



EDUCATION SECTOR ANALYSIS METHODOLOGICAL GUIDELINES



VOLUME 2

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EDUCATION SECTOR ANALYSIS METHODOLOGICAL GUIDELINES

SUB-SECTOR SPECIFIC ANALYSES

VOLUME 2



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CHAPTER 7

EARLY CHILDHOOD DEVELOPMENT

15

Introduction and Conceptual Framework	19
SECTION 1: MACRO LEVEL	26
1.1 Overview of the National Context	26
1.2 Political and Institutional Arrangements	27
1.3 ECD Costs and Financing	30
SECTION 2: MESO LEVEL: MAPPING ECD SERVICES	38
2.1 Identification of ECD Programmes	38
2.2 Description of ECD Programme Characteristics	41
2.3 Consolidation of the Information	43
SECTION 3: MICRO LEVEL: CHILDREN AND THEIR FAMILIES	44
3.1 Profile of Children and their Families	44
3.2 Access to and Use of ECD Services	47
SECTION 4: DISPARITIES IN ACCESS TO AND USE OF ECD SERVICES: SUPPLY AND DEMAND	50
4.1 Identification of Disparities	50
4.2 Analysis of Disparities: The Underlying Causes of Weak Access and Usage Rates	52
SECTION 5: QUALITY AND EFFICIENCY OF ECD SERVICES	54
5.1 Quality of ECD Services	54
5.2 Efficiency of ECD Services	56

CHAPTER 8

HIGHER EDUCATION

69

Introduction	73
SECTION 1: OVERVIEW OF RECENT TRENDS AND CURRENT STATUS	74
1.1 Historical Development of Higher Education	74
1.2 Description of Institutions and Subject-Areas	76
1.3 The Current Situation	78
SECTION 2: ORGANISATION AND DELIVERY, INTERNAL EFFICIENCY AND EQUITY	83
2.1 Operational Modalities and Characteristics of Different Institutions and Streams	83
2.2 Governance	93
2.3 Internal Efficiency of Institutions and Streams	94
2.4 Equity in Access to Higher Education	98
SECTION 3: COST AND FINANCING	102
3.1 Institutional Budgets	102
3.2 Financing Students' Higher Education and Social Spending	105
3.3 Structure of Unit Costs and Cost of a Graduate by Institution/Stream	109
3.4 Equity in the Distribution of Resources	111
SECTION 4: RESULTS, PERFORMANCE AND QUALITY	112
4.1 Scientific Research and Production	113
4.2 External Efficiency	114
4.3 Quality Control	118

CHAPTER 9

NON-FORMAL EDUCATION AND LITERACY 123

Introduction	126
SECTION 1: DEFINITION OF NON-FORMAL EDUCATION	129
1.1 National and International Definitions of Formal, Non-formal and Informal Education	129
1.2 The Supply and Structure of NFE	131
1.3 The Programmes and Activities	134
SECTION 2: NEEDS AND PARTICIPATION	139
2.1 Estimate of the Potential Demand for Non-formal Education	139
2.2 Enrolment, Learning Careers and Internal Efficiency	143
2.3 Staffing/Supervision	146
SECTION 3: COST AND FINANCING	151
3.1 NFE Financing: Situation and Prospects	151
3.2 Per Beneficiary Spending, by Programme	153
SECTION 4: RESULTS AND QUALITY AND RELEVANCE INDICATORS	155
4.1 Evaluation of Learning Outcomes	155
4.2 The Impact of NFE on Social Behaviour and Practices	160
4.3 Social and Economic Integration	162

CHAPTER 10

TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET) 165

Introduction	168
SECTION 1: OVERVIEW OF TVET	170
1.1 What is TVET?	170
1.2 Different TVET Provider Systems and Structures	171
1.3 Data situation for TVET systems	177
SECTION 2: PERFORMANCE OF TVET	179
2.1 Access	179
2.2 Equity	188
2.3 External Efficiency	195
SECTION 3: COSTS AND FINANCING	204
3.1 Introduction	204
3.2 Analysis of Public TVET Expenditure	207
3.3 Analysis of other Funding Sources	211
3.4 Structure of TVET Expenditure	212
3.5 Unit Expenditure and Unit Costs	214
SECTION 4: INTERNAL EFFICIENCY AND QUALITY	219
4.1 Analysis of Internal Efficiency	219
4.2 Analysis of Quality of Training Delivery	223

ANNEXES

235

CHAPTER 7 ANNEXES

236

Annex 7.1: Description of Key Indicators	236
Annex 7.2: Instruments to Evaluate the Quality of ECD Services	244
Annex 7.3: External Efficiency of ECD Activities on Health, Nutrition and Hygiene	246
Annex 7.4: Holistic Early Childhood Development Index (HECDI)	248
Annex 7.5: Main ECD Evaluation Tests	251

CHAPTER 8 ANNEXES

252

Annex 8.1: Semi-Structured Interview Guide - Management (Administrative and Scientific)	252
Annex 8.2: Semi-Structured Interview Guide - Personnel Policies	254
Annex 8.3: Semi-Structured Interview Guide - Quality Control	255
Annex 8.4: Annual Investment Costs	256
Annex 8.5: Double or Multiple count of Higher Education Enrolments	257
Annex 8.6: Further Model Tables to Document Higher Education Trends and Status	258

CHAPTER 9 ANNEXES

260

Annex 9.1: Literacy Assessment and Monitoring Programme (LAMP): A Cornerstone of the LIFE Initiative	260
Annex 9.2: Model Questionnaires/Interview Guides for the Evaluation of NFE Programmes	262
Annex 9.3: The Variable Importance of Non-formal Education According to Each Country	267
Annex 9.4: Potential Contents for Surveys of NFE Trainers Performed on a Sample of Operators of Different Programmes	268
Annex 9.5: Potential Contents for a Survey Module on Pedagogical Issues and Monitoring	269
Annex 9.6: Potential Contents for a Survey Module on NFE Administration	270
Annex 9.7: Compared Education and Social Outcomes of Non-formal and Formal Education Programmes in the African Context	271
Annex 9.8: Issues with the Analysis of Results and Quality and Relevance Indicators	273
Annex 9.9: Evaluation of Literacy through Household Surveys	275

CHAPTER 10 ANNEXES

277

Annex 10.1: Synopsis of Different Skills Development and Employment Promotion Schemes and Initiatives in Kenya	277
Annex 10.2: Example of a Questionnaire Used to Conduct a Baseline TVET Institutions Survey in Cameroon	280
Annex 10.3: Questionnaire Example for TVET Institution Cost/Expenditure Assessment	295
Annex 10.4: Example of a Methodology to Calculate the Cost of Training One Trainee over a Specified Time Period, for Each Kind of Training	297

BIBLIOGRAPHY VOLUMES 1 AND 2

302

LIST OF EXAMPLES

EXAMPLE 7.1	29	EXAMPLE 7.11	64
(ECD Context): Institutional Aspects of Intersectoral ECD Coordination in Liberia		(Effect of ECD on Primary Education): Factors Affecting EGRA Learning Outcomes, The Gambia, 2010	
EXAMPLE 7.2	36	EXAMPLE 8.1	75
Estimation of the Real Global Cost of an ECD Programme on the basis of a Sample of ECD Centres, Fictional Country		Phases of Development and Reform in Higher Education, Algeria	
EXAMPLE 7.3	39	EXAMPLE 8.2	77
(Identification of ECD Programmes): Coverage of ECD Services, by Sector and Beneficiary Group, Tanzania, 2012		(Analysis of HE Coverage by Subject-Area): Higher Education Enrolment by Subject-Area/Faculty, Swaziland, 2000/01-2007/08	
EXAMPLE 7.4	42	EXAMPLE 8.3	78
Consolidation of Key Information for a Preprimary Education Programme, based on the SABER-ECD Approach, Fictional Country		(Analysis of HE Coverage): Higher Education Enrolment, Malawi, 2003-08 and sub-Saharan Africa	
EXAMPLE 7.5	46	EXAMPLE 8.4	80
Parental Practices, Mauritania, 2010		Access to University Careers, by Secondary School Subject Specialisation, Malawi, 2008	
EXAMPLE 7.6	48	EXAMPLE 8.5	84
(Use of ECD Services): Access to Early Childhood Care and Education (ECCE), Tanzania and Selected East African countries, 2012		(HE Infrastructure and Equipment): Physical HE Facilities, Swaziland, 2005	
EXAMPLE 7.7	51	EXAMPLE 8.6	86
(Disparities in ECD Access): Disparities in ECD programme participation, Sierra Leone, 2010		(HE Student-Staff Ratio): University Supervision Rate, by Faculty, Malawi, 2008	
EXAMPLE 7.8	53	EXAMPLE 8.7	90
(Supply and Demand Factors Affecting ECD Attendance): Reasons for Not Enrolling Children in Preprimary Education, Uzbekistan, 2009		(Staffing of HE – Quality): Profiles of Academic Staff, Malawi, 2008	
EXAMPLE 7.9	60	EXAMPLE 8.8	94
Participation in an ECD Programme and Child Development, Sierra Leone, 2010		Analysis of the Schooling Careers of Undergraduate Economics Students, Fictional Country	
EXAMPLE 7.10	61	EXAMPLE 8.9	96
Econometric Modelisation of the Effect of Participation in an ECD/Early Learning Programme, Sierra Leone, 2010		(Internal Efficiency in HE – Internal Efficiency Coefficient): Computation of the Internal Efficiency Coefficient for Undergraduate Economics Students, Fictional Country	
		EXAMPLE 8.10	97
		(Internal Efficiency in HE – Cost of Producing a Graduate): Cost-Efficiency of HE, by Faculty, Fictional Country	

EXAMPLE 8.11	99	EXAMPLE 9.5	141
(Equity in HE – Gender): Gender Equity in HE Enrolment, Swaziland, 1992-2007		(Demand for NFE – Characteristics of the Illiterate Population): Analysis of the Illiterate Population, Madagascar, 2005	
EXAMPLE 8.12	100	EXAMPLE 9.6	144
Social Background of HE Students, by Parents' Occupation, Central African Republic (CAR), 2003		(NFE Participation): Literacy Learner Statistics, by Gender, Burkina Faso, 1995-2008	
EXAMPLE 8.13	101	EXAMPLE 9.7	147
Social Background of HE Students, by Parents' Sector of Employment, Fictional Country		(Analysis of NFE training staff): NFE Personnel Characteristics, Mongolia, 2008	
EXAMPLE 8.14	103	EXAMPLE 9.8	150
(Analysis of HLI Budgets): Estimation of Universities' Income and Expenditure, Malawi, 2003/04-2006/07		(Supervision of NFE Programmes): Supervision and Support to NFE Centres by Community Agents, Uganda, 2001	
EXAMPLE 8.15	106	EXAMPLE 9.9	154
Distribution of Social University Spending, by Faculty, Fictional Country		(NFE Unit Costs): Cost Structure and Estimated Unit Costs per Literacy Centre Learner, Senegal, 2010/11	
EXAMPLE 8.16	108	EXAMPLE 9.10	157
(Financing of HE – Student Loans): Financing of University Studies through Student Loans, Tanzania, 2010		(NFE Performance - Learning Outcomes): NFE Learner Performance in Standard Assessments, Uganda	
EXAMPLE 8.17	109	EXAMPLE 9.11	159
(HE Unit Costs): HE Unit Costs, by University and Faculty, Malawi, 2003/04-2006/07		(NFE Performance): The Sustainability of Literacy, Central African Republic, 2000	
EXAMPLE 8.18	116	EXAMPLE 9.12	161
(External Efficiency of HE): Results of a Graduate Tracer Study, Malawi, 2008		(NFE Performance - Impact on Behaviour): The Impact of Nonformal Education on Behaviour, Uganda, 1999	

EXAMPLE 9.1	132	EXAMPLE 9.13	163
(NFE Mapping): Map of the Nonformal Education Sub-sector, Morocco, 2007		(NFE Performance - Employment Outcomes): Employment Outcomes of ex NFE Programme Participants, Senegal, 2001	
EXAMPLE 9.2	133	-----	
(Organisation of NFE): The Delegation of Responsibilities Approach, Burkina Faso, 2010		EXAMPLE 10.1	175
EXAMPLE 9.3	135	(Depicting pathways): Pathways in the Education and Training System, Uganda, 2010	
(NFE Programmes): Permanent Functional Literacy Centres and Specific Technical Training, Burkina Faso, 2010		EXAMPLE 10.2	180
EXAMPLE 9.4	140	(Enrolment in Different TVET Provider Systems): Enrolment and Annual Intake, Fictional Country, 2007-11	
(Demand for NFE – Estimate of the Illiterate Population): Estimates of the Illiterate Population According to Different Surveys, Sao Tomé et Príncipe, 2001-10		EXAMPLE 10.3	181
		(Enrolment by Subject Area): Enrolment in Different Technical Institutions by Subject Area, Tanzania, 2006/7 and 2009/10	

Area, Tanzania, 2006/7 and 2009/10	
EXAMPLE 10.4	185
(Comparison of TVET Enrolment between Countries): TVET Students per 100,000 Inhabitants in Malawi, 2008, as Compared with Other SADC Countries, 2008	
EXAMPLE 10.5	189
(Female Participation Rates in Different TVET Streams): Enrolment by Gender and Type of Public Institutions, Uganda, 2009	
EXAMPLE 10.6	193
(Access to Student Loans): Student Loans, by Level and Type of Institution, Tanzania, 2008/09	
EXAMPLE 10.7	199
(Comparison of Income of TVET Graduates by Occupational Group to Analyse External Efficiency): Mean Monthly Income of TEVET Completers by Occupational Groups, Malawi, 2009	
EXAMPLE 10.8	205
(Stocktaking of Different Funding Sources in One Country): Sources of TEVET (Technical, Entrepreneurial, Vocational Education and Training) Funding, Malawi, 2009	
EXAMPLE 10.9	206
(Depicting Sources of TVET Funding in a Flow of Funds Chart): Flow of Funds in Public TVET, Vietnam, 2007	
EXAMPLE 10.10	208
(Identification of Total Public Spending on Skills Development): Total Public Spending for TEVET, Malawi, 2007/08	
EXAMPLE 10.11	209
(Public Allocation to TVET as a Percentage of Total Education Sector Expenditure): Allocation to TVET of Public Recurrent Education Expenditure, by coverage, Tanzania and Other African Countries, 2006	
EXAMPLE 10.12	213
(Structure of TVET Expenditure): Distribution of Public Recurrent Spending, Tanzania, 2001 and 2009	
EXAMPLE 10.13	215
(Unit Costs in TVET): Unit Spending, Teachers	
Salaries, PTR and Enrolment in Different Education Levels, Sudan, 2009	
EXAMPLE 10.14	216
(Analysing Public Unit Spending in International Comparison): Public Unit Spending for TVET as a Percentage of GDP/p.c., Uganda, 2009, Compared to Other Countries	
EXAMPLE 10.15	221
(Analysing Examination Pass Rates to Assess Efficiency): Trade Testing Pass Rates in Different Occupational Fields, Uganda, 2009	
EXAMPLE 10.16	223
(Repetition Rates for Analysing Efficiency): Repetition Rates in Public Technical Education by Occupational Field, Benin, 2003/04	
EXAMPLE 10.17	226
(Student/Teacher Ratio): Number of Teachers and STR in Different TVET Streams, Uganda, 2009	
EXAMPLE 10.18	227
(Teaching Staff by Qualification): Distribution of Teaching Staff in Technical Education by Qualification, Tanzania, 2008/09	

LIST OF TABLES

Table 7.1	23	Table 7.16	59
Official Age of Preprimary Access and Cycle Duration, African Countries, 2012		Key Variables to Measure the Effect of ECD Interventions on Children's Development	
Table 7.2	26	Table 7.17	61
Macro Context ECD and Family Background Indicators		Modelisation of the Effect of ECD Programme Participation on ECD, MICS4 Sierra Leone, 2010	
Table 7.3	28	Table 7.18	63
Questions for the Analysis of ECD Political, Institutional, Financial and Regulatory Frameworks		Key Variables to Explain the Effect of ECD on Primary Education	
Table 7.4	34	Table 7.19	64
Main Preprimary Public Expenditure Indicators		Net Effect of Factors on Grade 3 Students' EGRA Scores, 2009/10	
Table 7.5	35		
Five Steps for the Analysis of the Cost of ECD Services – The Ingredients Method			
Table 7.6	36	Table 8.1	77
Annual Expenditure of a Sample of ECD Services (Illustrative Data)		Higher Education Enrolment, by Faculty, Swaziland, 2000-07	
Table 7.7	42	Table 8.2	78
Consolidated Characteristics of a Preprimary Education Programme (Illustrative Data)		HE Enrolment and Access Rate, by Gender, Malawi, 2003-08	
Table 7.8	43	Table 8.3	80
Consolidation of Key Information on ECD Services Available Nationwide (Model Table)		Distribution of 1st Year HE Students, by Type of Baccalaureate Sat	
Table 7.9	45	Table 8.4	86
Key Indicators to Describe Young Children and their Family Environment		University Student-Staff Ratios, by University/Faculty, Malawi, 2008	
Table 7.10	48	Table 8.5	88
Key Indicators to Describe Access to and Use of ECD Services, by Type		Effective Workload of HE Teaching Staff - Model Table, Malawi, 2008	
Table 7.11	48	Table 8.6	88
Preprimary School Provision, Tanzania and Selected East African countries, 2012		Full-Time Equivalent Computation of All Teaching Staff - Model Table, Malawi, 2008	
Table 7.12	49	Table 8.7	89
Access to Essential ECD Health Interventions in East Africa, 2006-10		Comparative Costs of Full-Time Permanent Positions, Overtime and Contract Staff - Model Table, Malawi, 2008	
Table 7.13	51	Table 8.8	90
Participation in Early Childhood Education and Learning, by Socioeconomic Characteristics, Sierra Leone, 2010		Distribution of Personnel in Public and Private Universities, by Status, Malawi, 2008	
Table 7.14	53	Table 8.9	91
Reasons Mentioned by Parents for Not Enrolling their Children in Preprimary Education, Uzbekistan, 2009		Distribution of Personnel in Public Universities and Faculties, by Qualification, Malawi, 2008	
Table 7.15	55	Table 8.10	94
Questions for the Analysis of the Quality of ECD Programmes and Services		Enrolment, Repetition and Graduation of Undergraduate Economics Students, Fictional Country	

Table 8.11	95	Table 9.1	136
Promotion Rate and Longitudinal Retention Profile of Undergraduate Economics Students		Summary of NFE Programmes (Model Table)	
Table 8.12	95	Table 9.2	137
Proportion of Repeaters among Undergraduate Economics Students, by Year, Fictional Country		Access Conditions to NFE Programmes and Incentives (Model Table and Illustrative Data)	
Table 8.13	95	Table 9.3	141
Estimation of the Total Number of Student-Years Spent on the Education of a Cohort of Undergraduate Economics Students, Fictional Country		Number and Share of Individuals Knowing How to Read, Write and Count, by Age Group, Madagascar, 2005	
Table 8.14	97	Table 9.4	142
Internal Efficiency and Graduate Unit Costs, by Faculty, Fictional Country		Share/Number of Illiterate Individuals, by Age Group, Gender and Area of Residence, Madagascar, 2005	
Table 8.15	100	Table 9.5	144
Distribution of HE Students, by Head of Household's Occupation, Central African Republic, 2003		Number of Enrolment and Access to Literacy Programmes, Burkina Faso, 1995-2008	
Table 8.16	101	Table 9.6	149
Distribution of HE Students, by Institution/Course and Employment Sector of Head of Household, Fictional Country		NFE Teachers' Monthly Salary (NFE Sector Analysis Survey Respondents), Mongolia, 2008	
Table 8.17	103	Table 9.7	150
Distribution of the University of Malawi Income, by Source and Faculty, 2004/05-2006/07		Numbers of CDA Supervisory/Support Visits, by Distance of Centre from Subcounty Headquarters, Uganda, 2001	
Table 8.18	104	Table 9.8	152
Distribution of University Spending, by Category and Institution, Malawi, 2003/04-2006/07		Estimation of NFE Spending, by Programme (Model Table)	
Table 8.19	106	Table 9.9	154
Distribution of Social University Spending, by Type and Faculty, Fictional Country		Cost Structure of a Literacy Centre (Working According to the Delegation Approach), Senegal, 2010/11	
Table 8.20	109	Table 9.10	157
Unit Costs, by HLI, Malawi, 2003-06		Mean Scores on Three Tests in FAL and REFLECT Programmes According to Different Levels of Schooling, Uganda, 2001	
Table 8.21	110	Table 9.11	158
Breakdown of Unit Costs, University of Malawi and Mzuni University, Malawi, 2003/04-06/07		Mean Scores for Primary School Pupils Compared with NFE Graduate Groups, Uganda, 2001	
Table 8.22	115	Table 9.12	159
List of Potential Indicators to Describe the Employment Status of Graduates		Literacy Level of Adults, According to their School Attendance when Young, Central African Republic, 2000	
		Table 9.13	162
		Share of Individuals Giving Modern Answers to Attitude Questions, by Group	
		Table 9.14	163
		Main Activity of ex-NFE Programme Participants, Senegal, 2001	

