POSTBASIC EDUCATION AND TRAINING IN RWANDA
SKILLS DEVELOPMENT FOR DYNAMIC ECONOMIC GROWTH
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Improved access to and quality of upper secondary schools, teacher training colleges, Higher Learning Institutions (HLIs), and demand-driven Technical and Vocational Education and Training (TVET) courses to supply the demand for the higher-level skills and competencies relevant to labor market needs remains a central priority for the Ministry of Education in Rwanda. Since the original analysis and drafting of this report took place there have been a number of changes within the PBET sector and progress has been made on various areas of policy implementation discussed in the report.

Most significantly, the government of Rwanda announced in 2010 that all students would be entitled to access fee-free education until the end of upper secondary school (or equivalent). Following the introduction of this 12 Year Education Policy, access to fee-free education beyond lower secondary is being phased in, starting in 2012. This policy move addresses some of the concerns raised in the report to ensure that increasing numbers of basic education graduates can move on to PBET. The transition rate from basic education (S3) to upper secondary (S4) has now reached 94 percent—against a 2008 baseline of 86 percent.

Access has continued to expand across all areas of PBET over the last few years. As of 2011, 144,695 students (of which 49 percent were girls) were enrolled in upper secondary education, including technical secondary schools (55,033 students). An additional 11,315 students were enrolled in Vocational Training Centers (VTCs), and 73,674 students were enrolled in higher learning institutions, of which 43 percent were female. In addition to improved access, progress has also been made on curriculum development and private sector partnerships to promote the development of catalytic skills and expand practice-based learning to ensure that learning within PBET institutions is more closely aligned with labor market demands.

Plans to implement the 12 Year Education Policy include further expansion of TVET provision, recognizing that equipping young people with technical and vocational skills is one of the key elements for economic growth and job creation within Rwanda. Implementation of this policy will require capacity development at all levels and new financing mechanisms, plus additional funding to increase infrastructure, equipment, teachers, and trainers. This implementation will be led by the Workforce Development Agency, which was a relatively new institution at the time this report was drafted, but has since become well established and will address some of the issues raised in this report regarding the management and governance of TVET.

The higher education sector also continues to undergo reforms. Most significantly, these include the proposed creation of the University of Rwanda, which will amalgamate all public HLIs under one umbrella body. Once established, this will have significant implications for the management, governance, and quality assurance of public HLIs. Financing of higher education has also been under review, with potential reforms to be made to student financing and financing mechanisms to ensure that the financing of higher education remains sustainable.
The government of Rwanda continues to prioritize PBET, recognizing the investment required to provide quality education and training, and to respond to increasing demand for postbasic education. In 2012/13 public expenditures on PBET are budgeted at RWF 66,110,502,955. This represents 55 percent of the education sector budget. Of the total education budget, 13 percent has been allocated to upper secondary education, 2.3 percent to teacher training in Teacher Training Colleges and Colleges of Education, 14 percent to TVET, and 26 percent to higher education, including teacher training at the degree level.

Dr. Vincent Biruta
Minister of Education
Republic of Rwanda
This report was prepared by the government of Rwanda and the World Bank, and cofinanced by the Norwegian Post Basic Education and Training Fund.

The Rwandan government team worked under the overall guidance of the Minister of Education, initially the Honorable Minister Daphrose Gahakwa and subsequently the Honorable Minister Charles Murigande and the Honorable Minister Vincent Biruta. The technical government team was led, in turn, by Claver Yisa, former Acting Permanent Secretary of the Ministry of Education (MINEDUC); Samuel Mulindwa, former Acting Permanent Secretary and Director of Planning of MINEDUC; and Sharon Haba, Permanent Secretary of MINEDUC. A large number of MINEDUC staff and various educational institutions also contributed to the development of the report, including Joseph Mfinanga, Charles Gahima, Jean Damascene Gatabazi, Callixte Kayisire, Narcisse Musabeyezu, Papias Musafiri, Emmanuel Muvunyi, Emma Rubagumya, and John Rutayisire.

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World Bank Country Managers Victoria Kwakwa and Omowunmi Ladipo and Sector Managers Lynne Sherburne-Benz, Christopher Thomas, and Sajitha Bashir strongly supported the development of the report. Excellent administrative assistance was received from Nadege Nouviale, Sylvie Ingabire, and Norosoa Adrianaivo. Finally, Peggy McInerny edited the document.
The government of Rwanda, like governments in many other countries in the developing world, has in past years paid particular attention to increasing access to and improving the quality of basic education. These efforts have resulted in large increases in enrollment rates and progressive improvements in the quality of education available to the countries’ youngest pupils.

Past progress has been such that the government has been able to expand its focus to postbasic education and training (PBET). This is not to say that the government’s agenda in basic education is complete: increasing access, particularly to lower secondary education (i.e., the last three years of the nine-year basic education cycle), and improving the quality of basic education as a whole will require continuing attention in the short- to medium-term. Nonetheless, the expansion of the government’s focus to include PBET is justified for two main reasons. First, from the perspective of the education sector, demand for postbasic education is on the rise, as increasing numbers of pupils complete basic education and want to continue learning before entering the world of work. Second, from a broader and perhaps more important perspective, the skills base of the country’s labor force needs to be substantially upgraded if Rwanda is to maintain strong growth performance and reach its ambitious economic and social development goals. Postbasic education and training is the principal vehicle through which these goals will be achieved.

In order for postbasic education and training to be a strong contributor to Rwanda’s continuous economic development, it needs to provide access to a growing and increasingly diversified student body. At the same time, the knowledge content and type of skills acquired through PBET must be better tailored to labor market demand. PBET not only needs to prepare graduates for the labor market that they will enter right after graduation. Given that graduates are expected to be active labor market participants for around four decades, it also needs to prepare them to work in a continuously changing environment and adapt appropriately.

Increasing access and demand-responsiveness in a resource environment that will remain constrained for the foreseeable future is a dual challenge. This challenge can be met with carefully considered investments and policy reforms that create an enabling environment for public and private education providers to help students acquire appropriate knowledge and skills in a cost-efficient manner. Key PBET stakeholders in Rwanda, from civil servants in the Ministry of Education to management and teaching staff in educational institutions, are well aware of these challenges and are progressively taking steps to address them. This is evidenced by, among other things, the increasing extent to which the ministry and educational institutions are reaching out to private sector representatives to help shape the content of the education and training that they provide.
This report was developed in conjunction with the Rwanda Education Country Status Report, which provides a description of key aspects of the education sector as a whole with particular emphasis on quality improvement in basic education. The present report takes the perspective that Rwanda’s PBET system is the country’s principle mechanism for generating the skilled labor force needed to become a middle-income, knowledge- and expert-based economy. It therefore starts by describing Rwanda’s recent growth trends, ambitions for the future, and the role that skills development—particularly post-basic education—must play to ensure that these ambitions can be reached (chapter 1).

It then proceeds to an analysis of the Rwandan labor market, exploring trends in both labor supply and demand, with an emphasis on the educational attainment of the labor force (chapter 2). Among other topics, this chapter describes the skills composition of the current labor force and attempts to answer the following questions: To what extent is education valued by the labor market? Which levels and types of education are most in demand? In which economic sectors are certain levels and types of skills valued more? The overall findings of the chapter help broadly identify where skills gaps seem to be most evident (i.e., in which types and levels of education and in which economic sectors). These findings provide guidance on which parts of the postbasic education system could be expanded to produce the greatest economic benefit.

The subsequent two chapters look at the postbasic education and training system in more detail. Chapter 3 describes the context of PBET policies and strategies and the structure of the PBET system, highlighting the key features of its various segments. Chapter 4 focuses on the governance, management, and financing of the PBET system. Finally, Chapter 5 builds on the preceding chapters to offer a set of policy options that, when implemented, are expected to contribute to the promotion of a well-integrated and -managed system, one that would provide education and training both of high quality and relevant to a diversified student body in a cost-efficient manner.

PBET in this report is defined as all formal education and training for which the entry requirement is the completion of at least basic education. While recognizing that out-of-school and in-service education and training can be important vehicles for acquiring knowledge and skills, these types of education fall outside of the scope of this report. However, they merit attention in a follow-up publication.

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<td>AEA</td>
<td>autonomous education agency</td>
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<tr>
<td>AVC</td>
<td>Area Vocational Center</td>
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<tr>
<td>BBM</td>
<td>Bachelor’s of Business Management</td>
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<tr>
<td>CA</td>
<td>career academy</td>
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<tr>
<td>CCDTHA</td>
<td>Consortium Canadien de Développement Touristique en Afrique (Canadian Consortium of Touristic Development in Africa)</td>
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<tr>
<td>CFJ</td>
<td>Centre de Formation de Jeunes (Youth Vocational Training Center)</td>
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<tr>
<td>CSR</td>
<td>Country Status Report</td>
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<tr>
<td>DACUM</td>
<td>Developing A CUrriculuM</td>
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<tr>
<td>DFID</td>
<td>Department for International Development, UK</td>
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<tr>
<td>DG</td>
<td>director general</td>
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<td>ECIV1</td>
<td>Enquête Intégrale sur les Conditions de Vie des Ménages, 2000 (Rwanda Integrated Living Conditions Survey 1)</td>
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<tr>
<td>ECIV2</td>
<td>Enquête Intégrale sur les Conditions de Vie des Ménages, 2006 (Rwanda Integrated Living Conditions Survey 2)</td>
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<td>EDPRS</td>
<td>Economic Development and Poverty Reduction Strategy</td>
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<td>EMIS</td>
<td>education management information system</td>
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<td>ENGA</td>
<td>European Association for Quality Assurance in Higher Education</td>
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<td>ESSP</td>
<td>Education Sector Strategic Plan</td>
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<tr>
<td>ET</td>
<td>École Technique (Technical Schools)</td>
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<td>ETO</td>
<td>École Technique Officielle (Official Technical School)</td>
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<tr>
<td>GDP</td>
<td>gross domestic product</td>
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<tr>
<td>GER</td>
<td>gross enrollment rate</td>
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<td>GIZ</td>
<td>Deutsche Gesellschaft für Internationale Zusammenarbeit (German Technical Cooperation)</td>
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<tr>
<td>GTZ</td>
<td>Deutsche Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation)</td>
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<tr>
<td>HE</td>
<td>higher education</td>
</tr>
<tr>
<td>HEC</td>
<td>Higher Education Council</td>
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<tr>
<td>HIV/AIDS</td>
<td>Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome</td>
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<tr>
<td>HLI</td>
<td>Higher Learning Institution</td>
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<tr>
<td>ICA</td>
<td>Investment Climate Assessment</td>
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<tr>
<td>ICAM</td>
<td>International College of Accountancy and Management</td>
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<tr>
<td>ICT</td>
<td>information and communication technology</td>
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<tr>
<td>IFC</td>
<td>International Finance Corporation</td>
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<td>IGE</td>
<td>Inspectorate General of Education</td>
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<tr>
<td>INES</td>
<td>Institut d’Enseignement Supérieur (Higher Teaching Institute)</td>
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<tr>
<td>IPB</td>
<td>Institut Polytechnique de Byumba</td>
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<tr>
<td>IPRC</td>
<td>Integrated Polytechnic Regional Center</td>
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<tr>
<td>ISCED</td>
<td>International Standard Classification of Education</td>
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<td>ISPG</td>
<td>Institut des Sciences Pédagogiques de Gitwe (Gitwe Institute of Pedagogical Sciences)</td>
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<tr>
<td>JRES</td>
<td>Joint Review of the Education Sector</td>
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<td>KHI</td>
<td>Kigali Health Institute</td>
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<td>KIE</td>
<td>Kigali Institute of Education</td>
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<td>KIM</td>
<td>Kigali Institute of Management</td>
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<td>KIST</td>
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POSTBASIC EDUCATION AND TRAINING IN RWANDA

MINEDUC Ministry of Education
MIFOTRA Ministry of Public Service and Labour
MSM Maastricht School of Management, The Netherlands
NCDC National Curriculum Development Center
NCHE National Council for Higher Education
NGO nongovernmental organization
NQF National Qualifications Framework
NUFFIC Netherlands Organization for International Cooperation in Higher Education
PBET postbasic education and training
PSF Private Sector Federation
QAAS Quality Assurance and Accreditation System
RDB Rwanda Development Board
REB Rwanda Education Board
RTC Rwanda Tourism College
RWF Rwandan franc (national currency)
SFAR Student Financing Agency of Rwanda
STI science, technology, and innovation
STW school to work
TE technical education
TSS Technical Secondary School

TTC Teacher Training Center
TVET technical and vocational education and training
UCK Université Catholique de Kabgayi (Catholic University of Kabgayi)
UIS UNESCO Institute for Statistics, Montreal
UNATEK Université d’Agriculture, de Technologie et d’Éducation de Kibungo (Kibungo University of Agriculture, Technology, and Education)
UNESCO United Nations Educational, Scientific, and Cultural Organization
UNILAC Université Laïque Adventiste de Kigali (Adventist Lay University of Kigali)
UP Umutara Polytechnic
USA United States of America
VET Vocational Education and Training
VT vocational training
WDA Workforce Development Authority
WEI World Education Indicators Programme, UNESCO
YVTC Youth Vocational Training Center (Centre de Formation des Jeunes, or CFJ)

All dollar amounts in U.S. dollars unless otherwise specified.
In conjunction with the Rwanda Education Country Status Report (CSR), this publication constitutes the second of a two-part overview and assessment of Rwanda’s education sector. While the CSR provides an overview of key aspects of the overall education system, it specifically focuses on the government’s emerging emphasis on quality improvement in basic education. This publication, on the other hand, provides an overview and assessment of the country’s Postbasic Education and Training (PBET) system. In particular, the report reviews the extent to which the PBET system is geared toward generating skills that are in demand in Rwanda’s fast-changing economy and offers potential policy options for improving the quality and demand-responsiveness of, and access to, this system.

Economically successful countries do not simply require a workforce with higher educational attainment, but also a different skill set than less dynamic and less diversified economies. In particular, employers increasingly demand a higher level of behavioral, or catalytic, skills from their employees, including communication, team work, and decision-making capabilities. The absence of these skills can strongly constrain growth in developing countries. Employers in Cambodia, for example, find it more difficult to find workers with catalytic skills than with technical skills.

2 Ibid.
Despite the government’s consistently strong emphasis on education and skills development and its very successful expansion of access, educational attainment in Rwanda remains limited. Indeed, three-quarters of working-age adults have not completed primary school and only 3.6 percent have completed secondary or higher education. The better educated receive higher wage premiums, particularly in manufacturing and services, while the unskilled continue to be disproportionally represented in agriculture and earn significantly less. Consequently, the government should both expand its efforts in education and skills development and improve the effectiveness of its strategies and policies in order to enhance access and quality. With well-developed, successful efforts already under way in basic education, postbasic education and training remains an area where optimal strategies and policies—and the most effective way to implement them—remain to be further explored and elaborated.

Status of the PostBasic Education and Training System

Access to PBET has increased substantially in recent years. In tertiary education, enrollment grew more than fourfold, from less than 10,000 students in 2000 to over 45,000 students in 2008. As a result, tertiary enrollment is relatively high compared to other low-income countries in Sub-Saharan Africa, but nevertheless very low compared to good performers, such as South Africa or Mauritius. Enrollment in upper secondary education increased by a factor of 2.3 over the same period. Nevertheless, the gross enrollment rate at that level is rather low compared to that of other low-income Sub-Saharan countries. In addition, there are indications that increasing numbers of basic education graduates are not gaining access to upper secondary education. These numbers are likely to rise as a result of government efforts to further expand access and completion rates for basic education. While the government recognizes that upper secondary education may become a constraint to further expansion and therefore access to it also needs to be increased, it is uncertain whether it can make the investments needed in the near future, given that substantial resources are still being allocated to expand lower secondary education.

Access to formal technical and vocational education and training (TVET) is limited; the quality and relevance of this training is also generally considered very weak. A comprehensive set of strategic and policy documents have been developed for this subsector. The challenge is for the newly established Workforce Development Authority to operationalize these documents in an effective manner.

In addition to efforts to increase access, the Ministry of Education (MINEDUC) has begun to address the quality and relevance of PBET. In upper secondary education, for example, the curriculum was streamlined in 2009 to respond to concerns that it was too demanding and overloaded. Currently, challenges related to teacher qualifications and teaching methods are key issues that impact the quality of education at this level. At the same time, relatively low student-teacher ratios represent an upward pressure on expenditures. As described in MINEDUC’s Education and Sector Strategic Plan (ESSP) for 2010–2015, the ministry plans to revise the upper secondary curriculum to improve its relevance to the labor market. It also intends to train teachers in upper general secondary education in student-centered teaching. In higher education, growth in access has coincided with strong diversification in supply, with a rising share of students enrolled in private institutions. The National Council for Higher Education is responsible for quality assurance and ensuring the accountability of both public and private higher learning institutions. The ESSP 2010–2015 plans to expand access to higher education and strengthen its linkages with the labor market by, among other things, using open and distance learning and providing incentives to students to study science and technology subjects. The government is also working to widen access to higher education for poor and vulnerable students in a cost-efficient manner, using means testing to allocate scholarships.

The PBET system is characterized by a small core ministry, autonomous education agencies with policy implementation mandates, and decentralized operational responsibilities. The decentralization of responsibilities to districts has not yet been accompanied by sufficient increases in staff numbers at the district level. Communication between the core ministry and the autonomous education agencies (AEAs) is generally relatively strong. The relatively weak capacity of the ministry results in a strong voice for the AEAs in policy decisions. Quality management systems and processes are, to varying degrees, still being developed in all PBET subsectors. Likewise, a framework that would encourage lifelong learning and facilitate transitions between PBET subsectors has yet to be developed. The Workforce Development Authority has, however, started to design and operationalize a TVET qualifications framework.

Allocations to the education sector in Rwanda have consistently been below internationally accepted
which is considerably around 56 times the unit cost of primary education, public expenditures per student in higher education are approximately 6 times that of primary education. Public recurrent expenditures per student in higher education are around 56 times the unit cost of primary education, which is considerably higher than the average East African ratio of 24:1. As cost data do not disaggregate general and technical streams in secondary education, there is some ambiguity about the relative unit costs of general upper and lower secondary education. While higher unit costs in general upper secondary education are expected, it is unclear whether this is the case in Rwanda.

Private contributions make up an increasing share of total PBET expenditures for a number of reasons, including rising enrollment in private higher education institutions. Nevertheless, household contributions to higher education as a share of total expenditures are, at 40 percent, considerably lower than private contributions to general secondary education (59 percent for lower secondary and 86 percent for upper secondary education). MINEDUC’s efforts to rationalize the allocation of scholarships in the sector by awarding them to students in most need may reduce this discrepancy.

The public unit cost of secondary education is approximately 6 times that of primary education. Public expenditures per student in higher education are around 56 times the unit cost of primary education, which is considerably higher than the average East African ratio of 24:1. As cost data do not disaggregate general and technical streams in secondary education, there is some ambiguity about the relative unit costs of general upper and lower secondary education. While higher unit costs in general upper secondary education are expected, it is unclear whether this is the case in Rwanda.

The appropriate role of government thus needs to be carefully determined. Given limited public resources and a preference for strong private sector involvement, PBET reforms in Rwanda may be most effective by emphasizing the role of government as a “facilitator” that provides an optimal enabling environment for private sector stakeholders, rather than as a “financer” or “provider.” As noted above, however, there are strong arguments for the government to finance and/or provide PBET for specific subjects, in specific locations, or to specific students, not least because nonpublic stakeholders (i.e., students, enterprises, and providers) each face constraints that prevent them from optimally participating in the PBET system.

Improving the PBET system is a continuous process; it is clear that not all reform options presented here can be implemented simultaneously. Ideally, the set of interventions that the government decides to implement should (1) target the most crucial objectives in the most efficient manner; (2) achieve both a short-term and a more structural medium- to long-term impact; and (3) be successfully implemented on the basis of existing human resources, financial capacity, and stakeholder commitment.

The following five strategic objectives are identified for accelerating the expansion of access and improving the quality and relevancy of postbasic education and training. Various reform options for achieving each of these objectives are then described, a key set of which

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3 These standards are 5 percent of GDP and 25–30 percent of total public recurrent expenditures.
are described in this report. The options are a mix of new possibilities and those that the government already intends to implement. Indeed, several reform options have already been incorporated into MINEDUC’s ESSP 2010–2015 and are envisaged to be included in the ESSP 2013/14–2017/18.

**Strategic objective #1: Expand access and cater to a more diversified student body**

This objective could be fulfilled by a number of reform options, including actions to increase access to publicly provided general upper secondary education, implement the existing open- and distance-learning proposal in a sustainable manner, and support high-quality technical education through Integrated Polytechnic Regional Centers (IPRCs). General upper secondary education risks becoming a bottleneck to PBET expansion, hampering both the entry of graduates into the labor market and the inflow of students into higher education. Considering the relatively low cost of providing general upper secondary education compared to, for example, quality TVET, expanding publicly provided general upper secondary education would be a cost-efficient approach to the access challenge.

The government’s existing proposal for a senior secondary open- and distance-learning program would provide additional, cost-efficient pathways to secondary education for basic education graduates of any age. A government-financed approach may be appropriate to kick-start the implementation of such a program. Finally, the IPRCs offer opportunities to strengthen synergies and achieve economies of scale across different levels of technical and vocational education, including by offering shorter and less costly alternatives to traditional higher education.

**Strategic objective #2: Improve the quality and relevance of both PBET and general upper secondary education**

This objective implies a number of reform options. Options for improving the quality and relevance of all subsegments of PBET include the establishment of a harmonized quality assurance and accreditation system and the creation of quality assurance units in all PBET institutions. Reforms could also include continuous monitoring of the level of skills attainment of PBET students and the alignment of these skills with labor market demand, enabling policy makers and education and training institutions to respond to identified weaknesses through improved or new interventions and policies.

Possible interventions to improve the quality and relevance of general upper secondary education include strengthening in- and pre-service training to enhance teachers’ knowledge of subject content and student-centered teaching approaches. Also, general upper secondary curricula and examinations would benefit from a stronger alignment with labor market demand for knowledge and skills. The current curriculum is considered quite content heavy, so the challenge here will be to strike the right balance between improving the extent to which students acquire catalytic skills through education and at the same time, achieving an appropriate transfer of content knowledge. Given that a large share of general secondary graduates will enter the labor market rather than pursue higher education, it is also crucial that secondary schools forge stronger links with the world of work so that students acquire the knowledge and skills demanded by employers.

With respect to providing quality and relevant vocational training, there are constraints on most types of system inputs; ideally, these would be addressed in an integrated manner. One reform option is to improve the quality at entry of vocational training students. This option is already being implemented, as vocational training (VT) entrants are increasingly expected to have completed basic education and thus have a higher potential to acquire appropriate skills than primary education graduates or dropouts (who mostly used to populate training centers).

Other reform options include actions to: redesign competency-based curricula and associated assessment mechanisms, retrain teachers, develop and implement industrial attachment programs, and ensure that providers have both the physical and human capacity to effectively run vocational training programs. Substantial private sector involvement will be needed in the design and delivery of new vocational programs, particularly of curricula and industrial attachments, in order to ensure their relevance to the workplace. As part of these reforms, the reasons for the underperformance of vocationally trained women on the labor market should be analyzed and addressed. Immediate actions in this sphere could include ensuring the “girl-friendliness” of TVET institutions by providing separate lavatories (and showers, where required) for boys and girls and incorporating gender-sensitivity into teacher training.

With respect to nonformal training, options to facilitate private provision include establishing a competitive training fund that would subsidize private (and public) providers

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4 In the Rwandan context, “attachment” is the term for internship.
that offer quality, relevant training; transfer underutilized youth VTCs to local governments or NGOs through a competitive process; and support the sound monitoring and evaluation of nonformal training in order to disseminate lessons learned to all stakeholders.

**Strategic objective #3: Increase and diversify funding for and improve the cost-efficiency of PBET expenditures**

There are two principal approaches to improving the outcomes of the PBET system in a resource-constrained environment, which should be pursued simultaneously: (1) increase the amount of (private and public) funding available for PBET, and (2) improve the cost-efficiency of expenditures. In other words, acquiring more funds and spending them better. Public resources for PBET could be increased by making more funding available to the education sector or, alternatively, allocating a larger share of education funding to the PBET subsector. Clearly, these options need to be carefully considered in the light of available fiscal space and alternative spending priorities in the education sector and beyond. Various options exist to encourage private investments in PBET. Examples include reforming the existing PBET policy framework to better facilitate private provision of education and training, while safeguarding its quality; providing government guarantees to banks that provide credit to private schools, provided that they meet specific criteria; and strengthening the capacity of public providers to conduct resource-generating activities. Investments by households could also be encouraged by facilitating access to credit for students.

The use of performance-based financing is a potentially promising option for improving the cost-efficiency of PBET expenditures, including their allocation and deployment. Regardless of whether the government introduces this type of funding, a sustainable, effective, and transparent funding model for TVET will be needed. As a first step toward such a model, MINEDUC and the Workforce Development Authority (WDA) could adopt a set of guiding principles that target funds from different sources for particular uses.

**Strategic objective #4: Establish a better-integrated PBET system**

A well-integrated PBET system requires a well-coordinated decision-making framework that involves all PBET subsegments and offers students the possibility of transitioning relatively easily among them. In order to support student mobility and lifelong learning, an appropriate, cost-efficient qualifications system is needed for PBET. Although National Qualifications Frameworks (NQFs) have been the object of growing international interest, their performance has been mixed, implying that a cautious approach is recommended, including regular strategic reviews, when this approach is implemented in Rwanda.

A well-integrated PBET system will ensure that reforms in any subsegment of the system are developed taking into account the interdependencies of system elements. A strong coordination and decision-making framework is thus needed to align and coordinate the activities of all AEAs with a PBET mandate with one another and with the Ministry of Education, guided by a clear sense of overall goals and a concrete strategy for addressing the subsector’s key challenges. The strategic and policy guidance of MINEDUC is particularly needed with respect to TVET (a new responsibility for the ministry), both to ensure its integration into the overall PBET system and to assist the relatively new WDA in fulfilling its extensive mandate.

**Strategic objective #5: Improve governance, the management framework, and management capacity**

An appropriate degree of autonomy of educational institutions, when combined with suitable accountability and sufficient capacity at all levels to effectively manage the system, can greatly contribute to the quality and cost effectiveness of PBET. To optimally benefit from the decentralization reforms undertaken to date in Rwanda, accountability reforms could be introduced and efforts made to strengthen the management capacity of schools. Strengthened accountability mechanisms and management capacity will, in turn, allow for further decentralization of responsibilities to schools, with a further expected positive impact on cost efficiency.

Finally, MINEDUC’s increasing focus on educational quality and PBET may justify a review of staff responsibilities throughout the education sector (particularly at MINEDUC and the AEAs). Ultimately, the shift in priority areas may be translated into a revised ministry organizational chart. Efficiency gains could potentially be achieved by clarifying or revising roles and responsibilities across various governmental bodies (i.e., the core ministry, AEAs, and lower-level government administrations), as well as among staff in these institutions.
Several reform options for improving the quality and relevance of PBET can be implemented simultaneously by different implementation partners, often at relatively moderate cost. The task of MINEDUC is to identify the most appropriate interventions based on their expected impact and the feasibility of their successful implementation.

Improvements in governance and management, management capacity, and cost efficiency are crucial. Policy options related to these aspects should be considered seriously. While implementation of these reforms requires relatively strong leadership and planning capacity on the part of MINEDUC, the potential positive impact of these reforms strongly outweighs their cost. An appropriate approach may be optimistic caution, starting with one of the few relatively uncomplicated reforms and implementing it in a well-planned and monitored fashion so that lessons learned can subsequently be incorporated into the design and implementation of more complicated, far-reaching reforms.

Rwanda may prioritize the expansion of upper general secondary education by expanding public schools and improving the enabling framework for private provision. The former should be accompanied by interventions to improve cost efficiency and increase the fiscal space available for constructing and equipping classrooms for upper secondary education. Regarding TVET, the government is taking the correct approach by addressing weaknesses in quality and relevance hand in hand with expanding access.

Box E.1 | Summary of Strategic Objectives and Associated Reform Options

**Strategic objective #1: Expand access and cater to a more diversified student body**
Increase access to publicly provided general upper secondary education
Implement the existing open- and distance-learning proposal in a sustainable manner
Support high-quality technical education through Integrated Polytechnic Regional Centers

**Strategic objective #2: Improve the quality and relevance of both PBET and general upper secondary education**
Establish a harmonized Quality Assurance and Accreditation System for PBET, including quality assurance units in all PBET institutions
Continuously monitor the level of skills attainment of PBET students and the alignment of these skills with labor market demand
Improve upper secondary teachers’ knowledge of subject content and student-centered teaching approaches through in- and pre-service training
Align general upper secondary curricula and examinations with revised requirements for knowledge and skills acquisition at the secondary level
Improve secondary school linkages with the labor market
Improve the quality and relevance of all VT “inputs,” including students
Develop and implement actions to improve the quality and relevance of vocational training for girls
Support the private provision of relevant, quality nonformal training

**Strategic objective #3: Increase and diversify funding for and improve the cost-efficiency of PBET expenditures**
Increase public and private resources for PBET
Improve the cost-efficiency of PBET delivery

**Strategic objective #4: Establish a better-integrated PBET system**
Develop an appropriate, cost-efficient qualifications system to support student mobility and lifelong learning
Strengthen the PBET decision-making framework and ensure the integration of TVET into this framework

**Strategic objective #5: Improve governance, the management framework, and management capacity**
Strengthen the autonomy-accountability-capacity triad for public PBET institutions
Align staffing and staff responsibilities at MINEDUC, AEAs, and the decentralized level with the Education Sector Strategic Plan

**La transition du Rwanda vers une économie du savoir fondée sur l’exportation fait appel à des changements fondamentaux au plan de la base des compétences de la main-d’œuvre.** Le pays amorce une évolution soutenue visant à transformer son économie pour passer d’un modèle basé sur l’agriculture de subsistance à un modèle fondé sur le savoir, soutenu par l’exportation et davantage adossé à l’industrie de la transformation et au secteur des services. La part croissante du produit intérieur brut (PIB) généré par ces deux secteurs coïncide avec un changement marqué par le transfert de la main-d’œuvre, de l’agriculture vers ces deux secteurs. Entre 2000 et 2006 (les deux années les plus récentes pour lesquelles des données exhaustives sont disponibles), la proportion d’emplois dans le secteur manufacturier a triplé, passant d’un niveau relativement bas à 5,1 %, et la proportion d’emplois dans les services a presque doublé, passant de quelque 10 % à 20 %. Ce changement devrait avoir une incidence importante sur la réduction de la pauvreté, dans la mesure où les emplois formels et informels dans les secteurs de la transformation et des services ont la particularité de contribuer à créer des revenus sensiblement plus élevés que ceux du secteur agricole.

Malgré cette tendance, les deux tiers de la main-d’œuvre du pays continuent d’être employés dans le secteur agricole non salarié dans lequel la productivité et les revenus sont faibles. **Pour que le pays soit en mesure de réaliser ses ambitieux objectifs de développement économique, il y a lieu d’accélérer l’évolution vers une économie plus moderne et plus productive,** et cela passe inévitablement par le renforcement des compétences de la main-d’œuvre. Les pays du monde qui sont parvenus à opérer la transition à laquelle aspire le Rwanda ont vu prendre forme des changements majeurs au plan du niveau d’instruction de leur main-d’œuvre, parallèlement à une augmentation soutenue de leur PIB par habitant. Par exemple, en Corée, durant les années 1960, 80 % d’adultes avaient tout au plus achevé

\(^5\) Ibid.
le niveau scolaire primaire. En 2000, soit quatre décennies plus tard, 80 % de travailleurs coréens avaient achevé le niveau secondaire ou tertiaire du système éducatif.

Les pays qui enregistrent des succès au plan économique ne se contentent pas de se doter d’une main-d’œuvre ayant un niveau d’instruction plus élevé, mais offrent aussi à leurs travailleurs un ensemble différent de compétences, comparé aux pays dont les économies sont moins dynamiques et moins diversifiées. En particulier, les employeurs exigent de plus en plus de leurs employés un niveau plus élevé de compétences dans les domaines du comportement et des aspects catalyseurs, notamment la communication, le travail d’équipe et les capacités de prise de décisions. L’absence de ces compétences peut fortement freiner la croissance dans les pays en développement. Par exemple, au Cambodge, les employeurs éprouvent plus de difficultés à trouver des travailleurs possédant des compétences catalytiques que ceux ayant des compétences techniques.


Situation du système d’éducation et formation post-primaire

L’accès à l’éducation et à la formation post-primaire s’est amélioré sensiblement au cours des dernières années. Au niveau tertiaire, les effectifs se sont multipliés par quatre au moins, passant de moins de 10 000 étudiants en 2000 à plus de 45 000 en 2008. Il s’en suit que les effectifs sont relativement élevés dans le supérieur, comparé à d’autres pays à faible revenu d’Afrique subsaharienne, mais tout de même très faibles lorsqu’on les compare à ceux de pays tels que l’Afrique du Sud et l’Île Maurice qui obtiennent de bons résultats. Les effectifs du second cycle de l’enseignement secondaire ont été multipliés par 2,3 durant la même période. Cependant, le taux de scolarisation brut enregistré dans ce cycle scolaire reste plutôt faible, comparé à celui d’autres pays subsahariens à faible revenu. De plus, il semble qu’un nombre croissant d’élèves ayant achevé l’éducation de base n’accède pas au second cycle d’études secondaires. Les chances sont élevées de voir ces chiffres augmenter en conséquence des actions menées par l’État pour élargir l’accès à l’éducation de base et en accroître le taux d’achèvement. Si les pouvoirs publics sont conscients que le second cycle du secondaire peut poser des problèmes à une expansion plus grande et que, par conséquent, l’accès à ce cycle d’éducation doit être accru, il n’est pas certain qu’ils soient en mesure de consentir les investissements nécessaires dans l’avenir proche, étant donné que des ressources importantes continuent d’être allouées à l’élargissement de l’accès au premier cycle de l’enseignement secondaire.

L’accès à la formation technique et professionnelle est limité et, en général, la qualité et l’adéquation de ce type de formation sont aussi très faibles. Un ensemble global de documents de stratégie et d’actions à mener ont été élaborés pour ce sous-secteur. Il revient à l’organisme récemment créé pour la valorisation de la main-d’œuvre (Workforce Development Authority – WDA) de traduire dans les faits, et de manière efficace, le contenu de ces documents.

En plus des efforts visant à élargir l’accès, le ministère de l’Éducation (MINEDUC) a commencé à s’attaquer à la question de la qualité et de l’adéquation du système d’éducation et formation post-primaire. Par exemple, au niveau du second cycle de l’enseignement secondaire, le programme scolaire a été rationalisé en 2009 pour répondre à l’observation suivant laquelle il était bien trop astreignant et excessivement chargé. Les questions relatives aux qualifications des enseignants et aux méthodes didactiques constituent actuellement les principaux problèmes qui influent sur la qualité de l’éducation à l’échelon du second cycle de l’éducation secondaire. Parallèlement, les ratios élèves-enseignant relativement faibles observés exertent une pression sur l’augmentation des dépenses. Comme décrit dans le Plan d’éducation et de stratégie sectorielle (ESSP) pour la période 2010–2015, le ministère entend

Le système d’éducation et formation post-primaire est caractérisé par un ministère central de petite envergure, des entités autonomes d’éducation (Autonomous Education Agencies – AEA) dotées de missions d’exécution des mesures envisagées et de responsabilités décentralisées au plan opérationnel. La décentralisation des responsabilités vers les districts ne s’est pas accompagnée d’une augmentation suffisante du nombre d’agents au service de cet échelon infranational. Le ministère central et les AEA maintiennent entre eux une communication relativement bonne. Face aux capacités relativement faibles du ministère, les AEA pèsent lourdement sur les décisions stratégiques. À des degrés divers, les systèmes et les processus de gestion de la qualité sont encore en cours d’élaboration dans les sous-secteurs de l’éducation et la formation post-primaire. De même, il reste à formuler un cadre favorable à l’apprentissage tout au long de la vie et susceptible de faciliter la transition entre les sous-secteurs de l’éducation et la formation post-primaire. L’organisme chargé de la valorisation de la main-d’œuvre (WDA) a cependant commencé à concevoir et mettre en application un cadre des qualifications pour la formation technique et professionnelle.

De tout temps, le budget alloué au secteur de l’éducation au Rwanda a toujours été inférieur aux normes reconnues au plan international.6 S’il est vrai qu’au cours des dix dernières années les dépenses publiques consacrées à l’éducation ont fortement augmenté en valeur nominale, les dépenses de fonctionnement restent inférieures à 4 % du PIB et représentent moins de 25 % du total des dépenses publiques de fonctionnement. Durant les dernières années, une part relativement large des ressources a été allouée à l’enseignement supérieur. Bien qu’une telle politique puisse être justifiée au regard du niveau relativement peu avancé de l’enseignement supérieur au Rwanda, il en a résulté, en contrepartie, une réduction des ressources allouées aux autres segments du système éducatif. Le ministère de l’Éducation a commencé à réduire la part du budget alloué à l’éducation supérieure ; il procède à la formulation et à l’application de réformes destinées à améliorer l’efficacité au plan des coûts, de manière à promouvoir plus avant l’expansion de l’enseignement supérieur.

Le coût unitaire de l’éducation secondaire supporté par l’État est six fois supérieur à celui de l’éducation primaire. Les dépenses publiques par étudiant dans le cycle supérieur sont environ 56 fois plus élevées que le coût unitaire de l’éducation primaire, qui est de loin supérieur au ratio moyen de 24:1 observé en Afrique de l’Est. Dans la mesure où les données ne sont pas désagrégées en fonction des filières générales et techniques du cycle secondaire de l’éducation, une certaine ambiguïté persiste autour des coûts unitaires relatifs du second cycle et du premier cycle de l’enseignement secondaire général. Si l’on peut s’attendre à des coûts unitaires plus élevés à l’échelon du second cycle d’études secondaires générales, il n’est pas certain que cela se soit confirmé dans le cas du Rwanda.

Les ressources privées prennent une part de plus en plus importante dans les dépenses totales d’éducation et formation post-primaire, cela pour un certain nombre de raisons dont notamment l’efficace croissant d’étudiants inscrits dans des établissements privés d’enseignement supérieur. Cela dit, la contribution des ménages à l’enseignement supérieur en proportion des dépenses totales à hauteur de 40 % est considérablement inférieure aux contributions privées au cycle secondaire général (59 % pour le premier cycle secondaire et 86 % pour le second cycle d’études secondaires). L’initiative prise par le ministère de l’Éducation de rationaliser l’allocation des bourses dans le secteur en les attribuant aux étudiants qui en ont le plus besoin pourrait contribuer à réduire cet écart.

6 Cela donne les normes suivantes : 5 % du PIB et 25 à 30 % des dépenses courantes totales.
Perspectives : Élargir l’accès à l’éducation tout en en améliorant la qualité et l’adéquation

Le Rwanda est confronté à la fois au problème de l’élargissement de l’accès au système d’éducation et formation post-primaire et à celui de l’amélioration de la qualité et de l’adéquation de son système éducatif. Étant donné les salaires substantiellement élevés liés à l’éducation et la formation post-primaire, quel qu’en soit le niveau et le type, et compte tenu du niveau d’instruction relativement faible de la main-d’œuvre, l’on peut considérer que l’élargissement de l’accès du système éducatif constitue le principal problème que rencontre le Rwanda dans le secteur. Les investissements consentis pour accroître l’accessibilité doivent s’accompagner d’interventions visant à améliorer la qualité et la pertinence de cet échelon du système éducatif. En dernière analyse, plus nombreux sont les élèves inscrits dans le système d’éducation et formation post-primaire, plus il est important qu’ils apprennent ce qu’il y a lieu d’apprendre de la manière la plus efficace possible.

Pour chaque faiblesse identifiée dans la prestation de services d’éducation et formation post-primaire, il est indispensable de justifier l’intervention publique avant d’envisager toute action de l’État. Parce que les éléments essentiels du cadre d’éducation et formation post-primaire sont un « bien public » et qu’il existe des externalités positives liées à la présence de travailleurs qualifiés au sein de la main-d’œuvre, l’implication des structures étatiques est pleinement justifiée, comme elle l’est en raison du caractère impropre des informations et de la myopie qui contribuent à restreindre la demande d’éducation et formation post-primaire. La participation de l’État trouve aussi sa raison d’être dans les considérations d’éthique liées à l’accès à l’éducation et la formation post-primaire et à sa pertinence pour les groupes défavorisés. D’autres raisons encore permettent d’avancer des arguments provisoires pour justifier l’intervention publique, par exemple, les faiblesses actuelles du marché financier qui limitent l’accès au capital, aussi bien pour les fournisseurs potentiels que pour les étudiants, et le fait que le marché émergent des établissements privés d’éducation et formation post-primaire a besoin d’être soutenu jusqu’à ce qu’il soit mieux établi.

