of education reform in Egypt. This has consisted of important quality targeted areas, allowing schools exposure to a continuous improvement cycle including

7 To date, around 1,800,000 teachers have been trained in different education levels and fields.

8 Law No 155 of 2007.

9 Egypt Human Development Report 2010.

self-evaluation and the development of a school improvement plan. It is expected that schools will have a great deal of autonomy and will be accountable for their processes and results. As such, a comprehensive system of educational assessment, monitoring and evaluation is needed. Within that context, the Ministry of Education, in collaboration with international partners, has developed standardised tests which provide benchmarks for progress in education such as CAPS, SCOPE and MAP[10].

Local community and parents have been included in addition to representatives of the teaching staff in management of school-based reform with the issuance of the ministerial decrees No 258 of 2005 and 220 of 2009[11]. The decrees covered matters such as formulating and regulating the tasks of the Board of Trustees and its coordinating committees, as well as granting the Board of Trustees the autonomy to govern schools. Membership of the Boards of Trustees has been envisaged as including local community and parents in addition to representatives of the teaching staff.

Through the TVET Reform Programme, a **public-private partnership mechanism has been developed to support a demand driven reform in education and training** – the Enterprises Training Partnerships (ETP). The ETPs have been established primarily in sectors with economic development potential. Their primary focus is to develop education and training activities in subsectors and segments with strong current and potential development and competitiveness based on increased human capital productivity. Programmes for training, initiated for some of the dynamic subsectors and companies, have strongly contributed to the development of these new products or services, stronger positioning, and employment (ready-made garments, furniture, tourism, etc.). The human capital factor, through training programmes targeted to the development of competitive economic activities, has therefore been tested and developed by some of the ETPs and can provide useful information and data for developing relevant indicators. It will also contribute to develop a relevant source of economic data on the leading segments of each of the sectors, their evolution, and main characteristics in terms of human capital use.

The ETPs are in the process of developing more efficient methodologies to identify skills and competences needs from their sectors that will be efficient in the current economic context of changing human capital needs, and respond to a wider scope of specialisation and education levels to strengthen competitiveness and productivity. The generalisation of these effective methods, and the information systematically collected will contribute to the development of a more comprehensive source of information on the evolution of the levels of human resources needs. It will not simply focus on specific training needs, but also on wider educational and technical skills, including technical higher education, for more advanced skills (technical, managerial), as well as in-service training programmes required to upgrade the value added and productivity of these enterprises activities.

During the academic year 2007/08, the TVET Reform Programme introduced and piloted the Alternance Education and Training Model, a form of cooperative technical education. This involves close intervention from private sector employers in developing curricula, training teachers, upgrading training workshops and providing students with modular practical training and certification based on specific jobs within certain occupations. The model has been implemented in 38 Technical Secondary Schools in six main sectors, with the graduation of the first intake of students in 2010 in Port Said. All graduates of this class have been employed, largely due to an early exposure of the students to the work environment as well as the committed participation of the private sector in the resolution of the mismatch between employer needs and labour market supply.

In 2010, the Prime Minister gave NAQAAE a mandate for the **establishment of the National Qualifications Framework (NQF)**. The NQF is seen as a way of improving the quality of education and training provision, and also raising the skill levels of the workforce, which may lead to more productive work and a more competitive economy. The NQF attempts to tackle the current sub-optimal set-up of TVET and redress ad-hoc activities, the lack of clarity in roles, the irrelevance of credentials vis-à-vis labour market needs, and the lack of a transparent flow/smooth transition between the education system, lifelong learning and professional/practical experience. Such a framework may assist in developing clearer and comparable qualifications, greater access to qualifications and to skills development, improved relevance of qualifications to employers, enterprises and individuals, and the benchmarking and quality assurance of Egyptian qualification against national and international standards, thus facilitating labour mobility (Egypt Human Development Report 2010).

2.4.3 Initiatives to improve labour market efficiencies

In an attempt to tackle labour market information asymmetry, the **Information and Decision Support Centre hosted the Egypt Observatory for Education Training and Employment** (with former technical support provided by the ETF). The Observatory is a multilateral network that includes organisations involved in the labour market and training in the government, private and civil sectors including CAPMAS, the Ministry of Education, the Ministry of Trade and Industry, the Ministry of Manpower, NGOs and the private sector.

10 HRD Report 2010.

11 Cancelling Ministerial Decree No 334 of 2006 (which amends the Ministerial Decree 258 of 2005).

The Observatory operates as a focal point for support between two main parties, namely data producers and the beneficiaries who use this data. Its main objectives are to establish a dynamic labour market information system and training structure in Egypt by generating accurate and up-to-date data and information regarding both supply and demand. Thus its aim is to support policy-makers with regards to the system-level performance of education, training and labour market, as well as to forecast labour market needs and labour market assessment needs the sectoral level.