Table 10.1	172	Table 10.18	213
Synopsis of “Typical” TVET Provider Systems		Value and Distribution of the Vocational Education and Training Authority (VETA) Public Recurrent Expenditure, by Key Items, Tanzania, 2001 and 2009	
Table 10.2	173	Table 10.19	215
Formal, Non-formal or Informal TVET		Secondary Technical Education: Overview of State Education Spending and PTRs by State, Sudan, 2009	
Table 10.3	180	Table 10.20	222
Overview of TVET Enrolment and Annual Intake in ‘000 (Fictitious)		Suggested Table Format to Capture Dropout Rates	
Table 10.4	181	Table 10.21	223
Enrolment in Technical Institutions, by Subject Area, Tanzania, 2006/07 et 2009/10		Repetition Rates in Public Technical Education by Occupational Field, Benin, 2003/04	
Table 10.5	182	Table 10.22	226
Overview of Sources to Establish Access in Formal TVET		Teachers and Instructors by Gender and Type of Public Institution, Uganda, 2009	
Table 10.6	186	Table 10.23	227
Key Questions and Information Sources for Access Issues		Suggested Table to Capture the Ratio of Qualified Teachers	
Table 10.7	188	Table 10.24	227
Potential Sources to Identify Access in Different (Non-Formal) Provider Systems		Distribution of TE Registered Teaching Staff, by qualification, Tanzania, 2008/09	
Table 10.8	189		
Enrolment by Gender and Type of Public Institutions, Uganda, 2009			
Table 10.9	190		
Example of a Table to Compare FPRs Over Time, by Occupational Field			
Table 10.10	192		
Summary of Key Questions to Assess Issues Related to TVET Access by the Poor			
Table 10.11	193		
Social Expenditures, by Level and Type of Institution, Tanzania, FY 2008/09			
Table 10.12	202		
Key Questions to Assess Availability and Use of Labour Market Information in the TVET Context			
Table 10.13	203		
Key Questions to Assess Labour Market Matching Services			
Table 10.14	205		
Overview of Typical Funding Sources of TVET			
Table 10.15	205		
Sources of TEVET Funding by Training Provider System, Malawi, 2009			
Table 10.16	208		
Total Public Spending for TEVET 2007/08, MK			
Table 10.17	211		
Data/Information Sources about TVET Funding Sources			

LIST OF FIGURES

Figure 7.1	20	Figure 9.1	132
Micro, Meso and Macro Factors Affecting ECD		NFE and Literacy Organisational Structure, Morocco, 2007	
Figure 7.2	21	Figure 9.2	140
ECD Programme Areas and Beneficiaries		Figure 9.2: Literacy Rate (15 Years and Above), by Survey and Type of Survey, Sao Tome and Principe, 2001-10	
Figure 7.3	31	Figure 9.3	147
Example of ECD Financing Sources and Mechanisms		Number of NFE Centres and Teachers, Mongolia, 1997-2008	
Figure 7.4	39	Figure 9.4	148
Nature of ECD Programmes, by Sector and Type of Beneficiary, Tanzania, 2012		Number of NFE Teachers/Facilitators, by Level of Qualification, Mongolia, 2008	
Figure 7.5	60	Figure 9.5	148
Percentage of Children Aged 36 to 59 Months whose Development is on Track, Sierra Leone, 2010		Share of NFE Teachers/Facilitators, by Seniority, Mongolia, 2008	

Figure 8.1	77	Figure 9.6	159
Total HE Enrolment, by Faculty, Swaziland, 2000/01-2007/08		Share (in %) of Fluently Literate Adult NFE Programme Participants, by Level of Education Attained in their Youth, Central African Republic, 2000	
Figure 8.2	78	-----	
HE Enrolment, Malawi and Sub-Saharan African Countries, 2005/06		Figure 10.1	175
Figure 8.3	84	Pathways in the Ugandan Education and Training System, 2010	
Average Space per Student, by Campus, Swaziland, 1999-2005		Figure 10.2	185
Figure 8.4	85	TVET Students per 100,000 Inhabitants in Malawi and Selected SADC Countries, 2008	
Usage Factor of Teaching Spaces, by Type, Swaziland, 2007		Figure 10.3	199
Figure 8.5	99	Mean Monthly Net Income of TEVET Completers, Malawi, 2008	
Total Enrolment by Gender, and Degrees Awarded Swaziland, 1992-2007		Figure 10.4	207
Figure 8.6	99	Core Flow of Funds Under Public TVET System (under MOLISA), Vietnam, 2007	
Share of Female Enrolment, by Faculty, Swaziland, 2007/08		Figure 10.5	209
Figure 8.7	116	TVET's Allocation of Public Recurrent Education Expenditure, by Coverage, Tanzania and Comparable African Countries, 2006 or MRY	
Occupational Situation of HE Graduates, by Field of Study, Malawi, 2008		Figure 10.6	216
Figure 8.8	117	Public Unit Spending for TVET as a Share of GDP/Capita, Uganda and 22 African Countries, 2009	
Employment Rate (Modern Sector Only) of Higher-Education Leavers, by Age Group, Various African Countries, Malawi, 2008		Figure 10.7	221
Figure 8.9	117	DIT Pass Rates of Aggregate Test Registrants by Programme, Uganda, 2009	
Mean Monthly Income of HE Graduates, by Field of Study, Degree, Gender and Employment Status, Malawi, 2008			

LIST OF BOXES

Box 7.1	25
Key ECD International Reference Tools and Documents	
Box 7.2	41
Key Information to Collect on ECD Programmes and Services	
Box 7.3	58
The Early Learning and Development Standards Approach	

Box 8.1	80
Computation of the Global Access Rate to Higher Education	
Box 8.2	82
Evolution of Social Demand for Higher Education in Francophone Africa and Analysis of Sustainability, 2007	
Box 8.3	119
The African and Malagasy Council for Higher Education	

Box 9.1	145
Non-formal Education Management Information System (NFE-MIS)	
Box 9.2	156
Research to Measure the Learning Outcomes of Literacy Programme Participants (RAMAA)	

Box 10.1	171
Historical Determinants of TVET Development	
Box 10.2	179
Enrolment and Intake	





CHAPTER 7

EARLY CHILDHOOD DEVELOPMENT

› Chapter Objective:

To analyse in greater detail the early childhood development (ECD) sub-sector to enable its more harmonious, equitable and efficient development.

1. MACRO LEVEL: THE NATIONAL ECD CONTEXT AND POLITICAL, INSTITUTIONAL AND FINANCIAL SET-UP

ISSUE

Review the national ECD context to understand the political, institutional and financial arrangements, to understand the government's level of commitment to establishing a favourable environment for the sub-sector's development.

OBJECTIVES

- Describe the socioeconomic, demographic, health and education dimensions at the macro level;
- Examine the political and institutional ECD environment;
- Review the level of public and private financing of ECD and cost-sharing mechanisms among the sub-sector's players; and
- Determine the level of ECD services' and interventions' unit costs.

METHODS

- Analyse the state and evolution of socioeconomic and demographic indicators likely to affect the development of the sub-sector;
- Examine global health, nutrition and child development indicators;
- Review the legal framework, sector coordination and monitoring and quality assurance mechanisms at the national level;
- Examine existing financing sources and mechanisms, public and private (families, communities, NGOs and so on);
- Describe the evolution of the ECD budget and the distribution of resources, by source and service (education, health and other social spending); and
- Determine and analyse the unit costs of different ECD programmes.

SOURCES

National statistical services and WDI (World Bank) and WEO (IMF) databases; national documents of the relevant ministries (preprimary education, health, social services, family, justice and so on); development partners' official documents and reports; SABER-ECD country reports; spending executed by the different ministries for ECD activities; national household and spending surveys; public sector expenditure reviews and CSR and MBB (Marginal Budgeting for Bottlenecks) reports (See <http://www.devinfo.org/mbb/mbbsupport/>).

2. MESO LEVEL: MAPPING THE ECD SERVICE DELIVERY OPTIONS

ISSUE

Review the provision of ECD services to better grasp its contours and identify its development priorities.

OBJECTIVES

- Provide a detailed mapping of ECD services and activities.

METHODS

- Describe the key ECD service areas;
- Identify the main delivery approaches;
- Detail the programme boundaries of ECD services; and
- Consolidate the above information in a summary table or graph.

SOURCES

National documents from the relevant ministries; other official documents; development partners' official reports; SABER-ECD reports and specific surveys.

3. MICRO LEVEL: CHILDREN AND THEIR FAMILIES

ISSUE

How do children fare in terms of health, nutrition and physical, linguistic, cognitive and socioemotional development? What are the characteristics of their home environment? What is the level of access to and use of ECD services?

OBJECTIVES

- Draw up a detailed picture of children and their home environments to determine their development needs and ECD programme content; and
- Better understand ECD service and programme access and use.

METHODS

- Analyse children's sanitary, nutritional and hygiene status;
- Analyse children's physical, linguistic, cognitive and socioemotional development indicators;
- Analyse parental practices in caring for young children; and
- Analyse the conditions of access to and use of ECD services.

SOURCES

DHS (Demographic and Health), MICS (Multiple Indicator Cluster), CWIQ (Core Welfare Indicator Questionnaire) and living conditions type surveys; MBB (Marginal Budgeting for Bottlenecks) tools; specific surveys or qualitative KAP (Knowledge-Attitude-Practice) type studies (on parental care, nutrition, vaccination campaigns and so on) and administrative data from the ministries of education, health, or any other related to ECD.

4. DISPARITIES IN THE ACCESS TO AND USE OF ECD SERVICES: SUPPLY AND DEMAND

ISSUE

Explain the nature, magnitude and underlying causes of the disparities.

OBJECTIVES

- Diagnose and quantify disparities in the access to ECD services; and
- Understand the reasons for the disparities to propose corrective measures.

METHODS

- Disaggregate key access, usage and care practice indicators according to children's and families' socioeconomic characteristics (area of residence, income, gender, vulnerability status and so on).

SOURCES

DHS (Demographic and Health), MICS (Multiple Indicator Cluster), CWIQ (Core Welfare Indicator Questionnaire) and living conditions type surveys; KAP and user satisfaction surveys and administrative ministry data.

5. QUALITY AND EFFICIENCY

ISSUE

Evaluate the quality and external efficiency of key ECD services to provide information relevant to the improvement of sub-sector management.

OBJECTIVES

- Analyse the quality of ECD services and evaluate their impact on children's development and primary education.

METHODS

- Evaluate the internal quality of ECD services on the basis of structural (inputs) and process quality indicators through specific surveys;
- Analyse the results of KAP, household and user satisfaction surveys; and
- Examine the potential positive or negative impacts of ECD interventions on child development and education indicators.

SOURCES

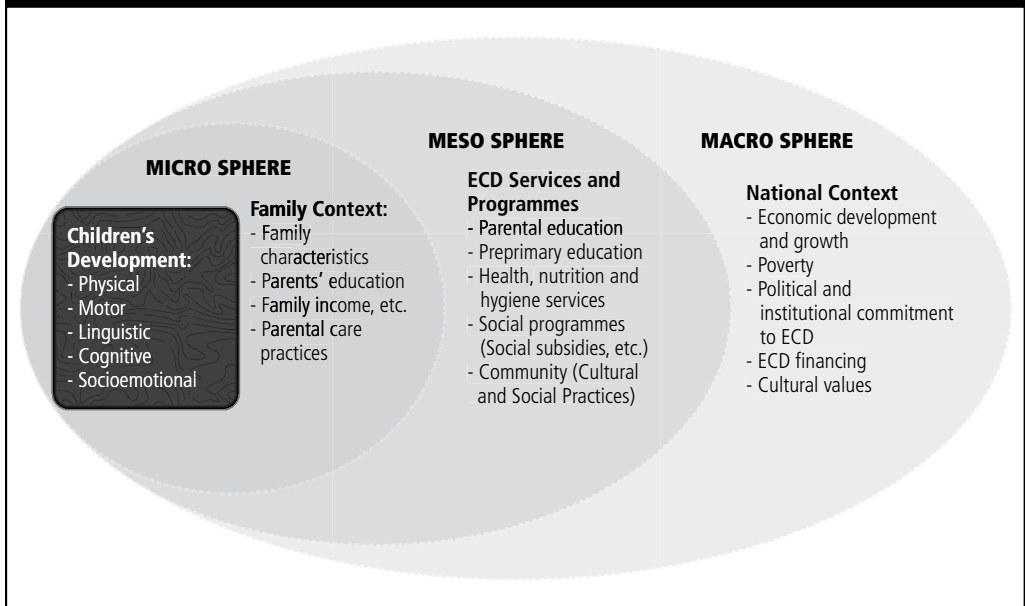
DHS (Demographic and Health), MICS (Multiple Indicator Cluster) and living conditions type surveys; ECD services' internal documents; statistical yearbooks; administrative data and KAP studies.

Introduction and Conceptual Framework

Previous chapters have already touched on some aspects of early childhood development (ECD), in particular with respect to preprimary education. However, ECD activities are not limited to this dimension. As will be seen below, ECD interventions include a set of activities that aim for the global development of children on the physical, linguistic, cognitive and socioemotional levels, from their conception (pregnancy) through to the first years of their primary schooling (until aged eight years).

This chapter will therefore analyse the different aspects of ECD in all their key dimensions in detail, with a particular focus on education, given the overall CSR-type approach covered by this guide. However, as Figure 7.1 shows, ECD is strongly influenced by several macro, meso and micro factors. On the macro level, the macroeconomic, social, demographic, sanitary and political contexts largely determine authorities' political and financial commitment to ECD activities. The macro level also determines the service delivery and efficiency of social and family policies. Simultaneously, the micro context (family characteristics, parental care practices and beliefs, culture and so on) affects children's development by directly impacting on the environment they grow up in. These two main sets of factors interact with the quality and quantity of ECD services available in a country at the local level, whose use will also be conditioned by cultural and social attitudes and practices that are specific to the community where children and their families live. This is the meso level.

FIGURE 7.1 - Micro, Meso and Macro Factors Affecting ECD



Source: Adapted from Vegas and Santibáñez, 2010.

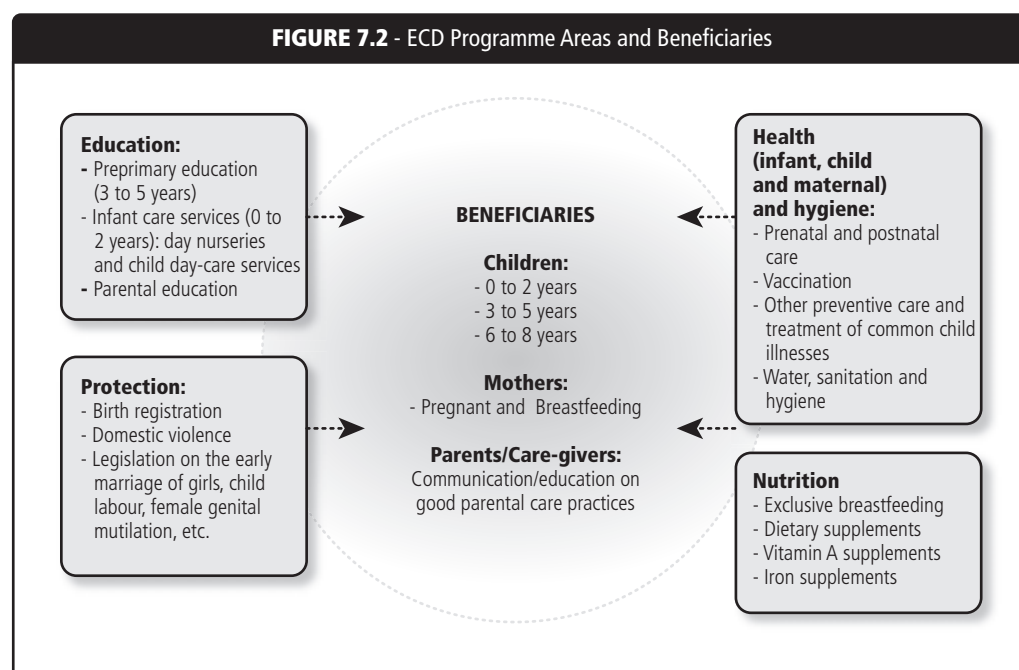
Properly understanding what ECD is comprised of involves gaining a clear understanding of the aspects presented in Figure 7.1. Thus, after a brief overview of the main methodological concepts that underscore ECD and the rationale for the sub-sector's development, the first three sections of this chapter propose tools that will aid in the description of the macro (See Section 1), meso (See Section 2) and micro (See Section 3) levels that constitute the context for ECD in a given country. Among other benefits, this exercise will enable one to define the main dimensions of ECD and to identify the principal requirements for its harmonious development. It will however need to be complemented by a more detailed analysis of equity in the provision and use of ECD services (See Section 4), to better outline needs and target beneficiaries. The chapter ends with an analysis of the quality and external efficiency of ECD services (See Section 5), to better determine the relevance of the services offered and the utility of their potential expansion or scale-up. **The order of presentation of these sections here should not necessarily determine the order in which they are dealt with in the analysis. Indeed, each is interdependent; the information offered in one section contributes to each of the others.¹**

Definition of Early Childhood Development (ECD)

Defining ECD is a delicate task. Indeed, a variety of terms are used and different meanings are given to each, all stemming from an overworked concept. The ECD term and its use,

content and references vary according to countries, programmes, schools of thought and development partners involved in its programmes in each country.² The only internationally recognised ECD norms today relate to the global approach, the age group or sub-groups and the evidence of the return on investment.

On a conceptual level, ECD is considered as a global approach to the development of young children that encourages their physical well-being, their cognitive and linguistic capacities and their social and emotional development. It includes any care defined as a process leading to the creation of a favourable environment likely to contribute to children's optimal development.³ Reflecting the multidimensional nature of children's development, ECD services are multisectoral. Activities aiming for the development of early childhood are therefore found in various sectors (the main ones being education, health, hygiene, nutrition and social affairs) and in the legislation relating to each. Figure 7.2 below provides a visual representation of the different areas of ECD interventions and their main beneficiaries.



Source: Adapted from Vegas and Santibáñez, 2010 in SABER-ECD, World Bank, 2011.

Target Population Groups for ECD Services

ECD covers the period of a child's life that spans from its conception to the age of eight years, during which the essential stages of development take place. It is common to divide this period into three phases that reflect specific stages of growth and for which specific services are offered. Each of the three is critical for children's development and far from

being exclusive or independent, they are incremental, each stage being consolidated by the following (Naudeau et al., 2011).