Il convient donc de bien définir le rôle que l’État est appelé à jouer. Compte tenu des ressources limitées et de la préférence portée à une forte participation du secteur privé, les réformes de l’éducation et la formation post-primaire au Rwanda seront peut-être plus efficaces si l’accent est mis sur le rôle des pouvoirs publics en tant que « facilitateur » capable de créer un environnement favorable optimal pour les acteurs du secteur privé plutôt que celui de « pourvoyeur de financements » ou « prestataire de services ». Cependant, comme indiqué ci-dessus, de bonnes raisons expliquent que l’État finance et/ou fournisse des services d’éducation et formation post-primaire en termes de disciplines spécifiques, dans des localités précises, ou à des élèves donnés, ce notamment parce que les acteurs non publics (les élèves, les entreprises et les prestataires de services) sont individuellement confrontés à des problèmes qui les empêchent de participer au système d’éducation et formation post-primaire de manière optimale.

L’amélioration du système d’éducation et formation post-primaire est un processus continu ; à l’évidence, tous les choix de réforme présentés ici ne sauraient être appliqués simultanément. L’idéal serait que l’ensemble des interventions que les autorités publiques décident de mener puissent : 1) cibler les objectifs les plus fondamentaux, et ce de la manière la plus efficace qui soit ; 2) obtenir un impact à court terme et un impact à caractère plus structuré à moyen, voire long terme ; et 3) être exécutées avec succès sur la base des ressources humaines, des capacités financières et de la détermination des acteurs concernés.


Objectif stratégique numéro 1 : Élargir l’accès et prendre en charge une population d’élèves plus diversifiée

Un certain nombre d’options de réforme peuvent aider à atteindre cet objectif, notamment des actions visant à : élargir l’accès aux études secondaires générales du second cycle financées par les ressources publiques, exécuter durablement l’actuel projet d’éducation libre et par téléenseignement et soutenir une formation technique de qualité élevée à travers des centres polytechniques régionaux
intégrés (Integrated Polytechnic Regional Centers – IPRC). Le second cycle de l’enseignement secondaire général risque de devenir un goulet d’étranglement de l’expansion du système d’éducation et formation post-primaire, mettant à mal aussi bien l’entrée des diplômés sur le marché du travail que la poursuite d’études supérieures. Étant donné que le prix à payer pour fournir l’éducation générale au niveau du second cycle du secondaire est relativement faible, par exemple, comparé à la formation technique et professionnelle de qualité, l’expansion de l’enseignement secondaire général du second cycle au moyen de ressources publiques serait une manière économiquement avisée de faire face au problème de l’accessibilité.

Le projet envisagé par l’État de lancer un programme d’éducation libre et par téléenseignement permettrait de disposer de moyens supplémentaires économiquement avantageux d’ouvrir l’éducation secondaire à toutes les personnes ayant reçu l’éducation primaire, quel que soit leur âge. Une méthode d’approche passant par un financement public serait indiquée pour démarrer la mise en œuvre d’un tel programme. Enfin, le système de centres polytechniques régionaux intégrés (IPRC) offre des possibilités de consolider les synergies et réaliser des économies d’échelle à différents échelons de la formation technique et professionnelle, notamment en proposant des alternatives plus courtes et moins coûteuses, comparé à l’éducation supérieure classique.

Objectif stratégique numéro 2 : Améliorer la qualité et l’adéquation du système d’éducation et formation post-primaire et des études secondaires générales du second cycle.

Cet objectif implique un certain nombre de choix de réforme possibles. Les options envisageables pour améliorer la qualité et la pertinence de toutes les filières de l’éducation et formation post-primaire comprennent l’établissement d’un système unifié d’assurance qualité et d’homologation et la création de services d’assurance qualité dans toutes les institutions d’éducation et formation post-primaire. Les réformes pourraient aussi porter sur le suivi permanent du niveau des compétences acquises par les élèves fréquentant le système d’éducation et formation post-primaire et l’alignement de ces compétences sur la demande du marché du travail, ce qui permettrait aux décideurs et aux établissements d’éducation et formation de répondre à des insuffisances bien identifiées en utilisant des interventions et des politiques améliorées ou totalement nouvelles.

Au nombre des interventions pouvant être envisagées pour améliorer la qualité et le degré d’adéquation du second cycle d’études secondaires générales figure le renforcement de la formation en cours d’emploi et avant emploi, à l’effet d’améliorer les connaissances des enseignants sur le contenu de l’enseignement et les méthodes d’approche didactiques centrées sur l’élève. En outre, les programmes et examens du second cycle d’enseignement secondaire général auraient tout à gagner à être davantage alignés sur la demande en connaissances et compétences émanant du marché du travail. Dans les programmes actuels, l’équilibre entre contenu et compétences catalytiques est plus favorable au contenu ; la question à résoudre dès lors est de trouver le juste milieu entre la nécessité d’améliorer l’acquisition de compétences catalytiques à travers l’éducation et, simultanément, celle d’assurer un transfert adéquat des savoirs liés au contenu. Étant donné qu’une proportion élevée d’élèves ayant achevé les études secondaires générales entreront sur le marché du travail plutôt que de poursuivre des études supérieures, il est également crucial que les écoles secondaires tissent des liens plus solides avec le monde du travail, de manière que les élèves acquièrent les connaissances et les compétences que recherchent les employeurs.

S’agissant de la mise à disposition d’une formation professionnelle de qualité et adaptée, la plupart des contributions possibles comporcent des difficultés face auxquelles l’idéal serait de rechercher des solutions suivant une démarche intégrée. Un choix de réforme possible serait d’améliorer la qualité à l’entrée du profil des élèves candidats à la formation professionnelle. Cette option est déjà mise en œuvre, à mesure que les élèves qui accèdent à la formation professionnelle doivent, de plus en plus, avoir achevé l’éducation de base et donc présenter un potentiel d’acquisition de compétences appropriées plus élevé que leurs homologues sortant du cycle primaire ou ayant interrompu les études (ceux-là même qui constituaient par le passé le gros des effectifs des centres de formation professionnelle).

D’autres choix de réforme possibles sont envisageables : reformuler la conception des programmes de formation basés sur les compétences et les mécanismes d’évaluation connexes, procéder au recyclage des enseignants, élaborer et exécuter des programmes de stages en entreprise et assurer que les prestataires de services d’éducation possèdent les ressources physiques et humaines nécessaires pour administrer efficacement des programmes de formation professionnelle.

7 Dans le contexte du Rwanda, le terme « attachment » signifie « stage ».
Une forte participation du secteur privé sera nécessaire pour la conception et l’administration des nouveaux programmes de formation professionnelle, en particulier la formulation des programmes de formation et la promotion des stages en entreprise, afin d’en assurer l’adéquation par rapport au marché du travail. Il convient de saisir l’opportunité offerte par ces réformes pour analyser et trouver des réponses au problème des performances insuffisantes observées chez les femmes ayant reçu une formation professionnelle, une fois sur le marché du travail. Des actions immédiates peuvent être menées dans ce domaine, par exemple, en veillant à ce que les établissements de formation technique et professionnelle respectent les besoins spécifiques des filles en construisant des toilettes séparées (et des douches, comme de besoin) pour garçons et filles et en prenant en compte les questions de parité entre les hommes et les femmes dans la formation des enseignants.

Concernant la formation non formelle, les possibilités pouvant être exploitées pour faciliter la prestation de services d’éducation par le privé comprennent : la création d’un fonds de financement de la formation accessible sur concours, qui permettrait de subventionner les prestataires privés (et publics) offrant des formations pertinentes et de qualité ; le transfert, par voie de concours, des centres de formation professionnelle des jeunes (youth VTC) sous-exploités à des collectivités locales ou à des ONG ; et l’appui au bon suivi et à la bonne évaluation des formations non formelles dans l’optique de partager les leçons de l’expérience avec tous les acteurs intéressés.

Objectif stratégique numéro 3 : Augmenter et diversifier le financement des dépenses d’éducation et formation post-primaire et en améliorer l’efficacité-coût


L’utilisation du système de financements basés sur les résultats pourrait être une option prometteuse pour améliorer l’efficacité-coût des dépenses d’éducation et formation post-primaire, notamment pour l’affectation et la répartition des dépenses. Que les autorités mettent en place ou pas un tel système de financement, un modèle de financement de la formation technique et professionnelle viable, efficace et transparent sera nécessaire. Le ministère de l’Éducation et le WDA pourraient, dans une première étape d’évolution vers ce type de modèle, adopter un ensemble de principes directeurs qui ciblent des financements de sources différentes et destinés à des emplois particuliers.

Objectif stratégique numéro 4 : Établir un système d’éducation et formation post-primaire mieux intégré

Un système d’éducation et formation post-primaire bien intégré nécessite un cadre de décision bien coordonné qui implique tous les sous-segments du système et permet aux étudiants d’évoluer relativement facilement entre les sous-segments. Il y a lieu de mettre en place un système de certification approprié et d’un bon rapport coût-efficacité pour l’éducation et la formation post-primaire, afin d’appuyer la mobilité et la formation permanente des élèves. Si les cadres nationaux des certifications ont été l’objet d’un intérêt croissant à l’échelle internationale, les résultats qui en découlent restent mitigés ; d’où la nécessité d’adopter une démarche prudente, notamment en menant des examens stratégiques réguliers, lorsque cette approche est adoptée.

Un système d’éducation et formation post-primaire bien intégré assure que les réformes appliquées dans un sous-segment donné soient élaborées en tenant compte de
l’interdépendance des éléments du système. Il est donc nécessaire de disposer d’un cadre de coordination et de décision solide pour harmoniser et coordonner les activités de toutes les AEA ayant une mission à remplir dans le domaine de l’éducation et la formation post-primaire les unes avec les autres et avec le ministère de l’Éducation, tous adhérant à une ligne directrice axée sur des objectifs généraux clairs et à une stratégie concrète pour faire face aux problèmes clés du sous-secteur. Les conseils stratégiques et d’orientation du ministère de l’Éducation sont particulièrement nécessaires à la formation technique et professionnelle (une charge nouvelle pour le ministère), tant pour assurer son intégration dans le système global d’éducation et formation post-primaire que pour aider la WDA nouvellement créée à remplir l’ambitieuse mission qui lui est confiée.

Objectif stratégique numéro 5 : Améliorer la gouvernance, le cadre de gestion et les capacités de gestion

Lorsque les établissements scolaires jouissent d’un degré d’autonomie approprié, tout en étant parallèlement tenus dûment comptables de leurs actions et qu’ils disposent de capacités suffisantes à tous les niveaux pour gérer efficacement le système, cela peut contribuer énormément à la qualité et à l’efficacité-coût du système d’éducation et formation post-primaire. Pour tirer le meilleur des réformes de la décentralisation appliquées à ce jour au Rwanda, l’on pourrait prendre des mesures de réforme de la responsabilité et s’efforcer de renforcer les capacités de gestion des établissements scolaires. Par ricochet, le renforcement des mécanismes de responsabilité et des capacités de gestion permettrait de décentraliser davantage les responsabilités vers les établissements scolaires, cela devant influencer encore plus positivement l’efficacité-coût.

Enfin, le fait que le ministère de l’Éducation insiste de plus en plus sur la qualité de l’éducation et l’éducation et la formation post-primaire est peut-être une bonne raison de procéder à un examen des responsabilités du personnel de l’ensemble du secteur de l’éducation (en particulier au sein du ministère de l’Éducation et des AEA). Le changement de domaines de priorité est peut-être l’occasion de réviser l’organigramme du ministère. Des gains d’efficacité pourraient être réalisés en clarifiant ou en révisant les rôles et les responsabilités des différents organismes étatiques (le ministère proprement dit, les AEA et les services administratifs de rang inférieur), et aussi au niveau du personnel de ces institutions.

Plusieurs options de réforme envisageables pour améliorer la qualité et l’adéquation de l’éducation et la formation post-primaire peuvent être appliquées simultanément par différents partenaires d’exécution, et cela de manière relativement peu coûteuse. Il incombe au ministère de l’Éducation de recenser les interventions les plus appropriées en fonction des effets escomptés et du potentiel de succès de leur mise en œuvre.

L’amélioration de la gouvernance et de la gestion, les capacités de gestion et l’efficacité-coût sont des aspects essentiels. Il convient d’étudier avec attention les possibilités d’action liées à ces aspects. Si la mise en œuvre de ces réformes fait appel à des capacités relativement robustes de leadership et de planification de la part du ministère de l’Éducation, leurs effets positifs potentiels l’emportent sur leur coût. Il serait peut-être indiqué de faire montre d’un optimisme mesuré en commençant par l’une des réformes relativement simples en la mettant en application suivant une bonne méthode de planification et de suivi, de manière que les leçons de l’expérience puissent être intégrées par la suite dans la conception et la mise en application de réformes plus complexes et plus en profondeur.

Le Rwanda peut se fixer la priorité d’élargir l’accès au second cycle de l’enseignement secondaire en augmentant le nombre d’écoles publiques et en améliorant le cadre d’intervention du secteur privé dans la prestation de services d’éducation. L’élargissement de l’accès au second cycle de l’enseignement secondaire doit être appuyé par des interventions destinées à améliorer l’efficacité-coût et augmenter les recettes publiques disponibles pour la construction de salles de classes et la dotation de celles-ci en matériel pour le second cycle d’études secondaires. S’agissant de la formation technique et professionnelle, la démarche suivie par le gouvernement, qui consiste à faire face aux insuffisances liées à la qualité et à l’adéquation tout en procédant à l’élargissement de l’accès, est la bonne marche à suivre.
<table>
<thead>
<tr>
<th>Encadré E.1</th>
<th>Récapitulatif des objectifs stratégiques et des choix connexes de réforme possibles</th>
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<tbody>
<tr>
<td><strong>Objectif stratégique numéro 1 : Élargir l’accès et prendre en charge une population d’élèves plus diversifiée</strong></td>
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<tr>
<td>Élargir l’accès aux études secondaires générales du second cycle financées par l’État.</td>
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<td>Mettre durablement en œuvre l’actuel projet d’apprentissage libre et par téléenseignement.</td>
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<tr>
<td>Promouvoir l’enseignement technique de qualité par le biais des centres polytechniques régionaux intégrés.</td>
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<tr>
<td><strong>Objectif stratégique numéro 2 : Améliorer la qualité et l’adéquation du système d’éducation et formation post-primaire et de l’éducation générale au second cycle du secondaire.</strong></td>
<td></td>
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<tr>
<td>Établir un système unifié d’assurance qualité et d’homologation pour l’éducation et la formation post-primaire, notamment des services d’assurance de la qualité dans tous les établissements d’éducation et formation post-primaires.</td>
<td></td>
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<tr>
<td>Faire le suivi permanent du niveau des compétences acquises par les élèves fréquentant le système d’éducation et formation post-primaire et aligner ces compétences sur la demande du marché du travail.</td>
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<tr>
<td>Améliorer les connaissances des enseignants du second cycle de l’enseignement secondaire sur le contenu des disciplines enseignées et les méthodes didactiques centrées sur l’élève par le biais de la formation en cours d’emploi et avant emploi.</td>
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<td>Harmoniser les programmes et les examens du second cycle de l’enseignement secondaire avec les conditions révisées relatives à l’acquisition de connaissances et de compétences à l’échelon du cycle secondaire.</td>
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<tr>
<td>Améliorer le degré d’adéquation des programmes du cycle secondaire par rapport au marché du travail.</td>
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<tr>
<td>Améliorer la qualité et l’adéquation de tous les « intrants » de la formation professionnelle, notamment le profil des élèves.</td>
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<tr>
<td>Formuler et mettre en application des mesures visant à améliorer la qualité et le degré d’adéquation de la formation professionnelle des filles.</td>
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<tr>
<td>Soutenir la prestation de formations non formelles de qualité fournies par le privé.</td>
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<tr>
<td><strong>Objectif stratégique numéro 3 : Augmenter et diversifier le financement des dépenses d’éducation et formation post-primaire et en améliorer l’efficacité-coût</strong></td>
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<tr>
<td>Augmenter les ressources publiques et privées allouées à l’éducation et la formation post-primaire.</td>
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<tr>
<td>Améliorer l’efficacité-coût de la prestation de services d’éducation et formation post-primaire.</td>
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<tr>
<td><strong>Objectif stratégique numéro 4 : Établir un système d’éducation et formation post-primaire mieux intégré</strong></td>
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<tr>
<td>Mettre au point un système approprié et économiquement rationnel des qualifications pour accompagner la mobilité et la formation permanente des élèves.</td>
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<tr>
<td>Renforcer le cadre de décision du système d’éducation et formation post-primaire et veiller à y intégrer la formation technique et professionnelle.</td>
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<tr>
<td><strong>Objectif stratégique numéro 5 : Améliorer la gouvernance, le cadre de gestion et les capacités de gestion</strong></td>
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<tr>
<td>Renforcer le triptyque autonomie-responsabilité-capacité des établissements d’éducation et formation post-primaire.</td>
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1.1 Rwanda’s Vision of Export-Oriented and Knowledge-Based Economic Growth

Rwanda’s commendably ambitious development objectives are reflected in its Economic Development and Poverty Reduction Strategy (EDPRS) and Growth for Jobs and Exports Flagship Program. These documents describe Rwanda’s vision of sustaining high growth levels (averaging eight percent annually) by transforming into a knowledge-based, export-oriented economy that increasingly relies on manufacturing and services, both in terms of production and employment.

Rwanda’s recent pattern of economic growth demonstrates the progress made to date in achieving these goals. As illustrated in figure 1.1, the country’s manufacturing and service sectors have become increasingly significant in its steadily expanding economy. The service sector in particular has grown substantially. It currently generates almost half of Rwanda’s GDP—compared to 40 percent in 2000—and has been the country’s major source of economic growth in recent years. The manufacturing sector has contributed almost as much to overall economic growth as the agriculture sector, even though the former is much smaller than the latter. The agriculture sector, which has generally not grown as rapidly, remains the largest sector of the economy, although its share of overall production is decreasing.

Certain subsectors have been essential drivers of growth within each economic sector. For example, the mining and quarrying (manufacturing) and the financing and insurance (service) subsectors more than doubled in size between 2000 and 2006, while tourism receipts increased substantially. Nevertheless, these subsectors are still relatively small; in 2006, mining generated 0.6 percent of GDP; tourism (hotels and restaurants), 1.0 percent; and financing and insurance, 4.7 percent. Construction, another important source of growth and one of the largest components of the manufacturing sector, generated almost 7 percent of GDP. The largest subsectors in services are public administration and education (which together represent 14.0 percent of GDP) and wholesale and retail trade (9.9 percent of GDP). As noted, the largest sector of Rwanda’s economy is agriculture: the production of food crops accounts for 28.1 percent of overall national production. Coffee and tea, the main cash crops, generate more than 80 percent of total export receipts.

To ensure that economic growth is broad based and has a maximum impact on poverty reduction, the government is implementing reforms to unleash the growth potential

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9 Agriculture made up 37 percent of GDP in 2010, down from 41 percent in 2006 and 47 percent in 2000 (Ibid).
of all sectors of the economy. Its strategy is to address constraints that are currently impeding this kind of growth. As identified in the Growth for Jobs and Exports Flagship Program and repeated in the EDPRS, this goal requires policy actions in four key areas:

1. Developing skills and capacity for productive employment
2. Improving economic infrastructure (particularly energy, transport and communications)
3. Promoting science, technology, and innovation (STI) for economic growth
4. Widening and deepening the financial sector

The government is also focusing on the essential promising aspects of individual economic sectors. In agriculture, this involves raising productivity and ensuring food security. Policy actions aim to intensify and develop sustainable production systems, build the technical and organizational capacity of farmers, promote commodity chains and support the development of agribusinesses, and strengthen the sector’s institutional framework at the central and district levels.

In the manufacturing sector, policy reforms focus on enhancing the performance of existing industries, supporting the development of new product lines, promoting exports, offering incentives for foreign direct investment, and promoting resource-based manufacturing. In the services sector, the government seeks to exploit the country’s potential comparative advantage in financial services, tourism, transport and logistics, and health and education services. At the same time, the government has identified a number of sectors with high value-added export potential that will receive priority support for capacity building. These sectors are coffee and tea production and processing, mining, and tourism.

1.2 The Changing Nature of Required Labor Force Skills

A more technologically advanced economy requires a more highly skilled labor force

The emphasis on skills development in the EDPRS and the Growth Flagship Program highlights the importance of a well-educated labor force to achieving Rwanda’s economic growth objectives. Only a labor force with a sufficient number of workers who are able to operate in an increasingly sophisticated and continuously changing business environment will enable the country to develop the competitive and diversified economy it aspires to have.

The transformation of Rwanda’s economy will thus need to go hand in hand with changes in the skill set of its workforce. To understand changes in the nature of required skills, it is helpful to review changes in the skills composition of the labor force in countries that, a number of decades ago, were similar to Rwanda today and which have since made the economic shift to high value-added agriculture, manufacturing, and services as sources of growth and employment.

In most countries, this shift was largely driven by continuous advancements in technology, management, and global economic integration. These changes were accompanied by gradual, but eventually drastic, changes in the skill sets required of productive workers. Initially, the lowest-skilled workers in manufacturing performed repetitive tasks requiring physical dexterity, consistency, and discipline. Mid-level staff organized and supervised the activities of low-skilled workers or maintained production equipment. Higher-level technicians designed and built production equipment and processes and carried out quality control. White collar workers—those with at least general secondary education—filled the middle ranks of the manufacturing industry, while managers tended to be drafted after having completed higher education.

With increased global competition and automation, the activities of low- and medium-skilled workers were taken over by machines and computers or, in the case of the countries of the Organisation for Economic Co-Operation and Development (OECD), outsourced to economies with lower wage levels. As a result, employment in manufacturing
in these economies fell drastically while employment in services tended to rise; the proportion of high-skilled workers increased substantially compared to those with low- or mid-level skills.

Figure 1.2 illustrates how in economically successful countries, economic growth has coincided with improvements in the skill levels of workers. Korea, for example, transformed within four decades from a labor force where the majority of workers (80 percent) had primary education or less in 1960, to a labor force in which 79 percent of workers had at least completed secondary education in 2000. Already in 1980, the share of Korean workers with secondary education (49 percent) exceeded the share of workers with primary education or less (42 percent). By 2000, the share of workers with primary education or less had dwindled to a mere 18 percent and 53 percent of workers had completed secondary (but not tertiary) education (figure 1.2, panel A).

In Kenya, where economic growth has clearly not been as impressive as in Korea, but where gross national income per capita nevertheless exceeds that of Rwanda by more than 50 percent, the share of workers who completed secondary or higher education increased from 2.4 percent in 1960 to 14.5 percent in 1980 and 17 percent in 2000. Of the 17 percent of the labor force who had completed at least secondary education by 2000, the vast majority had completed secondary education but not higher education, and a relatively small share (1 percent of the labor force) had completed higher education.

In Rwanda, the share of workers in the labor force who had completed at least secondary education was only 4 percent in 2006. Of this group, the largest share (equivalent to 3 percent of the overall labor force) had completed secondary education, but not higher education. The share that had completed higher education was only 1 percent of the labor force—similar to the share observed in Kenya in 2000. Thus the difference between the educational attainment of the labor force in Rwanda and Kenya lies in the relatively small share of secondary education graduates in Rwanda (3 percent) compared to the share in Kenya (16 percent).

A recent study that finds that economic growth is strongly linked to a large share of the labor force having secondary education. Using data for over 100 countries for the period 1970–2000, the study groups Rwanda with other countries whose labor forces have similar levels of educational attainment—that is, countries in which the lion’s share of workers has either not started or not completed primary education (the “baseline scenario”). These countries have relatively slow economic growth. The model developed by the study concludes that if these same countries had labor forces in which at least 50 percent of workers had completed primary education (the “primary scenario”), their growth rates would have increased substantially.

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**Figure 1.2** Trends in Educational Attainment of the Labor Force in Korea, Kenya and Rwanda (percentage)

<table>
<thead>
<tr>
<th>Panel A. Korea</th>
<th>Panel B. Kenya</th>
<th>Panel C. Rwanda</th>
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<tbody>
<tr>
<td>2000</td>
<td>2000</td>
<td>2006</td>
</tr>
<tr>
<td>Primary or less</td>
<td>Secondary</td>
<td>Tertiary</td>
</tr>
<tr>
<td>95%</td>
<td>16%</td>
<td>2%</td>
</tr>
<tr>
<td>4%</td>
<td>0.4%</td>
<td>1%</td>
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<tr>
<td>0.5%</td>
<td>0.4%</td>
<td>1%</td>
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<tr>
<td>49%</td>
<td>9%</td>
<td>3%</td>
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<tr>
<td>26%</td>
<td>3%</td>
<td>17%</td>
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<tr>
<td>1%</td>
<td>26%</td>
<td>9%</td>
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<tr>
<td>2%</td>
<td>49%</td>
<td>9%</td>
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<tr>
<td>84%</td>
<td>1%</td>
<td>2%</td>
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<tr>
<td>85%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>80%</td>
<td>1%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Note: Percentages reflect the shares of the population over 15 years old who have completed primary (or less), secondary, or tertiary education, respectively. For Rwanda, the latest year for which data are available (2006) is depicted. These data are comparable to those for 2000 (not depicted), although there were improvements in the share of workers who completed secondary and higher education in 2006. Also between 2000 and 2006, the share of workers with no education at all declined substantially (by 13 percent). No comparable data are available for Rwanda for the years 1960 and 1980. See chapter 2 for a more detailed analysis of the country’s labor force composition.

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12 Ibid.
In the same study, the assumption that the labor forces of otherwise identical countries have at least some secondary education (the “secondary scenario”) results in even higher growth rates: model simulations indicated a growth boost over five times the size of the baseline scenario and approximately double that of the primary scenario. The authors note that despite the substantial time lag before significant investments translate into a better-educated workforce, only large-scale investments in secondary education (following large-scale investments in primary education) provide poorer countries the human capital needed to achieve high economic growth rates and lift large shares of their populations out of poverty. Considering that Rwanda is landlocked and relatively resource scarce, and therefore largely dependent on its human capital to ensure sustainable and sufficient economic growth, this observation is particularly relevant.

A more advanced, continuously changing economy also requires a differently skilled labor force

Not only has the level of education required for productive employment risen in countries that have made the transition toward more sophisticated economies, changes in technology and management have also changed the type of skills needed in these economies. The classic view was that “general skills” (which employees could take with them to any employer) differed from “specific skills” (which were needed to work in a particular company). As economies developed and become more sophisticated, however, this view was replaced by the notion that workforce skills are largely general.

In particular, employers started to expect a high level of cognitive and behavioral—or “catalytic”—skills from workers at all levels. These skills include communication, the ability to work in a team, critical thinking, problem solving, pro-activity, independent thinking, the ability to learn, adaptability, the ability to use a computer, and entrepreneurial skills. Catalytic skills have become particularly important in the services sector, which in many countries has expanded at a faster rate than the manufacturing sector. Although there is still work for unskilled and semi-skilled workers in these economies, this work becomes increasingly scarce, pays less, and offers little prospect for career advancement or higher wages.

The importance that employers in less-developed countries currently attach to employees’ catalytic skills is clearly demonstrated by employer surveys conducted in Indonesia and Cambodia, among other countries. In Indonesia, for example, over 30 percent of employers deem it very important that skilled workers possess “thinking” and “behavioral” skills (literacy and numeracy are considered very important by 47 percent of employers). For employees in management and professional positions, the share of firms that rate thinking (70 percent) and behavioral (64 percent) skills very important is even higher than the share of firms that deem literacy and numeracy skills (54 percent) very important.

In Cambodia, an employer survey examined the difficulty encountered by firms in finding workers with desired technical and catalytic skills in economic growth sectors (e.g., tourism, construction, and the garment industry). The survey’s conclusions showed that firms found it more difficult to identify workers with certain catalytic skills than workers with appropriate technical skills, but that the type of catalytic skills in short supply differed depending on the overall skill level of the worker. For example, among unskilled labor, the skill most difficult to find was work attitude. For semi-skilled workers, the clearest mismatch concerned decision-making skills. For skilled workers, analytical and decision-making skills topped the list. For all levels of workers, technical skills were among the top five skills considered most difficult to find, but in all cases the mismatch between demand and supply was higher for two to three catalytic-type skills (figure 1.3).

1.3 The Role of Education and Training in Supporting Economic Growth

The extent to which an appropriately skilled labor force is in place in a country largely depends on whether its residents...
have sufficient access to high-quality, demand-responsive formal and nonformal education and training. This reality creates a significant challenge for institutions that have responsibility for providing education and training, including the actual education, the training providers, and the institutions responsible for creating an optimal framework for the system.

Assuming that Rwanda will follow a path broadly similar to that described in the previous section of this chapter, it will become ever more important that larger numbers of Rwandan pupils complete at least basic education, as well as postbasic education and training. Rwanda’s education and training system will also need to adjust to an increase in the demand for workers with catalytic skills, not simply technical skills.

In countries where workers have increasingly been expected to have strong cognitive and catalytic skills, this requirement has particularly affected the provision of vocational training, where the initial focus was purely vocational skills. As in Rwanda, vocational and academic education streams in most countries initially tend to be separated. As catalytic skills became increasingly in demand, traditional vocational education—which did not teach these skills sufficiently—was seen as a “second-best” option for young people with no interest or ability in pursuing higher learning. As a result, the students sorted into vocational education, often from poor families, were by and large condemned to a lifetime of low-income work.

This situation has changed in the past two decades in countries that have successfully transformed the nature and status of vocational education, either by eliminating the separation between vocational and academic education streams, or by postponing vocational education until after general education has helped students acquire catalytic skills. In such countries, the general education level of new apprentices has risen sharply; for example, many apprentices have now completed secondary education. In countries such as Canada, Finland, and the United States, moreover, pathways between vocational and higher education have been established. In the United States, secondary vocational education has become “career and technical education” offered by a diverse set of institutions, including specialized technical schools and comprehensive high schools that also offer academic preparation for higher education.

Efforts by many developing countries to adjust their education systems to serve the changing skills needs of their economies tend to lag behind those of more developed countries. In the last part of the previous century, when the vocational and technical education systems of OECD countries were being reformed to satisfy the evolving skills requirements of their labor markets, many lower-income countries focused on the provision of primary education. While this focus provided many benefits, particularly to the poor, it resulted in part from the fact that previous investments in vocational education and training had neither been affordable (costing about five times more per student than general secondary education) nor resulted in economic growth. At the same time, vocational education was beset by problems of weak governance, over-regulated economies, and low levels of foreign investment. Many development partners of these countries also concentrated their efforts on primary education, supporting demand-based vocational training only on a relatively small scale—an approach that reflected lessons learned from an earlier misplaced faith in supply-based training.

Recent government efforts in Rwanda have similarly focused on expanding primary education. As access to
primary education reaches 100 percent, the country has been able to shift its attention to expanding access to nine-year basic education and postbasic education, as well as to improving the quality and relevance of education at all levels. This shift is well recognized in Rwanda’s Education Sector Strategic Plan for the period 2010–2015, which states, “In addition to the continuing priority of effective nine-year basic education for all our children, this revised plan reflects our new priority of making postbasic education more accessible and more relevant to our national needs.”

In light of the substantial challenges ahead and Rwanda’s resource-constrained environment, it will be essential that attention and financial resources be targeted to those interventions likely to make the maximum contribution to its economic and poverty reduction objectives in the most cost-efficient manner. One of these challenges is to ensure that the education and training system not only provides the knowledge and skills required by sophisticated manufacturing and services, but also those needed to increase agricultural productivity. This objective will be crucial as long as the great majority of Rwandans continue to be employed in low-technology agricultural activities.

Among the important decisions that the government faces in PBET are the most appropriate and cost-efficient allocation of public resources, in particular their distribution between basic and postbasic education and between the various segments of the PBET system. Additional decisions pertain to adapting the governance and management framework to ensure that it facilitates the provision of relevant, high-quality, public and private education and training, as well as the delivery of postbasic education to a growing and diverse student body. In order to determine which interventions are most appropriate and will have the most beneficial impact, it is useful to understand the current composition of Rwanda’s labor force and the employment and earnings patterns of workers with different educational backgrounds. The following chapter addresses these topics in detail.

2.1 Overview of Labor Market Characteristics

A labor market can be described in terms of supply (the size and characteristics of the labor force) and demand (the economy’s need for workers). The size of both labor supply and labor demand is influenced by its price: labor supply depends on wage or earnings levels and labor demand depends on labor costs. In addition, earnings provide an indicator of job quality and the relative value of different types and levels of education and training. Labor supply and demand can be disaggregated in terms of economic sector, gender, and educational and skill level.

Viewed from the supply side, the Rwandan labor force:
- Is young: 44 percent of the population is under 15 years of age and more than 60 percent of the labor force is under 34 years of age
- Has limited educational attainment: only 9.4 percent of the working-age population has more than primary education, defined in this report as “skilled” labor
- Finds itself in a relatively dynamic situation, as the share of the labor force with postprimary education increased from 7.5 percent in 2000 to 9.4 percent in 2006
- Recently underwent a sharp decline in the rate of participation, which can be attributed to younger people staying in school longer, particularly in poorer households
- Has grown rapidly as a result of population growth, despite reduced labor participation rates

Viewed from the demand side, the labor force can be described as:
- Undergoing a significant redistribution of employment from agriculture to manufacturing and services between 2000 and 2006, when the percentage of workers employed in agriculture (or the primary sector) fell by 13 percentage points (to 76.7 percent), the proportion in manufacturing (or secondary sector) tripled from a low base (to 5.1 percent), and the share in service sector (or tertiary sector) approximately doubled (to around 20 percent).
- Having greater numbers of workers with higher educational levels in the secondary and, even more so, tertiary sectors

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18 A large share of the data described in this chapter is derived from the household surveys conducted in Rwanda in 2000 and 2006. See National Institute of Statistics of Rwanda (NISR), 2002, “Enquête Intégrale sur les Conditions de Vie des Ménages 1 (Rwanda Integrated Living Conditions Survey 1), 2000–2001” (in French), NISR, Kigali (hereafter, EICV1); and NISR, 2006, “Labor Market and Economic Activity Trends in Rwanda: Analysis of the EICV 2 Survey (Enquête Intégrale sur les Conditions de Vie des Ménages 2/ Rwanda Integrated Living Conditions Survey 2), 2005–2006; Final Report,” NISR, Kigali (hereafter, EICV2). Little data in the chapter pertains to the period after 2006. Results from the household survey that was carried out in 2010/11 were not available at the time of the writing of the report.

19 This report defines the primary sector to essentially include agriculture and fishing; the secondary sector, to include manufacturing, construction, mining, and utilities; and the tertiary sector, to include commerce, community and personal services, government services, and transport. The following terms are used interchangeably throughout the report for the three broad economic sectors: the primary or agriculture sector, the secondary or manufacturing sector, and the tertiary or service sector.
Overall, the labor market is dynamic. The substantial increase in employment in the manufacturing and services sectors corresponds to Rwanda’s economic and poverty reduction objectives, as these sectors are associated with higher-skilled work and relatively high earnings.

2.2 Labor Supply: A Young Labor Force Slowly Develops Higher Skills Levels

Rwanda’s labor force is young and largely unskilled

The population of Rwanda is quite young. Almost 44 percent of the population is under 15 years old (table 2.1). In other words, for every 100 persons older than 14 years, there are another 77 who are 14 years or younger. This fact has two important implications. First, to escape poverty, workers in a household must earn enough to take care of both themselves and their children. Second, the level of schooling that these children attain will have a crucial impact on the skills composition of the labor force over the next several decades.

The labor force is defined as all individuals of working age (15 to 64 years), who are either working or actively seeking work. With a labor force of just over 4 million people, almost 80 percent are of working age. Another 13.4 percent are enrolled in school (table 2.1). Young people dominate the labor force; as illustrated in figure 2.1, over 60 percent of the labor force is under 34 years old, and one-third is under 25 years old.

The educational attainment of Rwanda’s labor force is still limited (figure 2.2); the most common educational level is incomplete primary school (1.9 million people, or roughly half of the labor force). Almost a quarter of the labor force (23 percent) is estimated to have no formal schooling at all. This report categorizes these two groups as “unskilled.” Taken together, almost three quarters of Rwanda’s labor force—those who either did not attend or did not complete primary school—is thus unskilled. About 1 in 5 workers left the education system after completing primary school. These workers are referred to as “semi-skilled.” Persons in the labor force with educational attainment higher than primary school are categorized as “skilled” workers in this report.

Excluding workers with vocational training (3.4 percent of the total), only 5.9 percent of workers in the country have attained some postprimary schooling. Graduates with upper secondary (114,141) and university (31,258) education together account for only 3.6 percent of the country’s labor force. Given the low share of skilled workers in the workforce, even doubling the graduation rate of postprimary institutions would leave the labor supply of Rwanda predominantly unskilled for the foreseeable future.

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### Table 2.1 Disaggregation of Rwanda’s Population, 2006 (percentage)

<table>
<thead>
<tr>
<th></th>
<th>% of the population</th>
<th>% within the age group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>1. Population under six years old</td>
<td>19.5</td>
<td></td>
</tr>
<tr>
<td>2. Child population (6–14 years of age)</td>
<td>24.0</td>
<td></td>
</tr>
<tr>
<td>Active</td>
<td></td>
<td>4.2</td>
</tr>
<tr>
<td>Inactive – enrolled</td>
<td></td>
<td>76.2</td>
</tr>
<tr>
<td>Inactive – not enrolled</td>
<td></td>
<td>19.7</td>
</tr>
<tr>
<td>3. Working-age population (15–64 years of age)</td>
<td>53.4</td>
<td></td>
</tr>
<tr>
<td>Active (working or looking for work)</td>
<td>79.5</td>
<td></td>
</tr>
<tr>
<td>Inactive</td>
<td></td>
<td>7.1</td>
</tr>
<tr>
<td>4. Population 65+ years of age</td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td>Active</td>
<td></td>
<td>73.0</td>
</tr>
<tr>
<td>Inactive</td>
<td></td>
<td>27.0</td>
</tr>
</tbody>
</table>

Educational levels of the labor force vary by gender, with working females having less education than working males (Table 2.2). This reality is driven primarily by the large number of women who have not received any education. At the higher end of the skills spectrum, 11.1 percent of the male labor force is skilled, compared to just 8.0 percent of the female labor force. Similarly, 21.8 percent of men are semi-skilled, compared to just 17.6 percent of females.

Recent trends in labor supply: Higher skills levels and lower participation rates

A number of factors influence the supply of labor and its skills composition, including demographic and social change; changes in the quality, cost, or availability of schooling; other government policies; and external labor demand.

When comparing labor supply data from 2000 and 2006, two important trends stand out: the increasing skills level of the labor force and declining participation rates.21

The bars in figure 2.3 show the composition of the labor force by educational level for 2000 and 2006, with the solid line illustrating the percentage increase in the number of labor force participants at each level. For example, the number of workers without education declined by about 13 percent, whereas the number of participants in all other educational categories increased, particularly at the highest levels of education. The number of university graduates recorded the highest percentage gain (73 percent), followed by graduates of upper secondary (63 percent) and lower secondary (52 percent) education. However, these significant increases occurred from very low base levels: as noted previously, the overall percentage of labor force participants with postprimary education levels increased from 7.5 percent to 9.4 percent.

At the same time, the share of the working-age population that was working or actively looking for work declined from 85.6 percent in 2000 to 79.5 percent in 2006. Even though labor participation rates fell, the absolute number of labor force participants grew considerably during this period.

21 A trend that was not analyzed for the purpose of this report, but which deserves attention in future detailed analyses of labor supply trends, concerns labor migration. Reliable data in this area are unfortunately hard to come by and sound analyses are complicated by the fact that a substantial share of incoming workers may largely be Rwandan nationals who were educated abroad.
period—by 515,000. These findings illustrate the number of jobs that the economy needs to create in order to keep up with demographic growth. They also help explain how the educational mix of the youth in the country today quickly impacts the overall mix available on the labor market, as young people are entering the labor force in large numbers.

If new labor market entrants are better skilled than older generations, the skills composition of the labor market as a whole will improve relatively quickly due to this demographic dividend. The opposite is also true: should the educational attainment of new labor entrants be equal to or lower than those of current workers, then Rwanda’s chance to benefit from the current demographic trend will have been missed, with adverse consequences for the skills base of the labor force for decades to come.

Table 2.3 shows that the decline in labor force participation originates primarily in the lower participation rate of the young. The strongest declines occurred among 15–24-year-olds (from 74 percent in 2000 to 63 percent in 2006). While there were also some declines in other age categories, these were much smaller, and labor participation rates remain very high for these groups (on the order of 90–95 percent), a pattern that holds for both men and women.

The lower labor force participation rates for 15–24-year-olds are likely a direct result of children staying in school longer. Table 2.4 presents the change in the labor force–schooling composition of two key age groups, categorized by gender and poverty standing. As seen in the table, among males 15–19 years old from nonpoor households, 56 percent were active labor market participants in 2000, while only 46 percent were active in 2006—a decline of 10 percentage points. In contrast, the percentage that was inactive and in school rose from 35.7 percent to 48.4 percent—an increase of roughly comparable size. The percentage that was inactive and out of school also declined and thus does not explain the declining labor force participation rate. This finding of roughly offsetting changes in the active and inactive but enrolled categories of young men is consistently found across gender and age groups.