Attempts to **enhance the image and attractiveness of vocational education** and training are currently underway. Discussions among the Ministry of Education and Ministry of Higher Education to create transition pathways from technical secondary education to post-secondary TVET, as well as to create Bachelors' degrees in Technology (and later graduate diplomas or masters) following the three-year certificate in technical education, have proceeded fruitfully. The discussions resulted in a proposal for a new framework for education and training, which is currently under review. This should enhance, to a certain extent, the attractiveness of TVET in Egyptian society.

In recent years, leading private sector firms, foundations and NGOs have been collaborating with education and training authorities and institutions on the upgrading of a number of technical schools and training centres with the aim of bettering links between the outputs of these institutes and the actual needs of the industrial sector. The graduates of these programmes are guaranteed decent job opportunities in private sector firms. Some of these institutions are also offering similar initiatives to universities or directly to university graduates in order to better prepare them for the labour market.

Perhaps the most recent and comprehensive reform initiative to integrate education and training systems with the labour market has been the introduction of the National Action Plan on Youth Employment. The process started in 2003 and a draft National Action Plan has been produced in early 2009[12]. Its specific objectives include raising youth employability, providing more job opportunities, and resolving the mismatch between labour supply and employer demand by improving labour market policies and programmes. To achieve these goals, the National Action Plan has proposed the following programmes:

- developing the TVET system;
- improving the basic skills and knowledge of secondary, technical and university graduates in relation to languages and new technology;
- encouraging entrepreneurship by eliminating obstacles, especially those related to start-up and exit procedures;
- promoting micro, small, and medium enterprises by providing technical and marketing support to these firms, strengthening linkages with large firms and introducing innovative, low-risk financial systems;
- developing public employment offices and their services and encouraging the establishment of private recruitment agencies;
- developing the labour market information and employment unit at the Ministry of Manpower and Migration;
- reviewing labour market regulations, with a special emphasis on providing incentives to enterprises to hire young people and supporting enterprises ability to pay the minimum wage and social insurance.

All these initiatives, at different levels and for different purposes, have the potential to contribute to an enhanced level of economic competitiveness. However, given the institutional fragmentation and absence of clear leadership of the education and training systems, in addition to absence of a performance assessment mechanism, it is very difficult to assess the impact of recent and ongoing reforms on the overall performance of both education and training systems and their outcomes.

12 The final draft of this National Action Plan has not yet been produced and its integration in the National Economic and Social Development Plan is still a recommendation.

3. INTERNATIONAL BEST PRACTICES AND HUMAN CAPITAL DEVELOPMENT REFORMS

This chapter presents international experiences of reform in education and training, and labour market implemented by other countries in their process of developing a strong human capital basis for economic competitiveness and growth. The objective is to provide decision makers with useful and relevant sources of information to design and implement policies that can improve the human capital competitiveness. In this perspective, the examples presented allow to focus on core issues in policy development and implementation, constraints, good practices, and also identify specific operational experiences that can be applicable in Egypt.

3.1 STRATEGIES FOR THE DEVELOPMENT OF HUMAN CAPITAL

To face the challenges and evolution of the new, knowledge-based economy, countries have developed strategies to develop their human capital. Relevant examples can be found in the education reforms conducted by the Republic of Korea, China, India, and Brazil, which include three of the BRIC countries. Those countries have achieved a higher level of economic development than Egypt, but their experience represent useful models to analyse options and constraints in human capital development, and can provide useful references on how to conduct education reforms as a whole, as well as specific information on feasible actions for Egypt with respect to the country current economic and social situation and ongoing education reforms.

Korea implemented a phased approach to expanding educational access. It started in the 1950s by ensuring access to primary education to produce a labour force capable of meeting the needs of an economy based on labour-intensive products and light manufacturing. Primary education became compulsive, and free. This was matched by heavy investments to ensure the quality and access (with a transition period with double shifts, etc.). The objective was achieved by the early 1960s. At this time, the same process was shifted to secondary education and TVET in order to support the country move towards capital intensive and heavy-chemical industry. Investments were made possible by a transition period of growing class sizes and double shifts), and this process was achieved by the end of the 1970s. The priority moved then to tertiary education with the reform of 1980 (expansion of access to universities, focus on key fields of science and technology to strengthen competitiveness, development of research, etc). Korea has implemented a long-term vision of the development of human capital in phase with its focused economic development. It managed to implement the reforms progressively, with a quality focus, as well as a cost efficient approach. The coherence with the country economic development strategy has been essential, and remains at this stage the priority of education development at all levels.