- (i) *Children aged 0 to 2 years:* This period is considered to be most critical for children's survival and development and is the one where children are most vulnerable to the lack of appropriate care. The absence or lack of appropriate care and interventions during this stage of children's life exposes them to sometimes irremediable damage, particularly in terms of their physical and cognitive development. Indeed, it is during this period that most of the brain's development occurs, as well as related aptitudes such as vision, hearing and emotional control. Appropriate nutrition, through balanced diets during pregnancy, exclusive breastfeeding until six months and complementary feeding thereafter are necessary to ensure the optimal development of these functions. Likewise, providing a stimulating, secure, protective and warm environment will enable children to develop strong relationships with their parents and care-givers and give children the foundations they need to develop further abilities.
- (ii) *Children aged 3 to 5 years:* During this stage progress is mainly in terms of cognitive development, language, socioemotional development and interaction with peers. More complex forms of linguistic and cognitive stimulation by parents and care-givers are important, in addition to continued attention to nutrition, health and protection. Preprimary education activities provide an appropriate framework.
- (iii) *Children aged 6 to 8 years:* This phase is when the above aspects of children's development are consolidated and when the transition to primary school takes place. In practice, this age group is often ignored by ECD practitioners, mainly due to programme constraints that transfer responsibilities to the formal education system, through primary schools. Yet, this phase is of utmost importance, especially in countries where preschooling is limited. For this age group, ensuring that the school is ready to host them will prove critical (See Britto's work on school readiness (Britto, 2012)).

In the framework of this guide, these three age groups will be used where appropriate to abide with conventions. It is however worthwhile noting that this division is far from being homogenous and can vary from country to country, on the basis of the official ages of entry to preprimary and primary education and the duration of the former. Table 7.1 below illustrates the diversity of preprimary access ages and durations in African countries.⁴ According to the country, the age of access to preprimary may vary from three to six years, and the duration of the cycle from one to three years.

TABLE 7.1 - Official Age of Preprimary Access and Cycle Duration, African Countries, 2012

Preprimary Access Age	Duration of Preprimary Cycle			
	1 year	2 years	3 years	4 years
3 years		Mauritius	Botswana, Burkina Faso, Cape Verde, CAR, Chad, Comoros, Congo, Côte d'Ivoire, DRC, Gabon, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mozambique, Nigeria, Sao Tomé and Príncipe, Sierra Leone, Somalia, Swaziland, Togo, Uganda, Zimbabwe	Equatorial Guinea, The Gambia, Mali, Zambia
4 years		Benin, Cameroon, Ghana, Seychelles	Burundi, Ethiopia, Guinea, Guinea Bissau, Niger, Rwanda, Senegal	
5 years	Angola	Eritrea, Namibia, UR of Tanzania		
6 years	South Africa			

Source: UNESCO Institute of Statistics database.

The Importance of Investing in ECD

The appropriate and early care of young children is of capital importance, as its absence jeopardises children's future development. Such investment is all the more worthwhile that it often carries strong positive externalities that are noted both in terms of individuals' lives (better health, sociability, school readiness, retention, learning, increased income as an adult and so on) and for society at large (greater productivity of workers, economic growth, equity, reduced delinquency and risky behaviours and so on). Many studies show that the early investment in ECD activities is beneficial, through:

- (i) *Improving the internal efficiency of education* by ensuring that children who enroll in primary are well prepared to follow their lessons. Studies underline that school readiness, beyond cognitive aptitude, depends on the mental, physical and emotional health of children as well as their ability to develop relationships (Hair et al., in Naudeau et al., 2011).⁵ Numerous studies show that these faculties will be all the more developed once children have received appropriate care and stimulation in early childhood, contributing to better preparedness for school, better performance, reduced repetition and lower likelihood of early dropout (Jaramillo and Mingat, 2011;

Garcia et al., 2011).⁶ It has also been shown that ECD services are particularly beneficial for children from poorer backgrounds, enabling them to enter primary with the necessary aptitudes and knowledge.⁷

- (ii) *Favouring the reduction of social and economic disparities*, as the benefits of ECD activities extend well beyond children's primary education. Such investments, by offering children from disadvantaged backgrounds a better transition to primary and improved learning outcomes, help to break the inter-generational transmission of poverty through the increased productivity and income of individuals later in life. For society at large, this translates into greater productivity in the workplace and sustained economic growth, leading to an increase in the living standards of the entire population.
- (iii) *Contributing to the improvement in sanitary and social outcomes*, in particular through the positive impact on girls' education, which is achieved through better fertility control, responses to infant and child illnesses, hygiene practices, the more frequent registration of births and so on.
- (iv) *Helping to reduce detrimental behaviour from adolescence to adulthood*, through positive impacts on smoking, high-risk sexual behaviour, drug and alcohol abuse and criminal activities, thanks to better levels of education and employability.
- (v) *Positive impact on girls' education and mothers' employment*, thanks to day nursery services that provide mothers with the time and availability to work. Among other findings, studies carried out in Kenya have shown that the availability of ECD services such as nurseries or preprimary schools have helped to improve the schooling of girls who would otherwise have remained at home to care for their younger siblings (Lokshin et al., 2000).

Given the number and variety of such positive outcomes, investments in ECD are today recognised as being among the most beneficial for individuals and society, contributing to and accelerating the development of both.⁸ Numerous international tools today promote and support ECD (See Box 7.1).

BOX 7.1**Key ECD International Reference Tools and Documents**

- **Convention on the Rights of the Child.** Especially Article 5 on parents' responsibility to ensure children's rights are respected, Article 18 on the responsibility of party states who should provide parents with appropriate support and Article 24 on providing parents and children with appropriate information on health, nutrition and sanitation.
- **Comment No.7 on the Convention on the Rights of the Child** describes how the convention should be interpreted in terms of early childhood.
- **EFA Goal 1** aims to *"Expand and improve comprehensive early childhood care and education, especially for the most vulnerable and disadvantaged children."*
- **African Union's plan for the Second Decade of Education** that places ECD as its 8th priority area.
- **EFA 2007 Report** places emphasis on early childhood, stating that *"Parental education programmes have demonstrated their effectiveness in improving children's family environment."*
- **United Nations' Secretary General's Report on Early Childhood (August 2010)** that highlights the need for an integrated approach to ECD and parental education as a key strategy.
- **WHO 2008 Report (A Powerful Equalizer)** that provides a framework to understand the ideal environment for optimal ECD.
- **Recent research in child survival and development** (Lancet Series and others).

Source: See each of the cited documents.

Overall, the findings advocate for the quick development of articulated and sustainable ECD strategies, in both financial and human terms. A first step consists in harnessing tools to achieve a global and relevant understanding of the sector as a whole and its main stakeholders, which the following sections aim to provide.

SECTION

1

MACRO LEVEL

1.1

OVERVIEW OF THE NATIONAL CONTEXT

The starting point of the diagnosis is understanding the national context that affects children and their families. Table 7.2 provides an overview of the indicators to be used to describe various dimensions of the macro context: socioeconomic, demographic, sanitary and education. This list is not exhaustive and can be complemented by other indicators to offer a broader and more complete overview.

TABLE 7.2 - Macro Context ECD and Family Background Indicators

<i>Socioeconomic and Demographic Indicators</i>
Target population, by age group (0 to 2 years, 3 to 5 years, 6 to 8 years) Number and % of the total population
GDP per capita
Share of households under the poverty line (%)
Share of urban population (%)
Adult literacy rate (%)
Literacy rate of young women (15 to 24 years) (%)
HIV/AIDS prevalence rate (%)
Share of children registered at birth (%)
Share of vulnerable children and orphans (%)
Share of child workers (%)
Prevalence of female genital mutilation (%)
<i>Nutrition and Sanitation Indicators (Mothers and Children)</i>
Infant mortality rate (per 1,000 live births)
Child mortality rate (per 1,000 live births)
Main causes of child mortality
Maternal mortality rate (per 1,000 live births)
Malnutrition (0 to 5 years)
Prevalence of wasting (%)
Prevalence of stunting (%)
Prevalence of underweight (%)
Prevalence of overweight (%)
<i>Education and Child Cognitive and Intellectual Development Indicators</i>
MICS ECD Index (and its sub-components)
Share of children entering school at the official school-age (%)
Gross intake rate to primary (%)
Primary completion rate (%)
Mastery of reading and math at primary access (e.g. EGRA/EGMA scores)

Source: Authors.

Where possible, it is interesting to observe the evolution of these indicators over time, but also to compare them at a given point in time to countries of similar income levels. Comparing progress towards national or international goals (MDGs and so on) may also be helpful. Most of these indicators have already been dealt with in previous chapters of this guide, such as Chapter 1 (Macroeconomic and Demographic Context), Chapter 2 (Enrolment), Chapter 4 (Quality of Learning Outcomes) and Chapter 5 (External Efficiency). They will therefore not be explained here anew (See the quoted chapters for their description and computation). The ECD index, an innovative indicator based on UNICEF's MICS4 surveys and others are explained in greater detail in Annex 7.1.⁹

1.2 POLITICAL AND INSTITUTIONAL ARRANGEMENTS

The commitment of governments to establishing an environment conducive to the development of the ECD sub-sector can be appraised through an analysis of political, institutional and financial arrangements.

This analysis involves collecting information on the political and institutional instruments that determine ECD interventions. Data on the various sources and amounts of funding (budgetary allocations, private funding, international aid and so on) will enrich this approach, in particular to assess the level of involvement of the state in ECD.

A survey may be conducted with key stakeholders, covering four main areas: the legal framework, sector-level coordination, financing and national monitoring and quality assurance mechanisms.¹⁰ Among others, these different aspects enable the analyst to determine the existence of an adequate legal and regulatory framework, the degree of coordination between sectors and between institutions, the availability of sufficient public financing and the existence and enforcement of quality standards to ensure the integration and quality of ECD services (SABER-ECD, World Bank, 2011).

The political framework is of utmost importance in as much as all other dimensions are determined by it. As underlined by Naudeau et al., 2011, the existence of a political framework for ECD, beyond increasing the visibility of related issues, enables one to clarify the roles and responsibilities of different players and agencies, which is all the more necessary given the multisectoral nature of activities and the multiplicity of players. It also helps with the mobilisation of both public and private resources by offering clear programme orientations. Furthermore, it has been noted that ECD programmes will have greater chances of support (not least from development partners) when related to other sector programmes, including education and health (UNESCO, 2007).¹¹

TABLE 7.3 - Questions for the Analysis of ECD Political, Institutional, Financial and Regulatory Frameworks

	Key Questions
Legal Framework	<ul style="list-style-type: none"> • Is there a national policy, strategy or legal framework for child protection or ECD services? • Is it enforced? • Is there a high level political commitment? • Are ECD programmes and activities included in national and sector frameworks (PRSP, education and health sector plans, etc.)? • What were the stages of their development? Were stakeholders (communities, NGOs, private sector, etc.) involved? • Does the strategy favour an integrated approach to childhood needs? Are services integrated? What programmes and activities are offered? What is their coverage? • What age groups are covered by ECD? Are they covered by different institutions, and which ones? • What is the official age of compulsory schooling? • By law, are any ECD services free or compulsory (such as preprimary education, vaccination)? If so, which ones? • What is the role of the private sector? • Are the roles and responsibilities of different players (at the central and local levels) clearly defined?
Intersectoral Coordination	<ul style="list-style-type: none"> • Is there an inter-sectoral coordination structure for ECD activities? • What were the stages of its development? • What institution or ministry is responsible? Do stakeholders consider it to be legitimate? • What is its composition? Are all players adequately represented? • How is it implemented at the central and local levels? • Does the country have a clearly defined national and inter-sectoral strategy? • If so, are action plans available for its implementation nationwide? • Has a communication strategy been elaborated? • Is there an overlap in the activities carried out by different players?
Financing (See also Section 1.3)	<ul style="list-style-type: none"> • What share of public financing is allocated to ECD in the areas of education, health, nutrition, water and sanitation, social spending, child protection? What are the short and long-term goals? • What are the different funding sources (public/private) and their allocation mechanisms? • Are public-private partnerships encouraged? What share of ECD spending is covered by households? • Is international aid requested? If so, for which programmes? What is its share of total financing?
National Monitoring and Quality Assurance Mechanisms	<ul style="list-style-type: none"> • Have ECD quality standards been established? • Are there standards for children-staff ratios, the number of children per group, the space per child, feeding programmes, staff qualifications and remuneration, programme duration and/or children's achievements in terms of learning and early development? • Is appropriate training compulsory for ECD staff and care-givers? • What is the status of staff working in ECD? • Is staff status determined at the national or local level? • Is staff status enforced? • Are there procedures for quality control and the enforcement of standards in ECD programmes and services? • Is quality assurance based on inspection or certification? • Are norms and standards enforced?

Source: Adapted from SABER-ECD, World Bank, 2011 and UNESCO, 2007.

Table 7.3 above, partially inspired by the SABER-ECD work and UNESCO, 2007, provides an example of questions to answer in support of this institutional diagnosis.¹² Example 7.1 below illustrates the analysis of institutional considerations relative to ECD in Liberia.

EXAMPLE

7.1

(ECD Context):**Institutional Aspects of Intersectoral ECD Coordination in Liberia**

Source: SABER-ECD, Republic of Liberia Country Report, 2012.

The National Intersectoral Policy on Early Childhood Development in Liberia (NIPECD) is an explicitly multisectoral ECD policy. The NIPECD is the first of its kind in Liberia and illustrates the country's commitment towards its younger citizens. The policy was officially launched in April 2012, and the preparation of the implementation plan is underway. The primary objective of this policy is to favour the coordination and cohesion among the numerous ECD players to create a unified ECD system.

The NIPECD proposes an ambitious selection of objectives to intervene on the coverage, quality and the implementation of an integrated ECD system. The following is a summary of the objectives to be achieved in a five-year horizon:

- Build new ECD centres and provide an ECD service to cover 70 percent of the areas that most need it;
- Develop an ECD training framework and train at least 50 percent of the ECD teachers and other staff;
- Reduce child malnutrition from 20 percent to under 5 percent; and
- Increase the rate of use of impregnated mosquito nets to fight malaria, from 45 percent to 80 percent.

The Education Office for Early Childhood was created to assume the institutional function of coordination of ECD among sectors. Based at the Ministry of Education, the staff was appointed in 2011, in a capacity of leadership of ECD in Liberia. As part of the NIPECD, the national Intersectoral ECD committee was created to lead the development of the policy and programmes at a national scale. The committee includes representatives of the Ministries of Education (presiding the committee), Health and Social Affairs, Gender and Development, Justice, Finance and Internal Affairs. The specific objectives of the committee are the following:

- Facilitate the management and coordination of the NIPECD under the leadership of the Ministry of Education;
- Initiate the preparation and review of policies, action plans, norms and decrees required in relation to the implementation of the NIPECD;
- Ensure the availability of resources for the implementation of the NIPECD;
- Manage the targeting of programmes to ensure that services reach disadvantaged groups;
- Coordinate the required partnerships for the integrated supply of services;
- Coordinate the implementation of information databases, as per needs;
- Support and coordinate the implementation of inter-ministerial bodies at the sub-national level; and
- Prepare, monitor and evaluate the implementation plan.

Furthermore, the NIPECD has established inter-ministerial committees at the regional and local levels. In the past, the ECD system in Liberia has had little targeting and weak coverage. The implementation of the NIPECD and the inter-ministerial committee provides a framework for coordination and constitutes a first step towards an efficient and well integrated ECD system. In addition to ministerial representatives, the Liberian ECD system includes several other players such as development partners, local and international NGOs, and representatives of civil society, personnel, communities and families.

1.3 ECD COSTS AND FINANCING

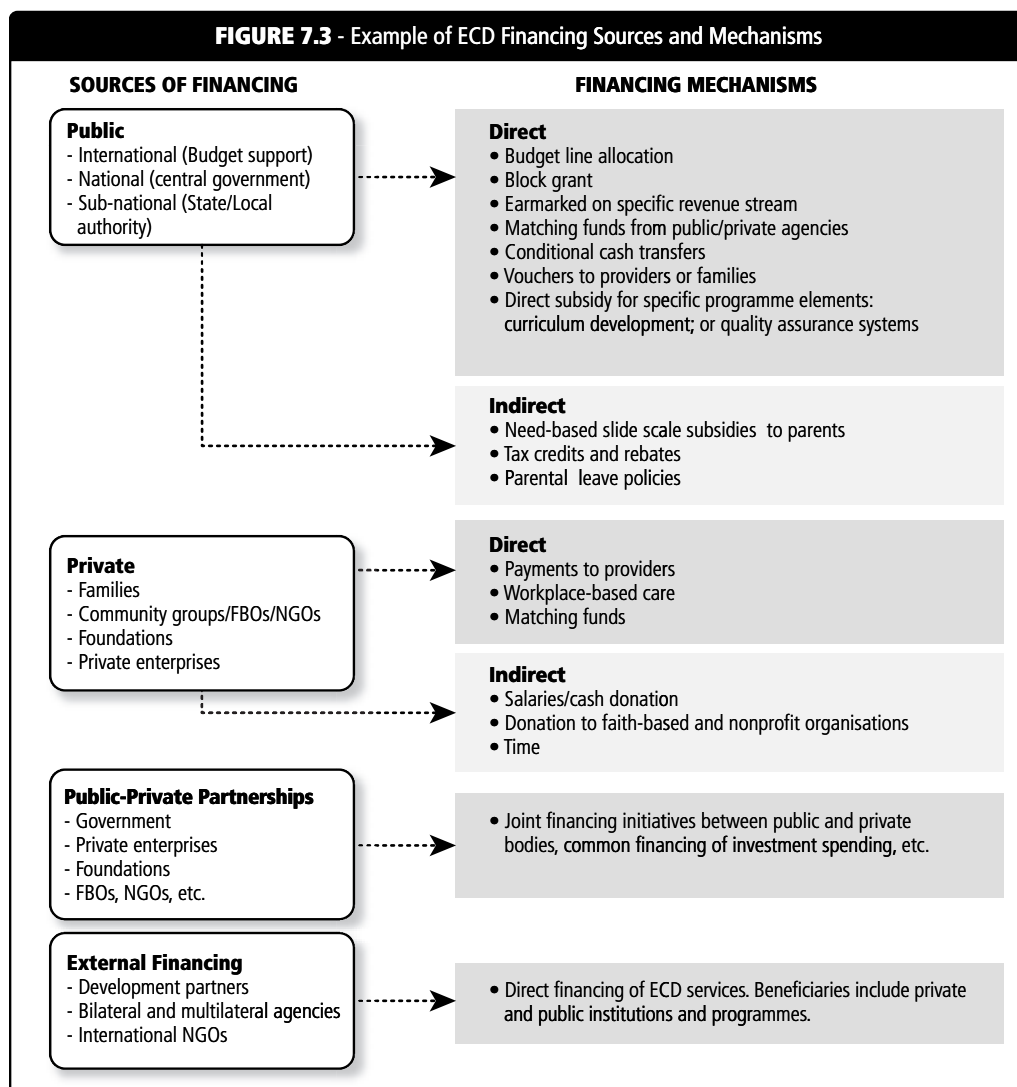
The analysis of the cost and financing of ECD programmes and services is a key exercise in sector diagnosis in as much as any policy aimed at expanding the coverage or improving the quality of ECD services will depend in great part on their relative cost and on the public and private financing available to the sub-sector, as well as the efficient use of those resources.

This section will aim to reconstitute the cost of ECD services and public and private spending towards them as exhaustively as possible. Two approaches are offered here, to establish: (i) the cost and volume of public financing; and (ii) the overall cost and financing of ECD services. While the first is based on a classic analysis of the budgets executed by the ministries responsible for ECD, the second aims to reconstitute the global cost on the basis of a representative sub-sample of the main ECD services, upon which basis it will be possible to estimate the global volume of financing by source (public/private). This second approach has the advantage of being able to establish the sub-sector's main costs and financing in a context where such information is not immediately available, especially when such services are offered by private providers, NGOs or communities.

Indeed, one of the characteristics of ECD is that the sources and financing mechanisms are numerous, and unlike the financing of formal primary education, public ECD resources are usually not the main source of funds. Thus the correct identification of the different financing sources and mechanisms is required to fairly establish the costs and financing of the sector.

1.3.1 FINANCING SOURCES AND MECHANISMS

The collection of data relative to funding flows will be based on the information collected from ECD services and programmes, as per Section 2 of this chapter (See Table 7.8). The source of financing should be identified for each of the different programmes. Naudeau et al., 2011 and UNESCO, 2007 offer an adaptation of the Belfield, 2006 diagram on the different sources of ECD funding and mechanisms that can be helpful in this exercise.