The decision of younger individuals to enroll in education rather than work occurred particularly in poorer households. As table 2.4 shows, the increase in enrolled status has been as or more common in poor than in nonpoor households for each age and gender cohort. This finding has important equity implications, as it appears that all types of households are increasingly choosing (or able to) invest in their children’s (both male and female) education, rather than taking them out of school and obtaining immediate returns for their labor. As a result, the increase in the skills composition of the labor force is expected to continue in the years ahead.

### 2.3 Labor Demand: Good Jobs for Workers with Higher Levels of Education

As described in the previous section, Rwanda’s labor force consists of over four million people. This section examines where they work, recognizing that a working person can be self-employed, active in a family enterprise, or an employee. In this analysis, an individual is considered to be working regardless whether or not he or she has a formal contract or receives a monetary wage.

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**Table 2.3** Labor Force Participation Rates in 2000 and 2006, Disaggregated by Gender (percentage)

<table>
<thead>
<tr>
<th>Age</th>
<th>Total working age</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 to 24</td>
<td>73.8%</td>
<td>62.9%</td>
<td>75.1%</td>
</tr>
<tr>
<td>25 to 34</td>
<td>94.5%</td>
<td>91.6%</td>
<td>94.4%</td>
</tr>
<tr>
<td>35 to 44</td>
<td>96.2%</td>
<td>93.3%</td>
<td>97.0%</td>
</tr>
<tr>
<td>45 to 54</td>
<td>95.3%</td>
<td>92.3%</td>
<td>96.5%</td>
</tr>
<tr>
<td>55 to 64</td>
<td>92.3%</td>
<td>90.4%</td>
<td>93.7%</td>
</tr>
</tbody>
</table>

Source: World Bank calculations based on EICV1 and EICV2.
Employment and educational attainment of workers by economic sector

In Rwanda, almost every person who wants to work finds an income-generating activity. The unemployed, defined as persons who do not work but are actively seeking a job, make up only a very small share of the country’s working-age population. Of all working-age individuals who do not work, less than one percent is seeking a job; the others are inactive—that is, they are neither working nor seeking a job. By the same token, of all people who want to work (79.4 percent of the working-age population), only one in every 400 persons was unable to find employment (table 2.5).

This finding does not imply that everyone who wants to work finds a “good” job. As the next section, which focuses on earnings, will show, many people engage in self-employment or household enterprise activities that provide only low earnings. It seems fair to assume that a large share of Rwanda’s population cannot afford to be unemployed and thus engages in any type of income-generating activity that he or she is able to find, even if it is for just a few hours per week and does not provide high earnings. The challenge in Rwanda, then, is not to increase the number of jobs that are available, but their quality. The importance of the latter goal is particularly relevant in the context of demographic change; without a rising number of quality jobs, an ever larger share of Rwanda’s growing labor force will be confined to low-earning types of work that individuals are generally eager to escape.

While agriculture still accounts for more than three out of every four jobs, employment in Rwanda moved significantly towards nonagricultural work over the 2000–2006 period. This can be seen in figure 2.4, which shows the proportion of total employment by economic sector. As previously noted, the proportion of total employment in the agricultural sector fell 13 percentage points between 2000 and 2006, to 76.7 percent, and employment in the manufacturing sector tripled, but continued to be relatively small (5.1 percent of all jobs). The services sector also grew, accounting for nearly one-fifth of all jobs in 2006 (up from less than one-tenth in 2000). If sustained, this strong growth in nonagricultural employment will become an extremely important development in the labor market, given that average job characteristics and quality differ considerably by sector.23

Table 2.4 ■ Change in Activity Status among 15–24-Year-Olds, by Gender and Poverty Level (percentage)

<table>
<thead>
<tr>
<th></th>
<th>15–19-year-olds</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-poor</td>
<td>Poor</td>
<td>Non-poor</td>
<td>Poor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active</td>
<td>–10%</td>
<td>–20%</td>
<td>–11%</td>
<td>–21%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inactive – enrolled</td>
<td>13%</td>
<td>19%</td>
<td>12%</td>
<td>21%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inactive – not enrolled</td>
<td>–3%</td>
<td>1%</td>
<td>–1%</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: World Bank calculations based on EICV1 and EICV2.
Notes: Table shows the change in percentage of individuals in the relevant expanded labor force category.

Table 2.5 ■ Labor Status of Working-Age Population, 2006 (number and percentage)

<table>
<thead>
<tr>
<th></th>
<th>Total number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td>4,000,512</td>
<td>79.2%</td>
</tr>
<tr>
<td>Unemployed</td>
<td>10,102</td>
<td>0.2%</td>
</tr>
<tr>
<td>Inactive</td>
<td>1,035,486</td>
<td>20.5%</td>
</tr>
<tr>
<td>Enrolled</td>
<td>676,854</td>
<td>13.4%</td>
</tr>
<tr>
<td>Not enrolled</td>
<td>358,632</td>
<td>7.1%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>5,051,151</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

Note: n.a. – not applicable.

23 The shift in employment from agriculture to the manufacturing and services sectors might to some extent also be due to “push” factors related to the limited availability of agricultural land for a growing population.
in table 2.6, the manufacturing sector appears to have a relative preference for workers with technical or vocational education, while the services sector has the highest relative demand for workers with upper secondary skills and beyond.

Seen from the perspective of workers, the higher people’s educational attainment, the less likely they are to work in the primary sector (figure 2.5). The large majority of workers with primary schooling or less work in agriculture. Beyond this, the proportion drops. Nevertheless, the agricultural sector remains the source of employment for a large share of workers who have vocational and/or technical (54 percent), lower secondary (46 percent), and upper secondary (23 percent) education. Conversely, the likelihood of working in the services sector rises steadily with the level of education, to the point where 72 percent of upper secondary graduates and 92 percent of university graduates are employed in it. The relationship between educational level and employment in the manufacturing sector is a more nuanced story, with workers at all educational levels having a similar and small

**Figure 2.4** Percentage of Employed Workers by Broad Sector, 2000 and 2006

![Bar chart showing percentage of employed workers by broad sector, 2000 and 2006.]

Source: World Bank calculations based on EICV1 and EICV2.
Note: Primary – agriculture; secondary – manufacturing; tertiary – services.

**Figure 2.5** Sectoral Allocation of Workers by Educational Level, 2006 (percentage)

![Bar chart showing sectoral allocation of workers by educational level, 2006.]

Note: Ag – agriculture; constr – construction; govt – government; manu – manufacturing; sec – secondary education; sr – senior; univ – university; util – utilities; voc/tech – vocational and/or technical education.

**Table 2.6** Educational Attainment of Workers by Sector, 2006 (percentage)

<table>
<thead>
<tr>
<th></th>
<th>TOTAL</th>
<th>Agriculture</th>
<th>Manufacturing</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>23%</td>
<td>27%</td>
<td>14%</td>
<td>12%</td>
</tr>
<tr>
<td>Primary incomplete</td>
<td>48%</td>
<td>50%</td>
<td>45%</td>
<td>41%</td>
</tr>
<tr>
<td>Primary complete</td>
<td>20%</td>
<td>19%</td>
<td>24%</td>
<td>22%</td>
</tr>
<tr>
<td>Vocational and technical</td>
<td>3%</td>
<td>2%</td>
<td>10%</td>
<td>6%</td>
</tr>
<tr>
<td>Lower secondary</td>
<td>2%</td>
<td>1%</td>
<td>4%</td>
<td>6%</td>
</tr>
<tr>
<td>Upper secondary</td>
<td>3%</td>
<td>1%</td>
<td>2%</td>
<td>11%</td>
</tr>
<tr>
<td>University</td>
<td>1%</td>
<td>0%</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

likelihood (3–6 percent) of working in the sector, with the exception of those with lower secondary education (9 percent) and vocational and/or technical training (15 percent).

Employment and educational attainment of workers by employment type

Important distinctions in the demand for skills may exist not only between economic sectors but also between different types of employers. For example, wage-setting mechanisms for workers in public or parastatal employment (hereafter, “public”) are different from those used in private employment.24 There can also be distinctions between those who work for a wage and those who work for themselves or their families in nonwage employment. These differences can be assessed by assigning the type of employment to one of five categories: (1) private nonwage work in agriculture; (2) private nonwage work in manufacturing and services; (3) private wage work in agriculture; (4) private wage work in manufacturing and services; and (5) wage work in the public sector.

Table 2.7 shows the proportion of workers in each of these employment types in 2006. Not surprisingly, nonwage agricultural work dominated employment, while public employment represented a very small share of the workforce (3 percent, or 128,000 out of around 4 million employed individuals). The remaining private sector categories each accounted for roughly 10 percent of total employment.

Just as there has been a recent reallocation of work in agriculture to work in manufacturing and services, there has also been significant change in the share of workers employed in the aforementioned employment categories.

These changes can be summarized as a shift away from nonwage agricultural work in favor of wage agricultural work and a considerable expansion of nonagricultural private sector jobs (figure 2.6). By 2006, wage agricultural work accounted for about 10 percent of all jobs, up from 3.6 percent in 2000. In contrast, there was a steep decline (over 20 percentage points from 2000) in the share of nonwage jobs in agriculture, to 66.4 percent of all workers in 2006. Public sector employment also increased its share of total employment, but still accounted for only a very small slice of the total job pie in 2006.

Collectively, these findings mirror the decline in total primary sector employment discussed previously. The manufacturing and services sectors saw a significant expansion of both wage and nonwage jobs. Wage employment nearly doubled, while nonwage employment more than tripled, in size in these sectors. The increase in nonwage employment (usually self-employment or household enterprise work) in manufacturing and services is not—essarily a positive development, however, because earnings and security in this type of job can be low. The quality of this type of employment will therefore be further analyzed in the next section.

Of the five types of employment identified in figure 2.7, the highest proportion of skilled workers (57 percent) is

Figure 2.6  Changes in the Relative Sizes of Employment Categories, 2000 to 2006 (percentage)

Table 2.7  Share of Workers Employed in Different Employment Categories, 2006 (percentage)

<table>
<thead>
<tr>
<th>Type of employment</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public wage</td>
<td>128,027</td>
<td>3%</td>
</tr>
<tr>
<td>Private wage, nonagricultural</td>
<td>415,592</td>
<td>10%</td>
</tr>
<tr>
<td>Private wage, agricultural</td>
<td>373,475</td>
<td>9%</td>
</tr>
<tr>
<td>Private nonwage, nonagricultural</td>
<td>426,508</td>
<td>11%</td>
</tr>
<tr>
<td>Private nonwage, agricultural</td>
<td>2,658,424</td>
<td>67%</td>
</tr>
<tr>
<td>Total</td>
<td>4,002,026</td>
<td>100%</td>
</tr>
</tbody>
</table>

Note: “Nonagricultural” private wage and nonwage work relates to wage and nonwage jobs in private manufacturing and services.

24 “Parastatal” refers to a corporation or enterprise owned by the government.
found in the public sector, followed by 22 percent of wage workers in nonagriculture (i.e. manufacturing and services). Only 15 percent of people in nonwage jobs are skilled workers in these two sectors. The share of skilled workers in nonwage and wage jobs in agriculture is only 6 percent and 2 percent, respectively. If these proportions are indicative of the demand for skills in the economy, the public sector clearly has the greatest demand for skilled workers.

Public employment is also distinct in its penchant for upper secondary school and university graduates, which make up a significant share (44 percent) of its employees (compared with just 10 percent in the next most skills-intensive category, nonagricultural wage work). In contrast, agricultural employment—both wage and nonwage—does not appear to demand much, if any, skilled labor. In between, both wage and nonwage work in manufacturing and services seem to demand relatively similar shares of skilled work, although the skills level for wage employment appears to be slightly higher. Variations in the share of semi-skilled workers across employment categories are not as dramatic, with the highest share (25 percent) in nonagricultural wage jobs.

Alternatively, figure 2.8 illustrates the relationship between educational attainment and employment category from the viewpoint of the worker. While most relationships are straightforward (e.g. the more educated a person, the more likely he or she is to work in the public sector), the relationship between educational level and work in the nonagricultural nonwage sector changes as the educational level rises, peaking for those with lower secondary school and vocational and/or technical training, and then declines. Unsurprisingly, people are less likely to work in the agricultural sector as their educational level rises. The share of people with a certain educational level who work in agriculture falls from almost 80 percent of those without education to just 3 percent of university graduates.

Employment in private manufacturing and services (wage and nonwage) accounts for a relatively large share of total employment for workers with more than a primary education, while public wage employment is a significant source of jobs for upper secondary and university graduates (38 percent and 51 percent of total employment in the sector, respectively). Information on education levels and employment categories is further disaggregated in annex 1, which breaks the data down by gender and location (urban versus rural).
2.4 Earnings

Earnings by economic sector and employment category

Job quality depends on many factors, such as earnings, the number of hours worked, job security (e.g., protection from dismissal), and job safety (e.g., physical working environment). The best single quantifiable measure of job quality is generally considered earnings. With this in mind, this section investigates differences in typical earnings levels to ascertain which sectors and types of work offer the best-quality jobs and to whom these jobs go. Specifically, the section reviews whether more highly educated workers typically earn more and whether this distinction differs by location (urban or rural) or gender. The section also briefly discusses differences in earnings between people with a vocational and/or technical background and those who completed primary or lower secondary education.

Earnings tend to differ markedly for work in different sectors of the economy (table 2.8). On average, primary sector workers earn less than half the earnings of secondary sector workers, and only about one-third the earnings of tertiary sector workers. There are also large earnings differences across employment categories. The sharpest divide is between agricultural and nonagricultural work, with the latter tending to provide higher-quality jobs (see table 2.9). Workers who tend to do best are private sector, nonagricultural wage employees and those in the public sector. It is worth noting that nonwage work in manufacturing and services also delivers considerable gains over nonwage work in agriculture, with median earnings around twice those of agricultural jobs.

Table 2.8 ■ Mean and Median Annual Earnings by Economic Sector, 2006 (RWF)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Mean</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>All workers</td>
<td>120,136</td>
<td>53,335</td>
</tr>
<tr>
<td>Primary</td>
<td>88,223</td>
<td>46,558</td>
</tr>
<tr>
<td>Secondary</td>
<td>185,098</td>
<td>104,218</td>
</tr>
<tr>
<td>Tertiary</td>
<td>236,153</td>
<td>108,693</td>
</tr>
</tbody>
</table>


Earnings by educational attainment

Earnings levels tend to be higher for workers with higher levels of education (table 2.10). The median-earning primary school graduate makes almost 50 percent more than the median-earning worker without any education. Compared to the median earnings of primary education completers, those of lower secondary education graduates are one-third higher, and those of upper secondary and university graduates, roughly three and twelve times greater, respectively.

Annex 2 explores the relationship between education and earnings in more detail. The results of a multivariate regression show that the returns to an extra year of education are higher as education levels increase (i.e., additional earnings from an extra year of education at the lower or upper secondary level are higher than those from an extra year at the primary level).

Earnings by educational attainment and location

High returns to education are not restricted to urban areas—the strong positive link between education and earnings holds in rural areas as well (table 2.11). However, earnings by educational level are lower across the board and increase less with education in rural areas compared with urban areas. Nevertheless, increases by educational level are very significant: for example, primary school completion is associated with 44 percent higher earnings than

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25 For people engaged in nonwage work (e.g., on a family farm or in a family nonfarm business), earnings are calculated as the net revenues of the enterprise. If more than one household member works in the enterprise, net revenues are assigned proportionally to each individual, based on hours worked.
the earnings of workers with no education in rural areas (compared with 80 percent higher earnings in urban areas).

**Earnings by educational attainment and gender**

Employment patterns and trends also differ by gender. For example, the recent large shift from nonwage work in agriculture toward employment in industry and services (as well as to wage agricultural work) occurred for both males and females. However, for women this shift was disproportionately driven by movement into nonwage work, rather than wage-based employment, in industry and services. Earnings also differ by gender. Both men and women tend to earn more when their educational attainment is higher. However, women have lower earnings than men with a similar level of education (table 2.12). Also, while earnings escalate quickly for both genders as educational attainment increases, the rate of increase tends to be lower for women than for men. For example, the median female earner with primary schooling earns 31 percent less than her male counterpart. But her earnings are 36 percent higher than those of uneducated women (the equivalent percentage for men is 50 percent).

The reasons for the existence of gender differences in employment patterns and earnings can be many. Their causes may be found in the education system, households, and the labor market, relating respectively to learning environments that are better geared to teaching males than females, family situations in which girls are more often prevented from attending school or doing homework, and labor market

<table>
<thead>
<tr>
<th>Educational level</th>
<th>Mean (nominal RWF)</th>
<th>Mean (relative)</th>
<th>Median (nominal RWF)</th>
<th>Mean (relative)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>80,585</td>
<td>59</td>
<td>44,409</td>
<td>68</td>
</tr>
<tr>
<td>Primary incomplete</td>
<td>85,928</td>
<td>63</td>
<td>47,571</td>
<td>72</td>
</tr>
<tr>
<td>Primary complete</td>
<td>136,613</td>
<td>100</td>
<td>65,724</td>
<td>100</td>
</tr>
<tr>
<td>Lower secondary</td>
<td>199,626</td>
<td>146</td>
<td>85,705</td>
<td>130</td>
</tr>
<tr>
<td>Vocational</td>
<td>236,803</td>
<td>173</td>
<td>102,861</td>
<td>157</td>
</tr>
<tr>
<td>Upper secondary</td>
<td>359,189</td>
<td>263</td>
<td>218,814</td>
<td>333</td>
</tr>
<tr>
<td>Technical</td>
<td>465,927</td>
<td>341</td>
<td>351,194</td>
<td>534</td>
</tr>
<tr>
<td>Tertiary</td>
<td>1,301,830</td>
<td>953</td>
<td>825,766</td>
<td>1256</td>
</tr>
<tr>
<td>ALL</td>
<td>119,353</td>
<td>87</td>
<td>52,949</td>
<td>81</td>
</tr>
</tbody>
</table>

*Source: World Bank calculations based on EICV2.*

<table>
<thead>
<tr>
<th>Educational Level</th>
<th>Female</th>
<th>Male</th>
<th>Female/Male ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>40,384</td>
<td>52,875</td>
<td>0.76</td>
</tr>
<tr>
<td>Primary incomplete</td>
<td>43,065</td>
<td>55,722</td>
<td>0.77</td>
</tr>
<tr>
<td>Primary complete</td>
<td>54,804</td>
<td>79,350</td>
<td>0.69</td>
</tr>
<tr>
<td>Lower secondary</td>
<td>74,442</td>
<td>96,200</td>
<td>0.77</td>
</tr>
<tr>
<td>Vocational</td>
<td>74,973</td>
<td>157,851</td>
<td>0.47</td>
</tr>
<tr>
<td>Upper secondary</td>
<td>193,911</td>
<td>266,675</td>
<td>0.73</td>
</tr>
<tr>
<td>Technical</td>
<td>178,544</td>
<td>471,306</td>
<td>0.38</td>
</tr>
<tr>
<td>University</td>
<td>676,329</td>
<td>904,330</td>
<td>0.75</td>
</tr>
<tr>
<td>ALL</td>
<td>45,491</td>
<td>64,410</td>
<td>0.71</td>
</tr>
</tbody>
</table>

*Source: World Bank calculations based on EICV2.*
discrimination. Another potential cause that has roots both in the education system and the labor market is the possibility that women traditionally choose types of education and training that tend to result in jobs that generate lower average earnings than traditionally male occupations.

Of note, there are particularly strong gender differences in the earnings of workers with vocational and technical education (see subsequent section). Further analyses of the gender differences in educational attainment (including specializations) and earnings are needed to ascertain the factors that determine these differences and develop appropriate measures to bridge the gender divide.

Earnings by education type: Comparing general education with vocational education and training and technical education

The earnings data used in this chapter are derived from household survey data. Although respondents to household surveys were asked whether they benefited from vocational and/or technical education, survey results do not explicitly reveal which type or level of this education was obtained. What is clear from survey results is that the vast majority of respondents reporting to have benefited from vocational training had one to three years of postprimary schooling, while those reporting to have had technical education tended to have three to six years of education at this level. Therefore, this report assumes that workers who indicated having “vocational education” benefitted from Vocational Education and Training (VET), the term used in Rwanda prior to 2010 when the TVET system was introduced. Similarly, workers who indicated that they had had technical education are assumed to have benefitted from Technical Education (TE) under the previous system.

When reviewing the earnings of workers across all economic sectors (table 2.10 above), those with VET and TE seem to be higher earners than those with roughly corresponding years of general education. The median earnings of a worker with VET is approximately one-fifth greater than that of someone with lower general secondary education. The median earnings of a person with TE are 60 percent higher than those of a worker with upper general secondary education. While there are various possible causes of these results, shortages in workers with vocational and technical skills may be one of them. This may be particularly the case for those with TE, as the household surveys identified more than nine people with upper secondary education for each individual with technical education.

A more nuanced picture can be obtained by reviewing earnings differences between male and female workers who have general education and those who have VET or TE (table 2.12). As shown in figure 2.9, the benefits of VET and TE in terms of higher earnings seem to apply only to men, not women. For women, VET and lower secondary general education produce similar median earnings (figure 2.9A). Moreover, median earnings for women with technical education are actually lower—by more than 9 percent—than those for women with upper general secondary education (figure 2.9B).

When controlling for key observables such as years of education, age, and location, the lower earnings of women with vocational training compared to those

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26 See note 15.
with lower general secondary education remains significant. On average, women with vocational training earn around 19 percent less. (See annex 2 for the data related to returns to education that is controlled for these variables.) For men, however, the apparent higher earnings related to vocational education and training compared to lower general secondary education are not significant. Similar analyses comparing technical education with upper general secondary education indicate that the former leads to higher earnings than the latter. However, the number of observations, particularly of technical education students, is so small in the Rwanda household surveys that it is difficult to make firm conclusions.

There is additional evidence that the linkage between vocational education and training and employment outcomes is troublesome for women. For example, when looking at earnings by economic sector, the median earnings of women employed in industry with vocational education and training are substantially less than those of women with only primary education (table 2.13). (Further analysis into the causes of these outcomes is recommended for a future study.)

The particularly large differences between the earnings of men and women with VET and TE can have many causes, including whether the education system adequately teaches intended skills to women, or teaches women skills that earn less on the labor market, or that the labor market excludes women from entering employment in areas where these skills can be utilized. All of these potential reasons, including the last, can be affected by reforms within the system. For example, subsidized internships may help employers see the value of female workers in nontraditional employment. Authorities may therefore want to consider examining such issues and developing options that improve women’s labor market outcomes as part of an overall TVET strategy.

### Trends in the relationship between educational attainment and earnings

Having examined earnings and their determinants in 2006, this section assesses how the relationship between educational attainment and earnings is changing. To address this question, the earnings of unskilled, semi-skilled, and skilled workers in 2000 and 2006 are compared (figure 2.10A). For unskilled workers, median earnings rose by a relatively modest 7.5 percent over the period, while those of skilled workers fell by 12.6 percent. This implies that the skills premium—the ratio of the earnings of skilled workers to the earnings of unskilled workers, which can be thought of as the relative price of skills—fell from 4 to 3.2.

Thus, the skills premium shrank between 2000 and 2006 (figure 2.10B), but still remained quite large, with the earnings of skilled workers typically triple those of unskilled workers. A compelling explanation for the reduction in the skills premium is that the relative supply of skills in the economy, that is, the proportion of the labor force classified as skilled, expanded during the period. As noted earlier in this chapter, the share of skilled workers in the labor force increased from 7.5 percent to 9.4 percent from 2000 to 2006—a 25 percent expansion.

All else being equal, an increase in the relative supply of skills would be expected to reduce the price of skills (i.e., the earnings of skilled workers). In this sense, the observed reduction in the skills premium is expected. The fact that the skills premium dropped a little less than proportionately to the rise in relative supply of skilled workers suggests that the overall demand for skills in the economy may be growing, reinforcing the scarcity of skills and sustaining a large skills premium.

Semi-skilled workers earned 18.9 percent more in 2006 than they did in 2000. Since this increase was larger

### Table 2.13 Median Earnings Comparison by Educational Type and Gender (RWF)

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th></th>
<th>Female</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary</td>
<td>Vocational</td>
<td>Difference</td>
<td>Primary</td>
</tr>
<tr>
<td>Agriculture</td>
<td>59,605</td>
<td>81,188</td>
<td>36.2%</td>
<td>51,904</td>
</tr>
<tr>
<td>Industry</td>
<td>129,375</td>
<td>256,963</td>
<td>98.6%</td>
<td>99,050</td>
</tr>
<tr>
<td>Services</td>
<td>137,706</td>
<td>236,915</td>
<td>72.0%</td>
<td>82,885</td>
</tr>
<tr>
<td>All</td>
<td>79,298</td>
<td>175,193</td>
<td>120.9%</td>
<td>55,604</td>
</tr>
</tbody>
</table>

**Source:** World Bank calculations based on EICV2.

**Note:** “Primary” indicates primary school completion; “vocational” indicates attendee of vocational education and training.
than the 7.5 percent increase in unskilled employment, the semi-skilled premium over unskilled work widened from 1.3 to 1.4. The increase in the semi-skilled earnings premium contrasts with the decline in the skilled earnings premium described above, and occurred even as the relative supply of semi-skilled workers rose from around 17 percent of the workforce in 2000 to 19.5 percent in 2006 (a 16 percent rise, see figure 2.10B).

A simultaneous increase in both the relative supply of semi-skilled workers and their earnings premium over unskilled workers points to a substantial rise in the relative demand for semi-skilled workers. That is, it is possible that while the supply of semi-skilled labor rose, demand rose to a greater degree. Additional analysis indicates that the labor allocation of workers with primary school education changed considerably between 2000 and 2006, undergoing sizable shifts in sectoral allocation (from agriculture to manufacturing and services) and intrasectoral employment (from nonwage to wage jobs), especially in agriculture. All of these findings are indications of the successful implementation of the government’s economic growth agenda.

**2.5 Summary and Potential Policy Implications**

This chapter described the clear discrepancies in earnings across economic sectors and employment types in Rwanda, noting that high-quality jobs tend to be nonagricultural wage jobs in the private sector (in both manufacturing and services) and public sector jobs (which provide particularly high earnings relative to farm work). Nonagricultural, nonwage employment also yields large gains compared with farm labor. Different sectors and employment categories demand different mixes of educational attainment, with nonagricultural sectors and employment categories being more skills-intensive.

The very strong, positive link between education and earnings confirms the close relationship between skills and job quality in Rwanda’s economy. In particular, better-educated people tend to have considerably higher-paying, nonagricultural jobs. Differences in employment opportunities are apparent between rural and urban areas, and between men and women, but the trend is general overall. Increased education leads to higher average pay even after controlling for a variety of factors, and this return increases with the level of education. When controlling for key observable variables such as age and location, women with vocational education, however, tend to do worse than their counterparts with lower secondary education, while the reverse is true for males (annex 2).

Skills levels in the labor force have risen in recent years, but semi-skilled and skilled workers nevertheless remain relatively scarce. Consequently, the premium for semi-skilled workers has risen slightly, while the premium for skilled labor continues to be exceptionally high. The recent influx of educated workers into the labor force has led to a significant reduction in the premium for skilled workers, demonstrating that it may be further reduced in the future.

The Economic Development and Poverty Reduction Strategy (EDPRS 2008–2012) of Rwanda states that: “In education and skills development, the emphasis is on increasing the coverage of nine-year basic education, strengthening Technical and Vocational Education and Training (TVET),
and improving the quality of tertiary education. “27 Progress toward these three goals can be assessed in light of the analysis in this chapter.

Given the data, the government’s emphasis on increasing coverage of nine-year basic education has strong merit. The goal is to continue the existing trend of a rapidly increasing skills base of the workforce, in line with the needs of a changing, expanding economy. As recognized in the Education Sector Strategic Plan 2010–2015, challenges in basic education include increasing access to lower secondary education and reducing dropout and repetition rates across the nine years of basic education.

In light of the skills premiums for semi-skilled and skilled workers, incentives remain strong for individuals to complete primary and pursue postprimary education. The benefits to education are large in all economic sectors, particularly in manufacturing and services, to which increased education tends to improve access. Although there are some caveats to this finding, there is little sign that existing skilled labor is underemployed. The government has successfully facilitated the growth of sectors that require more skilled labor. Over the 2000–2006 period, a rapid increase in employment in those sectors and types of employment that require skilled workers occurred; skills premiums will continue to be high for these workers as long as similar growth levels are maintained.

Focusing on the growth of the private nonagricultural sector appears to be the most obvious way to foster increased demand for semi-skilled and skilled workers. Options for how to encourage private labor demand can be found in Rwanda’s Investment Climate Assessment (ICA).28 One finding of this assessment is that large skill premiums were found to be a major hindrance to lowering the unit costs of manufacturers and increasing production (and demand for such labor). The analysis of skills premiums and returns to postprimary education in this report reinforces these concerns. An increase in the supply of semi-skilled and skilled labor can help reduce (or limit the increase of) labor costs, but skills premiums are unfortunately currently so high that even if they become less pronounced, it is likely that individuals will continue to find it profitable to pursue more education for the foreseeable future.

Growth in private employment in the manufacturing and services sectors is resulting from increases in both wage and nonwage employment.29 Thus, policies that improve the productivity of the self-employed and facilitate private entrepreneurship would contribute to the growth of higher-quality jobs (compared at least to nonwage agricultural jobs).

In the realm of education, this can be achieved by improving the basic business skills of students in postprimary education. Also, while not reviewed in this report, there would be benefits to expanding available adult education or other nonformal education and skills development programs that focus on business skills development.

Strengthening TVET is an appropriate objective and potential trade-offs between investments in TVET and investments in general secondary education require careful consideration. As indicated above, the EDPRS emphasizes the need to strengthen TVET. Indeed, this chapter’s analysis showed that workers with vocational and technical education tend to earn considerably more and are disproportionately more engaged in the manufacturing sector compared to those who left school after completing primary education. However, the benefits of VET and TE compared to general secondary education are more ambiguous and would benefit from further analysis. This comparison is particularly important because (1) access to general upper secondary education risks becoming a bottleneck for the expansion of the PBET system overall (see chapter 3); (2) unit costs of quality TVET are substantially higher than those of quality secondary education; and (3) labor demand in the services sector, where growth rates exceed those of the manufacturing sector, seems to prefer general education graduates over workers with a vocational and technical education background. As will be highlighted in subsequent chapters, Rwanda’s TVET system is underdeveloped both in terms of access and the quality and relevance of the education and training provided; it therefore requires the government’s attention. However, substantial investments in general secondary education may prove to be a more cost-efficient way to equip the future labor force with required skills in the medium to long term.

Particular attention to addressing gender differences is needed when implementing reforms to improve quality and equity within TVET. As described in this chapter, the payoffs to VET and TE appear considerably lower for women than for men. Vocationally trained women who work in

29 The latter is sometimes referred to as the informal sector. However, as the definition of informal sector and informal employment tend to vary across different analyses, this report uses the term nonwage employment.
the manufacturing sector earn even less than women who only completed primary education. The gender disparity is starker when the returns to education are controlled for observable variables such as age and location; women who completed vocational education in particular appear to have worse labor market outcomes than those who completed lower secondary education. There is therefore a need to rethink and improve vocational education for girls.

Improving the quality of higher education would ideally go hand in hand with its continuing expansion. The small sample sizes of university graduates in the household survey data used in this chapter preclude a detailed investigation of higher education outcomes. The high skills premiums for university-educated workers revealed by the data suggest, however, that improving access to higher education is at least an equally appropriate approach than improving its quality, thereby ensuring that increasing numbers of highly skilled workers enter the labor market.

In conclusion, the large share of young people in the population and the observed fall in youth labor market participation rates suggest that the rapid increase in the skills level of the workforce will continue over the medium term. It is a testament to current education policies and social conditions that this change appears to be happening in both poor and nonpoor households and for both girls and boys. The dual goals of policy makers will be to provide education for increasing numbers of students and keep that education relevant to the private sector’s demand for skills.
Chapter 2 illustrated that compared to workers with lower educational attainment, postbasic education and training (PBET) graduates have a higher likelihood of working in the manufacturing and services sectors in relatively highly paid formal jobs. Therefore, individuals reap a clear benefit from obtaining postbasic education, as it increases their likelihood of getting a “good” job, while at the same time providing the skills required by an increasingly sophisticated economy. Likewise, employers value postbasic education because they are willing to pay higher salaries to those workers who have obtained it. While these are encouraging results, they do not necessarily imply that Rwanda’s PBET system is fully successful in generating the needed quantity and quality of skilled labor. A number of reasons explain this situation:

- **Employers may recruit PBET graduates partly due to a “signaling” effect,** not directly due to the quality and relevance of their education. Employers looking for highly skilled workers recruit these graduates because the PBET system provides students knowledge and skills that are valued on the labor market. It is possible, however, that there are additional reasons for hiring these graduates. For example, employers are aware that access to PBET

is to a large extent restricted to the most able students. By hiring such graduates, they have reason to believe that they are hiring competent workers, regardless of the skills and knowledge that the latter acquired through PBET. This so-called signaling function—to the extent that it exists in Rwanda—implies that employers prefer to hire PBET graduates partly due to exogenous factors unrelated to the quality and content of the postbasic education or training that they received.

### The provision of better and more relevant PBET would enhance Rwanda’s economic growth to an even greater degree.** As noted, employers are not necessarily fully satisfied with the skills sets of PBET graduates. Those looking for well-skilled staff have little choice other than to hire PBET graduates, even if they would potentially prefer to recruit workers with more advanced, or with different, skills. One alternative is to recruit migrant workers. While this report does not assess labor migration flows, anecdotal evidence implies that both private and public employers resort to this option, suggesting that there is indeed a perceived shortage of adequately skilled workers in Rwanda. Whether this shortage concerns the quality or quantity of skills (see below) is difficult to assess at this stage. An increase in the quantity of PBET graduates would likely result in higher productivity, increased business expansion and job creation and, ultimately, increased economic growth.

### Greater numbers of PBET graduates would also enhance economic growth.** The high skills premiums paid to PBET graduates (and even to those who have completed primary education) signal a shortage of skilled workers in the labor market. This assumption is supported by the findings of the recent Investment Climate Assessment in Rwanda, which concluded that large skills premiums raise production unit costs and prevent an expansion of production. If the demand for skilled workers increases further, so will shortages of skilled labor, which in turn will likely result in higher costs. An increase in the number of PBET graduates would dampen this pressure and help reduce unit costs, expand production, improve the international competitiveness of Rwandan businesses, and, consequently, increase economic growth. As highlighted earlier in this report, a focus on increased access seems particularly appropriate for upper (general) secondary education, which otherwise risks becoming a bottleneck for the expansion of the overall PBET system.

Rwanda would clearly benefit from increasing both the quantity and quality of PBET graduates. Given limited public and private financial resources, funds should be allocated to policy actions that are expected to produce maximum impacts. In an environment of severe fiscal constraints, there are trade-offs between expanding PBET at current levels of quality and improving the quality of learning at this level. While existing skills premiums imply that increasing access is the best approach to improving the skills level of the labor force, efforts to improve quality and relevance are needed to ensure increased access to appropriate education and training. Achieving this goal would substantially increase the individual and economic benefits associated with what are typically cost-intensive interventions to increase access.

In order to alleviate financial constraints, the design of the PBET system should also ensure that education is provided in the most cost-efficient manner possible. There are a number of reform options that could facilitate cost savings in the current system, freeing up resources that could be directed either to further expansion or quality improvements. The government’s intention to facilitate and increasingly rely on private education provision offers a promising approach to expanding the amount of resources available to PBET beyond public financing. (See chapter 5 for policy options for improving access to and the quality, relevance, and cost-efficiency of PBET.)

In sum, Rwanda’s PBET system should provide high-quality education to the largest possible number of students. The fact that investment in this system presents a number of difficult trade-offs is well recognized by the government. The remainder of this report seeks to provide guidance to policy makers in making decisions on these trade-offs. This chapter describes the present policy and strategy context of the PBET system, as well as its current structure and overall enrollment, including those of its subsectors (i.e., upper secondary and higher education). The vocational training provided in Vocational Training Centers (formerly Youth Vocational Training Centers)33 will be briefly discussed.

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31 In this regard, the fact that approximately half of all university graduates in the labor force work in the public sector merits further analysis. The skills premium paid to university graduates in this sector seems to be higher than that paid in the private sector, which raises a question about the extent to which skills obtained through university study are appropriate for the public sector as compared to the private sector.


33 VTCs were previously known as Centre de Formation des Jeunes, or CFJs. The name change occurred at the same time that these institutions were placed under the authority of the Workforce Development Authority.
although these centers currently cater to primary school dropouts and graduates and are thus not actually part of the PBET system. However, it is expected that they will progressively serve basic education graduates.

**Context of current PBET policy and strategy**

The education system in Rwanda must adjust to demographic change, particularly the increasing numbers of primary school-leavers who will seek access to secondary and higher education. This trend implies that the postbasic education and training sector faces a dual challenge. On the “entry” side, PBET should offer increased, equitable access to students completing basic education, while on the “exit” side, the quality and relevance of PBET needs to be improved and aligned with the demands of the labor market and the economy as a whole.

While great progress has been made in increasing access to primary education in Rwanda, and efforts are now being made to increase the quality of that education, attention to the PBET sector has in the past been rather limited and fragmented. This changed in recent years, however, when Rwanda’s Education Sector Strategic Plan for the period 2010–2015 made the goal of expanded, more relevant postbasic education a new priority. The Ministry of Education has developed a range of policies and draft policies that provide a useful foundation for a comprehensive PBET system and strategy. In particular, it adopted a Higher Education Policy and a Technical and Vocational Education and Training Policy in 2008; an ICT in Education Policy is pending cabinet approval. Within the PBET system, the government is focusing on improving access to and the quality of technical and vocational education and training (TVET), which is underdeveloped compared to general education.

The challenge today is to develop concrete options for a comprehensive PBET strategy that will enable Rwanda to move firmly towards a knowledge-based economy and continued growth in skilled jobs in both wage and self-employment. The strategy should, moreover, be financially sustainable and capable of being implemented incrementally, starting from the country’s existing institutional base.

**3.2 Structure of the PBET Sector in Rwanda**

Rwanda’s education system is organized around four major cycles: preprimary education, basic education (primary and lower secondary education), upper secondary education, and higher education (figure 3.1). The PBET sector includes: (1) upper secondary general education; (2) Technical Secondary Schools (TSSs), which provide technical education at the upper secondary level; and (3) tertiary education, including public and private universities; other degree-level, specialized higher learning institutions (HLIs), and the alternative higher education sector, which includes colleges of nursing and education. Integrated Polytechnic Regional Centers (IPRCs) are expected to offer all levels of TVET under a new arrangement initiated by the Ministry of Education in 2009.

Vocational schools can to some extent be considered part of the PBET system. As noted earlier, VTCs traditionally deliver vocational training mainly to primary school-leavers and secondary dropouts, and in some cases, secondary school-leavers and employed people—regardless of their level of education. In the future it is foreseen that all TVET, including vocational training, will be provided to basic education graduates, although it is expected that some vocational training for basic education dropouts will continue to be needed.

As noted in its Rwanda Education Country Status Report, Rwanda has higher gross enrollment rates in primary and higher education than do other countries in Sub-Saharan Africa, but lower enrollment rates in both lower and upper secondary education. Its transition rate between lower and upper secondary education is relatively high in the region.

Table 3.1 and figure 3.2 summarize enrollment patterns over the nine-year period 2000–2008. As table 3.1 shows, total enrollment in upper secondary streams was about 105,000 in 2008; at the lower secondary level, it was about 183,000. As seen in figure 3.2 (right axis), primary education enrollment growth has slowed in recent years, which is expected given that net enrollment is approaching 100 percent. As would be hoped, enrollments at the secondary and tertiary levels have expanded more quickly than at the primary level. Average annual growth has been the highest for higher education (22 percent) during the 2000–2008 period: enrollments multiplied by a factor of 5.

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36 See annex 3 for a description of educational typologies that are useful for understanding the structure of PBET in Rwanda.
In the period under observation, enrollments in lower and upper secondary education have increased at a roughly similar pace. Throughout the period the number of students in upper secondary education compared to the number of students in lower secondary education has been stable at roughly 57 percent. However, due to the expansion of the system, the difference between enrollment in lower and upper secondary education has steadily grown in nominal terms. Whereas in 2000 there were around 35,000 fewer students in upper than in lower secondary education, this difference had increased to 79,000 in 2008. This figure indicates that increasingly large numbers of lower secondary education graduates are not gaining access to upper secondary education.