The education reforms in **China**, with a clear strategy of developing a strong human capital basis, started in the late 1970s. At this time, as a results of the political priorities in the country, only a limited number of school aged children had access to education, the infrastructure system was very weak, and teachers few and poorly paid. The first phase of the reform focused on decentralization of the educational system administration and financing, and diversification in the mobilization of educational resources. In the following years, reforms of the primary education cycle (nine years compulsory) were implemented, with important financing. Distance education was introduced to reach a growing number of students, including at the university level. TVET was defined as a key strategic priority to meet the growing demand of the economic development process. The TVET system started to be modernised in the 1990s, and significant reforms were implemented to modernise the content of programmes, teaching methodologies, and ensure direct links with the growing industrial activities. During the past years, the focus on reforms to strengthen the quality of the whole system has reinforced the economic efficiency of the system. The role of local government in the financing and management of the system has also been strengthened, with a growing focus on equity. Moreover, the government has supported financially both public and private universities to increase enrolment rapidly and ensure the development of needed skills and competences to support competitive economic sectors.

Starting in the 1950s, **India** gave priority to the development of tertiary education, particularly in the fields of science and technology. This development was intended to match the country strategy of industrial development. Indian institutes of technology, using international models and best practices from leading industrial countries were established starting in 1951. A total of seven institutes are now operating, with partnerships with leading international universities. Currently, India's tertiary education system is one of the largest internationally, with over 10 million students representing 10% of the age group. The priority given to tertiary education was accompanied by limited reforms especially in primary, secondary and TVET, with only a few performing schools in these sectors. At present, while most children attend

primary school, only around 40% attend secondary school (grades 9 to 12). Secondary schools still need upgrading of curriculum, and teaching practices. The TVET system is mostly not adapted to respond to the needs of the labour market. As a result, India positioning in education is below its main competitors, including China. The evolution of globalization, and the current transition towards a knowledge based economy implies that to remain competitive, and to create a sustainable and growing economic structure while meeting the new challenges of the labour market by moving away to a large extent from traditional activities, and poverty (over half of the population works in agriculture-related activities, and a large remaining segment in traditional informal sectors), India needs to pursue the reforms of its education system that will support this transition. The reform would give priority to expansion of the VET system, including new curriculum with core knowledge and skills, as well as increased private sector participation (creation of 400 industrial technical institutes), as well as to and to the secondary education system, and to the technical and tertiary education system (e.g. development of engineering institutions).

After a period of strong growth between 1960 and 1990, and the development of some internationally competitive economic sectors, **Brazil** entered a period of economic slowdown. Besides the macro economic factors, reviews on the country's economic performance and competitiveness pointed to the fact it had introduced few education and labour reforms. The situation of primary and secondary education was one of the main sources of constraints in the availability of a productive workforce. During the past years, Brazil made significant progress in expanding primary and secondary education, reaching near universal enrolment in primary education. The main increase has been for secondary education moving from 15% enrolment in 1990 to over 75%. However, the quality of primary and secondary education remains weak. PISA evaluations have shown low literacy and numeracy skills, including compared to other Latin American countries. Priorities have been given to construction and hiring of teachers to increase children access to education but curricula and teachers competences are still lagging. Education and training levels of teachers remain low, especially in technical and scientific fields. Primary and secondary graduates do face difficulties to enter the labour market. Brazil has developed an extensive 'out of school advanced skills training' offering training to workers. The link between these services and tertiary education remains however weak, and does not benefit from an active cooperation between business and universities. Vocational education is an important part of education with industrial apprenticeship, industrial centres, etc. and 2 millions enrolments per year (industry, commerce and agriculture). Tertiary education has a few high quality universities, working closely with the dynamic and internationally active enterprises of the country, including with research centres. However, the tertiary education level remains weak, including many underfunded private universities.