Source: Adapted from Belfield, 2006, in UNESCO, 2007, and Naudeau et al., 2011.

Three main sources of financing are available: public, private and foreign. Each is described below. Information on cost and financing is often difficult to collect, on the one hand because accounting systems are not tailored to capture costs, but only spending, and, on the other hand, because the capacities of many countries' information systems (on financing and service coverage) to collect the required information from local providers and consolidate it at the regional and central levels are weak (Levin and Schwartz, 2012). Furthermore, where public expenditure is concerned, capital spending is rarely documented for ECD activities.

Public Resources

The flow of public funds from the central government can assume various forms, from partial subsidies to the total coverage of services' operational costs. Although in most cases public financing is devoted to public ECD programmes and services, some private providers receive subsidies as transfers. In other cases, public transfers are made to service beneficiaries, such as in the case of social allocations to families with young children. Such information may be found in the executed budgets of the ministry responsible for preprimary education, the ministry of social and family affairs, or the ministry of health in the case of parental education programmes.¹³

In countries with decentralised administrative and funding systems, local governments may assume a share of ECD expenditure. In Kenya for instance, the central government finances the salaries of preprimary teachers whereas local authorities cover other operational and maintenance costs for preprimary schools. In the absence of a centralised information system, such data may be obtained from the executed budgets of municipalities, districts and provincial governments.

Private Spending

Household spending may be particularly high due to the prevalence of private and community provision of some ECD services such as preprimary education. Data may be consolidated from household spending surveys' education spending modules.¹⁴

Private sector contributions can assume a variety of forms, the most common being to cover the cost of personnel (in nurseries and preschools) employed to take care of company staff's children. Furthermore, some private companies have in-house nurseries or preschools specifically for their employees' children. Although such data is difficult to obtain, it is possible to make reasonable estimates when the unit costs of similar services and the number of children who benefit from the service are known. Data on the spending by private companies are to be obtained directly from them.

NGOs and other faith-based and community organisations can play a significant role in financing ECD services, some of which may be fully or partially financed by such organisations. In-kind contributions may also be provided (lending premises to the community, providing pedagogical materials, food, voluntary work and so on). Such data on monetary and contributions in kind are generally very difficult to obtain.

External Funding

Bilateral and multilateral development partners and international NGOs may contribute to the financing of some activities. Care should be taken to avoid duplication in accounting for such funds when they are provided as budget or sector support, or are managed by local authorities or players¹⁵.

1.3.2 ANALYSIS OF PUBLIC FINANCING OF ECD SERVICES

Chapter 3 explains the approach and computation principles of the main public cost and financing indicators. Although the analysis focuses on the formal education sector, the tools offered are relevant to the analysis of the different ECD programme areas, such as health, nutrition or parental education.

This section aims to analyse the evolution of public ECD resources, distinguishing where possible between those devoted to each type of ECD programme or service. For each programme, the analysis should be complemented by an examination of recurrent and capital expenditure to appraise the degree of continuity of each. To assess governments' efforts and the priority given by the relevant ministry to the sub-sector, it is common to compare the level of recurrent spending to a set of indicators, such as GDP, total recurrent spending (excluding debt service) or recurrent education expenditure. Where data permits, it will be worthwhile to disaggregate recurrent expenditure by nature, reviewing the share that is allocated to each key component (salaries, goods and services, subsidies and transfers and so on).

Whereas the evolution of public expenditure (global, recurrent and capital) devoted to ECD services should be considered over a reasonable period (generally 10 years), the disaggregation of expenditure by type should be carried out for the most recent year, given the work involved.¹⁶ Table 7.4 summarises the financial data that can be harnessed in the context of the analysis of public resources allocated to ECD.

TABLE 7.4 - Main Preprimary Public Expenditure Indicators

<i>Evolution of Public Expenditure Allocated to Preprimary (over a 10 Year Period)</i> <ul style="list-style-type: none">• Evolution of recurrent expenditure (in nominal and constant terms)• Evolution of capital expenditure (in nominal and constant terms)• Evolution of the share of recurrent expenditure in total expenditure (%)
<i>Comparison of Recurrent Preprimary Expenditure (over a 10 Year Period) to:</i> <ul style="list-style-type: none">• GDP• Total public recurrent expenditure (excluding debt service)• Total recurrent education expenditure• Recurrent expenditure for other education sub-sectors
<i>Share of Recurrent Preprimary Expenditure (for the Most Recent Year) Allocated to:</i> <ul style="list-style-type: none">• Salaries (%)• Goods, services and pedagogical inputs (%)• Transfers and support to families (%)

Source: Authors.

1.3.3 ESTIMATION OF PUBLIC UNIT COSTS FOR THE MAIN ECD PROGRAMMES

The estimation of public unit costs (average public cost per beneficiary) is simply obtained by dividing the total cost of public financing for a given service or programme by the number of its beneficiaries. It is also common to provide the relative weight of such unit costs in relation to GDP per capita for the year considered.

Although unit costs provide valuable information to governments, in particular in the light of ECD expansion or quality improvement policies, they should be used with care. Indeed the level of unit costs is heavily affected by: (i) the type of service delivery mode; (ii) the quality of the service (qualification and remuneration of staff, availability of learning materials, days/hours the service is provided and so on); (iii) geographic coverage (pilot project, regional or national coverage and so on); or (iv) target areas and population groups (remote rural areas, urban centres and so on). Such differences should be kept in mind when performing comparisons.¹⁷

The exclusive analysis of public costs and expenditure carries two significant limitations: (i) given the multitude of providers and the often limited role of the public sector (both in the implementation and financing of ECD programmes and services), it may lead to an underestimation of the real operational costs of such programmes and of their total financing; and (ii) it will fail to provide the required information where the scaling up or partial financing (through subsidies for instance) of non-public ECD services and costs is being considered by the government.

1.3.4 ESTIMATION OF THE TOTAL COST OF MAIN ECD PROGRAMMES

One approach to the estimation of the total cost and financing of ECD services is the ingredients method (Levin and Schwartz, 2012). This method is based on five practical steps and consists in the identification of the main inputs/ingredients required by each programme (personnel, pedagogical materials, transport, premises, health, nutrition, games and so on), to then establish the real cost of each on the basis of market prices or other cost estimate approaches.¹⁸ On this basis, the global cost of the service can be determined as well as its unit cost and the respective contributions of the state, families, communities, NGOs and so on. Table 7.5 describes the five steps.

TABLE 7.5 - Five Steps for the Analysis of the Cost of ECD Services – The Ingredients Method	
1. Identify the services and their main characteristics	Where significant differences exist (public/private, urban/rural), deal with each service separately
2. Determine the key ingredients and inputs	Personnel, supplies, infrastructure, transport, quantity and quality of other inputs required for a given number of beneficiaries
3. Establish the cost of each of the ingredients/inputs listed in point 2	Based on market prices, real cost or other estimate
4. Determine the global cost of the programme and its unit cost per beneficiary	Costs can be computed by region, type of programme or as a share of GDP
5. Identify the key sources of financing and any cost-sharing mechanisms	Government (central and local), NGOs, families, volunteers, etc.

Source: Levin and McEwan, 2001 in Levin and Schwartz, 2012.

The exercise is completed by the reconstitution of the overall cost, by multiplying the unit cost of each service by the total number of estimated beneficiaries. To be comprehensive, it will be necessary to add any coordination, administration and monitoring and evaluation overheads relating to central and decentralised management, be they public or private. This can be done by estimating the personnel, input and premises costs of such bodies and distributing them among the ECD programmes according to their respective budgets or coverage (share of all beneficiaries).

On the basis of global cost and financing data, it will be possible to determine:

- The respective weights of the key players in the financing of ECD programmes and services (government, families, communities, NGOs, the private sector, development partners and so on);

- The respective shares of recurrent and capital expenditure;
- The respective shares of personnel, goods and services and other transfer costs within recurrent expenditure; and
- The comparative importance of such financing levels with respect to the financing of the health or education sectors, or to GDP.

Example 7.2 provides an illustration of the application of the ingredients method, based on fictitious data.

EXAMPLE 7.2

Estimation of the Real Global Cost of an ECD Programme on the Basis of a Sample of ECD Centres, Fictional Country

Source: Inspired by Myers, 2008 (12 ECD centres catering for 325 children).

TABLE 7.6 - Annual Expenditure of a Sample of ECD Services (Illustrative Data)	
	Amount in Currency Unit
Personnel	22,760
Care-givers	16,420
Supervision and administration	3,210
Other support staff	2,320
Central coordination	810
Pedagogical Material and Supplies	2,851
Games, books, colouring pens/pencils, etc.	1,650
Other goods and services	1,201
Feeding (Meals, Snacks, etc.)	8,600
Healthcare	5,210
Equipment	12,630
TOTAL ANNUAL EXPENDITURE (A)	52,051
<i>Number of Beneficiaries (B)</i>	325
Unit Cost per Beneficiary (C= A/B)	160.2
Total Enrolment Nationwide (D)	12,151
REAL GLOBAL COST (= C*D)	1,946,067

Table 7.6 provides the annual spending and unit cost estimates for a selection of 12 ECD centres providing services to 325 children aged two to three years old. On the basis of this real spending, and knowing the total number of beneficiaries of this type of service nation-wide, the real global cost of all such programmes can be estimated.

The procedure followed is to:

1. Collect data from a sample of 12 ECD centres of a total of 180 that are attended by 12,151 young children;
2. Consolidate the financial data, distinguishing between recurrent or running costs (personnel, supplies and so on) and capital costs (equipment);
3. Compute the average unit cost per child of 160.2 currency units by dividing the total expenditure of 52,051 by the 325 children that attend the 12 centres; and
4. According to school censuses, such ECD centres are attended by 12,151 children nationwide. Thus the total expenditure is equivalent to 1,946,067 currency units for this type of service ($160.2 \times 12,151$).

The main difficulty in this type of analysis is the choice of the sample of ECD services. These vary considerably in terms of their programme content, quality and coverage, and will therefore have significantly different unit costs. The main risk would therefore be to apply a given cost to beneficiaries that in fact benefit from different services, leading to inappropriate estimations of the global cost of ECD services. In as much as it will not be possible to examine the cost of each and every type of service, Levin and Schwartz (2012) suggest using a stratified sample of representative services, according to: (i) the type of service and delivery; (ii) location (urban/rural); and (iii) the type of provider (public/private). In doing this, it will be possible to estimate the global national cost by type of service, location and provider on the basis of the estimated number of beneficiaries of each service. Mapping ECD services will facilitate the sample selection (See Table 7.8). This can be performed in parallel to activities aiming to appraise the quality of services, given that the same ECD services and programmes will be visited (See Section 5.1).

SECTION

2

MESO LEVEL: MAPPING ECD SERVICES

This section aims to review the ECD services offered to identify the development priorities for the sub-sector. ECD services and activities are highly varied, both in terms of objectives, target groups and delivery modes. In such a context, specific tools to identify and categorise them will be valuable. In practice, various approaches may be adopted:

- (i) *By type of activity*: The main types of service are maternal and child health (including hygiene), nutrition, protection, parental education and preprimary education;¹⁹
- (ii) *By beneficiary age group*: Distinction should be made between services offered to children under three years old and those aged three to five years.²⁰ ECD programmes targeted at parents or care-givers (and mothers in particular) should also be dealt with separately;²¹
- (iii) *By type of beneficiary*: Children's specific needs are then taken into account (orphans and vulnerable children, children with disabilities, children affected by or infected with HIV/AIDS and so on); and
- (iv) *By type of delivery*: Making the distinction between home-based care, centre-based care, communication and media campaigns, conditional cash transfer schemes and so on.

The following sub-sections propose an approach to follow to facilitate the mapping of ECD service delivery options. The exercise is concluded by the consolidation of the information collected.

2.1

IDENTIFICATION OF ECD PROGRAMMES

2.1.1 IDENTIFICATION BY TYPE OF PROGRAMME

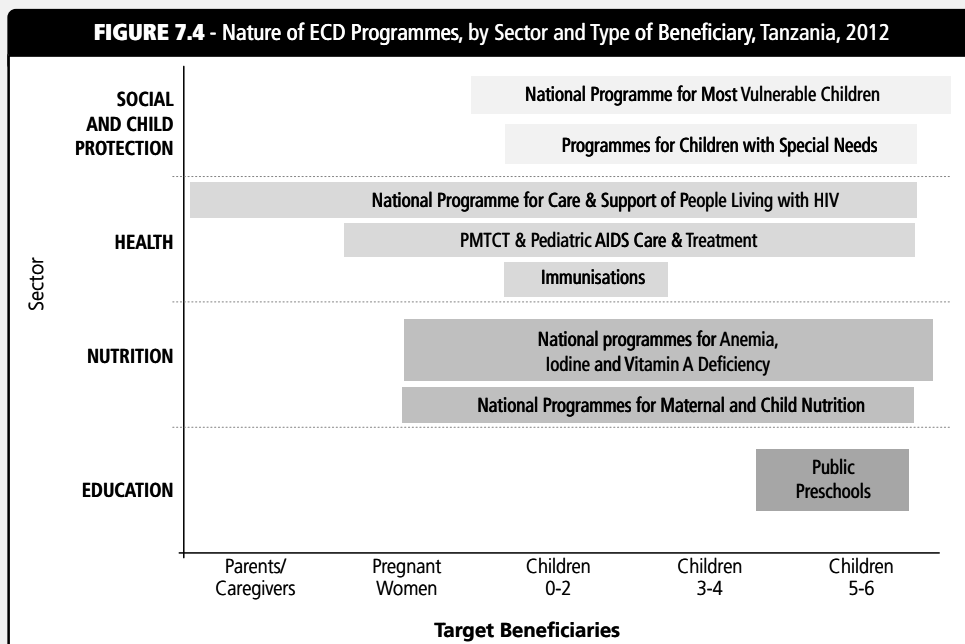
The first step in mapping ECD services consists in the identification of the types of programme and services offered and the delivery modes and location of each.²²

Example 7.3 below, borrowed from a national SABER-ECD report for Tanzania illustrates an example of the mapping of early childhood interventions according to the different age groups of beneficiaries.

EXAMPLE 7.3

(Identification of ECD Programmes): Coverage of ECD Services, by Sector and Beneficiary Group, Tanzania, 2012

Source: Adapted from SABER-ECD, Tanzania Country Report, 2012.



Findings

As presented in Figure 7.4, Tanzania has a range of ECD programmes established in each of the essential ECD sectors: education, health, nutrition and social and child protection. Interventions cater for pregnant women, young children and parents and care-givers. Yet, no programme per se on early stimulation exists so far.

2.1.2 IDENTIFICATION BY DELIVERY MODE

Regardless of the type of programme, four main delivery modes of ECD services are common:²³

- (i) *Centre-based services:* ECD services are organised by or in a centre that has been specially designed for them, such as basic healthcare centres, maternal and child health centres, nurseries, preprimary schools and so on. Centre-based services are

variable, covering sanitary services, nutrition, parental information, education, and communication activities focused on health and hygiene and others. Integrated approaches including all of the above also exist. Preprimary formal education is also included in this category.

- (ii) *Home-based care*: Such services are mainly parental education, communication and advice programmes offered by ECD professionals in beneficiaries' homes, aiming to educate and sensitise families (parents or other care-givers) about good parenting practices. Some maternal and child health services are also included here (pre and postnatal visits).
- (iii) *Communication and media campaigns*: Such activities usually use the radio, television, newspapers, billboards, and so on. They target families with young children and support traditional ECD activities transversally, to improve their effectiveness.
- (iv) *Social support programmes (including cash transfers)*: Such activities usually target poor families with young children and generally consist in transfers (often of cash) made on the condition that beneficiaries ensure their children participate in set education, health or nutrition activities.²⁴

2.1.3 IDENTIFICATION BY AREA

The area of residence plays a lead role in the delivery of ECD services. For instance, in the case of education services, nurseries and preschools are predominant in urban areas. Such services are often in residential areas, mainly private, and target children from wealthier families. However, more informal options do exist in rural areas, including community or home-based services. It is therefore important to distinguish between rural and urban services.

To properly carry out this exercise involves meeting all the key ECD players: traditional institutions (ministries of health, education, justice, social affairs and so on), civil society, private sector stakeholders and development partners.

2.2

DESCRIPTION OF ECD PROGRAMME CHARACTERISTICS

Once the various types of programme and delivery modes have been identified, it is necessary to review the organisational and programme dimensions of ECD services. Data should be collected on a set of key characteristics, like the public, private or mixed nature of management, coverage or sources of financing. It is also important to determine the extent to which ECD services are equitable, specifically if they primarily target vulnerable areas and population groups where their coverage is not universal.

BOX 7.2**Key Information to Collect on ECD Programmes and Services**

- 1. The area covered and objectives:** Where various services are offered, what areas do they cover? Are integrated approaches used? For instance, do sanitary and health services include early stimulation activities, or do preprimary education programmes have nutrition components?
- 2. Delivery mode:** Are services centre-based, home-based, communication and advocacy-oriented, or a selection of the above? How often and for how long is the service available?
- 3. Scale of implementation, by programme type:** Which are pilot programmes, or offer national or regional coverage? Are vulnerable areas covered? Indicate the coverage and number of beneficiaries for each.
- 4. Target population group, by programme type:** Indicate the age groups or specificities of the target beneficiaries, especially where children with special needs or vulnerable children are concerned, as well as age groups, including parents and care-givers.
- 5. Institutional set-up:** Document the administrative nature of the programme. Is it public, private or community-based?
- 6. Financing modes and/or sources:** Distinguish between public, private (parents, communities, NGOs, faith-based organisations) and development partners; direct transfers, specific taxes, subsidies, social transfers and so on; and between financing types (See Section 1.3 and Figure 7.3).
- 7. Control and quality assurance mechanisms:** Do standards exist, are they followed, and what public institution is responsible? Are quality assurance mechanisms implemented?

Source: Adapted from SABER-ECD, World Bank, 2011.

Box 7.2 summarises the key information that it is appropriate to collect about ECD programmes and services.²⁵ It can constitute the basis of a questionnaire to be used with the identified programmes and services, providing complementary information to that made available through surveys and censuses carried out yearly by the statistical services of the ministries responsible for ECD.

Example 7.4 below, based on the SABER-ECD method (World Bank, 2011), offers an illustration of how programme information may be consolidated on the basis of the areas identified above.

EXAMPLE

7.4

Consolidation of Key Information for a Preprimary Education Programme, Based on the SABER-ECD Approach, Fictional Country

Source: SABER-ECD, World Bank, 2011.

TABLE 7.7 - Consolidated Characteristics of a Preprimary Education Programme (Illustrative Data)	
	Preprimary Education Programme
Objective	Prepare children for primary school.
Brief Description	Children are offered preprimary supervision within the premises of existing primary schools.
Target Group	Children aged four to six years.
Areas Covered	Develop children's pre-literacy and pre-numeracy skills and increase their cognitive stimulation.
Coverage/Access	Preprimary Gross Enrolment Rate of 39%.
Institutional Set-up	The ministry of education develops the programmes and curricula at the central level and is responsible for the expansion of coverage. Public preprimary schools are based within existing basic education schools or in separate premises.
Financing	Teachers' salaries are paid by the ministry of education. Capital expenditure for building costs is covered by central and local government.
Teachers/Care-givers	Preprimary teachers are civil servants from the ministry of education. Pre-service training of teachers includes four years of university study.
Quality Assurance and Monitoring	Existing standards focus mainly on premises and other infrastructure rather than on programmes and teaching practice. The inspection of centres is infrequent and inspectors often have little knowledge of ECD programmes.

2.3 CONSOLIDATION OF THE INFORMATION

Data should be collected on a national scale to provide as comprehensive a picture as possible of the different ECD services. Once information has been obtained for a satisfactory number of ECD services, it should be consolidated according to common criteria to provide a global view of available programmes. Table 7.8 can be used as a tool to consolidate the information. It presents the state of coverage of the ECD programmes and services (from their inexistence to universal coverage) according to the area and type of intervention and their main provider. It is complemented by a summary of each intervention: (i) coverage rates; (ii) the areas/population groups covered (offering an appraisal of the targeting of vulnerable areas/population groups); (iii) the main source of funding; (iv) the existence or not of a quality control and monitoring mechanism, or the body in charge when such a mechanism is in place.