The government’s fast-tracking of the Nine-Year Basic Education strategy is ensuring that increasing numbers of pupils are completing basic education. While this is a very positive development, it implies that the government will also need to focus on expanding upper secondary education in order to offer access to this growing number of basic education graduates, thereby avoiding a situation in which upper secondary education increasingly becomes a bottleneck in the overall expansion of PBET as a whole.38

Figure 3.3 compares enrollment in upper secondary and tertiary education in Rwanda with enrollment levels in other selected low-income countries of Sub-Saharan Africa. The y axis in the figure displays the income per capita in each country. The figure shows a correlation between enrollment and national income. It also reveals that Rwanda’s gross enrollment rate (GER) in upper secondary education, 17.4 percent, is relatively low compared to those of the other countries depicted. For example, GER in Mauritania, Niger, and Nigeria is between 23 and 27 percent, and in Ghana and Kenya it is substantially higher—35 and 43 percent, respectively. Considering its income level, Rwanda’s GER at the upper secondary level is perhaps not surprising: all depicted countries with higher GERs also have higher gross national income (GNI) per capita. Similarly, all countries with lower GERs (i.e., Burundi, Niger, Madagascar, and Uganda) also have a lower GNI per capita than Rwanda (figure 3.3A).

Figure 3.1 ▪ Structure of Rwandan Education System, 2008

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38 See the Introductory Note to this report, which provides updated information on how the government is addressing this issue following the introduction of the 12-year education policy.
Compared to the other low-income countries shown in figure 3.3B, enrollment in higher education in Rwanda is relatively high, even when its relatively low income level is not taken into account. At a rate of 573 students per 100,000 inhabitants, tertiary enrollment in Rwanda is only exceeded by that in Mali and Ghana, which are 613 and 879 per 100,000 citizens, respectively. Nevertheless, compared to Mauritius or South Africa (1,340 and 1,536 students, respectively), countries that have the most developed higher education systems among Sub-Saharan African countries, Rwanda’s enrollment numbers are quite low.

Figure 3.4 broadens the picture by adding a selection of non-African countries, ranging from low-income countries (e.g., Laos and Kyrgyzstan) to lower-middle-income countries (e.g., Pakistan, Mongolia, Philippines, Paraguay, Guatemala, and Ecuador) to upper-middle income countries (e.g., Peru). The figures shows that the correlation between enrollment and income also exists at a global level, particularly in higher education, with a rather distinctive difference between the enrollment levels of low-income countries and most middle-income countries.39

Table 3.1  Enrollment in Rwandan Education System by Level, 2000–08

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Preprimary</td>
<td>7,844</td>
<td>18,399</td>
<td>14,283</td>
<td>19,991</td>
<td>28,103</td>
<td>na</td>
<td>98,934</td>
<td>94,226</td>
<td>145,409</td>
</tr>
<tr>
<td>% Fem. Stud.</td>
<td>49.4</td>
<td>49.6</td>
<td>50.2</td>
<td>50.1</td>
<td>50.6</td>
<td>52.0</td>
<td>51.8</td>
<td>51.1</td>
<td></td>
</tr>
<tr>
<td>GER</td>
<td>3</td>
<td>—</td>
<td>—</td>
<td>123</td>
<td>130</td>
<td>136</td>
<td>145</td>
<td>146</td>
<td>151</td>
</tr>
<tr>
<td>Primary</td>
<td>1,431,657</td>
<td>1,476,272</td>
<td>1,534,510</td>
<td>1,636,563</td>
<td>1,752,588</td>
<td>1,857,841</td>
<td>2,019,991</td>
<td>2,150,430</td>
<td>2,190,270</td>
</tr>
<tr>
<td>% Fem. Stud.</td>
<td>50.0</td>
<td>49.6</td>
<td>50.0</td>
<td>50.3</td>
<td>50.5</td>
<td>50.8</td>
<td>50.9</td>
<td>51.2</td>
<td>50.9</td>
</tr>
<tr>
<td>GER</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>123</td>
<td>130</td>
<td>136</td>
<td>145</td>
<td>146</td>
<td>151</td>
</tr>
<tr>
<td>Lower secondary</td>
<td>80,209</td>
<td>90,253</td>
<td>99,737</td>
<td>114,217</td>
<td>131,427</td>
<td>142,209</td>
<td>156,299</td>
<td>169,682</td>
<td>183,284</td>
</tr>
<tr>
<td>% Fem. Stud.</td>
<td>51.5</td>
<td>51.3</td>
<td>50.5</td>
<td>49.1</td>
<td>47.7</td>
<td>47.6</td>
<td>47.6</td>
<td>47.8</td>
<td>48.2</td>
</tr>
<tr>
<td>GER</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>Upper secondary</td>
<td>44,915</td>
<td>50,910</td>
<td>57,552</td>
<td>64,936</td>
<td>72,124</td>
<td>76,308</td>
<td>83,330</td>
<td>96,836</td>
<td>104,752</td>
</tr>
<tr>
<td>% Fem. Stud.</td>
<td>49.5</td>
<td>50.2</td>
<td>49.7</td>
<td>50.1</td>
<td>48.6</td>
<td>47.7</td>
<td>46.6</td>
<td>46.9</td>
<td>46.6</td>
</tr>
<tr>
<td>GER</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>Tertiary</td>
<td>9,357</td>
<td>12,802</td>
<td>15,940</td>
<td>20,393</td>
<td>24,948</td>
<td>27,787</td>
<td>37,149</td>
<td>41,013</td>
<td>45,374</td>
</tr>
<tr>
<td>% Fem. Stud.</td>
<td>32.9</td>
<td>33.7</td>
<td>34.1</td>
<td>36.8</td>
<td>39.6</td>
<td>40.4</td>
<td>41.6</td>
<td>na</td>
<td>na</td>
</tr>
<tr>
<td>Num. of Stud. per 100,000 inhab.</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>251</td>
<td>315</td>
<td>410</td>
<td>—</td>
<td>474</td>
<td></td>
</tr>
</tbody>
</table>


Note: Edu. – education; fem. – female; GER – gross enrollment rate; inhab. – inhabitant; stud. – student.

Figure 3.2  Enrollment Growth by Educational Level, 2000–08

Source: MINEDUC.

Note: Edu. – education; second. – secondary; Tronc Commun – lower secondary education.
3.3 General Upper Secondary Education

General upper secondary education lasts three years in Rwanda. At the end of this cycle, students take either the Secondary 6 Leaving Examination or the A-Level Examination. The total number of all secondary schools in the country, both lower and upper, has grown from 405 in 2002–03 to 689 in 2007. Most of this expansion has come at the lower secondary level. Approximately 60 percent of secondary schools are boarding schools, and in 2008, roughly 44 percent offered both lower and upper secondary education. Private schools host 54 percent of all students enrolled in upper secondary education.\(^4\)


Curriculum

Although curriculum reforms in primary and secondary education have been ongoing since 2003, the pace of reform increased considerably in the period 2007–2010. The upper secondary curriculum was streamlined in 2009 because of concerns that the previous curriculum was too demanding and overloaded, among other reasons. The new upper general secondary curriculum offers several subject combinations in each of the main sections of science, humanities, and languages. Each combination consists of five examinable core subjects, which always include entrepreneurship and the writing of a "general paper." In addition, each combination includes four to six nonexaminable subjects, of which some are compulsory. Finally, there are various extracurricular activities, including sports, cultural activities, and religious studies.

Government statistics presently provide little information on the number of schools that offer, or the number of students enrolled in, the various curriculum combinations. The most recent comprehensive information on this topic dates back to 2001, which predates both the current curriculum and its subject combinations. At that time, the two curriculum streams that were offered by most schools were academic (49 percent) and vocational (45 percent). A teaching stream was offered in 36 percent of schools, and a technical stream in only 8 percent. Around one-third of all schools providing upper secondary education offered more than one curriculum stream, a share that was significantly higher in private (38 percent) and publicly financed (37 percent) schools than in public schools (23 percent). The most common combinations were academic and vocational streams in one school, followed by vocational and teaching streams in one school.

Small average school size, multiple levels of education, the offering of several curriculum streams, and the presence of boarding facilities complicate school management in the country. As noted in a 2004 World Bank report, diversity in curriculum streams may be a sign of school responsiveness to market demand, but also indicates that schools fail to take advantage of economies of scale in service delivery. The report goes on to note that the apparent absence of scale economies (i.e., the unit cost of providing education is not much lower for larger schools than for smaller schools) might be caused by the fragmentation of course offerings. It may thus be advisable to expand upper secondary education without a proliferation of course offerings.

For example, MINEDUC presented an issues paper during the 2008 Joint Review of the Education Sector that contended that the upper general secondary curriculum was overloaded with too many subject options, leading to poor student performance on public examinations (MINEDUC, 2007, “Reform of Post-Basic Education in Rwanda—An Issues Paper for Presentation at the Joint Review of the Education Sector 2008,” MINEDUC, Kigali). Publicly financed schools are schools that are privately owned and managed, but largely publicly financed.

Small average school size, multiple levels of education, the offering of several curriculum streams, and the presence of boarding facilities complicate school management in the country. As noted in a 2004 World Bank report, diversity in curriculum streams may be a sign of school responsiveness to market demand, but also indicates that schools fail to take advantage of economies of scale in service delivery. The report goes on to note that the apparent absence of scale economies (i.e., the unit cost of providing education is not much lower for larger schools than for smaller schools) might be caused by the fragmentation of course offerings. It may thus be advisable to expand upper secondary education without a proliferation of course offerings.

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Table 3.2 Examples of Existing Curriculum Combinations in Upper General Secondary Education

<table>
<thead>
<tr>
<th>Combination</th>
<th>Core subjects</th>
<th>Nonexaminable subjects*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Science section</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics, computer science, mathematics</td>
<td>Physics, computer science, mathematics, entrepreneurship, general paper</td>
<td>English, Kinyarwanda, technical drawing, chemistry</td>
</tr>
<tr>
<td>Biology, chemistry, mathematics</td>
<td>Biology, chemistry, mathematics, entrepreneurship, general paper</td>
<td>English, Kinyarwanda, fine arts, physics, computer science</td>
</tr>
<tr>
<td><strong>Humanities section</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>History, economics, geography</td>
<td>History, economics, geography, entrepreneurship, general paper</td>
<td>English, Kinyarwanda, computer science, accounting, fine arts, French</td>
</tr>
<tr>
<td>History, economics, literature</td>
<td>History, economics, literature, entrepreneurship, general paper</td>
<td>English, Kinyarwanda, computer science, drama, French</td>
</tr>
<tr>
<td><strong>Languages section</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combination 1</td>
<td>English literature, French, Kinyarwanda, entrepreneurship, general paper</td>
<td>Swahili, drama, computer science, secretarial studies</td>
</tr>
<tr>
<td>Combination 2</td>
<td>English literature, Swahili, Kinyarwanda, entrepreneurship, general paper</td>
<td>Drama, French, computer science, secretarial studies</td>
</tr>
</tbody>
</table>

Note: * Subjects in italics are not compulsory.
taking advantage of opportunities to consolidate wherever appropriate.45

Lack of recent data on curriculum combinations prevents an assessment of whether (upper) secondary schools are currently taking advantage of economies of scale and to what extent they are aligning their course offerings with labor demand; further analysis of these topics is warranted. Despite a weak evidence base, the widespread perception of key stakeholders is that secondary education is insufficiently aligned with labor demand. To address this concern, MINEDUC plans to review upper secondary curricula to encourage the acquisition of more appropriate skills for both the workplace and higher education.46

**Teacher qualifications and retention**

As highlighted in an issues paper that MINEDUC presented during the Joint Review of the Education Sector (JRES) in 2008, teacher qualification and retention are additional major issues in both general upper secondary education and technical secondary schools.47 Data from the MINEDUC school census (reported in the Rwanda Education Country Status Report of 2011)48 showed that in 2008, only 37 percent of all secondary school teachers had the required qualifications for their positions. In Rwanda this means that they have not completed a university education and may lack the subject matter knowledge needed to teach the curriculum. The share of qualified teachers is higher in private secondary schools (48 percent) than in public secondary schools (29 percent).

The UNESCO Institute for Statistics (UIS) database provides education data that is comparable across countries. Based on the International Standard Classification of Education (ISCED), this database puts the share of qualified secondary school teachers in Rwanda at 53 percent in 2007. While this is considerably higher than the percentage calculated using the MINEDUC definition and its school census data, it is quite low compared to the qualified secondary teacher rate that the UIS database records for such countries as Mozambique (62 percent in 2007) and Nigeria (69 percent in 2006) and is more comparable to the rates in Burundi (56 percent in 2008) and Burkina Faso (50 percent in 2009).49

In addition to teacher qualifications, the issues paper also drew attention to the lack of contact time in classrooms due to teacher absenteeism and sickness and pointed out that teaching frequently takes the form of uninspiring lecture and note-taking methods, rather than creative enquiry using a learner-centered approach. The overall student-teacher ratio in secondary education is 25:1, which is relatively low compared to other African countries.50 Given that teacher salaries comprise the largest recurring expense in the education budget, a difficult trade-off exists between promoting educational quality through small class sizes and avoiding extreme upward pressure on per student expenditure.

**Teaching methods**

MINEDUC intends to promote more student-centered teaching methods in general education, and efforts have begun to move toward this goal. For example, curriculum reforms have taken into account student-centered teaching and teachers who have gone through training in English have been exposed to this methodology. However, a comprehensive strategy encompassing well-aligned reforms in key elements of the education system (e.g., teacher training, curriculum, examinations, inspection, and school environment) has not yet been developed.

Teacher training, an essential ingredient of student-centered teaching, does not yet include structural components that would provide teachers the necessary exposure and know-how to teach in this manner. Teachers are generally unfamiliar with teaching methods that support the acquisition of catalytic skills by students. The great majority of teachers are familiar only with teacher-centered, highly didactic approaches to teaching and learning, with a high level of student passivity observed in secondary school classrooms.

Both MINEDUC and its development partners recognize this challenge; as a result, a number of partner-funded teacher training projects are in process, almost all of which support some form of student-centred learning or the introduction of some level of catalytic skills. Efforts in this area are, however, still relatively fragmented and lack the foundation of a sound government strategy. A strategy that promotes the acquisition of catalytic skills would ideally not only include appropriate teacher training reforms, but also ensure that other key aspects of the education system—such

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47 MINEDUC, 2007, “Reform of Post-Basic Education in Rwanda.”
49 For Rwanda, the latest data on qualified teachers in secondary education in the UIS database are from 2007. For the comparator countries provided here, the source year of the data is either 2007 or the year for which data are available that is closest to 2007.
50 Ibid.
as curricula, examinations, inspections, and the school environment—facilitate the acquisition of these skills.

The Education Sector Strategic Plan (ESSP) 2010–2015 recognizes a need for greater emphasis on student-centered pedagogy in both pre- and in-service teacher training and includes plans to train upper general secondary education teachers in this methodology. The Kigali Institute of Education, for example, is slated to work with the Colleges of Education and Teacher Training Centers to incorporate student-centered approaches into its teacher training curriculum.

### 3.4 Higher Education

Higher education in Rwanda consists of both traditional public and private universities and other degree-granting HLIs, as well as five Integrated Polytechnic Regional Centers (IPRCs). The higher education subsector has been expanding rapidly. In 2003, there were a total of 9 institutions (5 public and 4 private); in 2008, this number had more than doubled to 20 institutions (6 public and 14 private). While growth in publicly funded higher learning institutions has been impressive (4 of the 6 public institutions have been set up since 1997), private expansion in higher education has been even more striking. Some tertiary institutions are managed by ministries other than MINEDUC, such as the Ministry of Health, which has administrative control over nursing colleges. Quality assurance, however, remains the responsibility of the Higher Education Council under MINEDUC.

**Degree-granting sector.** The 20 degree-granting institutions of higher education in Rwanda offer programs of variable duration. Most offer four-year degree programs (or more, in disciplines such as medicine), with some diploma programs of shorter duration. Of the 14 private institutions in the subsector, 5 were accredited at the time of the writing of this report and 6 had received provisional accreditation. Most of these institutions were created after 1994. Before that year, the country had only one public university, the National University of Rwanda (NUR), which was founded following the country’s independence in 1963. NUR and all other institutions of higher learning that existed in 1994 together had less than 5,000 students that year.

**Alternative sector.** This sector consists of a College of Technology (in Tumba), five Colleges of Nursing (one in each of the five provinces) belonging to the Ministry of Health, and two Colleges of Education. The Tumba College of Technology is a public institution offering technician training at the certificate (secondary level, A2) and diploma (post-secondary, A1) levels. The two-and-a-half- to three-year programs result in A1 diplomas for higher technicians.

The government is also in the process of operationalizing five IPRCs—one in each region and one in Kigali—which will coordinate and offer TVET at all levels, including the technician level. The IPRCs have two essential functions: (1) to offer diploma (A1), technical certificate (A2), and vocational training, and (2) to coordinate and supervise public and private TVET providers (on behalf of the Workforce Development Authority and the government) in each respective region. To carry out the first function, IPRCs will be based in existing TVET institutions and rely on a network of existing institutions for training provision. The only new programs that will be offered in most regions are A1 diploma programs. For example, the IPRC in the Southern Province has established a network of three campuses and is planning an additional one for agriculture.

It is envisaged that the IPRCs will facilitate an array of skills programs at different levels, with multiple entry and exit points. The intent is to enable people with ability to progress vertically all the way to university education in a track parallel to general education. IPRCs are intended to have various facilities, including pedagogic research and teacher learning centers; technical and vocational workshops; an entrepreneurship development center; a regional labor market information system; a curriculum development center; an industrial liaison center; an accreditation and assessment center; an innovation center; and restaurants and hotels dedicated specifically to training (see also section 3.5).

Two IPRCs have been established thus far: one in Kavumu in Southern Province and one in Kigali (formerly Kicukiro Technical College). The IPRC in the Northern Province will be constructed with the support of the Chinese government. Other locations for future Polytechnics are the Official Technical School (ETO) in Kibungo (Eastern Province) and the ETO in Kibuye/Karongi (Western Province).

Enrollment in higher learning institutions has grown substantially over the past decade, with an average annual growth rate of 22 percent in the period 2000–2008 (a 15 percent growth rate in public institutions and a 31 percent rate in private ones). While total enrollment grew by almost a factor of five during this period, it grew by almost of a factor of 9 for private and only 3 for public institutions. In fact, private higher learning institutions now enroll more students than do public institutions (figure 3.5).

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51 Annex 3 provides a complete list of universities and HLIs in Rwanda.
Currently, between one-third to one-half of students in higher education have some form of scholarship or sponsorship, which places a significant burden on the public resources allocated to higher education. The government is accordingly widening the access of poor and vulnerable students to higher education by using means-testing to allocate scholarships.

The strategic priorities for the higher education subsector, as defined in ESSP 2010–2015, focus on the expansion of access and strengthening linkages between higher education and the labor market. The ESSP includes plans to provide incentives to students to study science and technology subjects (public HLIs will specifically focus on expanding access to these disciplines), encourage research in areas relevant to Rwanda’s development, and strengthen linkages between HLIs and the private sector. As described in chapter 5, various other options exist to improve the responsiveness of (public) higher education to labor demand. Where such options can be implemented at the central level (e.g., the generation and dissemination of labor market information), evidence shows that responsiveness to labor demand and adaptability to changing environments is best ensured by HLIs themselves (see chapter 4). The function of the central government in this sphere is to create an appropriate enabling framework.

As described in chapter 2, approximately half of Rwanda’s higher education graduates are employed in the public sector, even though the number of government jobs accounts for only a small share of total employment. The government sector appears to offer more attractive benefit packages to higher education graduates than does the private sector. This situation merits further analysis as part of efforts to assist higher learning institutions in adapting their course offerings to private sector demand. At the moment it is unclear whether the current situation has arisen because HLIs design educational programs to meet public rather than private sector demand, or because the government’s wage-setting mechanism remunerates higher education graduates at such a high level that it prevents the efficient allocation of labor.

In addition to efforts to improve the relevance of higher education to private sector labor demand, HLIs need to both increase their cost effectiveness and expand their resource base. This is particularly important if they are to continue increasing access as the share of public funding allocated to the subsector is reduced (see also chapter 4). To achieve this objective, universities will be expected to increase their resource-generating activities through additional partnerships with international agencies and the private sector, reduce their reliance on expatriate faculty, and develop open- and distance-learning mechanisms.52 The latter will also promote access to an increasingly diversified student body. Other options to increase access without overburdening public resources include policies that facilitate the private provision of higher education—for example, policies that develop a more conducive regulatory framework and mechanisms that increase access to financing for both (potential) providers and students (chapter 5).

### 3.5 Technical and Vocational Education and Training

**TVET structure**

Compared to the general education system, Rwanda’s TVET system is underdeveloped.53 The government has recently begun to implement new policies designed to develop a better-functioning TVET system—one that can deliver relevant, quality technical and vocational education

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52 This section relies in part on MINEDUC, 2010, “ESSP 2010–2015.”
53 This section is also based on information derived from interviews with key stakeholders and visits to training establishments conducted in April and May 2010, as well as sources included in the bibliography of this report.
and training to increasing numbers of students. The new TVET system (box 3.1) has three principal levels: vocational (primarily aimed at basic education graduates, but also catering to less-educated pupils); technical (upper secondary education); and colleges of technology and the IPRCs (postsecondary education). A large share of TVET in Rwanda is delivered by private providers; the share is three-fourths among technical secondary schools. In addition, more than 2,600 mostly small private providers primarily offer training for work in the informal sector. The Workforce Development Authority (WDA), created in 2008, has begun implementing a major reform in which various parts of the system are being integrated (both under the WDA and through the IPRCs).

Vocational training is provided mostly to primary school graduates and individuals who have not completed lower secondary education through Youth Vocational Training Centers (French acronym, CFJs—Centres de Formation des Jeunes). These institutions teach a low level of skills in various crafts and trades, including tailoring, hairdressing, woodworking, electrical installation, and masonry. Courses typically last from six months to one year, resulting in qualifications at the A4 level. Some 65 CFJs exist in the country, of which 37 (57 percent) are owned by nongovernmental organizations. Public CFJs each average about 170 students and private institutions, about 145. An evaluation has found that, given current conditions, positive employment impacts can be expected solely in the vicinity of training centers that benefit from foreign assistance.54

While vocational training graduates cannot at present proceed to further education or training, current reforms seek to change this situation. In addition, following introduction of the nine-year basic education strategy, the entry level for formal vocational training is expected to become completion of lower secondary education, implying that the students and curricula of CFJs will become similar to those of public and private Technical Schools (French acronyms, ETOs and ETs—Écoles Techniques Officielles and Écoles Techniques; see below).

Vocational training for semi-skilled and skilled workers has not yet found a niche in Rwanda, despite several attempts to establish it. One cited reason is a strong social preference for academic education, even though access to this type of education has historically been very limited.55 Efforts to establish public vocational training for skills that were expected to be in demand in rural areas have generally been unsuccessful, in part due to limited demand and in part due to underfunding.

Technical education is offered by ETOs and ETs at the upper secondary level, which provide graduates of lower secondary education (S3 level) three years of training, leading to an A3 or A2 (craftsman) certificate. Graduates with these technical certificates can proceed to university or technical colleges. While few used to do so, the situation seems to be improving. At present there are 160 of these schools, of which almost three-quarters are not government owned. The schools are relatively small, averaging 240 students each in the private sector and 220 students each in the public sector. They teach mainly technical subjects, such as

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construction, information and communication technology (ICT), carpentry, and automotive technology.56

Dropout rates in the ETOs and ETs are reportedly low—less than 10 percent over the three-year course. The final assessment at this level is dominated by a theoretical examination previously prepared by the National Examination Council, with schools conducting their own practical exams. Pass rates on the theoretical examination are relatively high (averaging 85 percent in 2009), ranging from 59 percent in veterinary studies to 91 percent in construction to 97 percent in computer science.

As described in section 3.4, postsecondary technical training is offered at the Tumba College of Technology and the two IPRCs that have been established to date.

Schools, enrollment, teachers, and gender issues

Enrollment in CFJs is relatively limited, totaling about 10,000 trainees in 2009. Enrollment in ETOs and ETs was 37,800 that same year, or roughly one-third of total enrollments at the upper secondary level. Enrollment in colleges of technology is also still limited. The Kicukiro College of Technology, for example, enrolled 450 students in 2009 (table 3.3).

Instructors teach an average of 21.5 trainees in CFJs, 35.5 in ETOs and ETs, and 9 in colleges of technology. When public and private Technical Schools are taken together, some 39 percent of teachers have qualifications at the certificate level; 37 percent, at the diploma level (A1); and 24 percent, at the degree (A0) level.

There are gender imbalances in enrollment in vocational training and technical education that become more pronounced as the level of education increases. Females, for example, made up 37 percent of trainees in public CFJs in 2009, 43 percent in private CFJs, and 25 percent in ETOs (no gender data are available for ETs). The share of women students is also very small in Colleges of Technology: reportedly 6 percent of enrollment at Tumba and 12 percent at Kicukiro.

Women students also tend to be concentrated in traditional female occupations. In vocational training, for example, females are a strong majority in tailoring (92 percent), cooking and food processing (88 percent), and hairdressing (87 percent) training; they also represent 44 percent of students in ICT training. Male students, on the other hand, dominate training in plumbing, welding, carpentry, electricity, masonry, automobile mechanics, metalwork, and driving. At the technical secondary level, women are again the majority of students in tailoring training, make up a bit less than half of ICT students, and are moderately represented in agriculture and veterinary studies. Females are largely absent from traditional male programs, such as carpentry, general mechanics, and automobiles (annexes 5 and 6).

Private TVET provision and enterprise-based training

Private TVET provision accounts for 57 percent of trainees at CFJs and 73 percent at Technical Schools. Until recently, only associations could establish training institutions, but for-profit training organizations are reportedly also currently allowed to do so. ETs must follow a government-specified curriculum and are typically inspected by MINEDUC two

<table>
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<tr>
<th>Table 3.3</th>
<th>Key Characteristics of TVET Schools and Students, 2009</th>
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<td>CFJs</td>
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<td>Institutions</td>
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<td>Public</td>
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<td>Enrollment</td>
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<td>Private</td>
<td>% institutions</td>
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<td></td>
<td>% students</td>
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</tbody>
</table>

Source: Statistics provided to authors by WDA in September–October 2010.
Note: P – pupil; T – teacher; WDA – Workforce Development Authority.

56 The data cited in this and subsequent paragraphs of this “TVET structure” subsection was provided to the author by the WDA in September–October 2010.
to three times annually. ETs must also obtain permission from MINEDUC before introducing new courses or raising tuition rates. The government does not specify the wages of teachers or the procedures for their hiring or dismissal.

The WDA, with the support of the German Technical Cooperation (Deutsche Gesellschaft für Internationale Zusammenarbeit, GIZ), undertook a survey of all types of training providers in Rwanda in 2009/10. The surprising result was 2,631 training providers, 90 percent of whom were private.\textsuperscript{57} Private providers were mostly small proprietors and cooperatives. In total, 10,000 trainers were then teaching 117,000 trainees in 3,300 courses (averaging 35 trainees per trainer.) More than 80 percent of training providers offer introductory training. Tailoring was the most popular program, offered by one-third of providers, followed by construction and arts and crafts. Less than 10 percent of all providers followed the official curriculum provided by the National Curriculum Development Center; rather, most prepared their own curricula.\textsuperscript{58} Training programs averaged 11 months in duration, with 34 hours of instruction per week.\textsuperscript{59} There appears to be no effective government regulation or control over these small training providers.

No organized national system of enterprise-based training exists in Rwanda. Apprenticeship training in the technical trades is virtually nonexistent and informal sector training exists in Rwanda. Apprenticeship training in the construction as well as the hospitality and tourism industries. The targeted occupations were selected after consultations with private sector representatives. The private sector is also involved in the actual development of vocational training curricula for several priority occupations in the construction as well as the hospitality and tourism sectors. It has initiated the development of further curricula in agriculture and ICT. The targeted occupations were selected after consultations with private sector representatives. The private sector is also involved in the actual development of

New TVET policies and strategies

Rwanda has a recent, well-developed policy framework for TVET consisting of three main documents: “Technical and Vocational Education and Training Policy in Rwanda” (April 2008); “Concept Paper: Development and Implementation of an Integrated Technical and Vocational Education Training System” (June 2008); and “Draft WDA Strategic and Action Plan for Implementation of the Integrated TVET System” (December 2009).\textsuperscript{60}

The TVET policy sets out as its main objective “... to provide the economy with qualified and competitive workers and to train citizens able to participate in sustainable growth and poverty reduction by ensuring training opportunities to all social groups without discrimination.”\textsuperscript{61} The policy also lays out five priority areas of intervention: developing the TVET system, improving access, improving quality, providing adequate-quality teachers, and ensuring sustainable financing. (The policy identifies several key strategies for each intervention area, which can be found in annex 7.)

The TVET Concept Paper elaborates how the TVET system will be integrated, with a focus on the establishment of the WDA and IPRCs. Integration entails the integration of: (1) vocational training and technical education under WDA; (2) all levels of TVET as a separate stream parallel to general education so as to ensure vertical mobility (throughout the TVET system) and horizontal mobility (across general education and TVET); and (3) TVET programs in the regions under IPRCs, which will be subordinate to the WDA. Figure 3.6 depicts the envisaged essence of the new TVET structure.

The draft WDA Strategic and Action Plan is a detailed plan for implementing the TVET policy and concept paper. The document identifies nine key objectives with associated actions. In light of its substantial mandate and relatively weak capacity, the WDA has begun focusing on four of these objectives: integration of the overall TVET system, developing demand-led and competency-based curricula, teacher recruitment and training standards, and a robust institutional framework for workforce skills development (annex 8).

The WDA has made particular progress in developing vocational training curricula for several priority occupations in the construction as well as the hospitality and tourism sectors. It has initiated the development of further curricula in agriculture and ICT. The targeted occupations were selected after consultations with private sector representatives. The private sector is also involved in the actual development of

\textsuperscript{57} GIZ was established in January 2011 through a merger of three German organizations, including the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ). Before 2011, support to TVET referred to in this report was provided by GTZ.

\textsuperscript{58} The WDA has started to develop curricula for vocational training. Previously, the government did not provide or stipulate harmonized curricula.


curricula, a process that uses the DACUM (“Developing A Curriculum”) method (box 3.2 and annex 14).

**Strengths and challenges of the TVET system**

The current TVET system in Rwanda can be broadly described in terms of its strengths and challenges in five key areas:⁶²

- external efficiency and economic relevance
- equity
- organizational and management effectiveness
- quality of training
- financing and internal efficiency

With respect to **external efficiency and economic relevance**, strengths include the WDA’s adoption of an industry- and demand-driven approach to TVET delivery, initiation of industry attachment programs, development of a labor market information system, and the strong interest of the Private Sector Federation (PSF) in serving as a link between enterprises and TVET in the country. Challenges that remain unaddressed include, among others, employer dissatisfaction with current TVET graduates, an oversupply of graduates in certain occupations (e.g., automotive mechanics), distortions in the supply of various training levels (e.g., more engineers than technicians graduate each year), absence of systematic training in entrepreneurial skills, an examination system that does not assess practical skills in a valid and reliable way, and companies’ lack of interest in contributing to and/or providing training.

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⁶² Since the drafting of this report, some of these challenges have been addressed by the government, as detailed in the Introductory Note to this report.
Box 3.2 | The DACUM Approach

Pioneered by Ohio State University in the United States, DACUM is a quick method for carrying out occupational analysis at low cost. It aims to achieve results that may be immediately applied to developing training curricula. The method uses teams of workers who have experience in the occupation that is the object of analysis.

The result of this teamwork is usually expressed in a so-called “DACUM letter” or “DACUM map,” which describes the job position in terms of the competencies and subsequences it requires. DACUM has been used to analyze occupations at the professional, executive, technical, and operational levels. Its use as a methodology for analyzing industrial processes and systems has made it popular in the United States, Canada, and certain Latin American countries (including Chile, Nicaragua, Uruguay, and Venezuela).

DACUM is particularly promoted to guide the design of training programs and shorten the gap between training content and what actually takes place in workplaces. DACUM is also useful for training institutions that wish to implement competency-based programs, which require a careful identification of tasks directly related to the competencies that are to be taught. (Annex 14 provides further information on the basic principles of the approach and a typical example of a DACUM letter.)

With respect to equity, strengths include the reasonably good geographic distribution of training facilities and the existence of TVET institutions, especially those operated by nongovernmental organizations (NGOs), which cater to lower-income students. Nevertheless, limited capacity and costs continue to constrain access, particularly for lower-income students. In addition, there seems to be a lack of training opportunities for females, together with gender segregation across occupations. WDA intends to carry out interventions in order to motivate women to enroll in TVET programs. The low status of TVET and the difficulty of moving from secondary-level TVET programs to Colleges of Technology also create challenges of equity and opportunity for TVET graduates, particularly those who have completed secondary-level training.

The organizational and management effectiveness of TVET programs includes strong governmental support for TVET and skills development in general, a well-developed policy and strategic framework, the existence of the WDA, and a motivated PSF and Private TVET Providers Association, which provides services to its members. Their effectiveness could further benefit from more clearly defined roles of and relationships among the various actors within the TVET structure, as well as a clear national qualifications structure. Additional challenges include limited employer representation on the WDA Board, limited PSF knowledge of the activities of TVET institutions, and limited data on the performance and development of TVET programs, together with the unclear mission, role, and status of the Colleges of Technology.

The quality of training is expected to benefit from the competency-based modular approach to TVET adopted by the WDA. In addition, several Technical Secondary Schools and the Tumba College of Technology are relatively well equipped, having the financial support of development partners. In addition, the Colleges of Technology are affiliated with the Kigali Institute of Science and Technology, which facilitates quality assurance. On the other hand, lack of key inputs (e.g., teachers, curricula, equipment, quality assurance, and examinations) continue to constrain the provision of high-quality TVET education. The resource shortages that are at the root of several of these challenges might be further exacerbated if TVET institutions find themselves pressured to expand access to increasing numbers of students.

Finally, in the area of financing and internal efficiency, extensive private provision of TVET (including the strong presence of NGOs) and the tuition fees charged by some public institutions increase available resources in the subsector, as well as cost-sharing among stakeholders. Additional resources originate from development partners as well as the income-generating activities of some TVET institutions. In Technical Secondary Schools, relatively low dropout rates promote internal efficiency. On the other hand, these institutions are compelled to pay relatively high salaries to foreign teachers and private providers must obtain the approval of MINEDUC for their fee structures. With respect to internal efficiency, training programs tend to be long; moreover, many TVET institutions do not appear to be used during substantial parts of the day (or weekends).

In sum, it is clear that both public and private TVET programs suffer from lack of practical content, limited alignment with labor market needs, and constrained financial resources. Furthermore, access to TVET is limited for certain segments of the population (e.g., low-income students and women) and enterprise-based training barely exists. Yet the extensive availability of private TVET programs is a major advantage of the system, as is the presence of key stakeholders in both the public and private sectors who are motivated to combine their efforts to build on the current strengths of the TVET system and address its weaknesses.

On the public sector side, the government has clearly recognized the challenges that the educational subsector
currently faces and has taken the essential first steps to address them. Most importantly, it has developed an extensive and forward-looking framework and integrated all TVET programs under the WDA. Although the structure and staffing of the WDA is being formalized, the agency clearly has the potential to create the right enabling environment for the provision of relevant, high-quality, accessible TVET programs—provided that the necessary human and financial resources are available to it.

3.6 Conclusion

Considering enrollment trends in the education system overall, as well as expected increased demand for better-skilled workers on the labor market, the Rwandan government’s focus on access and quality in postbasic education and training is timely. Various policy and strategic documents have been developed, such as the Education Sector Strategic Plan, that describe overall objectives for PBET. Policy reforms and interventions aimed at achieving these objectives are now in various stages of development and implementation.

The government’s strong focus on technical and vocational education and training is demonstrated by the existence of a sound policy and strategic framework for this subsector, the establishment of the Workplace Development Authority (which promises to grow into a strong institution), and the extent to which the implementation of key reforms and interventions is already under way. The government’s emphasis on TVET is matched by targeted technical and financial support on the part of Rwanda’s development partners.

The existence of a similarly comprehensive approach to improving the demand-responsiveness and quality of general education is somewhat less evident. While initiatives are being implemented or planned in both upper secondary and higher education (e.g., planned curriculum reform and promotion of student-centered learning in upper secondary education and increasing attention to science, technology, and research in universities), these efforts appear less embedded in a clear vision of what is required to deliver high-quality, demand-responsive education than initiatives concerning TVET. This may be partly due to the fact that interventions in the TVET system start from a very weak foundation.

In general education, on the other hand, a structure and framework have already been established, together with policies and instruments related to, among other things, curricula, teacher training, and examinations. Whereas the TVET system is practically being built from the ground up, interventions in general education need to accomplish reforms within existing structures. This task brings about a different set of challenges for general education, including the need to instill among key stakeholders a sense of urgency about improving the quality and relevance of general education—that is, there will be a high price to pay for viewing general education as “business as usual.” Other challenges include the need to ensure that the general education system’s existing strengths are not negatively affected by new reforms, as well as to develop an understanding of and enthusiasm for new objectives and needed reforms among existing actors.

While the government aims to increasingly rely on the private sector to provide PBET, it is unclear how this objective will be achieved or what the key constraints of (potential) private providers are. The development and implementation of a well-founded, clear strategy to promote the private provision of PBET could substantially increase access at this level of education without putting a significant burden on public resources.

Finally, the availability of more data would allow for improved assessment of Rwanda’s PBET system. For example, updated information on the number of secondary schools, together with enrollment disaggregated by curriculum combinations, would help provide deeper insights into trends at this level. Similarly, at the time of the writing of this report, no comprehensive dataset existed that would permit analysis of enrollment or completion rates by higher learning institution or by subject at the tertiary level. Making this data available could contribute clearer insights into the knowledge and skill sets of new entrants to the labor market. Eventually, these data could be combined with information on the quality of education at these levels, as well as that provided by the labor market information system, thereby soundly linking information on labor demand with data on labor supply.
4.1 Introduction

Some of the key elements of the governance, management, and financing of the postbasic education system in Rwanda include:\(^{63}\)

Overall governance of the education sector (including basic and postbasic education) is provided by the central Ministry of Education (MINEDUC), which is small in size, and Autonomous Education Agencies (AEAs). MINEDUC focuses on policy development, monitoring, and evaluation, while the AEAs execute professional services.

- Operational functions (i.e., school management, teacher recruitment, and management) are to a large degree decentralized to the districts and individual educational institutions. Autonomy, the extent of which varies by educational level (e.g., higher learning institutions are more autonomous than secondary schools), allows institutions to respond to new and evolving knowledge, as well as their own social and economic environments.
- The unit cost of upper secondary education is more than 6 times that of primary education and the unit cost of higher education, 56 times that of primary education. At 5 percent of GDP, expenditures on education represent 26 percent of all recurrent governmental spending. Salaries of personnel in the education sector represented 60 percent of total governmental expenditures on education in 2007, down from 70 percent in 2003.
- There is currently no consistent quality assurance framework for the PBET system as a whole, with the mandate for different segments of the system fragmented across various agencies.

4.2 Governance of Postbasic Education and Training

MINEDUC and the Autonomous Education Agencies

The objectives of the education sector as enunciated by MINEDUC are to: (1) ensure that education is available and accessible to all people in Rwanda; (2) improve the quality and relevance of education, including postbasic education and training; (3) promote the teaching of science and technology, with a special focus on ICT; (4) promote the use of English, in addition to Kinyarwanda and French, in education; (5) promote an education oriented towards respect for human rights and adapted to the needs of the country; (6) sensitize Rwandan youth to the importance of hygiene, health, and protection against HIV/AIDS;

\(^{63}\) Annex 9 provides definitions of certain terminology used to describe school financing and governance issues.
(7) improve the capacity for planning, management, and administration of education; and (8) promote research as a mobilizing factor for national development. These objectives clearly address the principal identified challenges of PBET, which are, on one hand, increasing access, and on the other, improving its quality and relevance. They also emphasize several areas that are considered of particular importance for helping Rwanda achieve its economic development goals and crucial to PBET, namely, promoting the teaching of science and technology, ICT, and research.

Relatively recent developments in PBET governance and management include the transfer of the mandate for vocational education and training, as well as science and technology, to MINEDUC.64 The incorporation of the former into MINEDUC’s mandate gives the authority for all technical and vocational education and training (TVET) to one ministry, allowing for a better integration of this subsegment with other PBET subsegments. Likewise, since the government’s Science, Technology and Innovation (STI) Policy relies to a substantial extent on interventions in postbasic education and training, housing the mandate for science and technology in MINEDUC offers the potential to accelerate and improve implementation of this policy and align it with other PBET interventions.65

MINEDUC develops, evaluates, and implements policies and strategies in order to translate its strategic goals into achievable outcomes. Its work includes the development and monitoring of the budget for all educational subsectors and institutions, in conjunction with the districts and education and training institutions themselves, as well as the coordination of service delivery among stakeholders. Its formal responsibilities have changed little since 2004; it continues to perform its primarily oversight role over the delivery of education services in the 5 provinces and 30 educational districts of the country. The Ministry’s stated strategic goal is to strengthen its position as a coordinating and policy-making entity to support the execution of a sectorwide education approach. This goal requires the Ministry to put in place a major development plan for the sector and coordinate the engagement of the donor community in implementing its Education Sector Strategic Plan (ESSP).