This short overview of the four countries human capital development strategies confirms the core advantage of a sequential and complementary approach to both industrial and education reforms with a long-term perspective. The evolution of the global economy towards a knowledge base process has modified the capacity to engage into such an approach to be able to respond to rapidly changing economic situations. Of course, specific constraints (financial, political, population size, growth, structure, etc.) did influence the past reform policies. What is important for Egypt is to be able to link the capacity to develop internationally competitive sectors with the appropriate human capital, while conducting the needed education and labour market reforms, and benefit from the dynamic impact of the chosen competitive sectors as factors of development for these reforms. The current position of Egypt does present opportunities for the development of key competitive sectors. As previously referred to, the research study on human resources, technological capacity and competition in Latin America was presented by Beverley Carlson (United Nations Economic Commission for Latin America and the Caribbean (ECLAC)) during a contribution to the ECLAC–Inter-American Development Bank seminar on *Camino a la Competitividad* (path to competitiveness). This research stresses that the development of skilled human resources and the strengthening of the technological infrastructure are two of the key factors in improving the competitiveness of countries. It compares the status of the main Latin American countries in these areas, and shows that 'many countries in the region show significant weaknesses in both these areas', while having achieved competitive positioning in some key sectors. This analysis is quite relevant to review the competitiveness development capacity of transition country in relation to the education and training reforms. While underlying the key role of human capital to have a strong and sustainable economic competitiveness, it shows how the feasibility to achieve competitiveness in key sectors while going through such reforms, and the need for adequate approaches to measure it.

3.2 TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING AS AN IMPORTANT COMPONENT OF HUMAN CAPITAL DEVELOPMENT

As an example, Korea, China, India, and Brazil, as well as other countries going through reforms to strengthen their economic competitiveness, have initiated reforms in TVET, which have been an important component of the development of human capital needed by enterprises to introduce new technologies, with the corresponding production and management processes requirements. At the same time, TVET, and in particular vocational training, in these countries has demonstrated certain key trends in their evolution as they adapt to the changes in the economy, moving from semi skilled to skilled workers, and the level of knowledge development. Among the important factors in this evolution: the growing importance of strengthening the general education component of the TVET programmes; the

participation of the private sector in the management of institutions and curriculum; the evolution of the funding and budget allocation; etc. The experience of Korea or Chile for instance can be very relevant to the strengthening of general education as part of the TVET programmes, of India and Bangladesh for the informal sector, and unprivileged children, Mexico for training for small and medium enterprises in new dynamic sectors, Singapore for training funds. The vocational reform, initiated in India, has strong relevance to the situation in Egypt, because of similar levels of economic activity. The issues raised in the preparation of the vocational training reform strategy in India, and the examples used to find relevant experiences at the strategic as well as operational levels, can be taken as a reference.

3.3 HIGHER INVESTMENT IN EDUCATION

Increasing and diversifying funding for education has also paid well for some countries in their pursuit to become more competitive. An example is Korea, were one of the main strengths of the Korean education system is the high investment in education. Korea has a unique education system, characterized by much larger private sector representation and investment, and a relatively small publicly financed sector compared to other industrialized nations. Currently, the share of public financing in education is roughly 4.4% of GDP, which is lower than the OECD average of 4.9% in 1995. In the past three decades, KOREA has attained remarkable educational achievements.

At the tertiary level, Korea ranks third among OECD countries and other international comparisons. A high percentage of high school graduates enters university or college; very low drop-out rates: 0.8% for school, 2.1% for high school, and 2.5% for higher education; class sizes have fallen for all levels of education and pupil teacher ratios have become smaller; students performs significantly better than the OECD average; transition from school to work is relatively smooth, unemployment rate for young adults (20-24-year-olds) is in the low range among OECD countries[13].

3.4 NATIONAL SECTOR STRATEGIES

There are many relevant examples of national sector strategies in transition countries, elaborated in coordination between the national economic sectors associations and the relevant ministries, with the support of strategy expertise from national and/or international institutions (e.g. tourism : Mauritius, Turkey and South Africa). These strategies analyse the current human capital assets, the feasibility for implementing the different stages of the strategies linked to human capital, the actions to be developed to ensure that the necessary human capital will be available at each stage, including in terms of education and training institutions (problems, challenges, policy solutions), indicators to pilot and monitor the human capital policies, etc. On this basis, strategies at meso and micro levels have been developed to pilot development in areas where specific competitive advantages can be effectively used for enterprises development (including strategic clusters). At each level, analyses of the required human capital to carry out these strategies, at all levels, are established, as well as the actions necessary to work from the existing availability of human resources, and build up the needed capacity to match the development strategies. The ICT sector experience and the ETP model in Egypt offer some very relevant sources of information, as well as indicators at the micro and meso levels, and also the possibility to work on specific subsectors and enterprises activities for human capital indicators at the micro level.

3.5 SECTORAL INDICATORS

Among the international sources of competitiveness indicators that can be used to position economic sectors, the EU sectoral competitiveness indicators are defined over variables that reflect or determine sectoral competitiveness. It covers analysis of industrial and sectoral structure, and the different forms of value added. It also covers human capital indicators over a wide span of areas such as the production of labour skills-based input-output tables, which are also linked to other output indicators, growth and labour productivity, and also labour skills and technology in external trade. The document is a useful reference for competitiveness indicators, including comparisons with other regions. It should of course be linked to other sources (international like OECD, and the key donors – World Bank, African Development Bank, Inter-American Development Bank, etc.).