TABLE 7.8 - Consolidation of Key Information on ECD Services Available Nationwide (Model Table)

	Coverage					Number of Beneficiaries or Access Ratio for the Target Group	Location (Urban/Rural/Regions/Targeted Vulnerable Population)	Main Sources of Financing	Monitoring Mechanisms and Agency
	No Services	Pilot Programme	Regional Coverage (Indicate which)	Country-wide Coverage*	Universal Coverage				
Health									
Nutrition									
Preprimary Education									
Parental Education									
Protection/ Special Needs									

Source: Adapted from SABER-ECD, World Bank, 2011. * The targeting of beneficiaries might be selective.

SECTION

3

MICRO LEVEL: CHILDREN AND THEIR FAMILIES

The objective of Section 3 is to examine a set of indicators that will provide a detailed profile of children and their home environments to better identify their development needs and orient ECD programme elaboration. This is an extension of the global diagnosis of the sanitary and child development context proposed in Section 1.1 of this chapter. Two types of indicators are offered: (i) on the characteristics of children and their families, including parental practices; and (ii) on the access and use of ECD programmes.

In each case, it is advised to disaggregate the different indicators according to child (gender, vulnerability, age and so on) and household (area of residence, income level, education of parents and so on) characteristics. This will enable a better determination of possible disparities to propose corrective measures through the implementation of better targeted activities, both in terms of beneficiaries and content. Such disaggregated information will be illustrated in Section 4 on equity, below.

Where possible, it will be worthwhile to provide historical data for these indicators, but also to compare them at a given point in time to those in other countries of similar income levels. Placing them in the context of national or international goals (such as the MDGs or EFA goals) may also be helpful.

3.1 PROFILE OF CHILDREN AND THEIR FAMILIES

Table 7.9 provides a list of some of the most easily available indicators that describe early childhood development and children (under eight years)' family environments. In addition to the main ECD sectors, it covers the socioeconomic context that can be used as a proxy for the quality of the family environment (See Annex 7.1 for a detailed description of the indicators).

TABLE 7.9 - Key Indicators to Describe Young Children and their Family Environment
Child Characteristics (Children Aged under 8 Years)
<p>Health, Nutrition and Hygiene</p> <ul style="list-style-type: none"> DPT3 vaccination rate Prevalence of stunting Prevalence of wasting Prevalence of underweight Prevalence of overweight/obesity Share of children receiving adequate healthcare when ill (fever, diarrhea, ARI - acute respiratory infection) Share of children that sleep under a insecticide-treated mosquito net Share of children that wash their hands after using the toilet
<p>Education and Early learning</p> <ul style="list-style-type: none"> Share of children participating in an early learning activity ECD Index and its sub-components Share of children starting primary at the official school age Mastery of basic reading and numeracy upon primary access (e.g. EGRA/EGMA scores)
<p>Protection</p> <ul style="list-style-type: none"> Share of children with a birth certificate Share of vulnerable children and orphans Share of children involved in productive activities
Family Characteristics (Children Aged under 8 Years)
<p>Socioeconomic Indicators</p> <ul style="list-style-type: none"> Share of children living in a poor household Share of children whose household head is a woman Share of children whose household head is illiterate Highest education grade attained by the household head and/or the mother/tutor Socioprofessional category of the household head and/or the mother/tutor Household dependency rate Area of residence Average family size Share of household possessing a radio or TV
<p>Health, Nutrition and Hygiene</p> <ul style="list-style-type: none"> Share of women who practice exclusive breastfeeding for 6 months Share of women who give children food supplements after 6 months Share of households using iodised salt Share of households with access to safe drinking water Share of households with improved sanitation facilities Knowledge and attitudes towards sanitary risks Share of households that have soap for hand washing
<p>Stimulation Activities</p> <ul style="list-style-type: none"> Share of children owning toys at home Share of children owning books Share of children who benefit from stimulation activities at home Share of fathers involved in stimulation activities at home Share of children who have been engaged in activities with an adult to promote learning and school readiness Prevalence of explanatory, coercive or disciplinary practices

Source: Authors.

The analysis of these indicators will enable the analyst to establish the extent to which children grow up in a family environment that is favourable to their development (preparing them for school), even if the table is incomplete due to the lack of data in some areas.²⁶ Indeed, sources of information to describe the quality of the home environment are rare, especially for the frequency and quality of interaction with parents, care-givers and peers; home-based stimulation and education activities; the type of stimulation activities; physical and motor development; and language, cognitive and socioemotional development. MICS and DHS type surveys offer some data however. Some countries, to compensate for this lack of information, have carried out specific surveys on parental practices or other areas of young children's physical, language, cognitive or socioemotional development.²⁷ Where they exist, such surveys will be particularly helpful to orient ECD policy and programmes.

Example 7.5 below outlines the basic methodological principles and results of a survey of parental practices conducted in Mauritania.

EXAMPLE

7.5

Parental Practices, Mauritania, 2010

Source: UNICEF/Mingat and Seurat, 2011.

In the context of UNICEF support to the Mauritanian government in developing ECD activities, a household survey was conducted in 2010 with the main objective of providing a detailed description of parental practices and of the development of young children. This work had a double perspective: (i) to gain knowledge of parents' behaviour, and mothers' in particular, with respect to their children aged six months to six years; and (ii) to provide operational benchmarks in terms of family education and preprimary education activities, to support the Mauritanian government's national ECD programme.

The collection of data and the resulting analyses focused on aspects of parental practice relating to the time spent by parents with their children, the role of the father, feeding, cognitive development and games, sleep, language and social development, health and perceptions of dangers and female genital mutilation, among others. For these different dimensions, the survey was based on the responses given by families (often mothers).

Findings

In general terms, although parental education requires an active investment on behalf of parents in children's development, only 43 percent of parents believed that their role was significant, 23 percent felt that their influence was limited and 34 percent that they had no influence on their children's development. This finding is also observed in mothers' marked tendency to underestimate their young children's effective capacities: more than a third mentioned that it is pointless talking to a child before they reach the age of two years (the age at which children start to reply), despite it being known how important mother-child contact is in children's socioemotional and language development from a very early age.

Parental practices in terms of the social and cognitive development of children show that 30 percent of mothers did not feel involved when their children failed in a given activity, and only 18 percent said they adopt a positive attitude (providing help, advice and so on). Furthermore, 59 percent of children under three years old do not participate in family activities (play and so on). In terms of discipline, 83 percent of mothers indicated that they set rules, but 70 percent claim to do so through threats and other coercive approaches, whereas only 30 percent provide children with explanations.

The practice of female genital mutilation, although becoming less common, is fairly widespread. About half of girls have undergone female genital mutilation, and 44 percent of mothers believe the practice should be maintained. Female genital mutilation is more common in rural, poor and uneducated households.

In terms of children's hygiene, few mothers give their children a daily bath. In 42 percent of cases, weekly baths are given. The data also show that 62 percent of children do not regularly wash their hands after using the toilet, and only 35 percent wash their hands before meals, however irregularly.

In terms of health and the perception of dangers, when children have a health issue such as fever or diarrhea for instance, 30 percent of mothers do not recognise the symptoms of fever and 41 percent do not know about administering oral rehydration salts in diarrhea cases, which is a testimony to the scope for improvement in parental practices with respect to two illnesses responsible for a significant share of child mortality.

3.2 ACCESS TO AND USE OF ECD SERVICES

Under the hypothesis that participation in ECD services provides beneficiary children with better health and preparation for school, the analysis of access and use of ECD services will provide further elements of understanding about: (i) the capacity of a country to provide all children, regardless of their characteristics, with a good start in life; and (ii) the need to expand the services provided to ensure their more equitable and efficient development.

Table 7.10 provides an overview of the indicators that are usually used to describe the level of access and use of the main ECD services. This list, far from being exhaustive, may be complemented by other indicators where available to offer a broader and more complete overview of the issues. The mentioned indicators are described in greater detail in Annex 7.1.

TABLE 7.10 - Key Indicators to Describe Access to and Use of ECD Services, by Type

Health and Nutrition Services
Share of pregnant women having had at least three prenatal appointments with qualified health personnel
Share of births assisted by qualified personnel
Vaccination coverage rate for children aged 12 to 23 months
Share of children with acute respiratory diseases receiving antibiotics
Share of children with diarrhea who are given ORT
Share of children with fever having received anti-malarial treatment
Vitamin A supplementation, %
Distance from home to the nearest health centre
Preprimary and Primary Education Services
Share of children attending an ECD education service (indicate the age group and provider): <ul style="list-style-type: none"> • Nursery, day-care centre • Preprimary school Share of children enrolled in preprimary education in public, private and community centres
Preprimary gross enrolment rate
Gross access rate to the first grade of primary
Distance from home to the nearest preprimary school
Protection Services
Share of registered births

Source: Authors.

Example 7.6, drawn from the Tanzania SABER-ECD country report, illustrates the situation in terms of preprimary access and the use of sanitary ECD services in Tanzania. The example also enables one to place the country in international perspective.

EXAMPLE

7.6

(Use of ECD Services): Access to Early Childhood Care and Education (ECCE), Tanzania and Selected East African Countries, 2012

Source: SABER-ECD, Tanzania Country Report, 2012.

TABLE 7.11 - Preprimary School Provision, Tanzania and Selected East African countries, 2012

	Tanzania (2010)	Ethiopia (2010)	Kenya (2009)	Uganda (2010)
Age of preprimary entry	5 years old	4 years old	3 years old	3 years old
Duration of preprimary	2 years	3 years	3 years	3 years
Gross enrolment rate (%)	33	5	52	14
Net enrolment rate (%)	33	4	29	14
Percentage of private enrolment	5	95	38	100

Findings

In Tanzania, preprimary school starts at 5 years old, for a duration of 2 years. In 2010, total enrolment in preprimary school (public and private) was 33 percent and increased by 45 percent since 2005 (based on data not displayed in the table). Despite the substantial increase in non-state enrolment, as of 2010, non-state enrolment accounted for less than five percent of all enrolment for children ages five to six years. If data were available to track enrolment for children below the age of five years, the relative proportion of enrolment in non-state ECCE would climb as all services for children below the age of five years are provided by non-state operators. As Table 7.11 shows, in comparison to other countries in East Africa, gross and net enrolment rates are low across the region. The portion of preprimary schooling provided by the private sector is significantly lower than in all neighbouring countries.

TABLE 7.12 - Access to Essential ECD Health Interventions in East Africa, 2006-10

(Percent)	Tanzania	Ethiopia	Kenya	Uganda
Children under 5 with diarrhea who receive oral rehydration/continued feeding	50	15	43	39
Children aged 1 year old immunised against DPT	91	90	93	60
Children under 5 with suspected pneumonia who receive antibiotics	nd	5	50	47
Children under 5 sleeping under insecticide-treated mosquito nets	64	33	47	33
Children under 5 with fever who receive anti-malarial treatment	59	10	23	60
Births attended by skilled attendants	49	6	44	42
HIV+pregnant women/exposed infants who receive ARV treatment for PMTCT	59	-	43	-

Access to essential ECD health interventions in Tanzania is better than in neighbouring countries but could still be improved. Table 7.12 below shows the level of access to a selection of essential ECD health interventions for young children and pregnant women in Tanzania with regional comparisons. The level of access to essential health interventions is higher (or comparable) in Tanzania than in neighbouring countries. In particular, Tanzania has had more success scaling up the coverage of insecticide-treated mosquito nets for children below the age of five years. Given that malaria is the leading killer of young children in Tanzania, this is a critical policy intervention. While Tanzania leads the region in terms of access to skilled attendants at birth, the data indicates that less than half of all women have access to a skilled attendant, which is critical to ensuring safe deliveries.

SECTION

4

DISPARITIES IN ACCESS TO AND USE OF ECD SERVICES: SUPPLY AND DEMAND

If at all possible, it will be helpful to disaggregate the indicators presented in Section 3.1 according to child and family characteristics. Indeed, significant differences can exist in access to care, in the use of services, or in terms of parental practices, according to the area of residence, household income or gender. The disaggregation of data will enable one to highlight the differences between groups to offer a fairer understanding of the needs of children and their families in terms of ECD services, facilitating the implementation of better targeted activities, both in terms of beneficiaries and programme content. Given that Chapter 6 of this guide offers a detailed description of the tools and methods used in the measure of disparities, this section will be brief, providing a couple of illustrations of the issue. It may also be interesting to extend the diagnosis by researching the underlying phenomena behind the disparities, to assist the implementation of more relevant corrective measures. As the following example shows, the source of disparities may be found in both demand and supply-side factors.

4.1 IDENTIFICATION OF DISPARITIES

Various dimensions can be considered to attempt to highlight the existence of disparities in the coverage, access to and use of ECD services, as well as in parental practices. They mainly include:

- Children's age;
- Children's gender;
- Household income;
- The level of education of parents, and especially mothers;
- The gender of the head of household;
- The area of residence (urban/rural); and
- The geographic location (region, district).

Example 7.7, drawn from the MICS4 report for Sierra Leone, illustrates disparities in terms of access to ECD programmes for children aged 36 to 59 months, according to gender, area of residence, age, mothers' education and household income.

**(Disparities in ECD Access):
Disparities in ECD programme participation, Sierra Leone, 2010**

Source: MICS4, Sierra Leone, 2010

Table 7.13 below presents the percentage of children age 36-59 months who were attending some form of organised ECD programme in Sierra Leone in 2010.

TABLE 7.13 - Participation in ECD programme participation, by Socioeconomic Characteristics, 2010		
	Share Participating in an ECD Programme (%)	Parity Index
Gender		
Boys	13.3	0.92
Girls	14.5	(Boys/Girls)
Age		
36-47 months	10.1	0.55
48-59 months	18.5	(Younger/Older)
Area of Residence		
Urban	23.4	0.44
Rural	10.5	(Rural/urban)
Region of Residence		
East	18.9	0.19
North	6.9	(North/West)
South	10.5	
West	36.5	
Mothers' Education		
None	9.7	0.26
Primary	17.7	(None/Secondary)
Secondary	37.5	
Household Income		
Q1	5.2	0.12
Q2	7.5	(Q1/Q5)
Q3	9.9	
Q4	16.0	
Q5	42.3	
National	13.9	

Source: Authors' computation. MICS4, 2010.

Analysis

In 2010, it is estimated that close to 14 percent of all 3-4 years old children in Sierra Leone attend some forms of organised ECD programme. However, this national average hides wide regional and socio-economic disparities. As summarised in Table 7.13, urban-rural disparities are significant: 23 percent of children living in urban areas attend an ECD structure, compared to only 10 percent in rural areas. Attendance is highest in the West (36 percent), and lowest in the north (7 percent). Attendance is strongly and positively correlated with higher levels of mothers' education and household wealth. Children aged 48 to 59 months are almost twice as likely to attend such a programme (18 percent) as children aged 36 to 47 months (10 percent).

However, as the level of the parity indexes shows, differences are greater in terms of household wealth, followed by the region of residence and mothers' level of education. In such cases,

targeting the most disadvantaged households in the most vulnerable regions (North and South) may provide a more equitable coverage of ECD services. Encouraging mothers' literacy programmes may also have a favourable impact on the participation of children in ECD programmes, stimulating demand for such services.

4.2

ANALYSIS OF DISPARITIES: THE UNDERLYING CAUSES OF WEAK ACCESS AND USAGE RATES

Analytically, the variables that explain disparities can be found to relate both to the supply of services and the demand on behalf of beneficiaries and/or their families. On the supply side, the distance to the services and their quality (the availability of inputs, the sufficient number of sufficiently qualified personnel, the condition of premises) are the main factors that influence the access to services and their use. On the demand side, various reasons are mentioned by users, including the excessively high level of fees, the lack of interest in the services offered due to their low quality or weak relevance, or ignorance about their well-foundedness.²⁸ Household, KAP and other qualitative surveys may be particularly informative about these factors, shedding light on the reasons mentioned by families to justify the participation of their children in ECD services.

Example 7.8 below describes the main motives provided by parents for not having their children attend preprimary education programmes in Uzbekistan.

(Supply and Demand Factors Affecting ECD Attendance): Reasons for Not Enrolling Children in Preprimary Education, Uzbekistan, 2009

Source: UNICEF, 2009 in SABER-ECD, World Bank, 2011.

TABLE 7.14 - Reasons Mentioned by Parents for Not Enrolling their Children in Preprimary Education, 2009

(Percent)	Area of Residence		Income Level		Total
	Urban	Rural	Wealthy	Poor	
No need	34	34	36	30	34
Child is too young	32	25	28	26	27
Programme is too expensive	23	17	15	26	19
Nursery is too far	3	17	14	14	13
Care provided is inappropriate/questionable	3	3	3	2	3
Opening hours are not convenient	0.6	0.5	0.5	0.6	0.5
Child's state of health	0.6	1	1	1	1
Children are enrolled in school (when 6 years or above)	4	3	3	3	3

Findings

Table 7.14 shows that the first cause of children's non attendance of preprimary education relates to their parents' lack of interest in such services (34 percent of cases). The age of children is then mentioned by 27 percent of parents, which may reflect programmes' lack of relevance to children's development needs (see footnote 28). Access fees are felt to be too high in 19 percent of cases, especially for poor families (26 percent of cases), and 13 percent of respondents claim the distance from their home to the centre is a disincentive to preprimary enrolment. The latter finding is more common in rural areas (17 percent) than in urban ones (3 percent).

More in-depth analysis can be carried out to better determine the supply and demand factors affecting the access to and use of ECD services and disparities in parental practices.²⁹ Using econometric models may be particularly worthwhile and relevant here, to highlight the net effects of each of the variables considered. Illustrations of such models are presented in Chapter 6 of this guide.

SECTION 5

QUALITY AND EFFICIENCY OF ECD SERVICES

Any discussion on the supply and demand for ECD services implicitly involves quality and efficiency issues. However, unlike general education for which conventional quality indicators and evaluation methods are available, there is no consensus in terms of what constitutes a quality service or in terms of a standardised approach to the evaluation of quality for ECD. Some tools are however available to provide a first appraisal of these dimensions, presented in the sections that follow.

5.1 QUALITY OF ECD SERVICES

The quality of ECD services is generally approached through two types of measure, qualified as *structural and process* (Currie, 2001; Mashburn et al., 2008, in Levin and Schwartz, 2012). Structural measures generally focus on inputs such as the level of qualification and training of care-giving staff, class size, adult-children ratios or the quality of the physical environment. Process measures focus on the relationship between care-giving personnel and children, the use of class time, or the pedagogical and disciplinary approaches adopted. Whereas structural measures remain easy to establish as they are based on information that can be collected from secondary sources, process measures can be more complex, as they require the direct observation of the service provided. Furthermore, there are no real standards in terms of what constitutes quality interaction and no consensus in terms of what a quality ECD service represents or on the inputs that best prepare children for primary education.³⁰

Nadeau et al., 2011 propose a practical division of such inputs and activities' characteristics into four categories, covering structural characteristics, personnel characteristics, programme characteristics and process characteristics, to which a fifth is added relating to the monitoring and evaluation of children's outcomes.

In the absence of an existing data system to provide such data, it may be helpful to conduct a sample survey. A simple questionnaire may seek to appraise the quality of each of the characteristics deemed particularly relevant to each context. It may be conducted in unison with the cost estimation exercise presented above (see section 1.3.4), on the same sample of programmes and activities.

Table 7.15 below proposes typical questions that help to draw a picture of the quality of ECD programmes based on these. They complement the questions already offered in Table

7.3 in the context of the description of quality monitoring and control mechanisms. Each question/item may be marked on a scale of 1 (inappropriate) to 5 (excellent). The sum of the marks obtained for each item would then provide a global score offering a synthetic measure of the quality of the service.