The ESSP is a thorough, coherent, and robust document that provides a good foundation for planning and budgeting in the education sector, processes for which it has established a number of policies. However, challenges are likely to remain in operationalizing these policies, as well as in monitoring and evaluating both the policies and the performance of all subsectors of the education system.

In addition to limited financial resources, only a small number of staff work at MINEDUC and the district and sector education offices. Since the number of MINEDUC staff was reduced from over 200 in 2004 to less than 50 in 2008, the ministry has ranked as one of the smallest of its kind in Africa. Even including staff in the AEAs (see below), these numbers are insufficient to successfully carry out the Ministry’s mandate. On the district level, there are, on average, less than 4 education staff members in each of the 30 district offices; previous plans to assign one full-time education staff to each district who would be dedicated to teachers’ issues seem not to have materialized.

MINEDUC has a rather large number of autonomous or semi-autonomous bodies, through which it implements various policies and programs. All of the AEAs have a mandate that either fully or partially relates to PBET. Strong and effective coordination is therefore needed to enable MINEDUC to carry out its coordination, guidance, capacity-building, and oversight functions. This requires a mechanism between the core ministry and the AEAs, which already exists, together with sufficient ministry staff and resources allocated to PBET. (A 2008 report reviews these issues in detail).66 Both the establishment of a postbasic education unit within the central ministry and the creation of the Rwanda Development Board (see below) are expected to contribute to this effective coordination.

**National Council of Higher Education (NCHE).** Operational since 2007, the mandate of NCHE is to provide quality assurance to and ensure accountability within the higher education subsector. Its work includes: (1) enhancing the standards and quality of education and research through, among other things, accreditation and review; (2) ensuring the quality and integrity of higher learning institutions (HLIs); (3) monitoring, evaluating, and

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64 Vocational education and training was formerly part of the mandate of the Ministry of Public Service and Labor (MIFOTRA), and science and technical were formally under the authority of the Minister in the Office of the President in Charge of Science, Technology, and Scientific Research.

65 Whether the transfer is conducive to the implementation of those aspects of STI policy that do not specifically relate to (formal) education is, however, questionable.

providing guidance on teaching and learning in Rwandan HLIs; (4) developing and diversifying the funding base for higher education; and (5) assessing diploma equivalencies between foreign and Rwandan higher learning institutions. The council has begun to put into place accreditation instruments. It has no line authority over HLIs; rather, it is supposed to serve as a resource for the development of higher education.

Workforce Development Authority (WDA). The WDA is an autonomous agency supervised by MINEDUC that is responsible for regulating TVET. Created in 2009, its extensive mandate includes:

- spearheading implementation of an integrated TVET system;
- monitoring the provision of training in response to demand;
- establishing a labor market information system;
- establishing a TVET qualifications framework;
- developing TVET curricula;
- training teachers;
- promoting industry-based upgrading of worker skills;
- facilitating investments in training; and
- maximizing employment through the development of entrepreneurship.

An advisory committee, which is intended to provide WDA policy guidance and oversee its implementation, will be chaired by the Minister of Education and include one private sector representative. The WDA is directed by a seven-person board of directors, for which no minimum (or maximum) number of private sector representatives is stipulated.

Rwanda Education Board (REB). The government adopted legislation establishing the REB under the supervision of MINEDUC in October 2009. Its key responsibilities are to coordinate and fast-track education activities that aim to provide quality education to all Rwandans. The REB will have three administrative organs: a board of directors, a general directorate, and a management committee. The REB has subsumed under its umbrella a number of agencies that were previously separate AEAs or other education-related entities, including the Inspectorate General of Education, the National Curriculum Development Center, the Rwanda National Examination Council, the Student Financing Agency of Rwanda, and the Teachers’ Services Commission. The current organizational structure of the body is depicted in figure 4.1.

4.3 Decentralization of Secondary School Management

District and sector management

District authorities are responsible for managing secondary schools, including their budget and planning processes, as well as monitoring their performance. The mayor of a district is the strategic management decision maker in education, health, and social issues. He or she is assisted by a district education director, who is also responsible for youth affairs, culture, and sports, and a district education officer. The latter is responsible for recruiting new teachers; reviewing school resource and construction needs, budgets, and financial reports; and managing school performance. A sector-level social affairs officer is responsible for liaising with (primary and) secondary schools and auditing their performance.

School management. Schools are typically guided by parent-teacher associations whose terms of reference are specified by MINEDUC guidelines. School management is being increasingly decentralized; table 4.1 provides a summary of key ongoing school-based management reforms.

All public schools manage their own financial resources which, in the case of secondary schools, may consist of a substantial share of parental contributions. Financial

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67 Public sector representatives will include staff from the President’s Office; the Rwanda Development Board; and the Ministries of Labor, Industry, Youth, and Finance and Economic Planning.
management at the school level is assured by the school management committee (composed of parents and school leaders), which is supposed to provide frequent reports to parents and sector and district officials. There has yet to be an evaluation of the work of these committees and no computerized monitoring system is in place to verify whether these actions actually take place.

The relationship between central and decentralized educational authorities increasingly emphasizes accountability and performance. Each district mayor signs an agreement with the president of Rwanda that sets out targets for the districts across a range of governance and service issues, including targets for education. There are also agreements between the Minister of Education and individual districts regarding the use of capitation funds, which cover a wide range of ministry and district responsibilities related to school operations and accountability. Secondary school directors sign performance contracts with the district education officer, and head teachers are slated to sign performance contracts with the relevant sector office.

In principle, the combination of progressive decentralization and emphasis on accountability and performance allows schools to increasingly respond to local social and economic environments, while the central government—through its financing mechanisms and performance contracts—provides these stakeholders incentives to promote the achievements of specific ESSP objectives. As these mechanisms, along with the Education Monitoring and Evaluation System, develop, they are likely to focus on key indicators that are relatively easy to measure (e.g., enrollment and completion rates). Eventually, however, more sophisticated objectives could be included; for upper secondary education, these might include indicators that measure the extent to which the knowledge and skills of graduates are aligned with local labor demand.

### 4.4 Higher Learning Institutions and Autonomy

As in most other countries, the governance and management of HLIs is distinct from that of primary and secondary schools. Given the decentralization of the Rwandan education system and the particular importance assigned to autonomy in the literature on higher education, this section focuses on the extent of HLI autonomy and how well it is working. The importance of autonomy in higher education is related to the capacity of institutions to respond to new and evolving knowledge and their social and economic environments. Because they are economic actors, it is crucial that HLIs be responsive; evidence shows that this responsiveness, or adaptability, to changing environments is best ensured by the institutions themselves.

The fundamental law for higher education in Rwanda states that that “higher learning institutions shall enjoy...
autonomy in the areas of teaching, research, administration, and management of their human and material resources without prejudice to the provisions of this law and other laws.footnote{71} On closer observation (table 4.2), it appears that HLIs in Rwanda have a relatively high level of autonomy in academic matters and a somewhat lesser level in financial and administrative matters.footnote{72}

Faculty retention is an important challenge for most HLIs and depends, among other factors, on their level of autonomy in faculty and staff management matters. Academic promotion based on performance went into effect

Table 4.3 ■ Academic Ranks and their Respective Appointment and/or Promotion Criteria

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<tr>
<th>Rank</th>
<th>Criteria for Appointment and/or Promotion</th>
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<tr>
<td>Tutorial Assistant</td>
<td>Bachelor’s degree with distinction (i.e., pass with at least 70 percent)</td>
</tr>
<tr>
<td>Assistant Lecturer</td>
<td>Master’s degree equivalent to Level 6 in Rwanda NQF – Bologna 2nd cycle</td>
</tr>
<tr>
<td>Lecturer</td>
<td>Master’s degree and experience as an Assistant Lecturer for not less than three years, with demonstrated teaching and research potential through publications, contributions to module and program specifications, and production of e-learning courses</td>
</tr>
<tr>
<td>Senior Lecturer</td>
<td>Ph.D.; at least two publications since last promotion; minimum of three years’ experience as a lecturer, with evidence of teaching excellence</td>
</tr>
<tr>
<td>Associate Professor</td>
<td>Ph.D. with at least three years of relevant teaching experience as a Senior Lecturer; minimum of five research publications in refereed journals or refereed conference proceedings since last promotion; active involvement in research; and evidence of ability to supervise master’s and PhD research students</td>
</tr>
<tr>
<td>Professor</td>
<td>Ph.D. with at least three years of relevant teaching experience as an Associate Professor in a recognized institution of higher learning; minimum of five research publications in refereed journals or refereed conferences proceedings since last promotion; active involvement in research; and evidence of ability to supervise master’s and PhD research students</td>
</tr>
</tbody>
</table>

Note: The criteria for appointment and promotion are the same in the Kigali Institute of Science and Technology (KIST), the Kigali Health Institute (KHI), and the Kigali Institute of Education (KIE).

footnote{71} Law No. 20/2005, October 20, 2005, Art. 37. This law governs the organization and functioning of higher education. Art. 39 states, “The minister in charge of Higher Education shall stop the implementation of a decision of the board of directors in case that decision is contrary to the law.”

footnote{72} By and large, university autonomy in public institutions in Africa is limited to academic functions. Rare are the public universities that operate autonomously across the full spectrum of their functions: student admissions and selection; course programs and diploma offerings; revenue generation, including admission fees, tuition, and services, as well as the solicitation and management of external resources (e.g., contracts, gifts, endowments); recruitment and appointment of leaders and faculty; determining and implementing a reward/incentive structure for faculty and staff and managing the careers of these employees.

South Africa is an exception in that university heads are not appointed by political authorities. South Africa also provides an interesting example of how universities are expected to adhere to government programs for transformation and redress, while also functioning with a strong degree of autonomy (George Subotzky, 2003, “South Africa,” in African Higher Education: An International Reference Handbook, ed. Damtew Teferra and Philip G. Altbach, 545–62 (Bloomington, Indiana: Indiana University Press). In Tanzania and Kenya, university heads are appointed by the government, whereas the appointment or election of deans is a purely university affair (Damtew Teferra and Philip G. Altbach,
in January 2009. Table 4.3 outlines the criteria used for promotion, which are mostly the same across HLIs. Within any given rank, salaries are determined by government-wide norms. Although the core wage bill does not give HLIs the latitude to provide discreitional incentives, they are able to use externally generated income for this purpose. Personnel management of nonacademic staff is provided by the Ministry of Public Service and Labor (MIFOTRA), which recruits all staff members and determines their salary levels.

Faculty retention varies among HLIs; table 4.4 shows that from 2007 to 2008, the turnover rate (faculty departures as a percentage of total faculty) increased for NUR and KIST, whereas for KHI and KIE, it decreased. Several observations are relevant here:

- NUR and KIST are most affected by increased turnover, but the rate at KIST is virtually double that at NUR.
- Turnover at KIST is much higher than at the other institutions.
- Turnover at NUR more than doubled from 2007 to 2008, after three years of stability (not shown in table 4.4).
- Turnover has reduced significantly at KIE and KHI.

The most striking finding is the high and increasing level of faculty turnover at KIST—an advanced institute of technology that clearly has problems retaining faculty. Given their specialization, it is likely that faculty members have attractive career options on the labor market, which they appear to be exercising. Turnover at NUR has also increased substantially. If these increased turnover rates are the beginning of a trend, there is cause for alarm and consideration should be given to the relationship between the degree of HLI autonomy and their capacity to retain faculty in order to reverse it.

4.5 Other Aspects of PBET Management

Quality management

The mandate for quality assurance of the different segments of the PBET system is divided among three agencies. No harmonized approach yet exists among them. Quality assurance in secondary education is provided by the Inspectorate General of Education (IGE). In higher education, it is provided by the National Council for Higher Education (NCHE) through a framework that appears to be rather bureaucratic and norm-oriented. The responsibility for creating a quality assurance framework for TVET lies with the Workforce Development Authority (WDA). MINEDUC’s objective is to develop a harmonized quality assurance and accreditation system.

Although HLIs do have a good degree of institutional autonomy, including discretionay use of externally generated resources, core salary levels are still determined by the government. Interviews with KIST leaders reveal that they are not autonomous when it comes to determining salaries and salary increases, nor do they generate sufficient external revenue to ensure competitive remuneration for their most productive faculty. Similar concerns have been expressed by other HLIs, where respondents appear dubious about whether they have sufficient autonomy to retain their most productive staff.

Although the root issue is the availability of resources, the lack of institutional flexibility to respond to high faculty turnover may be exacerbating the problem. Indeed, greater responsiveness to the economic environment is a major justification for autonomy; in Rwanda, the environment is clearly creating serious challenges for the sustainability of HLIs. Faculty turnover could well be symptomatic of these institutions’ inability to establish their own pay scales. Greater autonomy in obtaining resources (even via bank loans) and providing incentives to faculty most tempted by external offers could be appropriate responses to the situation.

### Table 4.4 Faculty Turnover Rates at Four Rwandan HLIs (faculty departures as % of all faculty)

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR</td>
<td>7.8%</td>
<td>18.1%</td>
</tr>
<tr>
<td>KIST</td>
<td>32.0%</td>
<td>36.2%</td>
</tr>
<tr>
<td>KHI</td>
<td>21.7%</td>
<td>8.0%</td>
</tr>
<tr>
<td>KIE</td>
<td>14.3%</td>
<td>9.6%</td>
</tr>
</tbody>
</table>

Source: Interviews at and data provided by each institution.

Note: NUR – National University of Rwanda; KIST – Kigali Institute of Science and Technology; KHI – Kigali Health Institute; KIE – Kigali Institute of Education.
system by ensuring that the frameworks of the various segments of the education system are well aligned without, however, creating a single quality assurance agency. This task will require close coordination among the IGE, WDA, and NCHE, under the strong guidance of MINEDUC.

Notwithstanding the expected quality assurance roles of IGE, WDA, and NCHE, educational institutions themselves are the most important actors in ensuring the quality of the programs and degrees that they offer. This quality can be achieved by developing a culture that recognizes the importance of quality and putting in place policies and associated procedures for quality assurance. In HLIAs, quality assurance units have already begun to be established and are expected to play a leading role in internal quality assurance. Although there is anecdotal evidence that HLIAs (and other PBET institutions) are paying attention to quality assurance in an increasingly systematic manner, at the time of the writing of this report no evaluation of quality assurance methods or their impact were available.75

Management of student mobility and lifelong learning

Management of the transitions between different levels of PBET, and overall student mobility among its components, is essential to ensure lifelong learning and opportunities for the continuous upgrading of the knowledge and skills of Rwandans. Rwanda is planning to develop a set of qualifications frameworks to do precisely that over the ESSP period of 2010–2015. These frameworks will be created through collaboration among the Rwanda Education Board (REB; see chapter 3), WDA, and NCHE, and be aligned with other frameworks in place in the East African Community. The WDA has already started to develop the first elements of its TVET qualifications framework.

4.6. Recent and Forecasted Education Expenditures

Recent education expenditures and their intrasectoral allocation

Public expenditures. In nominal terms, public expenditures on education have increased significantly in recent years: in 2008, they were 76 percent higher than in 2000. Total recurrent public expenditures increased faster than the development budget (similar to a capital investment budget) over the period 2000 to 2008 (78 percent versus 68 percent, respectively).76 Despite the substantial nominal increase, recurrent education expenditures—whether expressed as a share of GDP or as a share of total recurrent government expenditures—have been below international norms. These expenditures varied between 3.3 percent and 4.0 percent of GDP between 2005 and 2008 (table 4.2), whereas the minimum international standard is 5 percent. Over the same period, recurrent education expenditures comprised between 22 and 25 percent of the government’s overall recurrent expenditures, slightly less than the regularly used international norm of between 25 to 30 percent.

To assess the intrasectoral allocation of government resources in Rwanda, it is useful to compare it to that of surrounding countries. Figure 4.2 implies that, compared to neighboring countries, Rwanda allocates a relatively high share of resources to higher education.77 MINEDUC considers these expenditures essential for a publicly funded higher education system that has been underdeveloped in the past. Indeed, as described in chapter 3, even though enrollment in (public) higher learning institutions has increased substantially in past years, the percentage of higher education students in Rwanda is still below the Sub-Saharan African average. Nonetheless, relatively high expenditures on higher education imply relatively smaller expenditures on primary and secondary education.

Recently, the Rwandan government made explicit efforts to reduce the share of the education budget allocated

<table>
<thead>
<tr>
<th>Table 4.5</th>
<th>Trends in Public Expenditures, 2005–2008</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2005</td>
</tr>
<tr>
<td>Recurrent education expenditures (% of GDP)</td>
<td>3.5</td>
</tr>
<tr>
<td>Overall recurrent government spending (% of GDP)*</td>
<td>15.4</td>
</tr>
<tr>
<td>Recurrent education expenditures (% of total recurrent expenditures)</td>
<td>23.0</td>
</tr>
</tbody>
</table>

Note: * Recurrent spending net of interest payments.

75 Annex 11 elaborates on quality assurance issues, describing the fundamental principles of both internal and external quality assurance, as well as the key features of these mechanisms, based on international best practice.
77 Due to limited data availability, expenditures on TVET are not specified.
to higher education. For example, while this share has remained approximately 30 percent since 2003, the budget for 2009/10 reduced it to 22 percent. It is foreseen that this share will be gradually reduced in coming years, reaching less than 15 percent by 2014/2015. While the ESSP 2010-2015 states that the relatively high overall costs of the higher education sector make improved cost-recovery mechanisms, public-private partnerships, and income-generation activities on the part of educational institutions imperative, it contains no estimate of the amount of resources that the sector is expected to generate from these sources.

**Private expenditures.** Historically, private provision of education has been prevalent in Rwanda. Many secondary schools, for example, were set up by various faith-based groups, with teachers largely supplied by the government. This public-private partnership has been enhanced by household contributions that cover children’s fees and expenses, as well as private sector investments that fund the establishment and expansion of private schools, colleges, and professional programs.

Data from the recent Rwanda Education Country Status Report indicate that household contributions comprised roughly 42 percent of total education expenditures in 2008. This is a sharp increase compared to 2000, when the rate was estimated at 29 percent, and seems linked to, among other things, higher enrollment in higher education and the increased importance of private providers in this sub-segment of the education sector. Nevertheless, household expenditures on higher education comprise approximately 40 percent of total expenditures at this level, which is substantially lower than the household share of secondary education expenditures (59 percent and 86 percent of the total costs of lower and upper secondary education, respectively). The large family contribution to secondary education reflects the significant share of private schools at this level (28 percent and 54 percent of all lower and upper secondary schools, respectively, in 2008) and the high prevalence of boarding facilities (which adds additional costs for parents).

Estimates from the 2006 household survey indicate that Rwandan households on average spend a bit less than 5 percent of their total incomes on education. This share appears to increase with household income; that spent by households in the highest income quintile is estimated to be double that spent by households in the lowest income quintile. One likely explanation for this trend is that better-off households are able to support their children through higher levels of (postbasic) education and can afford more expensive private education, while both the real and opportunity costs of these educational levels are beyond the means of poorer families.

### Forecasted education expenditures

The costs of achieving the objectives and targets of the ESSP 2010–2015 are estimated at approximately $2.7 billion over the five-year period covered by the plan, averaging $535 million a year. Of this amount, approximately two-thirds would be allocated to basic education, and a bit less than one-third to postbasic education (including all levels of TVET). Within postbasic education, expenditures on general upper secondary education would increase substantially over the period, from 6.4 percent of all funds allocated to PBET in 2009/10 to 12.1 percent in 2014/15 (averaging 9.5 percent over the five-year period). Expenditures on TVET would reach a peak of 7.7 percent of all funds allocated to PBET in 2010/11 and then progressively decrease to 4.6 percent in 2014/15.

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79 MINEDUC, 2007, “Reform of Postbasic Education in Rwanda.”
81 NISR, 2006, ECIV2.
The government’s intention to reduce the relative education resources allocated to higher education is evidenced by a targeted reduction of expenditures at this level from 23.6 percent of PBET expenditures in 2009/10 to 13.8 percent in 2014/15. If this reduction is achieved, it would reflect a decrease of more than 40 percent in the resources allocated to higher education.

It is uncertain whether the government will be able to mobilize the necessary resources to achieve ESSP objectives. Current projections foresee a potential resource gap of 30 percent; the need to find additional funding will become strongest toward the final years of the strategy period, as increased levels of enrollment throughout the education system create additional financial constraints.82

4.7. Cost Characteristics and Unit Costs of PBET Subsegments

Figure 4.3 depicts the relative per unit public expenditures at each educational level ("unit costs"). For the purpose of this report, unit cost is defined as the amount of public expenditures per student enrolled in a public education institution at a certain level of education. Relative unit cost is defined as the unit cost of a certain segment of the education sector, expressed as a proportion of the unit cost of primary education. Figure 4.3 illustrates that the unit cost of secondary education is approximately 6 times that of primary education. The unit cost of upper secondary education (6.4 times that of primary education) is around 13 percent higher than that of lower secondary education (5.6 times that of primary education). Public expenditures per student in publicly provided higher education institutions are more than 56 times higher than the unit cost of primary education. Given the average East African ratio of 24:1 for public expenditures in higher and primary education, the Rwandan ratio is high by regional standards.83

The unit cost calculations discussed here and shown in figure 4.3 are potentially affected by a number of uncertainties and may thus either over- or underestimate the unit costs of the various PBET subsegments.84 In addition, the calculations do not distinguish between general and technical education. This means that they provide a somewhat distorted picture, since the provision of TVET is more expensive than that of general academic education streams.

For example, rough estimates of unit costs using a different definition and calculation method (i.e., one that also includes students in privately provided educational institutions) indicate that the provision of vocational and technical education at the upper secondary level is more than twice as expensive as the provision of the academic stream at this level. Keeping this in mind, it is quite possible that public expenditures per student in the academic stream in upper secondary education institutions are actually lower than those of lower secondary education.

Aspects of budgetary allocations by PBET subsegment

Each segment of the PBET system has unique attributes and characteristics that affect the nature of financial allocations in that subsegment and may thus offer opportunities for reducing unit costs.

General upper secondary schools. There are a number of potential cost-saving opportunities in these schools, including:

- Nonboarding secondary schools are cheaper to run than boarding schools. It may be possible to integrate upper secondary classes into some lower secondary facilities relatively easily. Along these lines, MINEDUC aims to reduce the share of secondary boarding school students from 60 percent to 8 percent by 2015.85
- School feeding programs, provided to boarding school students regardless of their socioeconomic background,
are not well targeted to reach only vulnerable students. Providing scholarships to the neediest students may be a more cost-effective approach to sustaining and increasing demand for upper secondary education among disadvantaged students.86

■ Constructing multipurpose science laboratories in secondary schools is cheaper than providing separate laboratories for different science subjects.87

■ Private-public partnerships, supported through incentives such as tax breaks for private investors who establish schools and hostels, could help reduce infrastructure costs at this level.

■ Institutions could be required to develop an internal resource mobilization strategy, which could include making use of alumni associations and “friends of schools” to promote fundraising activities. This strategy is already quite successful on a small scale in some primary schools.

Technical Secondary Schools and Vocational Training Centers. Among the major challenges of TSSs and VTCs are high operating costs (including the continued maintenance, upgrading, and replacement of equipment), but also initial outlays for infrastructure, including the procurement, installation, and commissioning of equipment and machinery. Although many technical and/or vocational secondary schools have considerable land and other resources, relatively few seem to have implemented an effective resource mobilization strategy to supplement government grants. For example, some of these schools’ facilities are utilized for civic events and nonformal workshops during holidays, but the majority are not. Costs, on the other hand, have increased substantially as a result of the provision of meals and boarding facilities and the payment of high utility bills.

Higher learning institutions. Financing offered by the Student Financing Agency of Rwanda (SFAR) is restricted to students in public universities, as well as certain foreign universities. SFAR payments account for about one-third of total spending on higher education, which corresponds to 10 percent of total recurrent public education spending. SFAR both determines eligibility for student financing and the amount of individual entitlements. It is also responsible for loan recovery, which started in 2007. Eligibility is increasingly determined through the use of a means-testing methodology and the amount of entitlements depends on the estimated unit costs of the program in which a student is enrolled. As was noted earlier in this report, the current challenge for the government is to continue providing targeted financial support to the neediest students, while ensuring that the loan recovery program is effective and fully operational.88 The future policy directions of SFAR include introduction of merit- and needs-based grants alongside the existing loan program. In addition, the unit cost estimates used to determine entitlements are relatively dated and would merit being updated.

Finally, staff costs are presently paid directly by the government. An agreed system of HLI funding based on student numbers is slowly being implemented, which gives HLIs an incentive to reduce staffing costs.

4.8 Budget Execution and Management

The effectiveness of financial management in the PBET system can be assessed in a variety of ways. A commonly used method is to assess the match between the resources allocated (planned budget) to the system and its actual expenditures (executed budget). Table 4.6 summarizes budget execution by the various subsectors of the education system in Rwanda over the period 2003–2007. As illustrated in the table, there has been marked overall improvement in the match between planned and executed budgets over this period. For example, whereas in 2003 there was more than a 13 percent difference between planned and actual overall education expenditures, this difference had decreased to approximately 1 percent by 2007. Similarly, discrepancies between planned and actual expenditures on primary and higher education, which together make up the bulk of education expenditures, were considerably smaller in 2007 than in 2003.

For secondary education, however, substantial differences between planned and actual expenditures continue to exist; in 2006 and 2007, this subsector overspent its planned budget by 35 and 16 percent, respectively. Further data analysis suggests that the origin of the disparities between planned and actual expenditures on primary and higher education, which together make up the bulk of education expenditures, were considerably smaller in 2007 than in 2003.

87 Ibid. This source notes that international experience reveals that simple, standard classroom and school designs, together with strategic construction of specialized facilities, can be a cost-effective option for expanding the number of secondary education classrooms.
88 Ibid.
In primary education, actual expenditures on teacher salaries in each of the 30 educational districts are, on average, roughly 8 percent lower than planned expenditures. In secondary education, the difference is substantially larger: actual salary expenditures in each of the districts are, on average, 84 percent higher than planned expenditures. Averages hide very large variations across districts, as illustrated in figure 4.4. For example, in six districts, the difference between planned and actual secondary education salary expenditures was less than 20 percent (one of these districts actually underspent by 3.6 percent); on the other hand, actual salary expenditures were more than double projected amounts in eight districts.

While the reasons for the relatively large discrepancies between planned and actual expenditures on teacher salaries are unclear, the data seem to imply that MINEDUC could focus on the projection and expenditure mechanisms for teacher salaries, particularly in secondary education, in order to improve budget execution rates. A recent World Bank study of budget execution in the education sector in Rwanda provides some insights into the underlying factors. The study found that actual expenditures were significantly higher than planned expenditures in secondary education, with budget execution rates of 8.9% and 35.0% in 2004 and 2006 respectively, compared to 22.1% and 1.7% in primary education. These differences highlight the need for improved budget planning and execution mechanisms, particularly in secondary education, to ensure that resources are efficiently allocated to education programs.

Table 4.6: Education Budget Execution by Education Subsector in Rwanda, 2003–2007

<table>
<thead>
<tr>
<th>Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budget allocation (RF millions)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary education</td>
<td>13,813</td>
<td>16,262</td>
<td>19,981</td>
<td>24,191</td>
<td>31,186</td>
</tr>
<tr>
<td>Secondary education</td>
<td>5,980</td>
<td>8,981</td>
<td>9,520</td>
<td>10,072</td>
<td>10,676</td>
</tr>
<tr>
<td>Higher education</td>
<td>11,872</td>
<td>12,761</td>
<td>13,660</td>
<td>16,911</td>
<td>18,095</td>
</tr>
<tr>
<td>Institutional support</td>
<td>1,552</td>
<td>1,771</td>
<td>2,100</td>
<td>4,126</td>
<td>5,364</td>
</tr>
<tr>
<td>Total</td>
<td>33,217</td>
<td>39,775</td>
<td>45,261</td>
<td>55,300</td>
<td>65,321</td>
</tr>
<tr>
<td>Budget execution (RF millions)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary education</td>
<td>16,859</td>
<td>16,540</td>
<td>20,319</td>
<td>20,778</td>
<td>30,240</td>
</tr>
<tr>
<td>Secondary education</td>
<td>6,514</td>
<td>8,143</td>
<td>8,913</td>
<td>13,597</td>
<td>12,360</td>
</tr>
<tr>
<td>Higher education</td>
<td>12,992</td>
<td>14,169</td>
<td>14,135</td>
<td>16,489</td>
<td>18,050</td>
</tr>
<tr>
<td>Institutional support</td>
<td>1,288</td>
<td>1,837</td>
<td>1,756</td>
<td>4,126</td>
<td>5,364</td>
</tr>
<tr>
<td>Total</td>
<td>37,653</td>
<td>40,689</td>
<td>45,123</td>
<td>54,990</td>
<td>66,014</td>
</tr>
<tr>
<td>Budget execution rate (%)*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary education</td>
<td>22.1</td>
<td>1.7</td>
<td>1.7</td>
<td>−14.1</td>
<td>−3.0</td>
</tr>
<tr>
<td>Secondary education</td>
<td>8.9</td>
<td>−9.3</td>
<td>−6.4</td>
<td>35.0</td>
<td>15.8</td>
</tr>
<tr>
<td>Higher education</td>
<td>9.4</td>
<td>11.0</td>
<td>3.5</td>
<td>−2.5</td>
<td>−0.2</td>
</tr>
<tr>
<td>Institutional support</td>
<td>−17.0</td>
<td>3.7</td>
<td>−16.4</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>13.4</td>
<td>2.3</td>
<td>−0.3</td>
<td>−0.6</td>
<td>1.1</td>
</tr>
</tbody>
</table>


Note: The report uses 2007 data provided by MINEDUC and MINECOFIN.

* The “+” symbol indicates that actual expenditures within this segment of the budget were higher than planned at the start of the fiscal year. The “−” symbol indicates that actual expenditures within this segment were lower than foreseen at the start of the fiscal year.

Figure 4.4: Frequency Distribution of Variations in Budget Execution of Secondary School Teacher Salaries, 2006

Bank report lists several discrepancies between MINEDUC school census data and payroll data, which may at least partly cause the discrepancies related to teacher salaries. An interministerial committee has been appointed to resolve these discrepancies. (Details on budget execution rates for teacher salaries in primary and secondary education in the 30 districts are outlined in annex 12.)

5.1 Maximizing the Potential of PBET

The objective of postbasic education is to equip students with the knowledge, competencies, and skills that allow them to become productive labor market participants. On the national level, this supports economic growth; on the individual or household level, this increases the potential for income generation. A government that wants PBET to optimally contribute to economic and earnings growth needs to answer a set of important questions: Which knowledge and skills are most urgently needed? Is there a role for the public sector in generating these skills? How can the public sector optimally carry out its responsibilities?

Increase access to PBET while improving its quality and relevance

As highlighted in earlier chapters of this report, Rwanda faces the dual challenge of expanding access to PBET and increasing its quality and relevance. Considering the substantial wage premiums linked to any level and type of PBET, the low level of educational attainment of the population of Rwanda, and the country’s ambitious economic aspirations, increasing access can be considered the principal challenge of this education subsector.

In addition to quantitative shortages, there is also a disconnect between what students learn in PBET and the knowledge and skills needed on the labor market. While sound evidence on the actual outcomes of education and training is hard to come by, the common perception among key stakeholders in the country is that current PBET graduates are insufficiently equipped to meet the needs of the current labor market—let alone the labor market that will exist 10, 20, or 30 years from now. Given that substantial investments are being made to expand access to PBET, interventions are needed to improve its quality and relevance. After all, the more students who are enrolled in PBET, the more important it becomes that they learn what is needed in the most cost-efficient manner. In addition to ensuring that TVET graduates meet the quality expectations of employers, the supply of PBET graduates overall needs to be aligned with the type of skills in demand on the labor market. At the moment, there is an oversupply of some skills and an undersupply of others.

Improving equity is a cross-cutting concern that impacts interventions both to improve access and the quality and relevance of PBET. In this respect, it is worthwhile noting that the overall objective is not to provide equitable access to quality, relevant PBET, but to use the provision of relevant, quality postbasic education and training to provide equitable access to productive employment.
Market failures and other justifications for governmental involvement in PBET

What is the desired role of the government in ensuring that the above objectives are met? Because a better-skilled labor force results in higher economic growth, the government certainly has an interest in developing the skills of its population. But does that also mean that it must intervene to help create this labor force? After all, since individual workers and enterprises have much to gain by improving worker skills, won’t private PBET providers emerge to offer the necessary education and training? And won’t this education and training be financed by the individuals and enterprises who most benefit from it, thereby removing the need for government intervention? While to a certain extent this is indeed the case, several market failures prevent the market from providing the quantity and quality of PBET needed to optimally facilitate economic growth and increased earnings.

The market failures and their implications can be summarized as follows:

- **PBET is a public good.** Certain elements of PBET have public good characteristics, with the consequence that essential aspects of a well-functioning PBET system will not be established without public sector intervention. One example is the regulatory framework that creates an enabling environment for the provision of appropriate and sufficient postbasic education and training. While stakeholders in the education sector and labor market overall stand to benefit from the existence of such a framework, it will not be developed by private stakeholders alone, as its cost would exceed individual stakeholders’ private gain. In addition, purely private initiatives are unlikely to result in the compliance of all stakeholders with a framework, as it would lack optimal enforcement mechanisms.

- **Positive externalities of PBET.** When the benefits of PBET to society are larger than those to private individuals, private provision and financing alone result in suboptimal provision and enrollment. Generally, the private benefits of PBET are assumed to exceed the public benefits; in other words, the gains of attaining PBET for an individual worker are higher than the benefits of this worker’s education for society as a whole. However, there may be particular fields of study where this is not the case, and where reliance on private actors does not lead to optimal availability of postbasic education. This can, for example, be the case for relatively specialized professions, of which the expected positive externalities are high, but the provision is expensive and the labor demand, uncertain.

- **Imperfect information.** Demand for PBET may be weakened if potential students (or their parents) underestimate the lifelong benefits associated with it.

- **Myopia.** Individuals and households tend to attach more importance to near-term benefits than those that will materialize in the medium to long term. This reality may result in demand for PBET that is lower than is justified, based on the lifetime financial gains that potential students would derive from it.

- **Financial market failures.** Even though investments in PBET may produce high returns, limited access to credit can lead to both suboptimal demand and supply.

In addition to these market failures, certain other circumstances and government objectives justify public intervention:

- **Equity objectives.** Leaving market forces to determine the demand and supply of PBET may lead to undesirable inequitable outcomes. For example, the relatively high cost of providing education in remote and/or scarcely populated regions may limit the access of potential students. Similarly, high costs may prohibit the access of disabled individuals. Finally, social and cultural norms may prevent certain population groups (e.g., females) from accessing PBET.

- **Private sector capacity.** The private sector in Rwanda is still insufficiently developed to meet the quantitative and qualitative demand for PBET.

- **Adaptation.** Public sector intervention is needed to adapt existing public policies or interventions on a large scale when they have weaknesses or should be modified to respond to changed circumstances. For example, equipping public schools with computers and an Internet connection is an adaptation of an ongoing intervention (the provision of public education) that responds to the fact that ICT literacy has become an important requirement for graduates.

Government as facilitator, financer, or provider

After identifying justifications for government interventions, the next question is how the government can most...
effectively and efficiently intervene in the sector. Broadly described, the role of the government can be one of facilitator, financer, or provider.

As a facilitator, the government aims to create the optimal environment for PBET. Specifically, it seeks to create an environment in which equitable access to relevant, quality postbasic education and training is offered by private providers and paid for by students, their families, or their employers to the extent that this provision optimally meets labor demand. Concrete interventions can include maintaining an optimal legal framework for all actors, designing and operationalizing accreditation mechanisms, and generating and disseminating up-to-date labor market and economic data. As a financer, the government either subsidizes provision by funding private providers or subsidizes enrollment by funding students. As a provider, it owns and runs PBET institutions.

Which role is appropriate for a government to play depends on, among other issues, the market failure that it aims to address, its preferences for a stronger or weaker government role, and its capacity (in terms of the availability of both human and financial resources). In Rwanda, where there is a preference for strengthening the role of the private sector and limited human and financial capacity in the public sector, the role of facilitator can be considered the most preferred option and that of provider, the least preferred. In determining whether facilitation is indeed more appropriate than provision, however, it should be noted that the private sector should be strong enough to take on the tasks envisioned for it.

Based on the analysis of Rwanda’s PBET system offered in preceding chapters, table 5.1 describes the impact on this system of the market failures and other identified reasons for government intervention in the sector. The table also offers types of interventions that can mitigate the impact of these failures, complete with concrete examples. The following section then describes the key policy interventions in further detail.

Several conclusions can be drawn from table 5.1 that are particularly relevant to the Rwandan context. First, increasing access—identified as the key challenge of PBET—does not by definition imply that the government should build and operate more classrooms. Rather, facilitation and financing of private stakeholders (both educational institutions and students) may be equally or more appropriate options for government intervention. This observation may be particularly pertinent, considering that the Rwandan government is resource constrained and favors a strong role for the private sector in postbasic education and training. This is not to say that all public provision should be ruled out: there are clear arguments for public provision, including the “emerging industry” argument that applies to particular segments of PBET (e.g., vocational training); equity objectives (which justify the public provision of upper secondary general education in rural areas); and positive externalities (which justify the provision of education and training with particularly high social benefits, such as technical education through IPRCs).

Second, while certain arguments justify structural government interventions, other arguments expect interventions to be only temporary in duration. The required government role in PBET will therefore evolve over time. For example, the public good nature of elements of the PBET system, positive externalities, household myopia, and equity concerns are structural aspects that require public intervention. On the other hand, financial market failures and the “emerging industry” argument should become increasingly less relevant as a justification for government involvement. For interventions that respond to temporary market failures, it will be appropriate to conduct regular reviews to determine whether they are still appropriate. In addition, when and how such interventions will eventually be scaled down would ideally be considered already at the policy development stage.

Third, certain interventions can address several constraints and thus have the potential to have significant impact. However, to achieve this impact, the interventions need to be well designed, with very clear objectives, and should not attempt to achieve too much. For example, performance-based financing can improve the cost-efficient delivery of PBET, encourage positive externalities, and address equity concerns. A workable approach to creating such a mechanism might be to provide results-based financing to providers who offer priority courses or enroll girls, or students from rural areas, or disabled students. A likely overambitious example would be to allocate additional financing only to schools that enroll disabled girls from rural areas in priority courses.

5.2 Strategic Objectives and Reform Options

This section identifies a set of concrete reforms to address the key challenges of Rwanda’s PBET system, which can be grouped under five strategic objectives, as follows:
## Table 5.1 Summary of Possible Government Interventions in PBET

<table>
<thead>
<tr>
<th>Justification for intervention</th>
<th>Main impact: Access, quality/relevance, equity</th>
<th>Intervention</th>
<th>Examples*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Market failure</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public good</td>
<td>Weak enabling framework for PBET (quality/relevance, access, and equity)</td>
<td>Facilitate</td>
<td>Establish framework for open and distance-learning provision&lt;br&gt;Establish a quality assurance and accreditation system&lt;br&gt;Monitor skills attainment and align with labor demand&lt;br&gt;Establish a qualifications system to support lifelong learning&lt;br&gt;Improve teacher training&lt;br&gt;Align curriculum and exams with labor demand</td>
</tr>
<tr>
<td>Positive externalities</td>
<td>Insufficient supply by PBET providers and insufficient demand from students (access)</td>
<td>Finance providers&lt;br&gt;Finance students&lt;br&gt;Provide directly</td>
<td>Subsidize private providers offering PBET that is undersupplied (e.g., geothermal engineering, rural irrigation)&lt;br&gt;Subsidize, on a needs basis, students who enroll in or complete particular PBET studies (e.g., science and technology)&lt;br&gt;Provide PBET for which there is suboptimal access or quality (e.g., technical education through IPRCs)</td>
</tr>
<tr>
<td>Imperfect information</td>
<td>Insufficient demand by potential students (access)</td>
<td>Facilitate&lt;br&gt;Finance students</td>
<td>Conduct informational campaigns to increase demand and resources for PBET on the part of households (and enterprises)&lt;br&gt;Offer student scholarships or loans; provide subsidies to providers to reduce fees</td>
</tr>
<tr>
<td>Myopia</td>
<td>Insufficient demand by potential students (access)</td>
<td>Facilitate&lt;br&gt;Finance students</td>
<td>Conduct informational campaigns to increase demand and resources for PBET on the part of households (and enterprises)&lt;br&gt;Offer student scholarships or loans; provide subsidies to providers to reduce fees</td>
</tr>
<tr>
<td>Financial market failures</td>
<td>Insufficient supply by PBET providers and insufficient demand from students (access, also quality/relevance)</td>
<td>Facilitate&lt;br&gt;Finance providers&lt;br&gt;Finance students</td>
<td>Provide government guarantees or create other PPPs with financial sector to increase access to credit for providers and students&lt;br&gt;Support private provision of nonformal training by providing financing to providers&lt;br&gt;Offer student loans or provider subsidies to reduce fees</td>
</tr>
<tr>
<td><strong>Other reasons for government intervention</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equity</td>
<td>Inequitable access and inadequate quality or relevance for disadvantaged groups (equity, access, quality/relevance)</td>
<td>Facilitate&lt;br&gt;Facilitate&lt;br&gt;Finance students&lt;br&gt;Provide&lt;br&gt;To be determined</td>
<td>Implement advocacy, policies related to gender equity, and guidelines for improving access of disabled&lt;br&gt;Introduce performance-based funding for public PBET institutions (e.g., increased funding for provision in rural areas or enrollment of disabled students)&lt;br&gt;Offer scholarships or loans to disadvantaged students&lt;br&gt;Increase access to upper general secondary education by expanding provision in underserved (rural) areas&lt;br&gt;Improve all inputs of vocational training&lt;br&gt;Improve quality and relevance of TVET for girls</td>
</tr>
<tr>
<td>Emerging industry</td>
<td>Insufficient supply and quality by PBET providers (access and quality/relevance)</td>
<td>Facilitate&lt;br&gt;Facilitate&lt;br&gt;Finance</td>
<td>Develop and implement new funding model for TVET&lt;br&gt;Support capacity building among private providers, for example, by improving their capacity to raise capital&lt;br&gt;Support private provision of nonformal training by providing financing to providers&lt;br&gt;Increase access by providing upper general secondary education&lt;br&gt;Improve all inputs to vocational training</td>
</tr>
<tr>
<td>Adaptation (or public sector failure)</td>
<td>Inefficient policy framework or use of public funding to promote optimal and equitable provision of PBET (access, quality/relevance, and equity)</td>
<td>Provide&lt;br&gt;Facilitate&lt;br&gt;Provide&lt;br&gt;Facilitate&lt;br&gt;Provide&lt;br&gt;All</td>
<td>Develop and implement new funding model for TVET&lt;br&gt;Strengthen coordination among agencies with PBET mandate&lt;br&gt;Introduce performance-based funding for PBET institutions&lt;br&gt;Strengthen autonomy-accountability-management triad in PBET institutions&lt;br&gt;Optimize staffing and responsibilities of MINEDUC and AÉAs&lt;br&gt;Improve links between secondary schools and the world of work&lt;br&gt;Increase public resources for PBET&lt;br&gt;Increase capacity of public providers to raise capital</td>
</tr>
</tbody>
</table>

*Several examples respond to more than one justification for intervention.