13 World Bank, *Republic of Korea Transition to a Knowledge-Based Economy,* 2000.

3.6 HUMAN CAPITAL AND COMPETITIVENESS

The contribution of different factors to competitiveness has been analysed by many international research centres with results emphasizing the key role of human capital. As an example, the OECD did a comparative study[14] of the contribution of key factors such as physical capital, infrastructures, human capital, and commercial integration to measure industrial productivity. The analysis compared four groups of countries (including Egypt) divided according to their level of economic development. The most important factor for industrial productivity, in the four groups, came out to be 'human capital'.

3.6.1 Human capital competitiveness indicators

The capacity to analyse the relationship between human capital and a company performance has been developed by large enterprises with management and university research centres. These methodologies are applied in strategic management to reflect the interactive processes between human resources management in their relationships to the different activities of the company (production, research and development, etc.) to implement the strategy goals, and accordingly contribute to the company's capacity to gain a sustainable competitive advantage (alignment of human resources management practices with the strategic management process of the company). The main indicators are structured around: job accountability, competences, skills, personal characteristics, professional knowledge, commitment, leadership skills, creativity, etc. Leading business schools have developed research and training programmes on human capital management for competitive advantage.

Another useful source of information from international experience is the work conducted to analyse and measure human capital and knowledge with respect to competitiveness in the context of the EU initiative called the MERITUM project (Measuring intangibles to understand and improve innovation management). The objective of this research, conducted in six countries (Spain, France, Sweden, Finland, Norway and Denmark) is to 'link knowledge to competitiveness in a manner in which management can use it as a strategic device'. Case studies have been conducted on the activities of companies to provide 'a framework for analysing how the creation, use, and transfer of knowledge are linked to the performance and competitiveness of the firm'. Specific projects (e.g. Norway) indicate the importance to link such analysis with the different operation processes of the company.

3.6.2 Education and training indicators

Reference can be made to international sources of education and training indicators, which have been applied by many countries with diverse levels of development, allowing for useful and relevant comparisons.

UNESCO's education indicators as defined by the 2009 technical guideline can be used as a relevant source to measure the situation and results of the education system as a whole. Each item is analysed on the basis of 10 evaluation factors: definition, purpose, calculation method, formula, data required, data source, types of disaggregation, interpretation, quality standards, and limitations.

The OECD's Handbook for Internationally Comparative Education Statistics which presents detailed information on standards, definitions and classifications. The OECD documents also include specific research such as 'Assessing the effects of ICT in education: indicators, criteria and benchmarks for international comparisons'.

3.6.3 Identifying which actions are needed to improve the education system

Indicators will be used to identify the current situation of the different activities in the education system. The objective is to define the main actions to be implemented in order to improve human capital at each level of operations in the school system. This work needs to be conducted in a coherent and complementary approach of each education level and specialisation. Following is a short summary of the work conducted in Brazil to assess the education and training system as a whole and identify key issues to make recommendations for adjustments and reforms of the system (see **TABLE 3.1** for a summary of some of the points identified for the secondary school system).