TABLE 7.15 - Questions for the Analysis of the Quality of ECD Programmes and Services

	Key Questions
Structural Characteristics	<p>What condition are the premises, classrooms and play areas in? Do they fulfill requirements in terms of hygiene, stimulation and learning? What is the availability of appropriate equipment (sanitary facilities) and pedagogical material (communication tools, stimulation games and so on)? What is the adult-child ratio? How large are classes? Are norms and standards adhered to (where they exist)?</p>
Personnel Characteristics	<p>What qualifications and training do the care-givers have? Are their qualifications and training specialised? Do their qualifications and training comply with standards (where they exist)? What is the professional status of care-givers? * What is the share of qualified care-givers? Have care-givers and other staff involved in the supervision of the youngest children been trained in holistic ECD best practices? What is the remuneration of care-givers? Does it comply with norms where they exist? How does it compare to that of other professions in terms of GDP per capita?</p>
Programme Characteristics	<p>How intensive is the programme (number of hours per week, full/part time)? How many times are families visited each month? Are standards adhered to where they exist? Is there a partnership between parents/communities and the programme, or a mutual commitment? If so, in which area (management, administration, parental advisory committee, contributions to the building and equipment of the centre, preparation of pedagogical inputs, contribution to the elaboration of programmes, financing, supervision of children, etc.)? What is the teaching language (mother tongue, official language, both)? Are health and nutrition inputs available? If so, in what quantities? Does the curriculum adopt a holistic vision to children's development, offering them a selection of appropriate, stimulating and pleasant learning tools (covering physical, socioemotional, cognitive and intellectual development)?</p>
Procedural Characteristics	<p>What pedagogical and disciplinary approaches are adopted? What is the frequency and quality of interactions between care-givers and children, and among children?</p>
Monitoring and Evaluation of Practices and Learning	<p>Do ongoing programme monitoring and evaluation and quality control mechanisms exist? Is quality assurance based on inspection or accreditation?</p>

Source: Adapted from Naudeau et al., 2011 and UNESCO, 2007.

Note: * In developed countries a distinction is generally made between pedagogues, early childhood teachers, nursery workers, qualified or trained auxiliaries, family-day care workers, and non-qualified auxiliaries or volunteers (UNESCO, 2007).

Many other tools have been developed to appraise the quality of ECD programmes, some in Africa. The most used is the revised version of the Early Childhood Environment Rating Scale (ECERS-R), initially conceived to evaluate centre-based ECD programmes for children aged between two and a half and five years in the United States. It consists of 43 items divided into seven broad areas that focus on the most easily measured structural dimensions (See Annex Table A7.3). The answers to the questions are coded on a scale of 1 to 10.³¹ Other tools exist, such as the Save the Children evaluation scale derived from the ECERS, the auto-evaluation instrument of the Association for Childhood Education, or the International Step by Step Association (UNESCO, 2007). A brief presentation of these tools is offered in Annex 7.2.³²

5.2 EFFICIENCY OF ECD SERVICES

Evaluating the efficiency of ECD services is equivalent to examining the extent to which they improve the outcomes of the children who access them. The analysis of efficiency is based on the finding that, in addition to the ECD services that children receive, children's development is influenced by a great number of factors that encompass the micro, meso and macro dimensions described above (See Figure 7.1). These must be correctly considered in the analysis.

As mentioned in the introduction to this chapter, the impacts of ECD interventions fall into two categories:

- The direct impact on children's physical, cognitive, socioemotional and linguistic development; and
- The medium to long-term impact on various aspects of an individual's life: education (including the transition to primary), income, physical and mental health in adulthood, fertility, high-risk behaviours (smoking, alcohol consumption and so on).

These two levels of impact will be dealt with in turn in the following sections, with a particular focus on primary education (access and schooling paths) in terms of the medium term impact. One further clarification is needed before proceeding with the analysis however. The idea here is by no means to propose a rigorous method for the evaluation of ECD programmes' impact on children's development or in terms of other outcomes, not least due to the lack of adequate data.³³ It will be preferable to base the analysis on easily available data (such as that collected by household surveys) to establish the level of correlation (positive, negative, significance) between the participation in an ECD programme (in the broad sense) and children's development. This section is thus devoted to the indicators and tools that may be readily available for the analysis.

5.2.1 METHODOLOGICAL APPROACHES, TOOLS AND CONSTRAINTS

Two methods are commonly used to measure the cognitive, intellectual, socioemotional and linguistic development of children, which can be used separately or jointly. The first is an indirect evaluation of the development of the child to be evaluated through questions administered to parents and care-givers (often mothers). Although easy to put into practice, this approach does not provide a precise evaluation of children's development (See Section 5.2.2 below and Annex 7.1).

The second approach is a *direct evaluation* of the development of young children as individuals, through psychometric tools and techniques.³⁴ When such tests are rigorously and objectively conducted, they enable one to evaluate children's progress in areas as varied as behavioural attitudes, intelligence and cognitive, socioemotional and linguistic development, to establish a complete and precise picture of children's development.

However, it is important here to warn readers of the limitations of this approach:

- (i) The instruments use methods that are not always adapted to the age or specific needs of children or country and community contexts, in addition to being unconventional and non-standardised. Indeed, attempts to evaluate the development of children often face multiple methodological constraints, especially when it is necessary to define, isolate and quantitatively measure different dimensions of children's development in a context where these are closely linked to or determined by a plethora of other factors such as the family environment, culture, household income, religious beliefs and so on;
- (ii) The dimensions can be a source of bias if they are not considered appropriately;
- (iii) To date, most of the tests carried out in African countries are pilot studies or academic research on small samples whose results cannot be easily generalised at the scale of a country³⁵.

In order to compensate for the absence of norms and standards adapted to the evaluation of early childhood and to specific country contexts, a recent approach, the Early Learning and Development Standards (ELDS) aims to define norms and standards with respect to what a child should know and be able to do at a given age, accounting for its cultural and community context and its specific needs.³⁶ On this basis, it is possible to objectively evaluate children's achievements in the different ECD areas. Box 7.3 briefly presents the foundations and applications of the ELDS approach. Readers are strongly recommended to follow the evolution of these different tools to determine the extent to which these may be used in sector analyses. Annex Table A7.6 provides a non-exhaustive overview of the main tests and the countries where they have been used.³⁷

BOX 7.3

The Early Learning and Development Standards Approach

Since 2003, another approach to child assessment led in part by UNICEF has been for a country to develop a set of standards or expectations about what every child should know and be able to do at a certain age (before the child enters school) (Kagan & Britto, 2005).

Country teams (experts, policy makers, teachers and families) first define the most appropriate domains for their country, possible sub-domains, and the age groups for which they wish to define standards. The next step is for the country to develop a set of standards, or expectations for learning, that are appropriate to their cultural context. These standards, or desired results, can be linked with programme standards for a health or child care centre-based programme, resulting in a system of childhood assessment in which the expectations for children and the expectations for programmes are aligned for maximum effectiveness.

The advantage of countries' development of their own standards is that they cover items and domains important to the country, as the approach requires each country to develop its own set of early learning standards that are culturally appropriate.

Early learning and development standards are used for many purposes:

- *For individual children's development:* to help teachers or health workers assess what the child can do and decide on a learning plan for the child's development;
- *For curriculum development:* to decide on what kinds of lessons and experiences should be included;
- *For programme quality:* to design teacher training methods, supervision criteria, helping Grade 1 pupils recognise what should be in their curriculum; developing systems for accountability in the programme;
- *For planning:* to determine where resources are most needed, and allocating them there;
- *For advocacy:* to provide the public with greater understanding of child development needs, helping them recognise what children might be considered "ready for school";
- *For monitoring and programme evaluation.*

Source: Extract from Fernald et al., 2009.

5.2.2 DIRECT IMPACT ON CHILDREN'S DEVELOPMENT

This section focuses on the effect of ECD activities on children's cognitive, socioemotional, physical and linguistic development, which are key concerns of ECD activities (at least of parental and preprimary education) given their importance for children's futures, starting with their schooling prospects. Annex 7.3 presents the method to estimate the positive or negative effects of ECD activities on children's health.

TABLE 7.16 - Key Variables to Measure the Effect of ECD Interventions on Children's Development	
Indicators	
ECD Indicators	ECD global index (See Annex 7.1), and its components: Pre-literacy and pre-numeracy abilities Physical development Socioemotional development Learning abilities
Explanatory Variables	
ECD Services	If child attends any form of early learning programme including preprimary If child receives medical care when ill If nutritional services are provided
Child Characteristics	Gender Age Rank among siblings OVC status If child is handicapped If child has a birth certificate Health status (nutrition, illness, etc.)
Household Characteristics	Area of residence Region of residence Size of family Household income level Education level of head of household Gender of head of household Socioprofessional status of head of household Access to improved sanitary facilities Access to drinking water
Family Practices	Knowledge of and approaches to sanitary risks and child illness management If household owns soap If household uses iodised salt If child owns toys at home If child owns books at home If stories are read to child If child benefits from stimulation activities at home Explanatory, coercive or disciplinary practices at home

Source: Authors.

Indicators and Explanatory Variables

MICS4 type surveys, as indicated earlier, offer instruments to measure the development of children aged 36 to 59 months, as well as the composite ECD index (See Annex 7.1). They also provide information on a number of parameters related to children, their families and their environment that can be used to propose a first evaluation of the link between ECD practices and the level of children's development. Table 7.16 covers the ECD practices and child and family characteristics that can most easily be collected through such surveys.

Firstly, a descriptive analysis can compare the results of ECD beneficiary children with those not having access to an ECD programme to establish if there are significant differences between the two groups (this can be done through a Chi-squared test or the Student test of equal averages). Example 7.9 illustrates this approach.

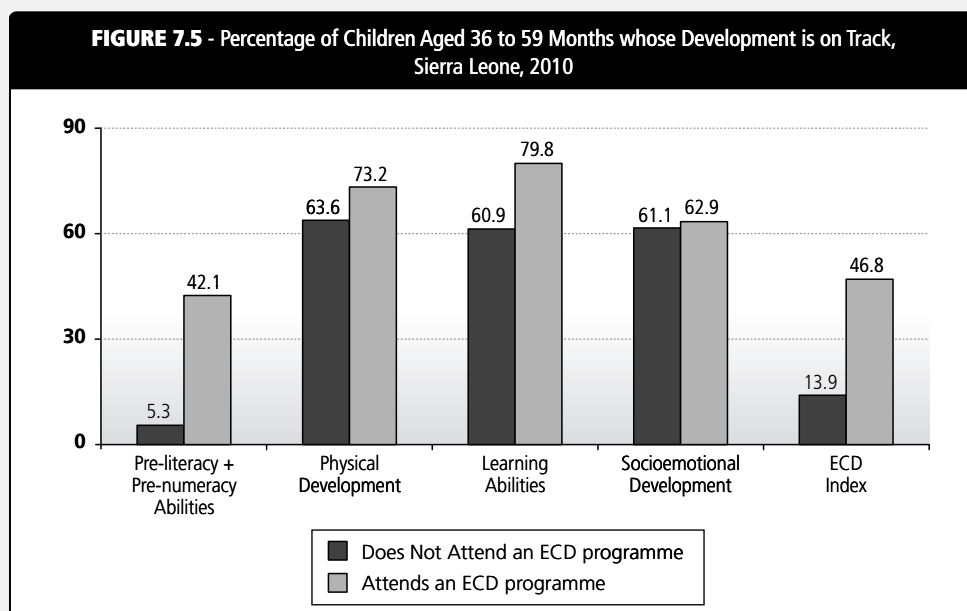
EXAMPLE

7.9

Participation in an ECD Programme and Child Development, Sierra Leone, 2010

Source: Sierra Leone MICS4 survey data, 2010. Authors' computations.

Figure 7.5 shows the percentages of children aged 36 to 59 months deemed to be on track in terms of their development³⁸, depending on whether they attend an ECD programme or not.



Findings

Children who attend an ECD programme show better results in terms of their intellectual, physical and socioemotional development. This is particularly apparent in terms of pre-literacy, pre-

numeracy and learning abilities. Furthermore, the ECD index shows that 46.8 percent of children attending an ECD programme are on track in terms of their development, against just 13.9 percent of those who do not attend.

Secondly, the use of statistical techniques such as the econometric regressions presented in Annex 0 will enable the analyst to establish the extent to which the results in terms of children's development in the areas considered differ significantly according to whether the child was exposed or not to given ECD activities and practices, while controlling for a series of other individual and family characteristics. Example 7.10 offers an illustration of the approach.

EXAMPLE

7.10

Econometric Modelisation of the Effect of Participation in an ECD/Early Learning Programme, Sierra Leone, 2010

Source: Sierra Leone MICS4 survey data, 2010 and Authors' computations.

Table 7.17 presents the results of an econometric modelisation that analyses the effect of the participation in an ECD/Early learning programme on the development of young children in Sierra Leone. A logistical model³⁹ was used in as much as the explained variable (the ECD Index) is a dummy variable equal to 1 if the child's development is on track, or equal to 0 if not.

Variables		Odds ratio	Significance
Attendance of an ECD/Early learning Programme	No	Ref.	
	Yes	4.12	***
Age	36-47 Months	Ref.	
	48-59 Months	1.45	***
Gender	Girl	Ref.	
	Boy	1.21	**
Location	Rural	Ref.	
	Urban	0.90	
Mother's Education	None	Ref.	
	Primary	1.28	**
	Secondary	2.05	**
Household Income	Q1(Poorest)	Ref.	
	Q2	1.19	***
	Q3	1.42	***
	Q4	1.71	***
	Q5 (Wealthiest)	3.66	***
Pseudo R ²	15.8%		
Number of observations	3,178		

Note: *** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

Furthermore, a series of control variables are used to account for the effect of individual (age and gender) and family (mother's education and household income) characteristics. The results consolidated in the table illustrate the odds ratios⁴⁰ and their respective significance levels.

Findings

The above regression results show a strong and significant effect of the attendance of an ECD programme on the better development of young children: those who attend an ECD programme are four times more likely to be on track in terms of their development than their peers who do not, all other things being equal. Furthermore, it is no surprise that given family characteristics have a highly significant impact on children's development, such as the level of household income and mothers' education: children from the wealthiest households (Q5) are up to 3.7 times more likely to be on track than their poorest counterparts (Q1). Also, children whose mothers completed secondary education are twice as likely to be on track than those of uneducated mothers.

5.2.3 EFFECT OF ECD INTERVENTIONS ON THE TRANSITION TO PRIMARY

As explained earlier, the medium and long-term impacts of ECD programmes cover a vast array of areas that cannot all be analysed in a CSR-type analysis. One of the key goals of ECD activities today is to stimulate children's development to better prepare their entry to school, especially given the positive outcomes in terms of schooling (reduced dropout and repetition, better learning outcomes). This section of the analysis will therefore focus on the effect of ECD programmes on: (i) being prepared for school, which should translate into an easier transition to primary; and (ii) primary schooling careers, which should be more fluid. The approach used here can, of course, be reproduced to analyse other aspects of schooling (overall school-life expectancy, transition to secondary, exam results and so on) as well as the various socioeconomic dimensions of individuals' adult lives.

Household or student surveys (such as the PASEC, SACMEQ and EGRA/EGMA) are valuable to deal with such issues, enabling the analyst to establish a link between the home environment where children grow up, their exposure to ECD activities and practices and their current schooling.⁴¹ Chapter 4 provides further detailed analysis of the tools to measure pupils learning achievements. The method described in the previous sub-section is valid here also.

Indicators

Given that information on children's development when they enter primary is often rare in developing countries, proxy indicators borrowed from the primary cycle are used to appraise children's degree of preparation for school. Similar indicators, although more focused on children's schooling, can be found in the analysis of ECD activities on primary education.

TABLE 7.18 - Key Variables to Explain the Effect of ECD on Primary Education

Result Indicators	
Preparedness for School	Age of entry to primary If child repeated 1 st year of primary If child dropped out during 1 st year of primary Reading level in 1 st year of primary (e.g. EGRA score) Numeracy level in 1 st year of primary (e.g. EGRA score)
Primary Education Progress	Number of years repeated, or if child repeated a given grade If child completed the primary level Level of reading ability in Grade 3 (e.g. EGRA score) Level of numeracy in Grade 3 (e.g. EGRA score) Evaluation of learning outcomes (e.g. PASEC, SACMEQ, EGRA, EGMA...) Results in national tests and exams
Explanatory Variables	
ECD Service	If child attended an ECD/Early learning programme (indicate type and duration)
Family Practices	Knowledge of and approaches to sanitary and child illness management If child has toys at home If child has books at home If books are read to child Practice of stimulation activities at home Explanatory, coercive or punitive practices at home Follow-up of homework at home Language spoken at home
School, Class and Teacher Characteristics	Double shifts Pupil-teacher ratio Teacher's qualifications Teacher gender Teacher and Pupil Absenteeism Teachers' pedagogical practices Pedagogical inputs (number of tables, chairs and books per pupil) Community Involvement

Source: Authors' elaboration, based on MICS4 data and learning outcome surveys.

Most of the explanatory variables described in Table 7.16 can also be used for this analysis.⁴² They should be complemented by information on the school environment (school, class and teacher characteristics, pedagogical approaches adopted in school and at home, community involvement and so on) to offer a more balanced analysis.

Example 7.11, derived from The Gambia CSR, illustrates the effect of preprimary education on Grade 3 EGRA test results through the use of econometric models.

EXAMPLE

7.11

**(Effect of ECD on Primary Education):
Factors Affecting EGRA Learning Outcomes, The Gambia, 2010**

Source: Adapted from The Gambia CSR, 2011.

Factors that have a significant effect on the consolidated EGRA score of Grade 3 students in the Gambia are presented in Table 7.19.

TABLE 7.19 - Net Effect of Factors on Grade 3 Students' EGRA Scores, 2009/10		
<i>(Points)</i>	Values (Mean / %)	Net Effect on Score (Points)
Initial EGRA Score (School Level, 2007)	48.6	+ 0.59 ***
Female (Ref. Male)	57.1	- 3.14 **
Double Shift (Ref. No Shift)	50.4	+ 5.44 ***
Pupil-Teacher Ratio > 40 (Rf. PTR ≤ 40)	30.7	- 3.67 *
Student has already repeated a year	18.7	- 4.44 ***
Student has attended government preschool	47.1	+ 3.74 ***
Student has attended madrassa preschool	21.9	+ 5.75 **
Student was absent over the last week	29.2	- 4.63 ***
Student practices reading in class	75.6	+ 6.92 ***
Student is encouraged when obtaining good results	64.1	+ 3.69 *

Note: *** Statistically significant at the 1% level. ** Statistically significant at the 5% level. * Statistically significant at the 10% level. EGRA scores were adjusted to obtain an average value of 50 and a standard deviation of 15.

Findings

While certain school or class-related factors such as class size, teaching practices, teacher characteristics, pedagogical choices, the availability of teaching and learning materials and so on depend on education policies, others do not, despite affecting learning achievements. These include student characteristics like gender, age and socioeconomic background, and certain school characteristics such as location.

Preschool has a positive effect on student learning. Indeed, preschool attendance, be it in a government school or a madrassa, contributes to a five point average improvement in results. This is almost certainly due to the better state of preparation of children for school when they enroll. The government's efforts to expand the preprimary level should be sustained in the light of this positive effect.