Source: Authors.

Note: PPP – public-private partnership.
1. Expand access and cater to a more diversified student body.
2. Improve the quality and relevance of PBET.
3. Increase and diversify funding, and improve cost efficiency.
4. Establish a more integrated PBET system.
5. Improve the framework for PBET governance and management, as well as management capacity.

While an attempt has been made to identify the most appropriate reform options in this section, the list of possible interventions offered here is not exhaustive. The options are a mix of reforms that are new and those that are already intended to be carried out by the government, but require further attention and resources to be (fully) implemented. Indeed, several of the identified reform options are already part of the ESSP 2010–2015 and are likely to continue to be included in the ESSP for 2013/14–2017/18.

Table 5.2 summarizes the reform options, providing the justification for each public intervention, its area of impact (access, quality/relevance, or equity), the targeted PBET subsegment, and whether the intervention entails facilitation, financing, or provision on the part of the government. The next section aims to provide guidance on how to prioritize among the various options.

Strategic objective 1: Expand access and cater to a more diversified student body

One approach to this objective is to focus on (potential) PBET bottlenecks. Other approaches focus on introducing alternative methods of education, attracting a more diversified student body, and providing cost-efficient education and training. The following options are identified:

Reform option #1: Increase access to upper general secondary education

General upper secondary education risks becoming a bottleneck to PBET expansion, hampering both the entry of graduates into the labor market and the inflow of students into higher education. Considering the relatively low cost of providing general upper secondary education compared to, for example, quality TVET, expanding publicly provided general upper secondary education is a cost-efficient approach to increasing access to PBET. It will also facilitate the entry of increasing numbers of workers with relevant skills into the labor force.93

The government recognizes the need to expand access to general upper secondary education, as evidenced by the introduction of its 12 Year Education Policy.94 One promising option being considered by MINEDUC is to facilitate this expansion by focusing on the number of spaces in day, rather than boarding, schools, while reducing public subsidies for boarding expenses.95

Reform option #2: Implement the existing open- and distance-learning proposal in a sustainable manner

The government’s existing proposal for a senior secondary equivalency program is well thought out; it makes good sense to build on its experience with distance training for teachers. This program will provide pathways to secondary education for basic education graduates of any age in a cost-efficient manner. Initially, a government-financed approach might be appropriate to kick-start implementation. Subsequently, funding the program through a combination of learner fees and government subsidies would help ensure financial sustainability. Open and distance learning can also eventually provide alternative pathways to education at the tertiary level.

Reform option #3: Support high-quality technical education through IPRCs

The provision of high-quality technical education will offer students education of high economic relevance and give a more diverse set of students access to higher education, as the vast majority of higher learning institutions currently offer mainly nontechnical subjects. The approach of the Integrated Polytechnic Regional Centers (IPRCs) offers opportunities to strengthen synergies and achieve economies of scale across different levels of education. While the government continues to focus on expanding access to relevant quality vocational training, it will have to develop technical education in a few crucial areas if Rwanda is to produce workers with the higher-level technical skills essential for economic growth.

93 Strategic objective 3 includes policy options that address (financial) constraints to the expansion of the provision of privately provided PBET, including general upper secondary education.
94 See the Introductory Note to this report.
### Table 5.2 Reform Options Listed by Strategic Objective

<table>
<thead>
<tr>
<th>Reform option</th>
<th>Key justification for intervention</th>
<th>Impact of intervention</th>
<th>Intervention type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Access</td>
<td>Quality/Relevance</td>
</tr>
<tr>
<td><strong>Strategic objective: Expand access and cater to a more diversified student body</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reform option #1: Increase access to upper general secondary education</td>
<td>Emerging industry, equity</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reform option #2: Implement the existing open- and distance-learning proposal</td>
<td>Public good</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reform option #3: Support high-quality technical education through IPRCs</td>
<td>Positive externalities</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Strategic objective: Improve quality and relevance of PBET</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reform option #4: Establish a harmonized quality assurance and accreditation system</td>
<td>Public good</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Reform option #5: Continuously monitor the level of PBET skills attainment and its alignment with labor demand</td>
<td>Public good</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Reform option #6: Improve teachers’ knowledge of subject content and student-centered teaching methodology through in- and pre-service training</td>
<td>Public good (adaptation)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Reform option #7: Align curricula and examinations with revised requirements for knowledge and skills acquisition</td>
<td>Public good (adaptation)</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Reform option #8: Improve secondary school linkages with the labor market</td>
<td>Adaptation</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Reform option #9: Improve quality and relevance of all vocational training inputs</td>
<td>Emerging industry, equity (adaptation)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reform option #10: Develop and implement actions to improve quality and relevance of vocational training for girls</td>
<td>Equity</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reform option #11: Support private provision of relevant, quality nonformal training</td>
<td>Emerging industry, financial market failure</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Strategic objective: Increase and diversify funding, and improve cost-efficiency</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reform option #12: Increase public resources for PBET</td>
<td>Adaptation</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reform option #13: Increase private resources for PBET</td>
<td>Myopia, imperfect information, financial market failure, emerging industry, equity (adaptation)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reform option #14: Improve cost-efficiency of PBET expenditures</td>
<td>Equity, adaptation</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Strategic objective: Establish a more integrated PBET system</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reform option #15: Develop a qualifications system to support student mobility and lifelong learning</td>
<td>Public good</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Reform option #16: Strengthen the PBET decision-making framework and ensure the integration of TVET into the framework</td>
<td>Adaptation</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

(continued on the next page)
The benefits of creating institutions such as IPRCs, which will provide integrated technical education at several levels of education, are numerous—these institutions will increase:

- the stock of educated workers in an expanding knowledge economy
- the relevance of higher education to employer needs
- cost effectiveness (by introducing shorter and less costly alternatives to traditional higher education)
- opportunities for TVET students to pursue higher education

Because IPRCs are still new, an important decision still needs to be made regarding the number of programs that they will offer and the academic focus of those programs. Input from key stakeholders in both the private and public sectors is needed to determine the appropriate focus of these institutions. MINEDUC’s Directorate General for Science, Technology, and Innovation (STI), for example, could help ensure that the polytechnics support implementation of the government’s STI policy. (See annex 15 for a description of the purposes, scope, and focus of successful polytechnics worldwide.)

**Strategic objective 2: Improve the quality and relevance of PBET**

There are numerous entry points for government interventions to improve the quality and relevance of PBET. The first options identified below aim to improve the quality and relevance of all PBET subsegments. Subsequent options target general upper secondary education and formal and nonformal training.

**Reform option #4: Establish a harmonized quality assurance and accreditation system, including quality assurance units in all PBET institutions**

The purpose of a quality assurance and accreditation system (QAAS) is to establish and assess compliance with program-specific norms and standards, in consultation with such stakeholders as national and regional professional associations and organizations. Standards also constitute the basis for credible external quality assurance of PBET institutions. (See annex 11 for principles and guidelines of quality assurance that reflect international best practices since the early 1990s.) Key features of well-functioning quality assurance mechanisms are summarized in box 5.1 below.

MINEDUC has not opted to establish a single agency to implement a QAAS. Rather, a sectorwide QAAS for the education system is to be managed by the institutions responsible for quality assurance in the various subsegments of the system (i.e., IGE, NCHE, and WDA). This approach requires sound management, both during the development of the system and subsequent evaluations of its implementation. In addition, close communication with countries in the region is required to achieve the desired close coordination with the quality assurance frameworks of other countries in the East African Community.

At the institutional level, individual institutions may be mandated or given incentives to establish an internal quality assurance unit. This unit would develop the processes and procedures for internal quality assessments and develop, implement, and monitor initiatives to improve the quality of the education provided by the institution. This process has already been initiated in HLIs in Rwanda. In terms
of the relevance of education to labor market demand, PBET institutions could be mandated or given incentives to establish program advisory committees for all relevant PBET programs, which would include private sector representatives. One approach to providing incentives would be to link the establishment of quality assurance units or program advisory committees to performance-based funding. Both the internal units and the committees should be obligatory only if the minimal human and financial resources are available at the institutions to generate required results.

**Reform option #5: Continuously monitor the level of skills attainment by PBET students and its alignment with labor demand**

Information on the knowledge and skills attained by PBET students, combined with data on labor demand, can help track the extent to which this education and training equips them with relevant cognitive, catalytic, and technical skills. This information also allows policy makers to respond to identified weaknesses through improved or new interventions and policies. For example, the ESSP notes that MINEDUC will revise the upper secondary education curriculum to improve its relevance to labor market needs. One of the first steps of this exercise would be, ideally, to conduct a sound review of the nature of the skills that private sector employers demand from secondary education graduates, which would ensure that reforms are well geared to meeting actual demand.

Appropriate information on skills attainment and labor demand can be generated through a variety of mechanisms. The Labor Market Information System managed by the Rwanda Development Board is designed to provide mostly national-level information on labor demand and existing skills constraints, but to date has been unable to disseminate regular, sufficiently detailed information to key stakeholders. Educational institutions can use their own formal and informal information channels and surveys to acquire information on local and/or regional labor demand, as well as
more detailed national information, but this activity does not appear to be institutionalized except in certain mainly private universities.96

For the assessment of student skills, the most appropriate approach differs according to the type and level of education. For general education, the most robust and rigorous systems include periodic measurements of proficiency in, for example, literacy and numeracy in a manner that ensures comparability of the data over time and with other countries. MINEDUC recently embarked on the development of a sound assessment mechanism for primary education. Given that it may take time for this system to be expanded beyond the primary level, MINEDUC can review upper secondary examination results in the meantime. The principal goal of these examinations is to measure the knowledge and skills of individual students, but their results can be used to evaluate the performance of the secondary education system when mechanisms that provide more accurate information are not available.

For TVET, where the need for training content to be responsive to labor demand is more explicit than in general education, the WDA has already started working closely with private sector representatives to develop curricula. To date, private sector input has been used to determine the priority occupations targeted by the WDA, as well as the design of curricula. The WDA also envisages involving private sector representatives in the assessment of individual students’ skills upon completion of training in order to verify whether these skills meet industry demands. To further strengthen the feedback loop between training providers and the private sector, the WDA intends to regularly measure employer satisfaction with recent graduates, then use the outcomes of these surveys to adjust its policies, where necessary.

Finally, for higher education, regular monitoring of student achievement should become part and parcel of the internal quality assurance mechanisms of HLIs. The NCHE could play a useful role in disseminating macrolevel information on relevant labor demand and on good-practice approaches to assessment across institutions.

Reform option #6: Improve teachers’ knowledge of subject content and student-centered teaching methodology through in- and pre-service training

Expanding and improving current in-service training programs to build teacher subject-matter knowledge and student-centered teaching skills is a direct route to improving educational outcomes. Improved mastery of subject matter not only contributes to transferring content knowledge to students, but also enables teachers to better implement student-centered teaching methodology, thereby facilitating students’ acquisition of catalytic skills. The implementation of MINEDUC’s Teacher Development and Management Policy and Strategic Plan will use a number of entry points to reach these objectives, including the establishment of a well-structured, consistent program of continuous professional development that will enhance the synergy of currently implemented programs, avoid duplication of effort, and provide a strategic framework for the government to develop the right skills mix in its teaching force.97

As for pre-service teacher training, while details were not available at the time of the writing of this report, the Kigali Institute of Education (KIE) is expected to work with the Colleges of Education and Teacher Training Centers to incorporate student-centered teaching methodology into the teacher training curriculum, as well as introduce this methodology in its own teaching practices. Considering the complexity and importance of this reform, KIE would benefit from technical assistance that would help it effectively incorporate lessons learned from similar reforms in other countries into the revised teacher training curriculum.

Reform option #7: Align general upper secondary curricula and examinations with revised requirements for knowledge and skills acquisition

The ESSP for the 2006–2010 period recognized the need for curriculum reform and focused on reforms in science, technology, and ICT subjects. The ESSP for the 2010–2015 period foresees that the NCDC will review the upper general secondary education curriculum to encourage students’ acquisition of catalytic skills. Since the current curriculum...
is considered content heavy, the challenge will be to strike the right balance between improving the extent to which students acquire catalytic skills and achieving an appropriate transfer of content knowledge.

As curriculum reform proceeds, the secondary school–leaving examination could usefully be revised to reflect changes in learning objectives (including those related to the acquisition of catalytic skills), content, and classroom teaching methods. The most efficient approach to achieving this goal appears to be maintaining the current examination structure and administration, but changing its content to reflect the revised curriculum, including the addition of items that measure catalytic skills.

Reform option #8: Improve secondary school linkages with the labor market

A large share of students who complete general secondary education will enter the labor market rather than pursue higher education. It is therefore crucial that these students be ready for the work floor. This goal can be achieved by forging stronger linkages between secondary schools and the world of work, ensuring that students are provided the knowledge and skills demanded by future employers.

MINEDUC has initiated and plans to implement several reforms to strengthen the work readiness of secondary education graduates. ESSP 2010–2015 expects that all PBET institutions, including upper secondary schools, will develop closer links with the world of work by, among other things, facilitating industrial attachments and involving employers in course design and review, where appropriate. In addition, upper secondary schools, like all PBET institutions, will be expected to appoint and train teachers to provide career advice and guidance. So far, it is unclear how MINEDUC intends to facilitate the implementation of these activities.

A more comprehensive approach to linking secondary schools to the world of work is to establish school-to-work programs or “career academies.” These programs, which are described in detail in annexes 16 and 17, respectively, can be appropriate for certain priority sectors, such as construction, tourism and hospitality, ICT, and food processing. While school-to-work programs and career academies may not be appropriate for public schools, an interesting approach could be for MINEDUC to identify appropriate private providers and ensure that the enabling framework enables them to provide secondary education using either of these approaches.

Reform option #9: Improve the quality and relevance of all vocational training “inputs,” including students

The quality and relevance of vocational training in Rwanda is currently so limited that it is not desirable to expand access to this type of training unless major constraints are addressed. There are deficiencies in all inputs into this training, therefore an integrated approach is required. Students are arguably the most important “input.” In line with the Nine Year Basic Education Strategy, vocational training entrants are increasingly expected to have completed basic education. Compared to primary education graduates or dropouts (who previously populated VTCs), the potential of basic education graduates to acquire skills is much higher, which increases the likelihood that vocational training can actually generate employable graduates.98

In addition to improving the quality-at-entry of vocational training students, a comprehensive set of interventions that targets other key inputs is needed. This includes developing competency-based curricula and associated assessment mechanisms, retraining teachers, developing and implementing industrial attachment programs, and ensuring that providers have both the physical (i.e., buildings and equipment) and human (i.e., well-skilled managers and management structures) resources needed to effectively run the redesigned vocational training programs. Clearly the goal of these programs would be to equip students with the necessary mix of cognitive, vocational and/or technical, and catalytic skills. Substantial private sector involvement in the design and delivery of new training programs, particularly the design of curricula and industrial attachment programs, would help ensure their relevance.

Since the required reforms are resource-intensive, they can initially only be applied on a relatively small scale and should target priority occupations for which there is demonstrated labor demand. As noted earlier, the WDA has already started applying this approach by developing competency-based curricula for a selected number of occupations in the tourism and hospitality and construction sectors.

Through the World Bank–financed Skills Development Project and with the strong support of other development partners, the WDA intends to implement a full package of

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98 Since the provision of training to primary school graduates and dropouts will need to be maintained, a separate reform option addresses the need to improve the quality and relevance of this training.
interventions in seven public Vocational Training Centers on a pilot basis. In addition to new curricula, these interventions include teacher training, a renewed assessment mechanism, an industrial apprenticeship program, infrastructure rehabilitation and equipment provision, and strengthened capacity for school-based management. As part of the Skills Development Project, the WDA has initiated development of an effective monitoring and evaluation mechanism that will provide feedback to it and other stakeholders on the pilot interventions, ensuring that lessons learned can be incorporated into follow-up and rollout activities.

Reform option #10: Develop and implement actions to improve the quality and relevance of vocational training for girls

Considering the government’s current strong emphasis on TVET, it is advisable that the WDA—with guidance from MINEDUC—analyze and address the reasons for the underperformance of vocationally trained women on the labor market as part of the sweeping ongoing reforms in this sector. The reasons for gender inequities on the labor market are likely the result of tendencies of the education system (i.e., male-oriented teaching), the labor market (i.e., traditional female occupations generate lower earnings than traditional male occupations), and society as a whole (i.e., girls have a preference for, or are pushed into, traditionally female professions). Clearly, the TVET system by itself can not address all of these issues. However, certain interventions require no further analysis and can be implemented immediately, such as ensuring the “girl-friendliness” of TVET institutions in the same way as has been done in general education. This would include physical aspects, such as separate lavatories (and showers, where required) for boys and girls and the incorporation of gender-sensitivity modules in teacher training.

Efforts to entice girls to enroll in “male” vocational training subjects through publicity campaigns, as the government aims to do, may only be successful if these campaigns convey information that was previously unknown (e.g., “male” occupations generate greater earnings) or overcome social norms or female preferences for “female” occupations. Such efforts may show mixed results and are best considered only after more information has been collected on the nature of gender inequalities. Regardless of whether the government is able to promote the enrollment of girls in male-oriented vocational training, sufficient attention deserves to be paid to improving the quality of the more female-oriented occupations. This is one of the reasons that the WDA is targeting hospitality and tourism as a priority sector.

Reform option #11: Support the private provision of relevant quality nonformal training

NGOs and international development programs support a wide variety of training programs to meet the short-term skills needs of poor people. While this assistance is welcome at this stage, it is not sustainable in the long term. There are various options for improving the quality and sustainability of this type of training, which would also contribute to identifying best-practice approaches that can be adopted by VTCs:

- Establish a competitive training fund to subsidize training development and provision by private providers and NGOs.
- Transfer underutilized youth VTCs that are not needed for the expansion of basic education to local governments or NGOs through competitive applications, evaluated on the quality, relevance, and financial sustainability of proposed activities.
- Finance or conduct monitoring and evaluation of the effectiveness of this type of training and disseminate lessons learned.

While it is presently unclear whether the transfer of underutilized infrastructure is a realistic option, the WDA has initiated a Skills Development Facility as part of the Skills Development Project. The facility will provide financing to adequate proposals submitted by both public and private training providers and conduct sound monitoring and evaluation of the performance of fund recipients.

Strategic objective 3: Increase and diversify funding, and improve cost efficiency

Particularly in Rwanda, with its young population and necessary reliance on human capital as a key determinant of economic growth, a substantial share of public resources must be allocated to education and training. Decision making on the allocation of available funding should be guided by sound estimates of implementation costs over at least the short and medium term and be adopted only
Box 5.2 | Nonformal Training Provision in Area Vocational Centers in the United States

Vocational education and training centers are established in the United States as hubs that provide vocational skills training in response to local employment and skills needs opportunities. The principle is to concentrate expensive training capacity in such a way that multiple clients can use it as needed. Area Vocational Centers (AVCs) are equipped with up-to-date technology and draw faculty from employers and postsecondary technical institutions on a full- and part-time basis. They are very flexible in designing and delivering courses of varying length to meet local needs. Among the kinds of program offered by AVCs are:

- Vocational courses for students enrolled in local secondary schools
- General equivalency diplomas: part-time study for secondary school completion
- Long and short courses for local employment in such fields as construction, small business, cosmetology, accounting, home health care, and automotive mechanics
- Fee-based and contract training of the staff of local employers
- Rental of facilities for training by local nonprofit organizations

By operating 12–18 hours a day, often 7 days a week, successful AVCs make efficient use of costly equipment and facilities. While subsidized by state governments in the USA, they generate a large share of their revenue from fee-based training and contracts with local private businesses, public sector agencies, and schools and colleges. AVCs generally do not grant a secondary diploma, but rather, certificates for course completion, along with competency profiles for graduates.

Source: Authors.

Reform option #12: Increase public resources for PBET

Increasing public resources for PBET is possible by either increasing available financial resources for the entire education sector or allocating a larger share of the education sector budget to the subsector. Given the government’s emphasis on the importance of human capital to support economic growth, and that the recurrent budget for education remains below the minimum international standard of 5 percent of overall recurrent governmental spending, the case for increasing the total education budget appears to be strong.

Whether it is a good idea to increase PBET’s share of the education budget at the expense of basic education depends on the government’s short- to medium-term objectives for all segments of the education system and the costs associated with reaching these goals. A shift in priority from basic to postbasic education may become more appropriate once capacity constraints to providing universal basic education have been further addressed. Meanwhile, financing the expansion of upper general secondary education (a potential bottleneck to PBET expansion as a whole) could potentially be achieved by shifting resources between subsegments of PBET (higher education expenditures remain comparatively high) or achieving efficiency gains (see reform option #15 below).

Reform option #13: Increase private resources for PBET

Sources of private funds for PBET originate with stakeholders who demand this type of education (i.e., students and their households, as well as enterprises), and those who supply it (i.e., educational institutions). Government interventions to increase the availability of these private funds should be targeted at those factors that cause suboptimal private allocations on both the demand and supply sides.

Concerning demand, both students and their (future) employers benefit from PBET and can therefore be expected to at least partly finance it. Market failures that result in suboptimal contributions by students (or their relatives) and enterprises include imperfect information, myopia, and financial market failures. Imperfect information and—to a lesser extent—myopia can be countered by information campaigns that entice households and enterprises to spend more funds on PBET by highlighting its benefits of increased productivity and earnings capacity. For such a campaign to be credible and effective, however, current contributions of households (and enterprises) must indeed be suboptimal, if projections of fiscal capacity provide confidence that necessary resources will indeed be available. There are two principal approaches to improving the outcomes of the PBET system in a resource-constrained environment, which can be pursued simultaneously: increasing the amount of funding (public and private) available for PBET and improving the cost-efficiency of expenditures in the subsector. In other words: acquire more funds and spend them better.

99 This includes fees paid to private providers as well as private contributions to public providers.
that is, they must be substantially lower than the cumulative benefits generated by the education in terms of higher earnings (and higher productivity). If this is not the case, for example, because the quality of the education or training promoted is too low, or because household contributions are already high, alternative sources of financing should be found until the quality of education is improved.

To the extent that information campaigns are not effective, the government can subsidize PBET students up to an amount justified by the positive externalities of this level of education. Subsidies can take the form of grants or soft loans to the neediest students or allocations to public or private PBET institutions to help lower fees and/or parental contributions. These approaches are, however, costly, and should be considered carefully before deciding to implement them. In the case of student grants or loans, the government can incorporate lessons learned from its experience in providing them to public university students. If fiscal capacity is sufficient, a case can be made to expand the eligibility of the neediest students who enroll in private higher learning institutions that provide quality education in subjects with demonstrated labor demand.

Finally, financial market failures prevent households who are willing to invest in PBET from acquiring affordable credit. As long as the financial system remains weak, MINEDUC could consider providing guarantees to private banks for credits supplied to students under appropriate conditions related to, for example, student capabilities and the subject areas of intended enrollment.

The allocation of resources to PBET by private providers can be encouraged by ensuring that the PBET policy framework facilitates private provision of education and training, while safeguarding its quality. Numerous potential reforms to the existing framework could facilitate private provision; feedback from current private providers can help identify the most appropriate (i.e., low-cost, high-impact) reforms. Transparency, simplicity, and consistency are as helpful for private providers as they are for public providers. Concretely, these principles can, for example, be translated into accreditation procedures that are clear, user friendly, and do not change too often.

In addition, providers may face constraints in their access to capital. One approach to alleviating this constraint, which the government is already implementing with the support of the International Finance Corporation (IFC), is to provide guarantees to banks that provide credit to private schools, provided that they meet criteria related to the existence of a credible business plan, among other requirements.

Another approach to increasing and diversifying the private resources available to both private and public PBET providers is to strengthen their capacity to conduct resource-generating activities. These activities could include renting out classrooms for workshops when they are not in use, offering courses outside of regular school hours, and rendering services for a fee to nearby communities. With the exception of a few universities, public education institutions have little experience with income-generating activities. MINEDUC could thus develop a training module that could be provided to public PBET institutions for free and to private institutions for a fee. The WDA is already planning to develop such a module as part of its school-based management development activities under the Skills Development Project. In addition to capacity building, MINEDUC could ensure that institutions have incentives to generate income. For example, increased revenue generation should not result in a reduction of the public resources available to an institution.

Opportunities for income-generation depend on the type and location of an institution. For example, an urban technical education institution can probably generate more income than a rural general secondary school. However, the income-generating potential of an educational institution should not, in general, be overestimated. The ESSP 2010–2015 encourages all types of PBET institutions to become more reliant on revenues that they generate themselves. While MINEDUC expects that TVET institutions and eventually, general secondary schools, will be able to generate a substantial share of their own resources, there is currently little evidence that they will be able to do so. Until there is clarity about the level of resources that schools can reasonably be expected to generate, there may not be a strong case to make them reliant on such resources to carry out their mandates.

**Reform option #14: Improve the cost-efficiency of PBET delivery**

Numerous interventions could generate cost savings by improving the internal efficiency of the PBET system. Some of these interventions require substantial systemic changes, while others are less intrusive and would result in more modest efficiency gains.

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100 The IFC is a part of the World Bank Group. It provides financial products and advisory services to the private sector in developing countries in order to build this sector.
An example of a structural reform that can be applied throughout the PBET system with substantial positive impact is the introduction of performance-based funding formulas for public PBET institutions. Performance-based funding formulas strengthen the transparency of the funding process and are expected to result in increased discretion and more efficiency in the allocation and deployment of public funding. This approach offers a very promising route to increased cost efficiency, but can only be implemented successfully if an adequate monitoring and evaluation mechanism is in place and the reform goes hand in hand with strengthened accountability and management capacity of individual institutions.

The extent to which funding is performance based can be easily varied by the type and level of PBET. The performance indicators that determine funding are also likely to differ by subsegment, with the expectation that higher learning institutions are able to handle more sophisticated mechanisms than, for example, VTCs.

Regardless of whether the government introduces performance-based funding, it will need to develop and implement a sustainable, effective, and transparent funding model for TVET. Implementing the existing TVET policy requires adequate strategic planning, prioritization, efficient targeting of resources, and a sustainable funding model. As a first step toward developing such a model, MINEDUC/WDA could consider adopting a set of guiding principles that target funds from different sources for particular uses. Table 5.3 provides an example of guiding principles that could be considered.

Various reforms are easier to implement, but nevertheless expected to result in increased cost efficiency, although their impact will likely be substantially more modest than that of structural changes such as the introduction of performance-based funding. For example, a number of reform options identified in this chapter are expected to result in increased cost efficiency as a side-effect. These include reforms to support lifelong learning through the establishment of a qualifications mechanism; effective use of performance-based audits to strengthen accountability; strengthening the management capacity of PBET institutions; and introducing shorter cycles in the tertiary education sector.

In addition, the previous chapter recommended a number of reforms that could generate cost savings, for example, favoring day over boarding schools, creating multipurpose science labs, and improving financial management (particularly as it relates to the payment of secondary education teachers). Finally, sound monitoring and evaluation is a criterion for the successful implementation of performance-based financing. However, even without the introduction of this type of financing, the use of monitoring data generated by an education management information system can itself generate substantial cost savings by highlighting aspects of the education system that require attention.

Table 5.4 lists the key reform options described in this chapter and chapter 4 that, if implemented, are expected to result in increased cost efficiency.

### Table 5.3 Guiding Principles for a Possible TVET Funding Mechanism

<table>
<thead>
<tr>
<th>Level and purpose of funding</th>
<th>Funding principles</th>
<th>Funding agency/body</th>
<th>Role of TVET providers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Public resource allocation for TVET à Funds pre-employment TVET</strong></td>
<td>Funding for TVET providers is based on a formula that is both enrollment- and performance-based, and that uses proven TVET outcome performance indicators</td>
<td>Funding levels for TVET providers are determined by the WDA and channeled from MINECOFIN/ MINEDUC to institutions that cater to targeted groups</td>
<td>Public providers, NGOs, and approved private providers design, deliver, and monitor the outcome of their training programs in the formal and informal sectors</td>
</tr>
<tr>
<td>Funds primarily targeted at pre-employment education and training for first-time jobseekers and/or unemployed youth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training levy à Funds in-service TVET</td>
<td>Funds are used to pay for the direct transfer of skills (not “brick-and-mortar” expenses), focusing on worker skills training and upgrading to meet specific needs of the private sector labor market</td>
<td>Many countries have established agricultural, industrial, and commercial training services to which levy funds are channeled and which oversee the distribution and control of these dedicated funds</td>
<td>TVET providers are often training centers within firms. Training may also be contracted out to external public or private TVET providers that are dedicated to training employed workers</td>
</tr>
<tr>
<td>A funding levy (which typically varies between 0.5% and 1.5% of payroll) is collected by MINECOFIN and directed to the agency assigned to manage the program</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Authors.

Note: MINECOFIN – Ministry of Finance and Economic Planning; MINEDUC – Ministry of Education; NGO – nongovernmental organization; TVET – technical and vocational education and training.
Strategic objective 4: Establish a more integrated PBET system

A well-integrated PBET system requires a well-coordinated decision-making framework that involves all PBET subsegments and the possibility for students to transition relatively easily among them.

Reform option #15: Develop an appropriate, cost-efficient qualifications system to support student mobility and lifelong learning

For individuals to be able to transition from one PBET subsegment to another, or to re-enter the education system after a period of absence, his or her previous educational attainments need to be adequately recognized. Rwanda plans to develop a set of qualifications frameworks through a collaboration with REB, WDA, and NCHE; it also plans to align these frameworks with those that are in place in the East African Community.

National Qualifications Frameworks (NQFs) have been the object of growing international interest since the mid-1990s but, despite their popularity, there is little evidence that existing NQFs are achieving their intended goals. Since alternative options are available, a cautious approach is recommended in Rwanda—one that takes into account lessons learned in other countries and builds in regular strategic reviews to determine whether the approach remains appropriate.

The main features that distinguish NQFs from other qualifications systems are that qualifications are:

- described in terms of a single set of criteria and in terms of units or unit standards;
- ranked on a single hierarchy expressed as a single set of levels;
- classified (in the case of vocational qualifications) in terms of a comprehensive set of occupational fields; and
- described in terms of learning outcomes that are independent of the way in which education is provided.

In other words, NQFs are designed independently of any particular education and training and are based on a single set of levels, standards, and outcomes. While there are countries in which NQFs can be considered to have been implemented successfully (e.g., Scotland, New Zealand, and Ireland), all countries that have established NQFs have faced problems.

Moreover, there are many examples of countries with successful TVET systems that do not have NQFs, including Germany, Sweden, Finland, Norway, France, Japan, the USA, and Canada. Most South-East Asian countries and the Francophone nations of western and central Africa, for example, use an alternative approach. This institution-based qualifications approach treats institutions, staff development, certifications, and qualifications as parts of an integrated system. Government policy focuses on the reform and expansion of institutions and the links between different types and levels of institutions. Qualifications are not treated as separate instruments, and qualifications reform develops along with institutional change.

Rwanda has thus embarked on an exercise that has a mixed track record and for which alternatives exist. Among

Table 5.4 Key Reform Options that Improve Cost Efficiency

<table>
<thead>
<tr>
<th>Improve the internal efficiency of educational provision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduce outcome-oriented accountability of PBET institutions</td>
</tr>
<tr>
<td>Improve throughput and graduation rates and reduce dropout rates through more effective monitoring</td>
</tr>
<tr>
<td>Target expansion of day schools over boarding schools in upper secondary education (chapter 4)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Improve management capacity and the effectiveness of funding mechanisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase the management capacity of PBET institutions</td>
</tr>
<tr>
<td>Introduce funding formulas that strengthen accountability and reward performance</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Promote diversity and improve the ease of transitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengthen the alternative, short-cycle tertiary education sector vis-à-vis the costlier university sector</td>
</tr>
<tr>
<td>Establish a qualifications framework</td>
</tr>
</tbody>
</table>

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103 Design and implementation challenges may arise from lack of resources or capacity, administrative difficulties (e.g., the proliferation of new agencies), technical or professional problems related to the need for many actors to adopt new procedures and jargon, insufficient efforts to achieve ownership, and the involvement of a broad set of key stakeholders, including the private sector and educational institutions.
the lessons that the country should take into account is that successful implementation depends on sound preparation, which involves a broad array of stakeholders, and the availability of sufficient human and financial resources to keep the system up and running. The experts from the Netherlands Organization for International Cooperation in Higher Education who are supporting the development of the TVET framework are giving the WDA opportunities to internalize global lessons learned in the development of the framework. Nevertheless, it is recommended that MINEDUC periodically review the development and implementation of the NQF from a strategic viewpoint to determine whether this approach is the most suitable available for Rwanda or whether adjustments are appropriate.

Reform option #16: Strengthen the PBET decision-making framework and ensure the integration of TVET into the framework

A well-integrated PBET system ensures that reforms in any subsegment of the system are developed taking into account the interdependencies of system elements. Interdependence exists in the realm of finance, where, for example, the introduction of expensive reforms in TVET can result in restricted availability of funds for upper secondary education. To cite another example, changes in the secondary curriculum will change the skill set of students who enter tertiary education. These linkages require a well-coordinated decision-making framework for all elements of the PBET system, making it essential that AEAs with mandates related to PBET align and coordinate their activities with one another and with the core ministry.

The Rwanda Education Board (REB) can be a useful coordination forum, but it does not include the WDA or NCHE, which have crucial responsibilities for PBET. The REB is therefore not a sufficient coordination mechanism and MINEDUC needs to ensure that an alternative mechanism is in place. Such a mechanism does not necessarily require the formal establishment of another board or committee, but it is essential that key stakeholders meet regularly and conduct their coordination and consultations in a structured manner with a clear sense of overall goals and a concrete strategy for addressing key challenges.

This coordination needs to take place under the strong leadership of MINEDUC, which is responsible for strategy and policy development, whereas AEA mandates are related to implementation. The ministry’s postbasic education coordination unit would be the most appropriate coordination mechanism for the process. Established in 2009, the unit is focused on improving coherence across the PBET sector. Its capacity is weak, however, and the AEAs appear to fill in capacity gaps in the central ministry by taking on roles beyond implementation, sometimes influencing policies quite strongly. While this approach appears to work to the satisfaction of MINEDUC, it is not ideal.

The strategic and policy guidance of MINEDUC is particularly needed with respect to TVET (a new responsibility for the ministry), both to ensure its integration into the overall PBET system and to assist the relatively new WDA in fulfilling its extensive mandate. Although MINEDUC’s postbasic education unit includes staff with responsibility for TVET, the ministry does not yet seem to have fully internalized its responsibility for vocational training.

One important question that, in time, needs to be answered by MINEDUC concerns the mandate of the WDA. This mandate is so broad that it includes both training provision (through IPRCs) and quality assurance. The combination of service provider and controller is unusual and possibly ineffective; once more urgent aspects of establishing the TVET system have been addressed, its mandate should be reviewed.105

Strategic objective 5: Improve the PBET governance and management framework, as well as management capacity

An appropriate degree of autonomy of educational institutions, when combined with suitable accountability and sufficient capacity at all levels to effectively manage the system, can greatly contribute to the quality and cost effectiveness of education. The following reform options can enhance the governance and management framework for PBET, as well as the management capacity of the system.

Reform option #17: Strengthen the autonomy-accountability-capacity triad of public PBET institutions

Autonomy, accountability, and management capacity go hand in hand. To optimally benefit from decentralization, efforts should be made to identify and strengthen the weakest link in the autonomy-accountability-capacity triad.

105 Annex 13 summarizes the key responsibilities of organizations similar to the WDA in a variety of Sub-Saharan African countries.
The government’s decentralization efforts have in recent years increased the level of autonomy of educational institutions. For example, general primary and secondary schools can now select their own textbooks. The benefits of autonomy are well recognized, but could be substantially increased if decentralization is accompanied by accountability reforms and efforts to strengthen management capacity at the school level. Strengthened accountability mechanisms and management capacity will, in turn, allow for further decentralization of responsibilities to schools, with a further expected positive impact on cost efficiency.

Before determining the most appropriate interventions needed to achieve the optimal level of decentralization and reap the maximum benefits, MINEDUC may benefit from reviewing the determining factors of successful decentralization for each subsegment of PBET. These factors include:

- **Autonomy**: the overall policy and legal framework should support school autonomy.
- **Accountability**: schools should be aware of what is expected of them and a monitoring and evaluation mechanism should be in place to adequately measure their performance.
- **Financing**: schools should receive adequate funding to achieve their goals and the funding mechanism should provide them incentives to perform.
- **Management capacity**: school management should be able to achieve its goals autonomously.

Different subsegments of PBET will be able to handle different levels of autonomy, but even without the findings of a MINEDUC review (which would include stakeholder consultations), several policy options can be outlined that appear appropriate for all PBET subsegments:

**Strengthen the outcome-oriented accountability of PBET institutions**. Rather than focus on detailed input management and define the curriculum in terms of content and student hours, the accountability mechanism for the PBET sector could increasingly focus on results, defined in terms of learning outcomes. Implementing this approach would require strengthening the regulatory and monitoring capacity of MINEDUC and the AEAs, among other units, by strengthening the education management information system (EMIS). A gradual introduction of outcome-oriented accountability would be to introduce unified standards per student, expand the use of delegated budgets, and relax MINEDUC regulations.

In addition, performance-based audits could substantially increase accountability and generate information that—when acted upon—can result in improved cost efficiency. For example, in many countries audits show significant absenteeism among teachers and other staff, or teachers who do not perform their tasks at the level of accepted norms and standards. The enforcement of basic standards in all institutions could produce savings in the range of 10–20 percent of an individual institution’s budget.

**Introduce performance-based financing**. (See also policy option #15.) Performance-based financing provides incentives to schools to achieve nationally defined objectives. Existing capitation grants are an example of incentives to attract and keep students. A more developed system can increase the share of funding that is allocated through capitation grants (to make the incentives stronger) or base funding not just on the number of students, but also on, for example, completion rates or exam results. Incentives in upper general secondary education can be refined by, for example, allocating more funding for disadvantaged students and students who enroll or complete more science curricula combinations than those who enroll or complete in humanities combinations.

**Expand the capacity development of PBET institutions**. Management capacity is a weak spot in many PBET institutions and poses a serious risk to decentralization. Despite strong capacity building efforts by MINEDUC and Rwanda’s development partners, the focus of capacity building to date has primarily been the central ministry and basic education institutions. For example, little of MINEDUC’s Capacity Building and Institution Development Fund has been allocated to strengthen the management of PBET institutions. Ideally, this will change once the rolling two-year Institutional Development and Change Management plan is updated, with financing made available to improve the management of key areas in PBET institutions, such as human resources, finances, institutional academic and training agendas, and stakeholder relationships.