14 OECD, *Industrial production and competitiveness*, 2005.

TABLE 3.1 SECONDARY SCHOOL SYSTEM: READINESS FOR INNOVATION-LED GROWTH

Characteristics	Suggestive indictors	Implications for innovation-led growth
Access and coverage Gross secondary enrolment has improved dramatically from 15% in 1990 to 76% in 2004	OECD average is 92%, Rep. of Korea is at 89%, Chile at 80%, Finland at 97%.	With plateaus in sight for enrolment, Brazil is in a strong position to expand human capital by reorienting its poorly performing secondary system toward innovation and competitiveness.
Educational attainment for population of postsecondary age	Average educational attainment for population 15+ is still only 4.3 years, Rep. of Korea is 10.5 years, China 6.2 years, Argentina 8.8 years, Mexico 7.2 years.	Despite the significant advances in secondary enrolment, much work remains on raising completion rates and providing the most basic levels of literacy and numeracy training.
Secondary dropout and completion rates	Secondary school dropout rates remain unusually high, and secondary school completion rates remain unusually low. This reflects educational supply deficiencies, especially in rural areas.	The key to success at secondary level is to improve quality. Efficiency gains at primary level (in part through a reduced retention rate, which costs an estimated USD 600 million annually) could significantly help to improve secondary-school quality. In the longer term, improved completion would more than pay for itself through a more productive labour force.
Impact of high retention	Because of the high retention rates in primary grades, secondary schools contain many older students with extremely weak skills. Their situation is worsened by a standardized curriculum socially geared toward younger children. School dropout tends to be deferred to secondary education rather than avoided.	High primary retention complicates secondary schooling through age/grade distortion. The older evening students could be placed on an accelerated basic skills curriculum similar to EJA, in which all students also receive instruction in workplace skills such as communications, computer use, and negotiation.
Reading and language achievement	About half of Brazilian 15-year-olds have difficulty reading or cannot read (PISA international test). Only 9% of 8th graders are performing at a satisfactory level in Portuguese (SAEB). Only 6% of Korean 15-year-olds have difficulties reading or cannot read (PISA international text).	A weakly literate workforce imposes costs and foregoes benefits at every level of the economy's productive processes.
Math and science preparedness	More than three-fourths of Brazilian 15-year-olds cannot operate basic math or have significant difficulties doing so (PISA); only 7% of 11th graders perform at a satisfactory level in math (SAEB). Math scores are below Mexico's and Indonesia's, and far below 'high scorers' such as the Rep. of Korea. (Relatively, Brazil's science scores are similarly low.)	Math, science, and technological literary are essential – not only to produce scientists and engineers but to create a workforce able to use, adapt, and disseminate new ideas and technology. For economic success, Brazil will need to make major compensatory investments to improve math and science performance at secondary school level.
Social equity in secondary education	The poor are significantly less likely to complete secondary education. The completion rate for children from families in the highest decile of SES is over 90%. The completion rate for children from the lowest decile of SES is 4%.	Efforts are needed to keep poor children in school longer – for example, conditional cash transfers as incentives to secondary attendance and savings accounts to attract and keep students in school. Completion rates will increase if poor families perceive that secondary education produces marketable job skills as well as entry to higher education.

Conhecimento Innovacao Competitivade Brazil, 2007

3.7 GOOD PRACTICES IN HUMAN CAPITAL DEVELOPMENT

In reference to technology development, Egypt belongs to countries, which primarily acquire and adapt technology from other countries (cf. Chapter 1). One of the principal approaches to acquire relevant technology for economic development is through foreign direct investment (FDI). Already, some of the more relevant technologies for growth and competitiveness have been developed in Egypt through FDI (e.g. ICT). The OECD, in cooperation with the World Bank, has presented a report, which identifies the key issues to ensure the availability of the needed human capital and the policies, which directly or indirectly influence FDI decisions and offer guidelines on good policy practices.

1. Has the government established a coherent and comprehensive human resources development (HRD) policy framework consistent with its broader development and investment strategy? Is the HRD policy framework responsive to new economic developments and does it engage the main stakeholders? Are periodic assessments made of the impact of HRD policies on the investment climate?
2. What steps has the government taken to increase participation in basic schooling and to improve the quality of instruction so as to leverage human resource assets to attract and to seize business investment opportunities?
3. Is the economic incentive to invest in human capital sufficient to encourage individuals to continue higher education? Are there policy-induced obstacles that act to lower the financial returns to higher formal education, limiting the improvements to the investment climate that flow from better human resources? What mechanisms exist to promote closer cooperation between higher education institutions and business and to anticipate future labour force skill requirements?
4. Does the government support training programmes and has it adopted practices that evaluate their effectiveness and their impact on the investment climate? What mechanisms are used to encourage businesses to offer training to employees and to play a larger role in co-financing training?
5. Does the government have a coherent strategy to tackle the spread of pandemic diseases and procedures to evaluate the costs and benefits of public health expenditures aimed at improving public health outcomes and through inter linkages indirectly the investment climate?
6. What mechanisms and steps are being put in place to ensure enforcement of core labour standards?
7. To what extent do labour market regulations support job creation and the government's investment attraction strategy? What policy reforms have been introduced that balance social objectives, the goal of a competitive workforce and the incentives for business to invest and expand?
8. Do laws and regulations restrict the deployment of workers from an enterprise investing in the host country? What steps have been taken to identify and to unwind unduly restrictive practices covering the deployment of skilled workers from the investing enterprise and to reduce delays in granting work visas to these employees?
9. Does the government support programmes designed to assist large scale labour adjustment and indirectly the investment climate by better positioning firms to seize new investment opportunities? Do the incentive mechanisms in these schemes encourage broad support for change? What role is business encouraged to play in easing the transition costs associated with labour adjustment?
10. What steps are being taken to ensure that labour market regulations do not stymie an adaptable workforce and excessively damage the ability of enterprises to modify their operations and investment planning?