NOTES

- 1 This chapter is greatly inspired by the work of the World Bank (See Naudeau et al., 2011 and the SABER team), UNESCO, 2007 and UNICEF (especially its work on the Multiple Indicator Cluster Surveys - MICS).
- 2 ECD is the term most commonly used by countries and their development partners. Various other terms are common, such as ECCE (early childhood care and education), ECDE (early childhood development and education) or IDEC (integrated development of early childhood).
- 3 Greater attention is given today to young children's learning and their transition to primary (UNESCO, 2007).
- 4 In addition to such formal preprimary education programmes, it should be noted that an increasing number of countries also offer ECD programmes and services for children before they reach the preprimary age.
- 5 School readiness is characterised by five key dimensions: (i) physical health and motor development; (ii) socioemotional development; (iii) learning ability; (iv) linguistic development; and (v) cognitive development and general knowledge (See Kagan et al., 1995, in Naudeau et al., 2011).
- 6 One more percentage point in the preprimary GER translates into a 0.12 percentage point reduction in the primary repetition rate and a 0.317 increase in retention, 0.209 percentage points of which are directly attributable to preprimary education, the rest being due to lower repetition (Jaramillo and Mingat, 2011a).
- 7 Children from disadvantaged backgrounds enter primary with many handicaps that are reflected in them falling behind in various aspects of their development, sometimes considerably. Children being behind in terms of language, and vocabulary in particular, is in great part related to the family environment and in particular to the quality and quantity of direct conversations with parents and care-givers, which tend to be poorer in terms of vocabulary and complex sentences in disadvantaged households. Such children also grow up in environments where sanitary and nutritional practices are weaker and where stimulation and learning opportunities are more limited. Children from such backgrounds often enter primary on a weaker footing, jeopardising their entire schooling as a result (Abadzi, 2006; Fernald et al., 2009).
- 8 See Nobel Prize winner James Heckman's work. The Lancet series has also dedicated two special editions (January 2007 and September 2011) to ECD, including innovative studies on the positive outcomes of ECD interventions.
- 9 Annex 7.1 offers a more detailed description of ECD-specific indicators mentioned in this chapter, by key service areas. Work on the development of the holistic early childhood development index (HECDI) is also underway, providing a standardised approach to facilitate international comparisons (See Annex 7.4).
- 10 The quality of ECD services is dealt with in Section 5 of this chapter.
- 11 However, in many African countries such policies are still lacking, or are limited to statements that are not translated into concrete and financially sustainable programmes when they exist, the latter sometimes bearing little relation to sector policies or education sector plans. Many obstacles have been identified to explain the difficulties in the implementation of ECD policies in Africa, including: (i) the weak political and financial commitment of governments to ECD; and (ii) the structural organisation of the government itself, facing another fundamental challenge. Indeed, whereas ECD policies should be holistic and multisectoral and follow an integrated approach to favour links and synergies in support of children in a global sense, governments are organised by sectors and programmes and budgetary planning follow suit. This hinders the emergence of a common vision and the integrated implementation of ECD approaches, as well as the emergence of an easily accepted and recognised coordination mechanism (Aidoo, 2011).
- 12 A total of 123 questions are proposed by SABER-ECD to understand institutional issues.
- 13 The difference between budget allocations and executed budgets is detailed in Chapter 3.
- 14 Parents may also offer non-monetary contributions to ECD activities, such as through the management and administration of services, advisory committees or parents' associations, labour for the building of infrastructure, the elaboration of pedagogical material, participation in the definition of programme content, supervision of children and so on. Such activities are not accounted for in financial terms and are only partially considered in household surveys.
- 15 Annex 3.2 provides a questionnaire intended to capture development partners' financing.
- 16 This information is sometimes available directly from the financial reports of the ministries of education, health or finance for various years.
- 17 For international comparisons, special care should be taken to ensure that unit costs pertain to similar or homogenous ECD services.
- 18 It is common in such exercises to annualise the cost of infrastructure and apply depreciation rates to equipment. Voluntary work, contributions in kind and gifts should be costed on the basis of local going market rates. Levin and McEwan (2001) describe methods for the estimation of economic costs.

- 19 Parental education is defined as a set of activities targeting parents and care-givers that aim to improve the daily interaction between children and their parents to promote practices and behaviours that are considered to be positive and reduce those considered to be detrimental (Pourtois et al., 1984). Parental education thus complements ECD services targeting children and reinforces their effectiveness. However, little information is available on such programmes, which are often pilot programmes or included as a package with health or nutrition services. It is often necessary to conduct a specific analysis of ministry, specific ECD programme or household survey data.
- 20 This segmentation may vary by country context.
- 21 Care-givers here include any person who is responsible for the child, whether there is a family relation or not.
- 22 Figure 7.2 above offers a sectoral organisation of ECD services into four areas: education, maternal and child health (including hygiene), nutrition and protection.
- 23 See Naudeau et al., 2011 for a more detailed analysis of each delivery mode.
- 24 Conditional cash transfer programmes are particularly common in Latin America (for instance the Brazilian *Bolsa Familia*, the *Columbian Familias en Acción* or PATH in Jamaica). Some support particular ECD policies (social support or subsidies to poor families with young children, maternity leave and so on). Although not yet widespread on the African continent, such programmes are generating increasing levels of interest in many African countries, where several pilot schemes are being implemented.
- 25 Some of the questions are based on the World Bank's SABER-ECD. However, the SABER method includes a 12-page questionnaire to analyse the different dimensions of ECD service supply in depth. See also Table 7.16 for complementary questions on quality.
- 26 One of the key criteria in the choice of indicators is their availability. Many of those included are easily available through household surveys such as DHS and MICS, either through data analysis or from their narrative sections. Apart from the fact that such surveys have been conducted in many African countries, such surveys also enable the computation of generally recognised standard indicators. Their limitations are related to timing (they are generally conducted only every five years), their coverage (they do not provide great geographic detail beyond the regional level) and their description of services, which do not enable to closely or regularly monitor programmes. The administrative data available from different ministries, when providing reasonable statistical coverage, may also be collected, as well as qualitative analysis of the KAP (Knowledge, Attitudes and Practice) variety. The latter provide a wealth of information, enabling to better understand the underlying constraints and motivations behind the adoption of given behaviours or practices.
- 27 See Fernald et al., 2009 for a detailed analysis of the tools developed to describe child development in these different areas and UNICEF, 2011 for an illustration of this type of study, for Madagascar.
- 28 Indeed, in some cases ECD programmes can be ill-conceived and therefore not be appropriate to children's age or specific needs. This is the case for instance of preprimary institutions that offer curricula that are close to those of the first years of primary for children aged four to five years. This tendency is most common in pre-primary education systems that are recently developing and as yet not mature.
- 29 In some cases it may be difficult to establish a distinction between supply and demand-side factors, especially where the quality and relevance of services are concerned, as they relate to both.
- 30 Although official norms and standards do exist in many countries for structural measures, their enforcement and monitoring is often haphazard. It is therefore common to base the analysis on the inputs that should in principle contribute to better quality service provision and children's development.
- 31 When it is rigorously carried out, the ECERS-R evaluation method has the double advantage of offering an objective and global evaluation of the ECD service considered and to enable the comparability of results among different programmes offering the same service.
- 32 See Myers, 2006 for a more detailed description.
- 33 Indeed, most studies (be they carried out in developing or developed countries) having attempted to rigorously evaluate the impact of ECD services have generally used longitudinal analysis or randomised experimental evaluations. In both cases, specific and carefully administered surveys were used. The longitudinal analysis involves following individuals over a relatively long period to be able to observe changes due to their participation in ECD programmes over time. Randomised experimental impact evaluations, on the other hand, involve using two samples of children (when the sample is selected at the beginning of the programme) randomly distributed between a treatment group and a control group, enabling researchers to properly isolate the impact of the ECD programme. Furthermore, in most cases such studies are carried out on reasonably small samples, leading to skepticism in terms of the general relevance of the results. For an illustration of a randomised experimental evaluation carried out in Mozambique, see Martinez et al., 2012.
- 34 This discussion does not cover anthropometric measurements of children's development that are standardised. See Annex 7.1 for the commonly used indicators, such as height for age, weight for age and so on.

- 35 UNICEF's regional office for West and Central Africa is working on a prototype instrument for testing children at their entrance in primary school, covering various aspects of their development. This instrument has currently been tested in Madagascar, Mauritania and Cape Verde. Its coverage is nationwide.
- 36 Although still uncommon in Africa, this tool has been developed and successfully adapted in countries like Ghana, Malawi and South Africa.
- 37 Fernald et al., 2009 provides a detailed description of several of these tests and their limitations in terms of implementation.
- 38 See the definitions in Annex 7.1.
- 39 See Annex 0 for an introduction to econometrics.
- 40 See Section 1.6 of Chapter 6 on Equity and the analysis of disparities.
- 41 *Early Grade Reading Assessment* (EGRA) and *Early Grade Mathematic Assessments* (EGMA) consist in nationally representative surveys of children's reading and math abilities in various grades of primary education, to inform education practitioners and policy makers of the quality of learning at school. EGRAs generally evaluate children in eight areas: letter name knowledge, phonemic awareness, letter sound knowledge, familiar word reading, unfamiliar non-word reading, passage reading and comprehension and dictation. EGMA's evaluate children on six domains: number identification, number discrimination, missing number patterns, addition, subtraction and word problems.
- 42 Some questions are only set for children under five years. However, family practice variables are relevant even for households' younger children, providing a global appraisal of the environment in which children are brought up, and how favourable it is to learning.



CHAPTER 8

HIGHER EDUCATION

› Chapter Objective:

To analyse the higher education (HE) sub-sector and all its components in detail, highlighting its specific characteristics, over and beyond the general information provided in earlier chapters of this guide where it has been covered as a sub-sector.

1. OVERVIEW OF RECENT TRENDS AND CURRENT STATUS

ISSUE

What stages of the HE sub-sector's development have determined its current configuration? What reforms have taken place, and what were the causes of their success or failure? What is the current situation in terms of access (transition from secondary, access by age) and service (type of providers and streams)? How diversified is the supply of HE (public/private, university/higher learning institute (HLI), class/distance based, short/long duration and so on)?

OBJECTIVES

- Shed light on the steps that lead to the current configuration of the HE sub-sector, at the institutional and operational levels; and
- Define the array of supply options by institution and subject-area for use in the following sections. If all HLIs cannot be covered, it will be important to ensure that at least the most representative are included.

METHODS

- Perform a historical analysis of the structure of the HE sub-sector to understand its current configuration (type of institution, financing and so on);
- Highlight the key principles that have guided or limited reforms and identify scope for development; and
- Draw up an institutional panorama, being as comprehensive as data permits.

SOURCES

National documents (from ministries, national HE agencies and so on) and various historical documents from the HLIs.

2. ORGANISATION AND DELIVERY, INTERNAL EFFICIENCY AND EQUITY

ISSUES

How is the delivery of higher education organised? What resources are available, both physical and human? Are they accountably managed? How good is internal efficiency as a result? What is the extent of disparities in terms of access to the cycle?

OBJECTIVES

- To examine any specificities relating to service delivery in the higher education sub-sector not covered in the earlier transversal chapters of this guide. These may include teaching issues, the quality of infrastructure, specific governance structures, internal efficiency and gender and social equity issues.

METHODS

- Describe organisational approaches (pedagogic, staff availability, certification and so on);
- Estimate retention profiles and reconstitution of cohorts;
- Use the above tools to estimate internal efficiency, by institution or subject-area; and
- Approach equity questions through the estimation of retention profiles by type of student.

SOURCES

Enrolment data available from the HLIs, if possible disaggregated by type of student.

3. COST AND FINANCING

ISSUES

How does the cost of higher education, for the government and for families, vary by institution or subject area? What are the main components of HE unit costs? What are the financing options available? In the light of the above, how do the distribution of resources and the financing of each HE institution and option affect internal efficiency and equity?

OBJECTIVES

- Present the consolidated budgets for the sector, by institution or subject-area;
- Perform a detailed analysis of per student spending by using the same techniques as in Chapter 3; and
- Use the internal efficiency coefficients elaborated on in Section 2 to calculate the average cost of producing a graduate in each institution, or for each subject-area to extend and deepen the understanding of internal efficiency and equity.

METHODS

- Classic tables and methods (micro/macro) are used to reconstitute and/or consolidate the HLI budgets by type of institution and/or subject-area.

SOURCES

Budgets and budget execution documents for the HLIs and national HE budget, as part of the education sector budget.

4. RESULTS, PERFORMANCE AND QUALITY

ISSUES

How do the different HE institutions and subject-areas perform, especially in terms of external efficiency? What quality assurance mechanisms exist to monitor and improve results (the relevance and quality of training)?

OBJECTIVES

- Consolidate information to evaluate the performance of the HE sub-sector, by institution or subject-area, in terms of the number of graduates produced, and also to assess the economic relevancy of the HE courses of training on offer; and
- Examine the arrangements which control the quality of training and provide career advice to graduates.

METHODS

- Indirect measures of the quality of training through the evaluation of the status of graduate employment. Tracer studies are extremely useful, but may not be available; so
- Make imaginative use of any available qualitative or quantitative data to provide a perspective on the results of training.

SOURCES

Employer satisfaction surveys, tracer studies, labour market surveys, studies on graduate employment status and earnings, and so on.

Introduction

In the context of an education sector analysis, higher education (HE) cannot be dealt with as a sub-sector independently from the entire education system, as can be done with literacy. How HE functions is determined in great part by the lower levels of the education pyramid, and constitutes a significant factor in the demand for education overall for many families and students. Indeed, the shape of the sub-sector, its service delivery options, financing opportunities for students and the opportunities it opens up will have a trickle-down effect on the demand for education at the secondary levels: graduate unemployment rates, in countries where they are high, can discourage families from enrolling their children even at lower levels; the quality and relevance of TVET can affect the demand for higher education courses, and so on.

The financing of higher education should also be considered in the light of sector allocations as a whole, precisely because it affects the demand for education in a broad sense, but also because it competes with other sub-sectors for scarce resources (See Volume 1 of this guide, where HE is dealt with in a sector-wide perspective).

This chapter, dedicated to higher education, offers complementary material to further explore and analyse the issues that specifically affect it, and reviews appropriate sub-sector management approaches that reflect the expectations of the entire education and training sector. It should help to improve the knowledge of the sub-sector and especially to facilitate a more informed discussion of potential reforms (access, content, financing and so on).

The chapter provides approaches to the description of the institutions and subject-areas of higher education in Section 1, as well as for a selection of key aspects of sector analysis: enrolment, service delivery in Section 2 (resources, governance, internal efficiency and equity), cost and financing in Section 3 (institutional budgets, social spending, direct support to students) and results, performance, quality and external efficiency in Section 4. The analysis can help to identify areas for reform and implementation arrangements that enhance their acceptability with all stakeholders.

SECTION

1

OVERVIEW OF RECENT TRENDS AND CURRENT STATUS

This section presents a historical overview of the higher education sub-sector, mentioning any reforms implemented in the past, as well as their results. This introductory section should include a summary of the current status of the sub-sector on the basis of the findings of each of the chapters of Volume 1 of this guide. It offers the opportunity to describe the institutional panorama of the sub-sector, explaining the type and number of institutions, the enrolment they respectively represent and the distribution of students by subject-areas or type of qualification/degree. This description will provide a useful referential framework for the analysis in Sections 2, 3 and 4.

1.1

HISTORICAL DEVELOPMENT OF HIGHER EDUCATION

The history of the development of higher education, key reforms, successes and failures, are important ingredients to gain a more detailed knowledge of the sub-sector, its philosophy and stakeholders' perceptions of it (decision-makers, teachers, students and so on). This knowledge is important to understand the current status of the sub-sector and to consider appropriate reforms. Reforms should be acceptable to all stakeholders, regardless of their relevance or ambition. Change will be more forthcoming in a higher education system that is diversified, both in terms of the types of courses offered and their cost, than in a system that is focused on university for the masses, supported by local authorities, where grants are considered a right. The history of reform also provides valuable information on the attitude of authorities with respect to students and their families, as well as on the capacity of the latter to consider collective constraints when deciding what to promote for the sub-sector's future. These different items should clearly orient the implementation of future reforms (rhythm, timing, scaling-up, magnitude and so on). Example 8.1 illustrates this approach with the case of Algeria.

EXAMPLE

8.1

Phases of Development and Reform in Higher Education, Algeria

Source: Adapted and translated from the Report on Governance of Universities in Algeria (*Rapport sur la Gouvernance des Universités en Algérie, 2012*)

The history of higher education in Algeria is mainly divided into two phases: pre and post 1962 independence. The first university to be created was in Algiers, in 1910. This was still the only university in 1962, with annexes in Oran and Constantine. The only other higher learning institutions included the National School of Business (*École Nationale Supérieure de Commerce*), founded in 1900, the National Polytechnic School (*École Nationale Polytechnique*), founded in 1925 and the National School of Agronomy (*École Nationale Supérieure Agronomique*), founded in 1909.

Upon its independence in 1963, Algeria had barely more than 2,500 HE students. Since then, the system has undergone significant quantitative expansion and profound changes.

As early as 1962, changes were made to the management and recruitment to begin to adapt higher education to the new context of national sovereignty. Technology institutes were opened from 1969 onwards under the auspices of various ministries, to respond to increasing demand for professionals and technicians. A decade after independence the sector underwent a more profound change. The beginning of the reform process in 1971 aimed to create an authentically Algerian university system, integrated into the national development process to equate training and skills with labour market needs and employment.

A total rebuild of training programmes was proposed, whose main characteristics were diversification, specialisation and professionalisation. The objective sought was to focus more on scientific and technical training. This was achieved through the organisation of new programmes and the creation of new degrees: the licence, equivalent to a bachelor's degree, the higher education diploma (*DES in French*) and an engineering degree. Further amendments were made to this new structure from 1980 onwards, such as the restructuring of universities into faculties and institutes, the creation of a student orientation service and the development of short courses.

One of the most important objectives of the current reform is the integration of graduates into the job market. The employability of graduates is one of the best indicators of the quality of a HE training course, its relevance and its socioeconomic value.

The reform of higher education by the Ministry of Higher Education and Scientific Research (*MESRS in French*) mainly includes two components:

1. The updating, adaptation and harmonisation of pedagogical programmes, through:
 - The scaling-up of transversal teaching;
 - The flexibility of the teaching profession, introducing optional courses and promoting multi-disciplinary diversification; and
 - A positive revaluation of practical classes, professional internships and students' personal projects and autonomous study.

2. The definition of a new training architecture through the introduction of the bachelor-master-PhD (BMD) classification of courses, based primarily on:

- The offer of general undergraduate-level training for all subject-areas (except medicine);
- The increase of the vocational content of some training courses (vocational undergraduate and postgraduate degrees); and
- The introduction of a semester-long course unit system, with transferable credits.

With the introduction of the BMD degree classification during the 2004/05 academic year, 10 areas of training were inaugurated in 10 higher learning institutions for a total number of 7,616 students. Since then, universities bestow bachelors' degrees at 180 credits, masters' degrees at a further 120 credits, and a third cycle PhD. Bachelors' and masters' programmes can be followed according to two streams, academic or applied (meaning specialised/technical).

Furthermore, since 2008, a law has authorised private universities to function in Algeria. The conditions for being granted a *licence* by the MESRS appear to be difficult to meet, however, in terms of financial guarantees, administration and pedagogical approval. To date only one application has been submitted, and it was refused. There is therefore no private HE training in Algeria, although it is legally feasible.

1.2

DESCRIPTION OF INSTITUTIONS AND SUBJECT-AREAS

On the basis of the historical perspective presented and considering the availability of data, this section will provide a classification of HE institutions and subject-areas. Ideally, all existing higher learning institutions (HLI) should be considered. If, however, the availability of data or multiplicity of institutions constituted significant constraints, a sample of institutions can be selected. In this case, it is preferable to cover the full range of service delivery modes rather than to seek out strict statistical representativity (in terms of enrolment, for instance) as the main purpose of this chapter should be to compare different HE streams in terms of training approaches and results. Depending on the available data, this section should seek to highlight the characteristics of HE institutions and study according to any/all of the following factors: Diversity in terms of location (at home or abroad);⁴³ the different types of institutions (universities, polytechnic colleges, technical colleges, higher learning institutes, and so on); the level of training and education provided (undergraduate, postgraduate, tertiary, technical post-secondary and so on); and ownership (public/private).⁴⁴ This section should mainly lead to an overview of higher education in its current configuration.

(Analysis of HE Coverage by Subject-Area): Higher Education Enrolment by Subject-Area/Faculty, Swaziland, 2000/01-2007/08

Source: Adapted from the Swaziland CSR, 2009.