One option that can be considered is to allocate a portion of available funds to demand-based support of institutions that are able to identify their key management constraints (universities, for example). Other institutions, such as the newly established IPRCs or VTCs, whose management capacity is extremely low, could be offered tailored support packages. In terms of the content of capacity building, several appropriate institutions can be requested to develop and deliver training programs. For example, KIE, KIST, and NUR could cooperatively develop such programs, potentially...
supported by a foreign institution with an established leadership role, such as one from East Africa.

Reform option #18: Align the staffing and staff responsibilities of MINEDUC, AEAs, and lower-level governmental bodies with the ESSP

The option to increase the number of staff in MINEDUC or other governmental bodies is likely to remain limited due to the government’s “small government” strategy. Nevertheless, actual staff numbers can be substantially increased simply by ensuring that all formally approved positions are filled.

The ESSP, with its strong focus on educational quality and PBET, justifies a review of staff responsibilities throughout the education sector and an alignment of these responsibilities with the new focus areas of the strategy. If necessary, the shift in priority areas could be translated into a revised ministry organizational chart. Efficiency gains can be achieved by clarifying or revising roles and responsibilities across various governmental bodies (the core ministry, AEAs, and lower-level government administrations), as well as among staff in these institutions.

These actions could address some of the existing constraints to management efficiency by enabling staff to both attend to day-to-day challenges and participate in longer-term strategic planning, reducing the work overload of key MINEDUC managers, and increasing the clarity of the division of labor between MINEDUC and local government staff.

5.3 Prioritizing Reform Options

Improving the PBET system in Rwanda will be a continuous process; it is clear that not all reform options presented in this chapter can be implemented simultaneously. The options described here are not an exhaustive list of all possible reforms that could address the identified challenges, nor may all options be considered appropriate or feasible by key stakeholders in Rwanda. After all, government interventions are shaped within a complex framework of political, strategic, human resource, and financial constraints and considerations. How, then, does a government prioritize various policy options that all have the potential to substantially improve access to or the quality and relevance of PBET? Broadly, the set of interventions that a government decides to implement should: (1) target the most crucial objectives in the most efficient manner; (2) achieve both short-term and more structural medium- to long-term impacts; and (3) allow successful implementation to take into account available human and financial resources and stakeholder commitment.

Concretely, this implies that Rwanda would prioritize the goal of expanding access to upper general secondary education by expanding access to public schools and improving the enabling framework for privately provided upper secondary education. The former would be accompanied by interventions that improve cost efficiency so as to increase the fiscal space to construct and equip upper secondary classrooms. As long as access to lower secondary education continues to be constrained by the lack of classrooms, it may be unrealistic to expect that substantial amounts of public financing will be made available to expand upper secondary education. This makes it especially pertinent to intensify efforts to promote private provision of this type of education, both through an improved regulatory framework and reviewing the possibility and efficiency of subsidizing private education, as compared to providing it publicly.

As concerns policy options for improving the quality and relevance of PBET, quite a number can be implemented simultaneously, as they target different subsegments and would therefore be designed and implemented by different units of MINEDUC or different AEAs—often at relatively moderate cost. The task of MINEDUC is to identify the most appropriate interventions for each PBET subsegment based on their expected impact, on one hand, and the feasibility of their successful implementation (taking into account stakeholder commitment, as well as existing implementation capacity and financial resources), on the other.

Improvements in the governance and management framework, management capacity, and cost efficiency are all crucial, and policy options related to these aspects should be considered seriously. While implementation of these reforms requires relatively strong leadership and planning capacity on the part of MINEDUC, the positive impacts that can result from their successful implementation outweigh their cost. As for interventions in other areas, the appropriate approach may be one of optimistic caution, starting with one of the few relatively uncomplicated reforms and implementing it in a well-planned and well-monitored fashion, so that lessons learned can subsequently be incorporated into the design and implementation of more complicated, far-reaching reforms.

Table 5.5 reclassifies the policy options described in this chapter to identify the targeted subsegment of each option and its broad objectives, in addition to a rough indication of the cost and complexity of its design and implementation. While the table is merely indicative, it may be helpful to government policy makers when considering and prioritizing reform options.
### Table 5.5: Policy Options for Expanding Access to and Increasing the Relevance and Quality of PBET, by Impact, SubSegment, and Considerations

<table>
<thead>
<tr>
<th>Reform</th>
<th>Impact (Access, Quality/Relevance, Equity)</th>
<th>Subsegment</th>
<th>Considerations</th>
<th>Costs</th>
<th>Complexity</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategic objective: Expand access and cater to a more diversified student body</strong>&lt;br&gt;Reform option #1: Increase access to upper general secondary education</td>
<td>A, E</td>
<td>US</td>
<td>VH</td>
<td>M</td>
<td>Very high initial investment, then maintenance costs. Moderately complex due to high costs and planning needs</td>
<td></td>
</tr>
<tr>
<td>Reform option #2: Implement the existing open- and distance-learning proposal</td>
<td>A, E</td>
<td>US (All)</td>
<td>L-H</td>
<td>M</td>
<td>Costs depend on whether the government facilitates (L) or also finances (H)</td>
<td></td>
</tr>
<tr>
<td>Reform option #3: Support high-quality technical education through IPRCs</td>
<td>A, Q/R</td>
<td>HE/TVET</td>
<td>VH</td>
<td>H</td>
<td>Very high initial investment, then maintenance. Particularly complex at start-up stage (i.e., selecting subjects, curricula, determining relevance, procurement, financing, etc.)</td>
<td></td>
</tr>
<tr>
<td><strong>Strategic objective: Improve the quality and relevance of PBET</strong>&lt;br&gt;Reform option #4: Establish a harmonized quality assurance and accreditation system</td>
<td>Q/R</td>
<td>All</td>
<td>M</td>
<td>H</td>
<td>Complex to design; moderately costly to implement</td>
<td></td>
</tr>
<tr>
<td>Reform option #5: Continuously monitor the level of PBET skills attainment and its alignment with labor demand</td>
<td>Q/R</td>
<td>All</td>
<td>L-M</td>
<td>H</td>
<td>Low cost to design; assessments are costly to run. Complex to implement</td>
<td></td>
</tr>
<tr>
<td>Reform option #6: Improve teachers’ knowledge of subject content and student-centered teaching methodology through in- and pre-service training</td>
<td>Q/R</td>
<td>US*</td>
<td>H</td>
<td>H</td>
<td>High-quality training, especially in-service training, is costly to implement. Design is complex (requires defining skills demand and most effective teaching approaches); implementation is more straightforward</td>
<td></td>
</tr>
<tr>
<td>Reform option #7: Align upper general secondary curricula and examinations with revised requirements for knowledge and skills acquisition</td>
<td>Q/R</td>
<td>US</td>
<td>H</td>
<td>H</td>
<td>Design is complex, implementation is high cost when teachers must be familiarized with new curricula and textbooks must be adjusted</td>
<td></td>
</tr>
<tr>
<td>Reform option #8: Improve secondary school linkages with the labor market</td>
<td>Q/R</td>
<td>US</td>
<td>L-H</td>
<td>L-H</td>
<td>Depends on actions chosen. Costs are high if government provides career academies, but several cheaper options exist</td>
<td></td>
</tr>
<tr>
<td>Reform option #9: Improve the quality and relevance of all vocational training inputs</td>
<td>Q/R, E</td>
<td>TVET (VT)</td>
<td>VH</td>
<td>H</td>
<td>Very high initial investment, then maintenance costs. Complex and expensive, since vocational training starts from such a low base</td>
<td></td>
</tr>
<tr>
<td>Reform option #10: Develop and implement actions to improve the quality and relevance of vocational training for girls</td>
<td>Q/R, E</td>
<td>TVET (VT)</td>
<td>L-M</td>
<td>L-M</td>
<td>Low cost to design, implementation cost depends on actions that are developed—probably low to moderate</td>
<td></td>
</tr>
<tr>
<td>Reform option #11: Support the private provision of relevant, quality nonformal training</td>
<td>A, Q/R</td>
<td>TVET (VT)</td>
<td>L-H</td>
<td>L-H</td>
<td>Depends on option chosen. M&amp;E is rather simple and cheap; efficient financing mechanism is costly and complex</td>
<td></td>
</tr>
<tr>
<td><strong>Strategic objective: Increase and diversify funding, and improve cost efficiency</strong>&lt;br&gt;Reform option #12: Increase public resources for PBET</td>
<td>A, Q/R, E</td>
<td>All</td>
<td>vH</td>
<td>M</td>
<td>Moderate complexity—MINEDUC can make a strong case for increased funding</td>
<td></td>
</tr>
</tbody>
</table>
### Table 5.5  ■ Policy Options for Expanding Access to and Increasing the Relevance and Quality of PBET, by Impact, SubSegment, and Considerations (continued)

<table>
<thead>
<tr>
<th>Reform</th>
<th>Impact (Access, Quality/ Relevance, Equity) SubSegment</th>
<th>Costs</th>
<th>Complexity</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reform option #13:</strong> Increase private resources for PBET</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Encourage private provision of PBET</td>
<td>A, Q/R</td>
<td>All</td>
<td>L-H</td>
<td>M</td>
</tr>
<tr>
<td>(b) Encourage the demand for PBET</td>
<td>A, E</td>
<td>All</td>
<td>L-H</td>
<td>L-H</td>
</tr>
<tr>
<td>(c) Increase income-generating activities of PBET institutions</td>
<td>A, Q/R</td>
<td>All</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td><strong>Reform option #14:</strong> Improve the cost efficiency of PBET expenditures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Introduce performance-based funding for public PBET</td>
<td>A, Q, R, E</td>
<td>All</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>b. Establish a sustainable funding model for TVET</td>
<td>A, Q/R</td>
<td>TVET</td>
<td>L-H</td>
<td>M</td>
</tr>
<tr>
<td>c. Implement other reforms that improve cost efficiency</td>
<td>A, Q/R</td>
<td>All</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Strategic objective: Establish a more integrated PBET system</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reform option #15:</strong> Develop a qualifications system to support student mobility and lifelong learning</td>
<td>A, E</td>
<td>All</td>
<td>M</td>
<td>H</td>
</tr>
<tr>
<td><strong>Reform option #16:</strong> Strengthen the PBET decision-making framework and ensure the integration of TVET into the framework</td>
<td>A, Q/R, E</td>
<td>All</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td><strong>Strategic objective: Improve the PBET governance and management framework, as well as management capacity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reform option #17:</strong> Strengthen the autonomy-accountability-capacity triad of public PBET institutions</td>
<td>A, Q/R, E</td>
<td>All</td>
<td>M</td>
<td>H</td>
</tr>
<tr>
<td><strong>Reform option #18:</strong> Align staffing and staff responsibilities of MINEDUC, AEAs, and lower-level governmental bodies</td>
<td>A, Q/R, E</td>
<td>All</td>
<td>L</td>
<td>H</td>
</tr>
</tbody>
</table>

**Source:** Authors.

**Note:** A – access; E – equity; H – high; HE – higher education; L – low; LS – lower secondary education; M – medium; M&E – monitoring and evaluation; Q/R – quality/relevance; TVET – technical and vocational education and training; US – upper secondary education; VH – very high; VT – vocational training.

* While the intervention consists of providing (teacher) education at the higher education level, the aim of the intervention is to facilitate education at the upper secondary level.


of Post-Secondary Education and Training Capacity (NPT), Kigali.


World Education Indicators (WEI) (database). WEI Programme of UNESCO Institute of Statistics (UIS) and selected developing countries, UIS, Montreal.
The following tables can be compared with table 2.9 and figure 2.6 in chapter 2, which contain similar information for the economy as a whole.

**Table A1.1  ■ Type of Employment by Educational Level and Location, 2006**

<table>
<thead>
<tr>
<th>Type of employment</th>
<th>2000</th>
<th>2006</th>
<th>None</th>
<th>Some primary</th>
<th>Complete primary</th>
<th>Voc/ tech</th>
<th>Lower Sec.</th>
<th>Sr Sec.</th>
<th>Univ.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Urban</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public wage</td>
<td>7%</td>
<td>8%</td>
<td>2%</td>
<td>2%</td>
<td>5%</td>
<td>9%</td>
<td>10%</td>
<td>30%</td>
<td>51%</td>
</tr>
<tr>
<td>Private wage: non-ag.</td>
<td>28%</td>
<td>35%</td>
<td>24%</td>
<td>34%</td>
<td>34%</td>
<td>43%</td>
<td>43%</td>
<td>41%</td>
<td>39%</td>
</tr>
<tr>
<td>Private wage: ag.</td>
<td>2%</td>
<td>6%</td>
<td>13%</td>
<td>7%</td>
<td>3%</td>
<td>2%</td>
<td>2%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Private non-wage: non-ag.</td>
<td>13%</td>
<td>25%</td>
<td>19%</td>
<td>25%</td>
<td>28%</td>
<td>29%</td>
<td>35%</td>
<td>22%</td>
<td>9%</td>
</tr>
<tr>
<td>Private non-wage: ag.</td>
<td>50%</td>
<td>27%</td>
<td>41%</td>
<td>32%</td>
<td>30%</td>
<td>17%</td>
<td>9%</td>
<td>7%</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Rural</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public wage</td>
<td>2%</td>
<td>2%</td>
<td>1%</td>
<td>1%</td>
<td>2%</td>
<td>5%</td>
<td>7%</td>
<td>46%</td>
<td>48%</td>
</tr>
<tr>
<td>Private wage: non-ag.</td>
<td>2%</td>
<td>6%</td>
<td>3%</td>
<td>6%</td>
<td>6%</td>
<td>12%</td>
<td>12%</td>
<td>14%</td>
<td>33%</td>
</tr>
<tr>
<td>Private wage: ag.</td>
<td>4%</td>
<td>10%</td>
<td>13%</td>
<td>11%</td>
<td>7%</td>
<td>3%</td>
<td>1%</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>Private non-wage: non-ag.</td>
<td>1%</td>
<td>8%</td>
<td>5%</td>
<td>8%</td>
<td>11%</td>
<td>14%</td>
<td>14%</td>
<td>4%</td>
<td>7%</td>
</tr>
<tr>
<td>Private non-wage: ag.</td>
<td>91%</td>
<td>74%</td>
<td>77%</td>
<td>74%</td>
<td>75%</td>
<td>66%</td>
<td>65%</td>
<td>32%</td>
<td>11%</td>
</tr>
</tbody>
</table>

*Source: World Bank calculations based on ECV2.*

*Note: ag – agricultural; sec – secondary education; sr. sec. – senior secondary education; univ. – university; voc/tech – vocational and/or technical education.*
## Table A1.2  Type of Employment by Educational Level and Gender, 2006

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Male</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public wage</td>
<td>4%</td>
<td>5%</td>
<td>2%</td>
<td>2%</td>
<td>4%</td>
<td>8%</td>
<td>11%</td>
<td>39%</td>
<td>53%</td>
</tr>
<tr>
<td>Private wage: non-ag.</td>
<td>8%</td>
<td>17%</td>
<td>11%</td>
<td>16%</td>
<td>18%</td>
<td>36%</td>
<td>31%</td>
<td>27%</td>
<td>33%</td>
</tr>
<tr>
<td>Private wage: ag.</td>
<td>5%</td>
<td>11%</td>
<td>20%</td>
<td>12%</td>
<td>7%</td>
<td>1%</td>
<td>3%</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>Private non-wage: non-ag.</td>
<td>4%</td>
<td>13%</td>
<td>8%</td>
<td>12%</td>
<td>17%</td>
<td>18%</td>
<td>18%</td>
<td>11%</td>
<td>11%</td>
</tr>
<tr>
<td>Private non-wage: ag.</td>
<td>79%</td>
<td>54%</td>
<td>60%</td>
<td>57%</td>
<td>54%</td>
<td>37%</td>
<td>38%</td>
<td>20%</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public wage</td>
<td>1%</td>
<td>2%</td>
<td>0%</td>
<td>1%</td>
<td>1%</td>
<td>4%</td>
<td>5%</td>
<td>37%</td>
<td>45%</td>
</tr>
<tr>
<td>Private wage: non-ag.</td>
<td>3%</td>
<td>5%</td>
<td>2%</td>
<td>4%</td>
<td>4%</td>
<td>9%</td>
<td>14%</td>
<td>27%</td>
<td>49%</td>
</tr>
<tr>
<td>Private wage: ag.</td>
<td>3%</td>
<td>8%</td>
<td>10%</td>
<td>8%</td>
<td>5%</td>
<td>4%</td>
<td>1%</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>Private non-wage: non-ag.</td>
<td>2%</td>
<td>9%</td>
<td>6%</td>
<td>8%</td>
<td>10%</td>
<td>19%</td>
<td>28%</td>
<td>15%</td>
<td>4%</td>
</tr>
<tr>
<td>Private non-wage: ag.</td>
<td>91%</td>
<td>77%</td>
<td>82%</td>
<td>78%</td>
<td>80%</td>
<td>63%</td>
<td>52%</td>
<td>19%</td>
<td>2%</td>
</tr>
</tbody>
</table>

**Source:** World Bank calculations based on EICV2.

**Note:** ag – agricultural; prim. – primary education; sec – secondary education; sr. sec. – senior secondary education; univ. – university; voc/tech – vocational and/or technical education.
A multivariate regression can help explain the relationship between education and earnings. While it cannot account for unobservable differences across individuals (for example, that those with some vocational schooling may be more motivated or more capable than those who left school after completing primary education), it can help distinguish between observable differences. For example, if urban workers are paid more than rural workers even if they have the same educational level, and urban workers also tend to have more education, multivariate analysis will help distinguish the two effects.

Table A2.1 shows that the returns to education appear to be higher as educational levels increase. By using a spline regression, one can estimate the correlative impact of another year of schooling separately for different levels of schooling. For example, the regression shows that, after controlling for age, gender, and location (i.e., urban/rural), those with two years of schooling are expected to earn approximately 6.5 percent more than similar individuals with one year of schooling. Likewise, those with three years of schooling are expected to earn approximately 6.5 percent more than those with two years of schooling. And so on, until six years of schooling are reached. On the other hand, those with seven to nine years of education are expected to gain an additional 14.0 percent in earnings for each additional year of schooling in that range. Similarly, increases of one additional year lead to increased expected earnings of approximately 21 and 32 percent for those with 10 to 12 years of schooling and those with 13 years or more of schooling, respectively.\textsuperscript{106}

These results suggest that, if costs were identical, efficiency gains would arise if educational spending flowed to areas with the highest return (i.e., senior secondary and tertiary education). A few caveats are in order. First, it has already been noted that this is not causal analysis and some of the differences here are likely due to unobservable personal characteristics, rather than increased productivity from what was learned in school. Second, costs need to be assessed as well so that a net social return can be examined. Third, some levels of schooling, particularly tertiary levels, may be more amenable to the private sector taking the lead in provision; government funds need not be spent filling a gap that the private sector would fill. Lastly, equity issues must also be considered. Nonetheless, pending the above considerations, this evidence is consistent with a call for increased secondary and tertiary education.

Table A2.1 also shows that females with vocational schooling (rather than lower secondary schooling) have lower average earnings, \textit{ceteris paribus}, while males with vocational training have, if anything, higher average

\textsuperscript{106} Percentages cited here are approximations that use a common rule of thumb of interpreting the change in log as a percentage change.
earnings.\textsuperscript{107} This is seen by assessing the impact on the vocational education dummies, which vary by gender. Controlling for years of education in school and other observables, females who went to vocational education earn approximately 19 percent less. This result is statistically significant at the 90 percent level. On the other hand, males appear to earn approximately 17 percent more, though this result is not significant at the 90 percent level. It is also worth noting that the gains for technical education were quite high, approximately 49 percent. These results were positive for both males and females (not shown in this specification). However, the number of observations is quite small, making firm conclusions on the impact of technical education difficult.

The above regression analysis was repeated to include dummy variables for the sector of employment (results not shown). While the inclusion of these variables dramatically lowered the urban and male dummy variables, many other results held steady. For example, the rates of return by education level were approximately 6 percent (up to 6 years), 10 percent (6–9 years), 19 percent (9–12 years), and 32 percent (12 years or more). This is important, as it shows that the gains to education are not solely due to improved access to higher-paying sectors of employment.

The positive gain in expected earnings for vocational education for males turned significant at the 10 percent level. The lower expected earnings for females with vocational training slipped to become insignificant, suggesting that the downfall in expected earnings for those with vocational education may well be driven primarily by the fact that those attending lower secondary education move into other economic sectors more than those with vocational education. The impact of technical education on expected earnings was also robust to the new specification.

\textbf{Table A2.1 Determinants of Log Earnings (Spline Regression, 2006)}

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>0.416</td>
<td>0.049</td>
<td>8.52</td>
</tr>
<tr>
<td>Male</td>
<td>0.285</td>
<td>0.017</td>
<td>16.46</td>
</tr>
<tr>
<td>Age</td>
<td>0.081</td>
<td>0.005</td>
<td>16.14</td>
</tr>
<tr>
<td>Age Squared</td>
<td>(0.001)</td>
<td>0.000</td>
<td>(13.65)</td>
</tr>
<tr>
<td>Education up to 6 yrs</td>
<td>0.065</td>
<td>0.005</td>
<td>12.32</td>
</tr>
<tr>
<td>Education (6–9 yrs)</td>
<td>0.140</td>
<td>0.030</td>
<td>4.70</td>
</tr>
<tr>
<td>Education (9–12 yrs)</td>
<td>0.214</td>
<td>0.033</td>
<td>6.40</td>
</tr>
<tr>
<td>Education (12 yrs or more)</td>
<td>0.322</td>
<td>0.037</td>
<td>9.57</td>
</tr>
<tr>
<td>Vocational dummy (females only)</td>
<td>(0.194)</td>
<td>0.101</td>
<td>(1.92)</td>
</tr>
<tr>
<td>Vocational dummy (males only)</td>
<td>0.151</td>
<td>0.104</td>
<td>1.46</td>
</tr>
<tr>
<td>Technical education dummy</td>
<td>0.486</td>
<td>0.117</td>
<td>4.14</td>
</tr>
<tr>
<td>Constant</td>
<td>8.970</td>
<td>0.084</td>
<td>107.00</td>
</tr>
</tbody>
</table>

\textit{Source: Authors’ calculations, based on EICV2 data.}

\textsuperscript{107} To avoid complications in interpretation, the small set of individuals who had both lower secondary and vocational education were removed from this analysis.
A number of educational typologies are useful as a background for understanding the issues related to the PBET sector in Rwanda. They include the UNESCO typology of education and the tripartite typology of higher education.

The UNESCO Typology of Education

The typology of the Postbasic Education and Training (PBET) sector in Rwanda can be better understood by examining it through UNESCO’s International Standard Classification of Education, or ISCED, a multidimensional framework established by UNESCO that greatly improves the comparability of education systems. The ISCED is a program-based typology that defines education in six distinct levels as outlined in figure A3.1.

**ISCED 1.** Primary education usually begins at age six or seven and generally lasts four to six years, with six the norm in most countries. Programs at the primary level generally require no previous formal education, although it is becoming increasingly common for children to have attended a preprimary program (ISCED 0) before entering primary school. ISCED 1 programs are normally designed to give students a sound basic education in reading, writing, and mathematics, along with an elementary understanding of other subjects, such as history, geography, natural science, social science, art, and music.

**ISCED 2.** The lower secondary level of education generally continues the basic programs of the primary level, although teaching is typically more subject focused and often employs more specialized teachers, who conduct classes in their fields of specialization. Lower secondary education may be one of the following: (1) “terminal” or “type C,” which prepares students for entry into the labor force; (2) “preparatory” or “Type A,” which prepares students for upper secondary education, and (3) hybrid “type B,” which has attributes of both types C and A. Lower secondary can range from two to six years of schooling, with three years increasingly becoming the norm in most countries.

**ISCED 3.** This level corresponds to the upper stage of secondary education in most countries. Instruction is typically more organized by subject matter than at the ISCED 2 level, and teachers typically need to have a higher level, or more subject-specific, qualifications than at the preceding level. The entrance age to this level is typically 15 or 16 years. This level usually has three tracks: (1) “terminal” or “3C,” which prepares students for entry into tertiary academic programs (ISCED 5A) in universities and other degree-granting institutions; and (3) “preparatory” or “3B,” which allows students to proceed to technical and vocational
education at the tertiary level in alternative institutions of higher education (ISCED 5B). Access to ISCED 4 programs or lateral transfer to other ISCED 3 programs is also possible.

**ISCED 4.** Level 4 was introduced by the ISCED classification scheme in 1997 to cover programs that straddle the boundary between upper secondary and tertiary education. Level 4 programs cannot, considering their content, be regarded as tertiary programs. Although they are often not significantly more advanced than ISCED 3 programs, they serve to broaden the knowledge of participants who have already completed a program at Level 3. Students are typically older than those in ISCED 3 programs. Again, Level 4 programs are subclassified according to the destination for which a program is designed: (1) ISCED 4A programs provide direct access to ISCED 5A education; (2) ISCED 4B, direct access to ISCED 5B education; and (3) ISCED 4C, direct entry into the labor market.

**ISCED 5A.** The curriculum of programs at this level has a strong theoretical foundation and either emphasizes the liberal arts and sciences or prepares students for professions with high skills requirements. As the organizational structure of programs in tertiary education varies greatly across countries, no single criterion can be used to define boundaries between ISCED 5A and ISCED 5B education. The following criteria are the minimum requirements for classifying a program as ISCED 5A: (1) a minimum cumulative theoretical duration (at the tertiary level) of the full-time equivalent of three years; (2) the level of education required for entry either into a profession with high skills requirements or an advanced research program; and (3) teaching faculty with advanced research credentials.

**ISCED 5B.** These programs are generally more practical and occupationally specific than ISCED 5A programs. Qualifications in category 5B are typically shorter than those in 5A and focus on occupation-specific skills. The programs are generally geared for direct entry into the labor market, although some programs may cover certain theoretical foundations. A 5B program typically meets the following criteria: (1) it is more practically oriented and occupation specific than programs at the ISCED 5A level and does not prepare students for direct access to advanced research programs; (2) a minimum duration of the full-time equivalent of two years; and (3) program content is typically designed to prepare students to enter a particular occupation.

**ISCED 6.** This level is reserved for tertiary programs that lead directly to the award of an advanced research qualification. They are devoted to advanced study and original research. The theoretical duration of these programs is three years full time in most countries, with a cumulative total of at least seven years of full-time equivalent (FTE) study at the tertiary level, although actual enrollment time is often longer. For a program to be classified as ISCED 6, it must meet the following criteria: (1) successful completion requires the submission of a thesis or dissertation of publishable quality that is the product of original research and represents a significant contribution to knowledge; (2) the program is not solely based on coursework; and (3) the program prepares recipients for faculty posts at institutions that offer ISCED 5A programs, as well as research posts in government and industry.

### The Tripartite Typology of Higher Education

Higher education today includes both the conventional university sector and nonuniversity institutions, which constitute the alternative sector of higher education. In most countries, both sectors face a number of common
challenges, including rising participation rates, changing labor market requirements, and competition for public and private funds. All higher education institutions have, therefore, to adapt to the increasingly conflicting demands of multiple stakeholders. Students are demanding quality education; employers, education relevant to their needs; and governments, accountability for public resources allocated to educational institutions.

Other relevant trends in higher education include the growth of deregulated, market-driven institutions and vocationally relevant programs, together with the development of “seamless” systems of secondary and higher education, vocational training, and lifelong learning.

The landscape of higher education has changed: alternative institutions represent distinctive developments and offer some remarkable benefits—compared to universities—including: (1) easier and more equitable access for large segments of the student population, (2) greater flexibility and responsiveness to the needs of employers, and (3) a different occupational orientation and approach to public service.

The strategic objectives of the alternative sector of higher education are to:

- Provide equity in access to tertiary education for the growing youth cohort and young adults who would otherwise have no opportunity to enter traditional, university-dominated systems of higher education.
- Provide this access in a cost-effective manner, usually at a lower cost per student than in universities.
- Ensure that such education equips graduates with the knowledge, skills, and competencies needed by employers in a fast-changing knowledge economy.
- Offer greater flexibility in program design and delivery in order to respond to the complex and diverse needs of students, the labor market, employers, and governments.
- Equip students with the learning know-how, abilities, and skills to pursue lifelong learning.
- Establish partnerships and bridges to other educational sectors, including general and vocational secondary education, as well as the university sector of higher education.
- Play a meaningful role as an agent of regional economic development in remote regions and/or disadvantaged urban communities.

An effective typology of the higher education system is the so-called tripartite system, composed of three tiers of institutions. Tier I consists of elite research and comprehensive universities; Tier II, of lower-status universities and degree-granting colleges and institutes; and Tier III, institutions that offer mostly short-cycle, subdegree programs (1–3 years in duration). The alternative sector usually consists of all institutions in Tier III and a small percentage of the institutions in Tier II. The hierarchy of institutions in Tiers I and II is established by the type of degrees offered, the selectivity of admission criteria, and the resources allocated per student.

Examples of the tripartite typology in selected OECD countries are shown in table A3.1. The share of overall enrollment in the alternative higher education sector is highest in the USA and Canada, where it exceeds 30 percent, compared to Germany, where the recent conversion of many Fachhochschulen into universities of applied science has virtually produced a single-tier system.

### Table A3.1 Examples of the Tripartite Typology in Higher Education

<table>
<thead>
<tr>
<th>Country</th>
<th>Tier I</th>
<th>Tier II</th>
<th>Tier III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>8 research universities</td>
<td>32 new universities and some TAFE</td>
<td>68 TAFE colleges</td>
</tr>
<tr>
<td></td>
<td></td>
<td>colleges</td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>30 research and comprehensive universities</td>
<td>56 new universities, university colleges, and polytechnics</td>
<td>145 community colleges and technical institutes</td>
</tr>
<tr>
<td>France</td>
<td>37 Grande Écoles</td>
<td>86 Universités</td>
<td>123 Instituts Universitaires de Technologie (IUTs)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>280 Sections de Brevet de Technicien Supérieur (BTS)</td>
</tr>
<tr>
<td>Germany</td>
<td>78 technical and comprehensive universities</td>
<td>182 Fachhochschulen FHS 43 Berufsakademien</td>
<td>Dual training institutes</td>
</tr>
<tr>
<td>Ireland</td>
<td>8 universities</td>
<td>13 technical institutes</td>
<td>Training centers</td>
</tr>
<tr>
<td>United States</td>
<td>690 Ivy League, public, and private research universities</td>
<td>1,760 polytechnic, colleges, and smaller state universities</td>
<td>1,075 community colleges and Institutes of Technology</td>
</tr>
</tbody>
</table>

Public Universities and Higher Learning Institutions

- **National University of Rwanda (NUR):** Established in 1963 by the government in cooperation with the Dominican Order from the Province of Québec, Canada, NUR is the largest university in Rwanda. It is located in the city of Butare in southern Rwanda. The university suffered badly during the genocide and had to close in 1994, reopening in April 1995. At that time English was introduced as a medium of instruction, alongside French. Currently, NUR has 9 faculties, 3 schools, and 9 centers. Since its reopening in 1995, NUR has made a remarkable recovery; 16,000 students have graduated. It now employs over 500 academic staff, 50 of whom are expatriates, and enrolls around 11,000 students, making the university the largest public provider of higher education in Rwanda. The Rwandan government, working together with the donor community, has made substantial commitments to developing higher education in general and to NUR in particular.

- **Kigali Institute of Science and Technology (KIST):** KIST is the leading public technology institute of higher learning in Rwanda. It came into existence as a UNDP project in November 1997 with a clear mandate to produce high-caliber technical and scientific expertise. KIST offers degree programs in engineering and applied science. The research function at the Institute is based on the understanding that as the leading institution of science and technology in Rwanda, it has a mandate to generate and advance knowledge, as well as use it to enrich teaching and learning. The Directorate of Research, Publications, and Consultancy was established to encourage, harmonize, and develop research, publications, and consultancy capabilities in the institution.

- **Kigali Institute of Education (KIE):** KIE is a public institution of higher learning established in 1999 with Rwandan government funding and the assistance of various donors, including the World Bank; Swiss Co-Operation; the U.K. Department for International Development; UNESCO; and GIZ. The institute is organized into three faculties: science, arts, and education. It has also a number of active directorates for: (1) research and consultancy, (2) continuing education, (3) academic quality, and (4) academic practice and development. A new e-learning center at KIE has been established under the PAN-African e-Network Project, funded by the government of India. KIE will provide e-learning facilities using the latest VSAT technology. The project was scheduled to be implemented in a phased manner in almost all African nations, starting in 2009.

- **School of Finance and Banking (SFB):** SFB is the leading business school in Rwanda. It offers BBA and MBA degree programs, as well as executive education and consulting services to local organizations. The SFB offers its own BBA degree, but works with the Maastricht School of Management (MSM, Netherlands) to
jointly deliver the MBA program. The school also awards an MSM degree, which is internationally accredited. Approximately 50 percent of class sessions are delivered by MSM faculty, who fly in for two-week stays.

- **Kigali Institute of Health (KHI):** KHI has three campus locations: Kigali, Ndera, and Nyamishaba. The Institute offers degree-level programs in allied health sciences and nursing. Allied health sciences include studies in ophthalmology, dentistry, physiotherapy, anesthesiology, medical laboratory sciences, and medical imaging sciences. The nursing programs include nursing, mental health, midwifery, environmental health, and community health. KHI also has an active continuing education program for health care professionals.

- **Institut Supérieur d’Agriculture et d’Elevage (ISAE):** ISAE is Rwanda’s leading institution of higher education in agriculture and related disciplines, located in Bugoso. Its programs include soil science, crop production and management, animal husbandry and production, water management, rural development, agricultural technology, agribusiness, horticulture, fish farming, and forest management.

- **Umutara Polytechnic (UP):** UP was established as an institution of higher learning in 2006 on the site of a formal rural secondary school, with very limited facilities for laboratories, workshops, equipment, and lecture rooms. Established to support the economic transformation of Rwanda, UP is focused on delivering vocational and technical diploma and degree programs.

**Private Universities and Higher Learning Institutions**

Private universities and other private HLIs have grown substantially over the past decade and enrolment in them now exceeds enrolment in public institutions.

- **Université Libre de Kigali:** Kigali Independent University is a higher education institution founded in 1996 by the Rwandan Association for Promoting Education and Culture and approved by a ministerial order of MINEDUC. The university has faculties of economic sciences and management (with departments of economics, management, and rural development), social sciences (with departments of sociology, administrative sciences, and population studies), law, and science and technology (with a department of computer science).

- **Université Laïque Adventiste de Kigali (UNILAC):** UNILAC was established in 1997 by the Adventist Parent Association for the development of education in Rwanda. The university has two faculties: law and economic sciences; the latter includes programs in economic development, rural development, and ICT management. UNILAC was granted its formal operating license in December 2008.

- **Université Adventiste d’Afrique Centrale de l’Est:** This university is part of a network of universities established by the 7th Day Adventist Church in Africa, East and South Asia, and Latin America and the Caribbean. The university offers programs through faculties of business administration, education, and theology.

- **Université d’Agriculture, de Technologie et d’Éducation de Kibungo (UNATEK):** The University of Agriculture, Technology and Education of Kibungo is a community university recognized by a convention signed between the Association for the Promotion of Higher Education in the District of Ngoma in the Eastern Province and the government of Rwanda, represented by the Ministry of Education. UNATEK programs are offered through two faculties: education (with four departments: economics and management, arts and humanities, clinical psychology, and psychopedagogy) and rural development (with two departments: rural engineering and agribusiness).

- **Institut d’Enseignement Supérieur (INES) de Ruhengeri:** INES is a faith-based institution located in the Musanze District of the Northern Province. It offers academic programs through four faculties: economics, social sciences, and management studies; basic and applied sciences; arts; and law. All faculties are located in the same campus, encompass five departments, and offer three options.

- **Université Catholique de Kabgayi (UCK):** UCK operates under the aegis of the Catholic diocese of Muhanga and offers programs in three faculties: science and development studies; social sciences and economics; and social communication.

- **Catholic University of Rwanda:** The Catholic Church of Rwanda has judged it useful to reinforce its contribution in the area of intellectual development by creating a Higher Institute of Scientific Education, whose major aim is to prepare highly qualified and devoted professionals to respond to the challenges of the socioeconomic development of Rwanda.

- **Rwanda Tourism College (RTC):** Established in 2008, RTC has been weaving the Rwandan and regional dream
through capacity development, training manpower for hotel and tourism companies, airlines, travel and tour companies, business IT-related companies, and marketing and public relation offices.

- **Kigali Institute of Management (KIM):** KIM evolved out of the International College of Accountancy and Management (ICAM) in 2005 with the introduction of a degree program leading to a Bachelor’s of Business Management (BBM), in addition to ICAM programs in accountancy, financial analysis, and ICT management.

- **Institut Polytechnique de Byumba (IPB):** IPB is a private HLI functioning in accordance with the law No. 20/2005 of 20/10/2005 governing the organization and functioning of higher education in Rwanda. IPB opened on January 26, 2006, with one faculty: the Faculty of Social Sciences, Management and Development Studies.

- **Grand Séminaire Saint Charles Borromée de Nyakibanda:** This theological seminary in Nyakibanda is a Catholic institution governed by the Episcopal Conference of Rwanda, under the supervision of the Holy See, represented by the Congregation for the Evangelization of Peoples.

- **Protestant Institute of Arts and Social Sciences:** The overall aim of the Protestant Institute of Arts and Social Sciences is to promote the quality of services delivered to the community and enhance the services rendered to Churches and Societies. Services include teaching and training of staff, coaching of practitioners, and creating and developing knowledge based on an inquisitive, scientific, and independent approach in the fields of Theology, Education and Development, and Healing and Reconciliation.

- **Institut des Sciences Pédagogiques de Gitwe (ISPG):** ISPG is an institute for education studies located in the Southern Province and provides programs in early childhood education and teacher education.
ANNEX 5

VOCATIONAL TRAINING CENTER ENROLLMENT BY OCCUPATION AND FEMALE GENDER

Figure A5.1  ■ VTC Enrollment by Occupation and Female Students, 2009

Source: Statistics provided to authors by WDA in September–October 2010.
Note: The data source does not specify whether it includes both public and private providers.
TECHNICAL SECONDARY SCHOOL ENROLLMENT BY OCCUPATION AND FEMALE GENDER

Figure A6.1  Technical Secondary School Enrollment, by Occupation and Female Students, 2009

Source: Statistics provided to authors by WDA in September–October 2010.
Note: The data source does not specify whether it relates to both public and private providers.
MINEDUC’s TVET Policy lays out five priority areas of intervention to develop the TVET system, with key strategies offered for each intervention area. The priority intervention areas and identified strategies are summarized in the table below.

### Table A7.1  Summary of TVET Policy

<table>
<thead>
<tr>
<th>Area of intervention</th>
<th>Strategies</th>
</tr>
</thead>
</table>
| 1. Develop TVET system | • Establish TVET central training agency for coordination of all TVET activities  
                          • Strengthen capacity of TVET institutions to offer demand-driven, outcome-based training  
                          • Establish a National Qualifications Framework (NQF)  
                          • Strengthen partnerships with all stakeholders  
                          • Ensure lifelong learning opportunities for TVET  
                          • Develop a TVET management information system  
                          • Establish business incubation |
| 2. Improve access to TVET programs | • Ensure all Rwandans access to TVET programs  
                                         • Ensure appropriate infrastructure  
                                         • Make TVET affordable (e.g., provide financial support to students from poor households)  
                                         • Make special provision for vulnerable groups to ensure access to TVET programs  
                                         • Make deliberate efforts to place each TVET student in an industrial attachment programs during training |
| 3. Ensure quality of TVET programs | • Review/develop new TVET curricula in modular form, based on occupational standards  
                                           • Introduce a demand-responsive, competency-based training model  
                                           • Introduce modern and relevant teaching methods and pedagogic materials in line with market needs  
                                           • Provide appropriate equipment and improve facilities  
                                           • Introduce outcome-oriented assessments (e.g., practical tests and inspections)  
                                           • Involve private sector in curriculum development, TVET provision, and monitoring and evaluation |

(continued on the next page)
### Table A7.1  Summary of TVET Policy (continued)

<table>
<thead>
<tr>
<th>Area of intervention</th>
<th>Strategies</th>
</tr>
</thead>
</table>
| 4. Provide adequate-quality TVET teachers | • Create TVET teacher development programs that ensure both the quality and quantity of instructors  
• Emphasize initial and continual training focused on practical, pedagogical, and entrepreneurial skills  
• Link TVET teacher assessments with career pathways  
• Provide other incentives to attract and retain TVET teachers |
| 5. Ensure sustainable TVET financing | • Introduce TVET financing framework based on co-financing by beneficiaries  
• Increase budget allocations to TVET  
• Create conducive environment for enterprises to invest in TVET  
• Encourage development of production units in TVET institutions  
• Increase efficiency of TVET delivery so as to reduce costs |

The table below summarizes the key objectives identified in the draft Strategic and Action Plan of the Workforce Development Agency (WDA), as well as the actions associated with achieving these objectives.