3.8 RECOMMENDATIONS

A systematic reference to international experiences from other countries should be used to pilot the needed programmes and/or reforms in education, training and labour market. On the basis of the experiences presented above, three recommendations could be rapidly implemented.

1. Test the questions presented in the OECD/World Bank report which identifies the key issues to ensure the availability of the needed human capital and the policies, which directly or indirectly influence FDI decisions and offer guidelines on good policy practices, in particular for FDI. Identify the policies which are being implemented in this perspective, the main constraints encountered and the results. Define key areas where policies need to be reinforced, as well as the main components to be developed in priority.
2. Identify international examples of national sector strategies that are applicable to the priority economic sectors in Egypt. Analyse the structure and methods/tools used to develop and implement these different strategies, especially as they deal with human capital. Define approached that can be used to formulate strategies in key sectors which are already developed, or in the course of development to evaluate the coherence of human capital development, and identify which actions should be taken to effectively meet the current and future needs in human capital (education, pre and in-service training). Future priority sectors can also be analysed in this perspective. This is linked to the third recommendation of Chapter 1 on the strengthening of methodologies to formulate the human capital dimension of national sector strategies, in line with the other key strategic factors.
3. In reference to Section 3.6.3, adapt and apply the example of the methodology developed in Brazil to identify which actions are needed to improve the education and the training system in line with the human capital needs for competitiveness. The focus can be on other factors than innovation (as in Brazil's case) linked to competitiveness requirements for human capital. International indicators will also be used as a reference. This approach will be tested to adjust education and training programmes to specific strategic priorities for human capital.

4. THE WAY FORWARD: RECOMMENDATIONS

Based on the above a number of recommendations are proposed to enable Egyptian stakeholders to assume higher levels of global competitiveness through education and training.

1. Develop human capital competitiveness indicators on the basis of a methodology that allows for developing links between the sectoral (macro) level and the clusters or groups of enterprises in complementary or common activities (meso), as well as the individual firms (micro)

The sector indicators, as drawn from international sources (including on sector strategies analyses), can serve as an overall reference to build up the specific meso and micro level indicators. This work is generally accomplished through surveys, which start from identifying key human capital indicators in relation to core competitive factors, and developing the specific content of these indicators (for instance, in a service sector, the different types of technical, behavioral, etc. competences required, and indicators that can measure them). These surveys are then applied to representative sample groups, and provide a reliable source of which are the key indicators and how to measure them. This approach is applied in transition as well as developed countries to measure the human capital factor, provide possible links with the education and training sector and assess its effectiveness in providing the needed skills and competences. This could be implemented as follows:

- Identification of key human capital management indicators in the leading competitive sectors and subsectors in Egypt, which have developed effective and efficient human capital development processes. The ICT sector is a leading sector in this work. In other leading sectors, focus may be on groups of enterprises which have developed human capital management matching their development strategy with measurable results (e.g. in tourism, ready-made garments). Analysis of cooperation and work accomplished with universities, research centres, TVET institutions for education and training programmes, as well as specific research development project, and active labour market programmes linked to the sector strategies. Identification of results (qualitative and quantitative) for human capital development, as well as progress accomplished for reforms in education, training, labour market, and social sectors, in line with the sectors/subsectors/key enterprises strategies. This work will serve as a primary basis to establish a relevant and operational source of human capital indicators for competitiveness for the Egyptian context, as well as indicators associated with reforms and development in education, training, and labour market programmes.
- Review and analysis of international experience in the development of human capital management to identify indicators linked to competitiveness, as well as the ongoing situation and reforms of the education, training, labour market and social sectors, and which are applicable to the Egyptian context. This work would be accomplished in line with the previous recommendation to identify these indicators on the basis of the capitalization of the national experience and data. The objective is to develop realistic, relevant and functional indicators to analyse the human capital competitiveness positioning of priority economic sectors, and the impact and effectiveness of reforms in education, training, labour market, etc. on the relevance and quality of human capital, as well as contribute to the definition of adjustments and strengthening of specific reforms.
- Strengthening of methodologies to formulate the human capital dimension of national sector strategies, in line with the other key strategic factors. Reference would be made to international experience applicable to the context of transition countries. This work aims to contribute to a more efficient preparation and implementation of current and future strategies in education, training, and labour market. This should be directly linked to the formulation of a national strategy to ensure the coherence and interaction between the different components of the national competitiveness strategy. The methodology could be initiated around priority sectors selected for their current and potential competitiveness, as well as their impact on human capital development (e.g. ICT, renewable energy).

2. Ensure improvements in the quality of education

In order to ensure improvements in the quality of education, which would eventually affect competitiveness, a number of steps should be taken. The first is to ensure that the accreditation process is effective in improving real quality and that it will stimulate continuous improvement in the quality of teaching and learning. Impact studies should be undertaken to provide evidence that accreditation processes have brought benefits at the institutional level. Second, the core accreditation requirements for TVET schools and institutions should include interaction with labour market and employers' involvement in programming decisions and courses design, and the mechanisms of the TVET Reform Programme's ETPs which represent a permanent link between employers and educators should be encouraged and expanded in key sectors to ensure that market needs are constantly met by TVET institutions. Third, quality assurance framework should cover the key issue of certification and assessment that gives greater priority to the process of

design, validation and certification of qualifications. Fourth, NAQAAE should provide fuller public information to ensure greater awareness of what 'accredited institution' means and for the education system to learn from ongoing experiences. Fifth, concerning the role and mandate of NAQAAE, there is an urgent need to refocus NAQAAE on its key mandate, i.e. quality assurance in order to achieve the expected target of institutions and programmes accreditation and to give other institutions the role they have to play in setting standards and improving quality of education. The sixth improvement requires considering teachers as a key factor in the success of the ongoing reform, therefore there is a need to enhance professionalization of teaching staff and align incentives with better education outcomes, which should include evaluation of performance. Developing capacities, motivating and providing incentives of teaching staff is vital to improving education outcomes.

3. Invest in people

Investment in people should be the top national priority in the coming decades. This implies: a considerable increase in the expenditure on education and training – an allocation of at least 20% of the annual total public spending or 7% of GDP to education and training, up from the current figures of less than 12 and 3.7%, respectively; full decentralisation of educational funds appropriations and utilisation; providing new educational tools of government finance, such as issuing treasury bills for financing education and/or public-private partnerships; allowing more financial and administrative independency for the schools and training centres and applying a national cost-sharing policy that allows different partners including the private sector to participate in covering part of the costs of their education and training, fully or partially, either through reasonable fees, aid, or soft loans; and adapting a new performance-based budgeting approach that bases the allocations to public higher-education institutions on their performance and student enrolment mix. The current policy of financing these institutions according to their staffing structure perpetuates a supply-driven approach rather than one that is responsive to changes in demand.

4. Revisit the current legal and institutional settings

Since lack of coordination is a major challenge, it is strongly recommended to revisit the current legal and institutional settings to guarantee the full harmonization of the roles and activities of the existing bodies and to ensure consistency and conformity with the latest global and regional best practices. Reform initiatives need to be coordinated and aligned; in his respect the government needs to give leadership to one entity for the coordination of various reform initiatives in education and training.

An initial step forward is to recognize that a successful human-capital strategy cannot be achieved through fragmented and isolated interventions. It requires a coherent approach that articulates supportive policies centred on an integrated strategy for growth and competitiveness as well as targeted interventions to help young people overcome the specific barriers they face in entering and remaining in the labour market. It requires partnerships for sustained, determined and concerted action by a wide number of actors.

5. Initiate a comprehensive national employment strategy

In order to improve efficiency of the Egyptian labour market, there is a need to initiate a comprehensive national employment strategy that adequately addresses the following challenges: narrow streaming in secondary education; early specialisation; lack of opportunities for multi-skill and second-chance learning; lack of career guidance services; lack of systematic surveying of graduate destinations; lack of routine surveys of employer satisfaction with graduates; and lack of a well designed national labour market information system. In addition to adequately addressing the challenge of low private returns to education as one of the main deep-rooted problems associated with education in Egypt, thus calling for a revision of the structure of wages and salaries and the implementation of a comprehensive wage scheme that relates real wages to worker's productivity, it is also important to initiate a national campaign through the media, drama and other outlets to improve the image and remove the stigma associated with technical education and related work.

ACRONYMS

BRIC	Brazil, Russia, India and China
CAPMAS	Central Agency for Public Mobilisation and Statistics
ECLAC	United Nations Economic Commission for Latin America and the Caribbean
EGP	Egyptian pound
ETF	European Training Foundation
ETP	Enterprises Training Partnerships
EU	European Union
FDI	Foreign direct investment
GCI	Global Competitiveness Index
GDP	Gross domestic product
HRD	Human resources development
ICT	Information and communication technology
ILO	International Labour Organisation
NAQAAE	National Authority for Quality Assurance and Accreditation in Education
NGO	Non-governmental organisation
NQF	National Qualifications Framework
NSSP	National Skills Standard Project
OECD	Organisation for Economic Cooperation and Development
PISA	Programme for International Student Assessment (OECD)
PPP	Purchasing power parity
TVET	Technical and vocational education and training
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WEF	World Economic Forum

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