**Table A8.1 Summary of Draft WDA Strategic and Action Plan**

<table>
<thead>
<tr>
<th>Objective</th>
<th>Actions</th>
</tr>
</thead>
</table>
| 1. An integrated TVET system that promotes decentralized delivery, public-private partnerships, vertical and horizontal mobility with multiple entry and exit points, and a spatial distribution that allows equitable access throughout the country. | • Establish IPRCs in Rwanda  
• Absorb and align all TSSs and VTCs within the national TVET arrangement  
• Develop partnerships with industry  
• Implement accreditation of industry-based training programs  
• Integrate the established TQF into the National Qualifications Framework (NQF)  
• Develop a national TVET certification system  
• Publicize TVET, the WDA, and promote national policy of gender balance in all preceding strategies |
| 2. Develop demand-led, competency-based curricula                         | • Develop and implement a structured mechanism for soliciting relevant labor market information  
• Introduce and apply DACUM approach to TVET curriculum development |
| 3. Establish standards for the recruitment, selection, and training of TVET lecturers and instructors | • Put in place qualified and competent TVET lecturers and instructors in accordance with the National Gender Policy  
• Establish technical and pedagogical training system for local TVET lecturers and instructors |
| 4. Create a robust and structured institutional framework for workforce skills development | • Operate WDA in adherence with National Gender Policy  
• Develop human resources, management, and operational systems that monitor TVET institutions and ensure adherence to the National Gender Policy  
• Facilitate WDA operations |
| 5. Establish strong linkages with regional and international TVET institutions | • Establish a collaboration framework with regional and international TVET institutions |
| 6. Update the infrastructure of WDA HQ, IPRCs, PCs, and TVET centers      | • Establish WDA HQ infrastructure and facilities  
• Establish standard training equipment list (STEL) for new curricula  
• Ensure adequacy of equipment, machinery, consumable training materials, and physical infrastructure of IPRCs, TSSs, and VTCs in line with industrial standards in TVET training delivery |
| 7. Establish a financially sustainable TVET system                        | • Establish training levy system  
• Establish income-generating activities to supplement revenues of TVET institutions  
• Establish model industrial parks |

(continued on the next page)
Table A8.1  Summary of Draft WDA Strategic and Action Plan (continued)

<table>
<thead>
<tr>
<th>Objective</th>
<th>Actions</th>
</tr>
</thead>
</table>
| 8. Develop entrepreneurship | • Establish entrepreneurship skills training  
• Establish infrastructure and funding mechanism to enhance skills in business incubation and entrepreneurship development |
| 9. Institute a common medium of instruction in TVET training | • Develop a system for training lecturers and instructors in the use of English as a common medium of instruction |

Source: Adapted from WDA, 2009, “Draft WDA Strategic and Action Plan.”

Basic Principles of DACUM

Expert workers can describe their jobs better than anyone else. Workers whose occupations are the object of analysis and who perform well in those positions are the real experts on those types of jobs. Although first-rate supervisors and managers may know a lot about the work developed, they usually lack the necessary level of expertise to conduct a good analysis of such jobs.

An effective way of defining an occupation is to describe the tasks performed by expert workers. A worker may carry out several tasks that are highly appreciated by their colleagues and internal clients. To do so, attitudes and knowledge alone are not enough; they must perform their tasks the right way. If the enterprise had this knowledge, it might facilitate better training for everyone else.

To perform all the tasks of a specific occupation in an appropriate way, knowledge, behavior, and skills need to be applied, together with tools and equipment. The “Developing A CuRriculum” (DACUM) methodology gives importance to the detection of factors that explain successful performance. Therefore, the methodology seeks to establish not only tasks, but also a list of these factors. Further, it specifies the tools with which the worker interacts in order to facilitate practical training. This information is then condensed in what is known as a “DACUM Letter.”

Contents of a Typical DACUM Letter

Available examples of DACUM letters usually list competencies, which are described as operations or tasks (see figure A9.1). A DACUM letter also details the necessary knowledge, behaviors, equipment, tools, materials, and future development of a job position, as optional.

A DACUM letter is developed by a team of expert workers that produces, generally in a two-day period, a detailed research chart with the tasks and duties performed by workers in a certain occupation. An example of such a chart for a registered nurse is provided below in figure A9.2.

---

## Figure A9.2 DACUM Research Chart for a Registered Nurse

### Panel A. List of Tasks

<table>
<thead>
<tr>
<th>Duties</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>C. Provide (ADL’s) activity daily living</strong></td>
<td>C1. Determine ADL status</td>
</tr>
</tbody>
</table>

Source: “DACUM Research Chart for Registered Nurse,” 1995, Ohio State University. (Partial representation of the original.)

### Panel B. Descriptive Items

#### General knowledge and skills
- Communication — verb; listening; written; non-verbal (send & receive), speaking
- Medication
- Assessment skills (nutritional, neurological, mental/emotional, physical)
- Organizational skills
- Time management skills
- Coordination skills
- Supervisory skills
- Problem solving skills
- Critical thinking skills
  - data collection & interpretation
  - sharing info with proper people
- Interpersonal skills
  - Capable of monitoring patient’s physical & emotional needs
- Identify resources
- Diagnostic skills
- Computer skills
- Equipment operational skills
- Gross & fine motor skills
- Pain management skills
- CPR
- Heimlich
- Conflict resolution

#### Worker behaviors
- Patience, flexibility, compassionate nature, conscientious, team player, honest, personal responsibility, self-starter, assertiveness, professional attitude, sensitive, respectful of body space, respectful of mental boundaries.

#### Tools, equipment, supplies and materials

<table>
<thead>
<tr>
<th>Oxygen equipment</th>
<th>Irrigation sets</th>
<th>CPM machine</th>
<th>Dressings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restraints</td>
<td>Staple/suture removal kits</td>
<td>Ted hose</td>
<td>Briefs</td>
</tr>
<tr>
<td>Pulse oximetry</td>
<td>Posey belts</td>
<td>Bed pan</td>
<td>Chux</td>
</tr>
<tr>
<td>Nebulizers</td>
<td>IV kits</td>
<td>Urinal</td>
<td>Syringes</td>
</tr>
<tr>
<td>Blood pressure equipment</td>
<td>TENS unit</td>
<td>Walkers</td>
<td>Inhaler</td>
</tr>
<tr>
<td>Stethoscope</td>
<td>Culture tubes</td>
<td>Canes</td>
<td>Spirometer</td>
</tr>
<tr>
<td>IV pump</td>
<td>Specimen containers</td>
<td>Wheel Chairs</td>
<td>C-PAP</td>
</tr>
<tr>
<td>Enteral feeding pump</td>
<td>K-pads</td>
<td>Carts</td>
<td>IPPB</td>
</tr>
<tr>
<td>Suction machine</td>
<td>IVACS</td>
<td>NG tubes</td>
<td>Glucometer</td>
</tr>
<tr>
<td>Motorized beds</td>
<td>Foley kits</td>
<td>Computer</td>
<td>Hemetest</td>
</tr>
<tr>
<td>Specialized beds</td>
<td>Otoscope</td>
<td>Medications</td>
<td></td>
</tr>
</tbody>
</table>

(continued on the next page)
**Future trends and concerns**

<table>
<thead>
<tr>
<th>Managed care</th>
<th>Deemphasis of medical specialties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home health care</td>
<td>Capitation</td>
</tr>
<tr>
<td>Hospice care</td>
<td>Cost effective care</td>
</tr>
<tr>
<td>Nursing versatility</td>
<td>Federal funding cuts, legislation, medicare</td>
</tr>
<tr>
<td>Upgrading skills and education</td>
<td>Advances in technology</td>
</tr>
<tr>
<td>Computer skills</td>
<td>Increased importance of patient teaching</td>
</tr>
<tr>
<td>Increasing control of insurance companies over patient care</td>
<td>Increased liability</td>
</tr>
</tbody>
</table>

**Date of report:** December 7–8, 1995

**Panel members:** Betty Brownlow, C.M.H.I. at Fort Logan, Denver, CO. Sara E. Hudspeth, St. Joseph’s Hospital, Denver.

**Facilitators:** Robert Norton, Team Leader, CETE. Glenn Koons, Austin, TX, Jeannie K. Smith, Austin, TX.

Source: “DACUM Research Chart for Registered Nurse,” 1995, Ohio State University. (Partial representation of the original.)
Administrative Organization

The administrative organization of higher learning institutions (HLIs) is determined by the law on these institutions, which stipulates that their governance organs will be composed of a board of directors, senate, executive council, council of faculties and schools, and department councils. Table A10.1 reviews the roles and responsibilities of each.

Budget Preparation

Budget preparation complies with government procedures, which means that the process is basically the same for all HLIs. There is, however, some variability between institutions:

- **National University of Rwanda (NUR):** NUR has its own Financial Management Procedures Manual, which provides guidelines for collecting, recording, processing, and reporting accounting, financial, and procurement-related information; ensures that data accumulation, form preparation, distribution, and processing are standardized; provides information and reference materials to assist users in accessing and using the university’s financial information system; and ensures that NUR’s financial procedures are in full compliance with national policies and regulations.

- **Kigali Institute of Science and Technology (KIST) and Kigali Health Institute (KHI):** all budget units of both institutes have input into the budgeting process. KHI classifies resources into three groups: ordinary budget (most salaries), development budget (for capital expenditures and expatriate personnel), and specific budget (for specific activities and projects).

Financial Management

Financial management is mostly an internal matter for each HLI, which has its own financial management procedures manual and financial management staff. Each HLI also has its own bank account. Staff is usually paid by MINECOFIN, but there are cases in which the full budget is transferred to an HLI, which handles staff payments.

External income generation is encouraged and incentive mechanisms are in place to ensure that departments and individuals that generate resources are appropriately rewarded. NUR has two models for this activity, with varying shares of grants or contracts allocated to staff, central administration, and the unit involved. Also, NUR encourages staff to engage in external consultancies, as long as they register this work and pay 15 percent overhead to the university. Other HLIs have somewhat similar mechanisms.

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Accountability

Performance contracts serve as the main tool of accountability within HLIs, the nature of which can vary according to the institution. These contracts are recent; they were initiated in 2009 in KIST, KHI, and NUR. At NUR, performance contracts specify agreed deliverables, such as respect for internal rules, teaching, research, staff development, consultancy, community service, management, and “other targets” to be specified—all of which, except for “other targets,” are determined by the administration. The contracts are signed by all staff and provide the basis for staff evaluation. Other HLIs have simpler performance contracts.

Table A10.1 — Roles and Responsibilities of HLI Governance Organs

<table>
<thead>
<tr>
<th>Governance organ</th>
<th>Roles and responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board of directors</td>
<td>• Gives final approval of strategic plan and annual reports, approves budget and forwards to MINEDUC, identifies gaps, looks for alternative financing</td>
</tr>
<tr>
<td></td>
<td>• Approves loans, donations, subventions, and legacies</td>
</tr>
<tr>
<td></td>
<td>• Recruits, promotes, and determines salaries and allowances of lecturers and researchers, as well as penalties, when necessary</td>
</tr>
<tr>
<td></td>
<td>• Adopts decisions and conclusions of executive council related to financial management, assets, and personnel</td>
</tr>
<tr>
<td></td>
<td>• Determines fees and other dues to be paid by students and the funds that will be invested in general services</td>
</tr>
<tr>
<td></td>
<td>• Determines students who will receive study scholarships and prizes</td>
</tr>
<tr>
<td></td>
<td>• Makes decisions on creation of new institutional units</td>
</tr>
<tr>
<td>Senate</td>
<td>• Makes proposals for salaries, recruitment, and development of staff, and, if need be, sanctions on professors and lecturers, and forwards them to the board of directors for final decisions</td>
</tr>
<tr>
<td></td>
<td>• Directs and supervises research and education activities</td>
</tr>
<tr>
<td></td>
<td>• Suggests and supervises the creation and development of academic units and submits them to the board, which makes the decision</td>
</tr>
<tr>
<td>Executive council</td>
<td>• Develops proposals on financial management</td>
</tr>
<tr>
<td></td>
<td>• Reviews budget proposals and sends them to board of directors</td>
</tr>
<tr>
<td>Council of faculties and schools</td>
<td>• Elects deans, vice-deans, and department heads</td>
</tr>
<tr>
<td>Department councils</td>
<td>• Elects secretary (deputy department head) of departments (a faculty member)</td>
</tr>
<tr>
<td></td>
<td>• Develops course design and curricula, submits to faculty council, then board, for approval</td>
</tr>
</tbody>
</table>

Quality assurance in postbasic education is underpinned by a number of fundamental principles: (1) the interest of students, employers, and society at large in good-quality education; (2) the central importance of institutional autonomy, tempered by the recognition that this must be accompanied by significant responsibility; and (3) the need for external quality assurance to be fit for purpose and place only an appropriate and necessary burden on institutions in order to achieve its objectives.

“Standards” in this context are not meant to imply “standardization” or “requirements.” Instead “standards” are statements of basic good practice; they are short and general in nature. “Guidelines,” on the other hand, are meant as illustrations of the standards in action; they provide additional information and explain why the standards are important. The objectives of the standards and guidelines are to:

- Encourage the development of postbasic education institutions that foster vibrant intellectual and educational achievement.
- Provide assistance to postbasic institutions in developing their own cultures of quality assurance.
- Inform and raise the expectations of postbasic education institutions, students, employers, and other stakeholders about the processes and outcomes of postbasic education.
- Contribute to a common frame of reference for the provision of postbasic education and the assurance of its quality.

Internal Quality Assurance

The dimensions of internal self-assessment of the quality of PBET programs and institutions are outlined schematically in figure A11.1

Policy and Procedures for Quality Assurance

Institutions should have a policy and associated procedures for the assurance of the quality and standards of educational programs and awards. They should also commit themselves explicitly to the development of a culture that recognizes the importance of quality, and quality assurance, in their work. To achieve this, institutions should develop and implement a strategy for the continuous enhancement of quality. This strategy, together with policies and procedures, should have formal status and be publicly available. It should also include a role for students and other stakeholders.

Formal policies and procedures provide a framework within which postbasic education institutions can develop and monitor the effectiveness of their quality assurance systems. They also help provide public confidence in institutional autonomy. Policies contain statements of intention and outline the principal means by which these intentions will be achieved. Procedural guidance gives more detailed
information about the ways in which a policy is implemented and provides a useful reference point for those who need to understand the practical aspects of carrying out the procedures.

A policy statement is expected to include the: (1) relationship between teaching and research in the institution (tertiary institutions only); (2) institution’s strategy for quality and standards; (3) organization of the quality assurance system; (4) responsibilities of faculties and departments and other organizational units and individuals for quality assurance; (5) involvement of students in quality assurance; and (6) ways in which the policy is implemented, monitored, and revised.

Approval, Monitoring, and Periodic Review of Programs and Awards

Internal quality assurance of programs and awards are expected to include: (1) development and publication of explicit intended learning outcomes; (2) careful attention to curricula and program design and content; (3) specific needs of different modes of delivery (e.g. full-time, part-time, distance-learning, e-learning) and types of higher education (e.g., academic, vocational, professional); (4) availability of appropriate learning resources; (5) formal program approval procedures by a body other than the teaching the program; (6) monitoring of student progress and achievements; (7) regular periodic reviews of programs (including external panel members); (8) regular feedback from employers, labor market representatives, and other relevant organizations; and (9) participation of students in quality assurance activities.

Assessment of Students

Students should be assessed using published criteria, regulations, and procedures that are consistently applied. This process is one of the most important elements of postbasic education. The outcomes of assessments have a profound effect on students’ future careers. It is therefore important that it be carried out professionally at all times and take into account the extensive existing knowledge about testing and examination processes. Assessments also provide valuable information for institutions on the effectiveness of teaching and learner support.

Student assessment procedures are expected to: (1) be designed to measure the achievement of intended learning outcomes and other program objectives; (2) be appropriate for their purpose—whether diagnostic, formative or summative; (3) have clear and published scoring criteria; (4) be undertaken by people who understand the role of assessment in the process of student progression towards achievement of the knowledge and skills associated with their intended qualifications; (5) where possible, not rely on the judgments of single examiners; (6) take account of all the possible consequences of examination regulations; (7) have clear regulations covering student absence, illness, and other mitigating circumstances; (8) ensure that assessments are conducted securely in accordance with an institution’s stated procedures; and (9) be subject to administrative verification to ensure the accuracy of procedures.

In addition, students should be clearly informed about the assessment strategy being used in their programs, what examinations or other assessment methods they will be subject to, what will be expected of them, and the criteria that will be applied to assess their performance.

Quality Assurance of Teaching Staff

Institutions should have ways of verifying that teaching staff are qualified and competent to teach. Teacher evaluations should be available to those undertaking external reviews and commented on in reports. Teachers are the single most important learning resource available to most students. It is important that those who teach have full
knowledge and understanding of the subject that they are teaching, the necessary skills and experience to transmit their knowledge effectively to students in a range of teaching contexts, and the opportunity to access feedback on their own performance. Institutions should ensure that staff recruitment and appointment procedures include a means of making certain that all new staff have at least the minimum necessary level of competence.

Teaching staff should be given opportunities to develop and extend their teaching capacity and encouraged to value their skills. Institutions should provide poor teachers with opportunities to improve their skills to an acceptable level and should have the means to remove them from their teaching duties if they continue to be demonstrably ineffective.

Learning Resources and Student Support

Institutions should ensure that the resources available for the support of student learning are adequate and appropriate for each educational program offered. In addition to teachers, students rely on a range of resources to assist their learning. These vary from physical resources, such as libraries and computer facilities, to tutors, counselors, and other advisers. Learning resources and other support mechanisms should be readily accessible to students, designed with their needs in mind, and responsive to feedback from them. Institutions should routinely monitor, review, and improve the effectiveness of the support services available to their students.

Information Systems

Institutions should ensure that they collect, analyze, and use relevant information to effectively manage their programs of study and other activities. Institutional self-knowledge is the starting point for effective quality assurance. It is important that institutions have the means to collect and analyze information about their own activities. Without this data, they will not know what is working well and what needs attention, nor the results of innovative practices.

The quality-related information systems required by individual institutions will depend to some extent on local circumstances, but it is at least expected that such systems cover: (1) student progression and success rates; (2) graduate employability; (3) student satisfaction; (4) teacher effectiveness; (5) student population profiles; (6) available learning resources and their cost; and (7) the institution’s own key performance indicators. There is also value in institutions comparing themselves with similar institutions in their respective regions and in other parts of the world. This allows them to extend the range of their self-knowledge and access possible ways of improving their own performance.

Public Information

Institutions should regularly publish up-to-date, impartial, and objective information—both quantitative and qualitative—about the educational programs and awards that they offer. In consonance with their public role, all PBET institutions have a responsibility to provide information about their programs; the intended learning outcomes of these programs; the qualifications that they award; the teaching, learning, and assessment procedures that they use; and the learning opportunities available to their students. Published information might also include the views and employment destinations of past students and a profile of the current student population. This information should not be used simply as a marketing opportunity. Institutions should verify that it meets their own expectations with respect to impartiality and objectivity.

External Quality Assurance

The form of external quality assurance varies from system to system and can include institutional evaluations of different types; subject or program evaluations; accreditation at the subject, program, and institutional level; and combinations of these elements. External evaluations largely depend for their full effectiveness on the existence of an explicit internal quality assurance strategy with specific objectives and on use, within institutions, of mechanisms and methods aimed to achieve those objectives.

Dimensions of external assessment of the quality of PBET programs and institutions are outlined schematically in figure A11.2. The process is undertaken by external agencies for a number of purposes, including: (1) safeguarding of national academic standards for PBET; (2) accreditation of programs and/or institutions; (3) protection of the rights of students and learners; (4) public provision of independently verified quantitative and qualitative information about educational programs and/or institutions; and (5) improving and enhancing quality.
The processes carried out by quality assurance agencies properly depend on their purpose and the outcomes that they are intended to achieve. The procedures adopted by those agencies that emphasize the enhancement of quality may be quite different from those that seek to provide strong consumer protection. Quality assurance standards are intended to reflect basic good practice and guidance as to what should be examined or how activities should be conducted. Certain general principles of good practice in external quality assurance are already established, including those listed below:

**Use of internal quality assurance processes**

External quality assurance procedures should take into account the effectiveness of the internal quality assurance processes described in Part 1 of the European Standards and Guidelines. It is important that institutions’ own internal policies and procedures be carefully evaluated in the course of an external assessment in order to determine the extent to which standards are being met. If institutions are to be capable of demonstrating the effectiveness of their own internal quality assurance processes, and if these processes properly assure quality and standards, then external processes may be less intensive than would otherwise be the case.

**Development of external quality assurance processes**

In order to ensure clarity of purpose and transparency of procedures, both the objectives and methods of external quality assurance should be designed and developed by key stakeholders, including all PBET institutions. The procedures that are finally agreed on should be published and contain explicit statements of the aims and objectives of the processes, as well as a description of the procedures to be used. As external quality assurance makes demands on PBET institutions, a preliminary impact assessment should be undertaken to ensure that the procedures to be adopted are appropriate and will not unnecessarily interfere with the normal work of these institutions.

**Quality assurance criteria**

Any formal decisions made as a result of an external quality assurance process should be based on explicit published criteria that are consistently applied. Formal decisions made by quality assurance agencies have a significant impact on the institutions and programs that are judged. In the interests of equity and reliability, these decisions should be based on published criteria and consistently interpreted. Conclusions should be based on recorded evidence and agencies should have mechanisms that allow them to moderate conclusions, if necessary.

**Fitness for purpose**

All external quality assurance processes should be designed specifically to achieve their purpose and objectives. The quality assurance agency mandated to conduct an external review should have established processes and operational procedures that are congruent with their own defined and published purposes. Experience has shown that certain widely used elements of external reviews not only help to ensure their validity, reliability, and usefulness, but also provide a basis for a regional or international dimension to quality assurance.

Among these elements, the following are particularly noteworthy: (1) insistence that the experts who undertake external quality assurance reviews have appropriate skills and are competent to perform this task; (2) due diligence and care in the selection of experts; (3) provision of appropriate orientation and/or training for experts; (4) use of

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Note: QA – quality assurance.

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external and/or international experts; (5) participation of students; (6) assurance that review procedures are sufficient to provide adequate evidence in support of findings and conclusions reached; (7) publishing a report or draft report on self-evaluation, a site visit, or follow-up review; and (8) recognition of the importance of institutional improvement and enhancement policies as a fundamental element of quality assurance.

**Report of findings**

The reports of a quality assurance team should be published and written in a style that is clear and readily accessible to its intended readership. Any decisions, commendations, or recommendations contained in reports should be easy for a reader to find.

In order to ensure maximum benefits from an external quality assurance review, it is important that reports of findings meet identified needs of the targeted stakeholders. Reports are sometimes intended for different readers and thus require careful attention to structure, content, style, and tone. In general, reports should be structured to include description, analysis (including relevant evidence), conclusions, commendations, and recommendations. There should be sufficient preliminary explanation to enable a lay reader to understand the purposes of a review, its form, and the criteria used to make decisions.

The reports should be published in a readily accessible form and the external review should provide opportunities to readers and users of the report (both within the relevant institution and outside of it) to comment on their usefulness.

**Follow-up procedures and periodic reviews**

Quality assurance processes that contain recommendations for action or require a follow-up action plan should have a predetermined follow-up procedure that is consistently implemented. Quality assurance is not principally about individual external scrutiny of events; rather, it should be about encouraging an institution to continuously try to do a better job. External quality assurance does not end with the publication of a report and should include a structured follow-up procedure to ensure development of action plans for implementation of recommendations. This may involve further meetings with institutional or program representatives. The objective is to ensure that areas identified for improvement are dealt with speedily and that further enhancement is encouraged.

External quality assurance should also be undertaken on a cyclical basis. The length of the cycle and the review procedures to be used should be clearly defined and published in advance. Quality assurance is not a static, but a dynamic, process—it should be continuous, not once in a lifetime. It does not end with the first review or the completion of formal follow-up procedures. It has to be periodically renewed. Subsequent external reviews should take into account progress made since the previous review.

**System-wide analyses**

Quality assurance agencies should periodically produce summary reports that describe and analyze the general findings of their reviews, evaluations, and assessments. All external quality assurance agencies collect a wealth of information about individual programs and/or institutions and this material should inform structured analyses of the entire PBET system, generating very useful information about developments, trends, emerging good practices, and areas of persistent difficulty or weakness, thus becoming a useful tool for policy development and quality enhancement. Agencies should accordingly consider including a research and development function in their activities to help them extract the maximum benefits from their work.
## ANALYSIS OF TEACHER SALARIES IN RWANDAN SCHOOL DISTRICTS

### Table A12.1  
Budget Execution of Teacher Salaries, by District, 2006

<table>
<thead>
<tr>
<th>District</th>
<th>Primary Teachers</th>
<th></th>
<th>Secondary Teachers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Budget</td>
<td>Execution</td>
<td>% Execution</td>
<td>Budget</td>
</tr>
<tr>
<td>1. Bugesera</td>
<td>505</td>
<td>411</td>
<td>81.4</td>
<td>78</td>
</tr>
<tr>
<td>2. Burera</td>
<td>852</td>
<td>498</td>
<td>58.5</td>
<td>188</td>
</tr>
<tr>
<td>3. Gakenke</td>
<td>228</td>
<td>475</td>
<td>208.3</td>
<td>95</td>
</tr>
<tr>
<td>4. Gasabo</td>
<td>650</td>
<td>378</td>
<td>58.2</td>
<td>113</td>
</tr>
<tr>
<td>5. Gatsibo</td>
<td>578</td>
<td>346</td>
<td>59.9</td>
<td>80</td>
</tr>
<tr>
<td>6. Gicumbi</td>
<td>1,039</td>
<td>513</td>
<td>49.4</td>
<td>344</td>
</tr>
<tr>
<td>7. Gitarama</td>
<td>477</td>
<td>387</td>
<td>81.1</td>
<td>189</td>
</tr>
<tr>
<td>8. Huye</td>
<td>571</td>
<td>517</td>
<td>90.5</td>
<td>281</td>
</tr>
<tr>
<td>9. Kamonyi</td>
<td>646</td>
<td>412</td>
<td>63.8</td>
<td>72</td>
</tr>
<tr>
<td>10. Karongi</td>
<td>868</td>
<td>489</td>
<td>56.3</td>
<td>313</td>
</tr>
<tr>
<td>11. Kayonza</td>
<td>297</td>
<td>304</td>
<td>102.4</td>
<td>201</td>
</tr>
<tr>
<td>12. Kicukiro</td>
<td>334</td>
<td>309</td>
<td>92.5</td>
<td>101</td>
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<tr>
<td>13. Kirehe</td>
<td>97</td>
<td>330</td>
<td>340.2</td>
<td>77</td>
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<tr>
<td>14. Muhanga</td>
<td>632</td>
<td>600</td>
<td>94.9</td>
<td>287</td>
</tr>
<tr>
<td>15. Musanze</td>
<td>1,051</td>
<td>532</td>
<td>50.6</td>
<td>212</td>
</tr>
<tr>
<td>16. Ngoma</td>
<td>733</td>
<td>384</td>
<td>52.4</td>
<td>357</td>
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<tr>
<td>17. Ngororero</td>
<td>527</td>
<td>509</td>
<td>96.6</td>
<td>161</td>
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<tr>
<td>18. Nyabihu</td>
<td>343</td>
<td>492</td>
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<tr>
<td>19. Nyagatare</td>
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<tr>
<td>23. Nyarugenge</td>
<td>523</td>
<td>432</td>
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<td>24. Nyaruguru</td>
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</tr>
<tr>
<td>25. Rubavu</td>
<td>608</td>
<td>564</td>
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<td>258</td>
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</table>

(continued on the next page)
Table A12.1 | Budget Execution of Teacher Salaries, by District, 2006 (continued)

<table>
<thead>
<tr>
<th>District</th>
<th>Primary Teachers</th>
<th></th>
<th></th>
<th>Secondary Teachers</th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Budget</td>
<td>Execution</td>
<td>% Execution</td>
<td>Budget</td>
<td>Execution</td>
<td>% Execution</td>
</tr>
<tr>
<td>26 Ruhango</td>
<td>514</td>
<td>298</td>
<td>58.0</td>
<td>272</td>
<td>256</td>
<td>94.1</td>
</tr>
<tr>
<td>27 Rulindo</td>
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<td>447</td>
<td>302.0</td>
<td>65</td>
<td>300</td>
<td>461.5</td>
</tr>
<tr>
<td>28 Rusizi</td>
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<td>540</td>
<td>118.2</td>
<td>185</td>
<td>353</td>
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<tr>
<td>29 Rutsiro</td>
<td>637</td>
<td>497</td>
<td>78.0</td>
<td>185</td>
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<td>173.0</td>
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<tr>
<td>30 Rwamagana</td>
<td>383</td>
<td>370</td>
<td>96.6</td>
<td>243</td>
<td>287</td>
<td>118.1</td>
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<tr>
<td>Rwanda</td>
<td>16,707</td>
<td>13,449</td>
<td>80.5</td>
<td>5,948</td>
<td>9,185</td>
<td>154.4</td>
</tr>
</tbody>
</table>

Source: MINEDUC budget statistics.
Polytechnic institutions worldwide have a greater number of purposes and functions than do universities or other traditional institutions of higher education, despite the fact that universities are usually described as institutions with diverse purposes (i.e., teaching, research, and public service). Historically, polytechnic institutions were established by consolidating many smaller, specialized vocational institutions, and they therefore unsurprisingly focus on occupational preparation for the workplace.

A useful classification framework for polytechnic institutions places uses two key indicators: purpose and scope. Institutions are divided into three purpose categories: single-purpose institutions, which provide a range of occupational programs and very little else; dual-purpose institutions, which provide occupational as well as academic programs that correspond to the first phase of degree-level studies in universities; and multipurpose institutions, which provide the same educational programs as do dual-purpose institutions, with the addition of continuing education and community service programs.

Polytechnic institutions are also divided into three scope categories: (1) specialized institutions that offer programs in a single occupational category or body of knowledge, such as technology or hospitality and tourism; (2) semi-comprehensive institutions that offer programs in two or three related occupations or bodies of knowledge, including technology, business studies, health science, social services, or art and design; and (3) comprehensive institutions that offer a wide range of occupational and academic programs.

Academic Focus of Polytechnic Programs

The curriculum of polytechnic programs in most countries is either a combination of theory and practice or a combination of theory, practice, and work placement. Analysis of the program offerings of a number of polytechnic institutions in various countries indicate that fields such as business studies, information technology, health studies, and social work have the largest enrollments. Other popular areas of study include library studies, hospitality and tourism, biotechnology, architecture, correctional services, security, and police studies. The well-established generic areas of study found in most polytechnic institutions include:

- **Business studies**: business management, office and organizational management, retail operations, accounting, marketing, human resources, e-business, supply chain operations, banking and financial services, transportation operations, and hospitality and tourism studies.
- **ICT**: computer systems, software systems, computer networks, computer games, animation, multimedia design, website design, and Internet services.
- **Applied sciences**: biotechnology, pharmaceutical studies, environmental studies, nutrition studies, veterinary science, natural resources, industrial chemistry, and laboratory studies.
- **Technology**: mechanical systems, manufacturing technology, automation, transportation and heavy machinery, electrical distribution, electronics, energy systems, computers and ICT, telecommunications, construction and building technology, architecture, and surveying.
- **Agriculture and natural resources**: field crops and processing, agribusiness, agricultural technology, dairy animals, milk production, horticulture, forestry, and forest management.
- **Trades**: construction trades, automotive and transportation trades, heavy machinery, and industrial trades.
School-to-work programs (STW) are found throughout North America and the United Kingdom. Simply defined, a portion of the secondary curriculum is devoted to a combination of school-based acquisition of knowledge and skills and a supervised part-time or summer internship in an employment situation. Internships in businesses (large and small), nonprofit service organizations, and government agencies have all proven effective. Students report back to teachers and peers regularly on workplace learning and generally complete a final project or product that reflects the material learned during the internship. These projects are evaluated by the teacher and the internship supervisor to determine a final grade.

Research in North America shows that STW programs improve student understanding of what work is and affect student choices of careers, and that linkages between schools and the workplace help teachers make STW courses more relevant to postsecondary employment. In a sense, STW is a low-cost version of the German dual system that aims at employability rather than skills for employment.

STW programs are completed by students entering higher education and students making the transition to the labor market. They are a form of career education and orientation. STW courses are usually granted the same number of credits as one-semester core courses. Compared with other school-to-career options, STW costs are quite low.

For Rwanda, STW would be an option for any secondary school—urban or rural, academic, vocational, or technical. The key to effectiveness is finding local internships in easy reach of the school in organizations that have demonstrated a strong commitment to participating in internships programs.
Career Academies (CA) usually operate as “schools within schools” in larger secondary institutions. The goal is to prepare students for the transition to employment or postsecondary education in a particular career, as opposed to a specific occupation. Central to the concept is a university preparatory curriculum with a career theme. Thus CAs are developed for growing local economic sectors and industries with high employment and skills demand. The skills taught are those determined jointly with employers to enable graduates to begin work at a high level of productivity. Box B15.1 provides examples of career clusters in U.S. career academies.

As implemented in the United States and the United Kingdom, career academies do not provide vocational training at the level of a skilled worker (level A4 in Rwanda). Rather, training is equivalent to secondary technical education, with graduates entering technician and managerial streams in employment or admitted to postsecondary education programs. Thus CAs provide an increasingly effective model in countries where the economy and employment are increasingly knowledge based.

Currently there are more than 2,500 career academies in the United States and approximately 100 in the United Kingdom. Elements of the career academy model used in both countries can be summarized as:

- **Learning communities**: academies typically serve 150–200 students as an organized group within a larger comprehensive school, with the intention of providing a supportive and personalized learning environment. However, an entire school can be organized as a career academy.

- **Team of teachers**: An interdisciplinary team of teachers works with the learning community on a continuous basis; the staff of local employers participate in instruction.

- **Academic and technical curricula**: Courses are organized around a career theme, such as information systems, health care, arts and media, and qualify students for admission to higher education.

- **Structured workplace learning**: Students earn credit for structured, supervised internships as a formal part of the curriculum.

- **Integrated career and academic courses**: Content and skills for career preparation are integrated with academic courses; for example, business mathematics, applied information science for bookkeeping and accounting, human biology for health care.

- **Partnerships with employers**: Employers help design and enrich the curriculum and provide work-based learning opportunities for students; they may also contribute funding for curriculum components.

Nongovernmental membership organizations set standards and provide leadership and support for the academies.

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## Box A15.1 | Career Academy Clusters in the United States

The variety of careers that career academies in the United States offer can be seen in the clusters developed by the nonprofit National Career Academy Coalition, based on the programs of member schools in California. These clusters have been selected from a longer list due to their relevance to Rwanda.

<table>
<thead>
<tr>
<th>Agriculture, Food, and Natural Resources</th>
<th>Information Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Products and Processing Systems</td>
<td>Network Systems</td>
</tr>
<tr>
<td>Plant Systems</td>
<td>Information Support and Services</td>
</tr>
<tr>
<td>Animal Systems</td>
<td>Interactive Media</td>
</tr>
<tr>
<td>Power, Structural, and Technical Systems</td>
<td>Programming and Software Development</td>
</tr>
<tr>
<td>Natural Resources Systems</td>
<td>Law, Public Safety, Corrections, and Security</td>
</tr>
<tr>
<td>Environmental Service Systems</td>
<td>Correction Services</td>
</tr>
<tr>
<td>Agribusiness Systems</td>
<td>Emergency and Fire Management Services</td>
</tr>
<tr>
<td>Architecture and Construction</td>
<td>Security and Protective Services</td>
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<td>Design/Pre-Construction</td>
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<td>Hospitality and Tourism</td>
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<td>Restaurants and Food/Beverage Services</td>
<td>Manufacturing, Production, and Process Development</td>
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<td>Lodging</td>
<td>Maintenance, Installation, and Repair</td>
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<td>Travel and Tourism</td>
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<td>Recreation, Amusements, and Attractions</td>
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<td>Transportation Operations</td>
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<td>Logistics Planning and Management Services</td>
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<td>Warehousing and Distribution Center Operations</td>
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<td>Business Analysis</td>
<td>Facility and Mobile Equipment Maintenance</td>
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<td>Marketing</td>
<td>Transportation Systems/Infrastructure Planning, Management, and Regulation</td>
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<td>Administrative and Information Support</td>
<td>Sales and Service</td>
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that have been established in both the United Kingdom and the United States. These organizations have also established standards and processes for quality assurance. Rigorous evaluations have shown that graduation from career academies substantially improves the earnings of young men, including those at high risk of dropping out.\textsuperscript{113} Benefits to young women were less significant because they tended to continue with their educations or were taking care of children.

The model could provide an option for the restructuring and reform of selected Rwandan public and private secondary schools that currently offer technical or vocational streams and are located in geographic proximity to willing and interested employer partners. If this approach were to be applied in Rwanda, career clusters might include construction, tourism and hospitality, information technology, small business management and agriculture (with a specific focus on food products and processing systems), energy production and distribution, natural resources systems, environmental services systems, and agribusiness systems.

Clearly, career academies require highly qualified faculty, strong partnerships with employers that are willing to provide both part-time faculty and structured internships, and curriculum-based courses that include career content. This model can be costly relative to current Rwandan secondary vocational streams, but it may be well worth trying, evaluating, and refining. In other countries, employers help with costs by providing supervisors for internships, donating equipment or supervising student use of equipment in the workplace, and assigning technical employees to teaching roles in the school.

Recent evaluations of organizations in Sub-Saharan Africa that are similar to the Rwanda Workforce Development Authority have described their functions as shown below:\textsuperscript{114} These core functions may not be appropriate for Rwanda, but the Sub-Saharan experience could provide a basis for discussion with stakeholders in the country:

- Setting and administering qualification frameworks for technical and vocational occupations as part of a larger National Qualifications Framework.
- Conducting labor market monitoring and gathering information to guide jobseekers, employers, and educators and/or trainers.
- Managing competitive training funds to meet short-term strategic skills needs.
- Establishing and, when required, subsidizing skills development partnerships with private sector enterprises and enterprise associations.
- In collaboration with public and private stakeholders, determining needs and developing skills standards and training curricula.
- Financing, synthesizing, and disseminating the results of the monitoring and evaluation of TVET programs.
- Monitoring TVET models in other countries and drawing lessons for Rwanda.

Unified Standard per Student

The unified standard per student includes funding for both staff salaries and nonstaff expenditures. To provide schools incentives to increase efficiency, salaries can be funded on a per student basis. For example, if a unified standard is a certain annual level of per student funding, and a district has 2,000 students in upper secondary schools, it would receive a grant of 2,000 times the annual funding level per student with which it would cover all recurrent costs of grade 10–12 education.

Local governments could top up this funding from their own revenues; yet the assumption is that per-student funding would be sufficient to cover all recurrent costs associated with educating a student, and that a local government would not receive any additional funds to cover education costs. That is, all current types of funding—such as heating allowances, scholarships, traveling costs, clothes allowances—would be abandoned, and the local governments would have to cover all costs using the unified standard per student.

The unified standard would, however, not be uniform. That is, it would not be the same amount for all districts, but would vary depending on the type of education and the structural factors that influence cost per student. Structural factors are beyond the control of local governments (e.g., mountainous terrain, low population density, or higher-than-average percentages of socially deprived students), and can cause the cost per student to be high. Local governments would not be given additional funds owing to the small size of schools, since this would provide perverse incentives and defeat the purpose the reform.

Delegated School Budgets

Under a unified standard per student, a school would receive a single lump sum of funding, with no indication as to how it should be allocated between salaries and other expenses. This decision would be left to school authorities. The school budget would be determined by a formula that would apply to all schools in a region. The main factor in the formula, which determines the size of the school budget, would be the number of students. The funding amount per student may be different for different grades if the cost per student
varies by grade due to differences in class size, teaching hours, or teacher pay rates.

Examples of other factors that could be included in the formula are additional supplements for students with special learning needs (e.g., students with disabilities). Some structural cost factors, such as an isolated location or having staff with higher salaries, could also be taken into account. The main purpose of delegating budgets to schools (accompanied by the strengthening of school-based management) is to delegate more decisions about education to those who have the most knowledge of local educational needs and conditions. This, in turn, will likely lead to more efficient use of resources and higher-quality education.

**School-Based Management**

School-based management has different forms, but its main features are: (1) the school director manages the school budget, decides on the number of teachers and other staff, and selects and appoints teaching and nonteaching staff; (2) the school director is accountable to a school council for the honest and efficient management of the school budget and resources; this council usually consists of representatives of parents, staff, and the local community and may have the power to appoint the school director and even ultimate authority to approve the budget decisions; and (3) the school director can also be held accountable by an educational authority (that is, the municipality). In Rwanda, a school director and school council would have to operate within MINEDUC’s framework of educational goals and standards, including those on salary levels and working conditions for teachers and other staff.
POSTBASIC EDUCATION AND TRAINING IN RWANDA
SKILLS DEVELOPMENT FOR DYNAMIC ECONOMIC GROWTH