TABLE 8.1 - Higher Education Enrolment, by Faculty, Swaziland 2000-07

	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Agriculture	418	483	556	643	711	761	828	853
Business	513	511	564	631	614	597	581	564
Education	341	394	306	313	320	336	358	356
Health Sciences	220	268	287	343	308	317	312	324
Humanities	563	571	554	594	579	574	526	449
Sciences	294	303	317	329	349	380	349	342
Social Sciences	565	575	582	610	648	662	647	643
Postgraduate Studies	32	38	45	55	46	50	47	48
Distance Education (IDE)	780	1,055	1,246	1,447	1,595	1,943	2,046	1,860
Total	3,726	4,198	4,457	4,965	5,170	5,620	5,694	5,439
FTE in IDE *	234	317	374	434	479	583	614	558
Total FTE	3,180	3,460	3,585	3,952	4,054	4,260	4,262	4,137

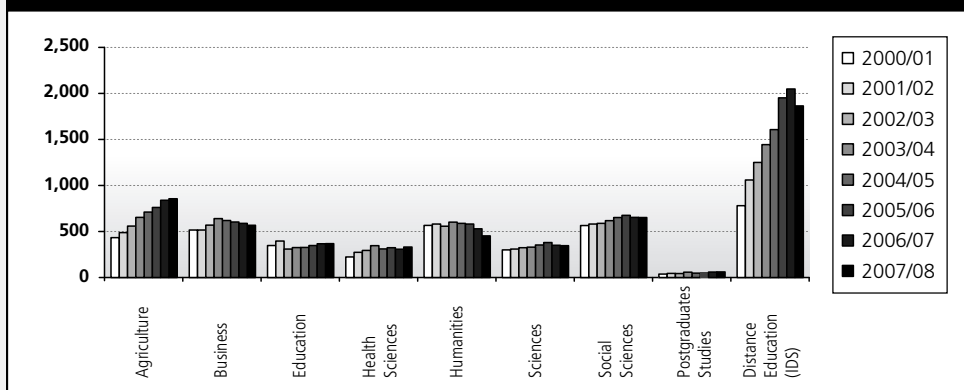
Note: * Full time equivalent (FTE) is calculated by multiplying IDE enrolment by 0.3, since IDE programmes correspond to 30 percent of a normal study load.

A graphical representation provides a clearer sense of the distribution and evolution of the figures, such as in Figure 8.1 below.

Findings

Enrolments vary significantly across faculties, but it is clear that the Institute of Distance Education (IDE) drives much of the recent growth, followed by the Faculty of Agriculture (See Table 8.1 above). The fact that IDE dominates enrolments is a positive development, given its lower unit cost, but its intake is also on the decline. IDE was able to accept close to 80 percent of qualified applicants up to 2005; the share had dropped to below 40 percent by 2007.

FIGURE 8.1 - Total HE Enrolment, by Faculty, Swaziland, 2000/01-2007/08



1.3 THE CURRENT SITUATION

This section is the logical follow-up to the previous one inasmuch as the current situation and enrolment are the product of past reforms. The aim here is to create a direct link with the presentation of the sub-sector provided in Volume 1 of this guide. At very least, this section should underline the global importance of higher education in the country through the analysis of the access rate or the number of students per 100,000 inhabitants, as per Example 8.3, based on the case of Malawi (See also Chapter 2).

EXAMPLE

8.3

(Analysis of HE Coverage):

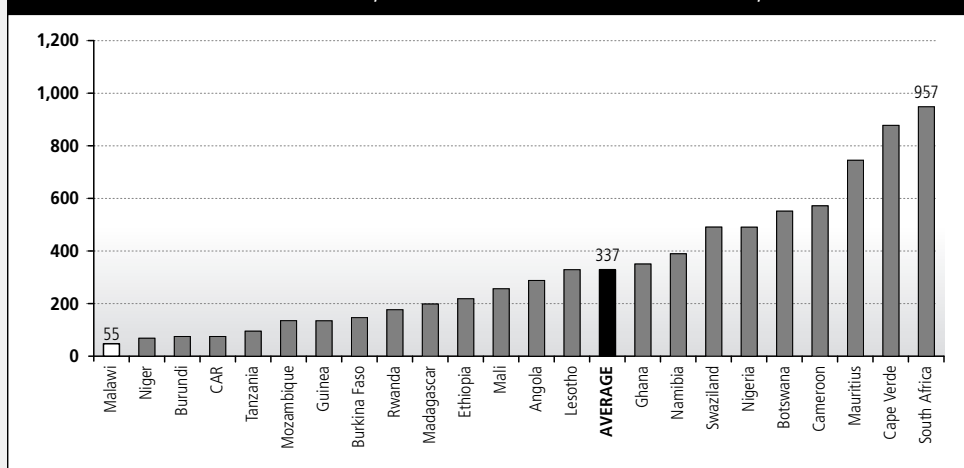
Higher Education Enrolment, Malawi, 2003-08 and Sub-Saharan Africa

Source: Adapted from the Malawi CSR, 2010.

TABLE 8.2 - HE Enrolment and Access Rate, by Gender, Malawi, 2003-08

	Number			Number/100,000 inhabitants		
	Male	Female	Total	Male	Female	Total
2003	3,262	1,397	4,659	53	22	37
2004	3,877	1,706	5,583	61	26	44
2005	4,208	2,051	6,259	65	31	48
2006	4,947	2,410	7,357	74	36	55
2007	5,686	2,788	8,474	83	40	61
2008	5,964	3,118	9,082	84	44	64

FIGURE 8.2 - HE Enrolment, Malawi and Sub-Saharan African Countries, 2005/06



Findings

Total university enrolment constitutes roughly 0.3 percent of students of the eligible age. The data show an increase in enrolment per 100,000 inhabitants, for both male and female students. The number of female students is much lower than the number of male students, however, which indicates a persistent gender disparity.

Malawi's higher education system is still very small compared to those of other countries in the region. Malawi, with an average of 55 students per 100,000 inhabitants for the 2005/06 academic year, has the lowest proportional number of enrolled university students of all the Sub-Saharan African countries for which data was available.

It can be helpful to go beyond the coverage indicator used throughout Volume 1 (number of students per 100,000 inhabitants), for which the global access rate to higher education can be computed.

• Key Definition

Global Access Rate to Higher Education (GAR_{HE}) is the ratio between the number of new entrants in first year of higher education and the population of last grade of secondary official school age.

$$GAR_{HE} = \frac{\text{New entrants in 1st year of HE}}{\text{Population of last grade of secondary official school age}}$$

Box 8.1 below details the approach used to compute this indicator, on the basis of the secondary completion rate, the success rate at the end-of-secondary exam and the transition rate to higher education. Such an indicator is helpful to enable historical and international comparisons, which are possible with most of the indicators used in education sector analysis. Therefore, it can also enable a prospective analysis of the likely pressure on HE services as a result of the evolution of the education enrolment pyramid, specifically at the secondary level.

BOX 8.1 Computation of the Global Access Rate to Higher Education

When the following indicators are easily available, the computation of the global access rate to higher education (GAR_{HE}) can combine:

- The transition rate to higher education (HTR), based on the subgroup of pupils who were successful at the end of secondary exam, and could be admitted:

$$HTR = \frac{\text{Number of new entrants in the 1st year of HE}}{\text{Number of pupils passing the end of secondary exam}}$$

- The success rate at the end-of-secondary/HE entry exam (*SSE*) in turn is based on those students completing the cycle for whom the number of non-repeaters in the last grade is a proxy indicator:

$$SSE = \frac{\text{Number of pupils passing the end of secondary exam}}{\text{Number of non - repeaters in the last grade of secondary}}$$

- The secondary completion rate (*SCR*) is derived from the schooling profiles estimated and presented in Chapter 2, which is effectively:

$$SCR = \frac{\text{Number of non - repeaters in the last grade of secondary}}{\text{Population of last grade of secondary official school age}}$$

Overall, the global access rate to higher education is obtained by the following formula:

$$GAR_{HE} = HTR \times SSE \times SCR = \frac{\text{Number of new entrants in the first grade of HE}}{\text{Population of last grade of secondary official school age}}$$

Extending the preceding items of analysis and considering the parameters of access to higher education, it is helpful to consider students' schooling background, in particular the stream of secondary education followed (general, technical and so on), and determine the degree of rigidity of the transition between the two levels.

EXAMPLE

8.4

Access to University Careers, by Secondary School Subject Specialisation, Malawi, 2008

Source: Authors.

Table 8.3 below presents the distribution of 1st year HE students according to their subject specialisation in secondary education, for a selection of disciplines.

(Percent)	Humanities	Law	Economic Sciences	Sciences	Medicine	Agronomy	Engineering	Business
Math	10	8	25	64	90	70	90	50
Science	10	5	25	35	7	30	10	35
Economics	20	35	30	-	3	-	-	10
Humanities	50	44	10	-	-	-	-	2
Business (Technical)	5	2	7	-	-	-	-	3
Industry (Technical)	5	4	3	1	-	-	-	-
Total	100	100	100	100	100	100	100	100

Analysis

Table 8.3 indicates that any reorientation of flows from schools to universities (or part of the university sub-sector) will first require the expansion of access to the scientific baccalaureates, indispensable for access to institutions with conditional admission, and possibly the creation of new streams more specifically tailored to those sitting non-science baccalaureates. The data also indicates that the technical baccalaureates, although providing an alternative to the pursuit of long university studies, are not providing outcomes in the current higher education panorama, as the graduates from technical baccalaureates usually pursue university studies in the humanities.

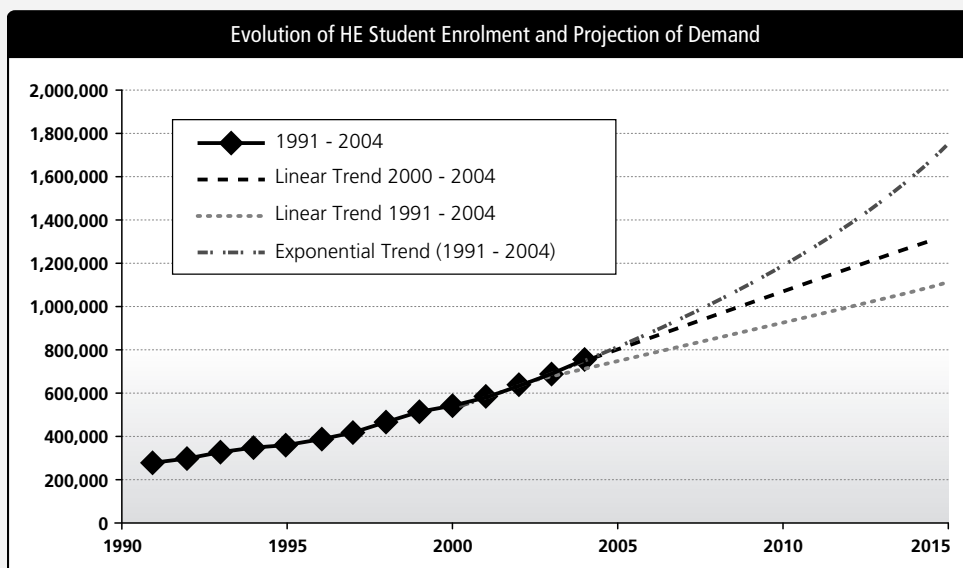
If information on the type of secondary school exam sat by 1st year students in higher education is not directly available from the HLLs, an estimation of the schooling careers of HE students can be performed by utilising the *employment balance* approach (See Chapter 5 and Annex 8.6). This approach involves comparing the distribution of 1st year students by subject-area and/or institution to the same academic year's end-of-secondary exam holders, by subject specialisation.⁴⁵ This overview of the status of higher education could be completed by a simulation of the organic development of the sector (in the absence of reforms), considering the existing dynamics in each stream/career, the evolution of the secondary to HE transition rate and the approaches used for the regulation of student flows to the sub-sector.⁴⁶ Indeed, this will enable the appraisal of natural tendencies to expand, the sustainability of current resource sources (public and private) and the type of services provided. Box 8.2 below highlights the findings of an analysis carried out in this perspective on the data of 18 countries of Francophone Africa.

It is important to note that the above analyses are mostly based on student data available from each of the HLLs, or from HE statistical yearbooks where these exist and are exhaustive. Where no quality control system exists, as is the case in most developing country universities, it is advisable to give any data obtained a critical review. Indeed, enrolment figures are often inflated, as Annex 8.5 illustrates. Finally, this section may focus in greater detail than Volume 1 on the institutions and mechanisms responsible for the steering of the sub-sector (specific HE ministry, chancellor's office, consortium of institutions and so on). Each can be described, as well as the vision of the sub-sector they promote or represent and the tools that illustrate those positions (development plans, for instance).

BOX 8.2

Evolution of Social Demand for Higher Education in Francophone Africa and Analysis of Sustainability, 2007

The figure below highlights the results of a simulation performed on data of 18 countries of Francophone Africa to appraise trends in the increase of HE students and project demand for places, assuming that current policies on the management of student flows to the sub-sector are maintained.



Whatever the assumption used, there is clearly a general expansion of enrolment. Considering the projection carried out on the basis of recent trends (2000-04), Francophone Africa would have close to 1.4 million higher education students in 2015, double the number of 2007. The access rate to HE for an average Francophone African country would jump from 323 students per 100,000 inhabitants to 522 students per 100,000 inhabitants.

For all the scenarios, the natural tendency to expand will be severely constrained by funding, on the basis of current delivery methods and financing. Indeed, under the current delivery approaches (constant unit costs, no particular policy to stimulate further expansion of the private sector, no cost-sharing strategy with the public sector), responding to the social demand for HE will require **a level of recurrent budgetary expenditure equivalent to 1.13 percent of GDP in 2015, on average for the 18 countries considered**. This is considerable compared to the 0.53 percent of GDP spent in 2004, an increase by a factor of 2.2. This level of spending is grossly higher than the resources (0.63 percent of GDP) that could reasonably be mobilised in 2015, if no change in intra-sectoral public budgetary allocations is made. Under these assumptions, **the funding gap in public higher education would be close to 3 billion dollars (PPP of 2004)** for the group of 18 Francophone countries over the 2004-15 period, a considerable amount.

Source: Brossard, Foko, 2007a

SECTION

2

ORGANISATION AND DELIVERY, INTERNAL EFFICIENCY AND EQUITY

The objective of this section is to analyse fairly precisely how the different HE institutions and streams function in relation to students' education careers.

It firstly presents an overview of the learning environment resources available (not least the ratio of teaching staff to students). Secondly it deals briefly with HE governance issues, including the scope for involvement of teachers and pupils in decisions that determine the future of the sub-sector. It then reviews relevant specific measures of internal efficiency and any related issues. Finally, disparities and equity are analysed to better understand who the students are who attend each institution.

2.1

OPERATIONAL MODALITIES AND CHARACTERISTICS OF DIFFERENT INSTITUTIONS AND STREAMS

Beyond their status (public/private) and admission procedures (open/closed sector, selection modes and so on) already considered above, HLLs and HE streams are characterised by specific service delivery approaches that can be viewed from various complementary perspectives:

- The quality of service delivery, considering the available infrastructure and equipment;
- The availability of teaching staff, and the ratio of teaching staff to students;
- The quality of teaching staff, their experience and level of qualifications; and
- Future needs in terms of teaching staff, in terms of both quality and quantity.

2.1.1 PHYSICAL RESOURCES, INFRASTRUCTURE AND EQUIPMENT

Although comfort and the quality of infrastructure and equipment are not usually the first determinant of the quality of training, there are minimum requirements that are often not met by HLIs in developing countries. Enrolment very often exceeds capacity quite dramatically, in both lectures and practicals, including for science courses where individual practice is critical to learning.⁴⁷ It is therefore helpful to produce indicators that enable the comparison of capacities and enrolment, as well as to obtain information on innovative approaches to the management of theoretical and practical learning spaces (longer opening hours, better management of time-tables, use of specific resources and so on).

The description of key equipment provides further information on learning conditions and the risk they may represent for the quality of outcomes. The use of documentary resources is of particular relevance here, and can be analysed along-side the availability of numeric equipment. For some subject areas it will be necessary to consider the availability of specialised areas, rooms and equipment. It is advisable to present the indicators that best enable one to appraise the effective teaching capacities of HLIs, for each institution. Example 8.5 below illustrates this approach.

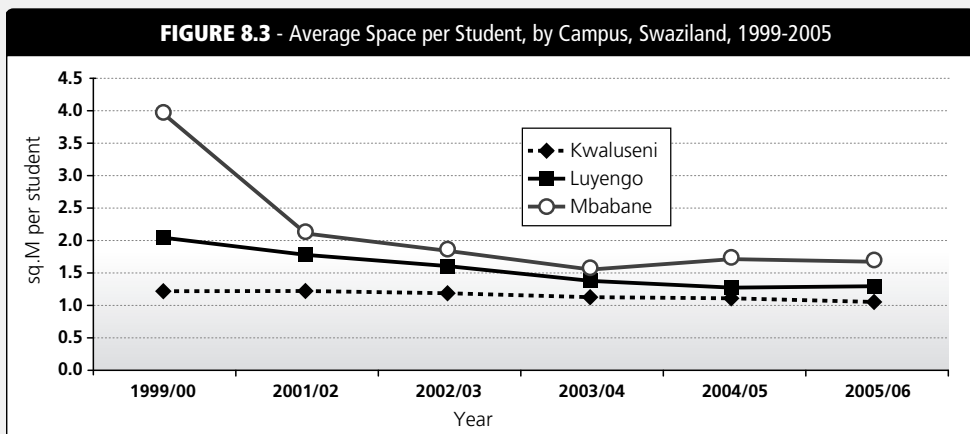
EXAMPLE

8.5

(HE Infrastructure and Equipment): Physical HE Facilities, Swaziland, 2005

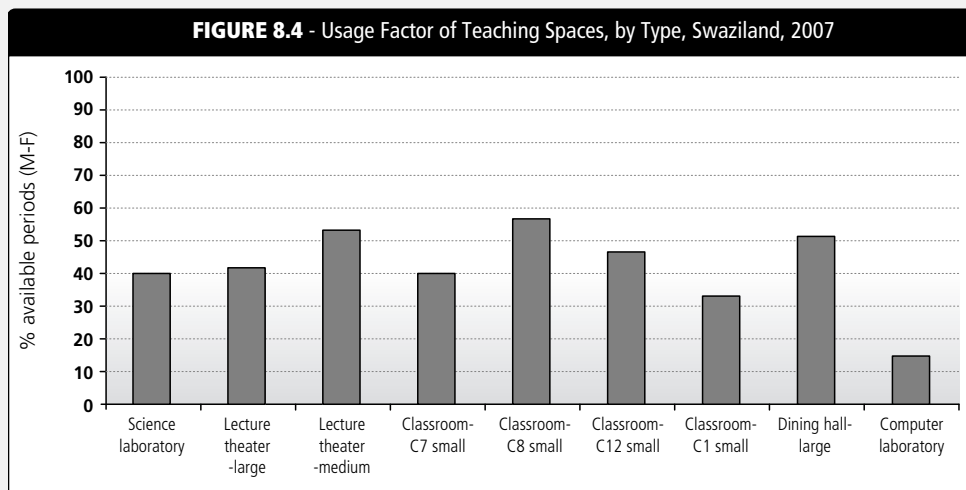
Source: Adapted from the Swaziland CSR, 2009.

Given increases in enrolment and limited capital budgets, there have been concerns about the overcrowding of physical facilities and its potential impact on teaching and learning effectiveness.



Findings

Between 1999 and 2005, the average surface area per student on the three campuses decreased from 1.3 m² to 1.1 m² at Kwaluseni, from 2.0 m² to 1.3 m² at Luyengo, and from 3.9 m² to 1.7 m² at Mbabane (See Figure 8.3). The available space per student at both the Luyengo and Kwaluseni campuses is below the UNESCO recommended norm of 1.5 m² per student. Overcrowding seems particularly acute in the faculties of humanities and social sciences at Kwaluseni. A report in 2006 by the University Physical Planner stated that “the area allocated to the Faculties of Humanities and Social Sciences is inadequate even for one Faculty [Author’s emphasis].” These two faculties had an average of only 0.5 m² per student in 2005.



Note: Excludes Luyengo Campus. The usage factor is defined as the proportion of available class periods per week (Monday to Friday, M-F in the graph) in which the teaching space was actually used for a class. The data refer to the first semester (August-December) of 2007/08. The maximum use possible is assumed to be 60 periods per week.

However, a recent utilisation survey showed a different picture (See Figure 8.4). The numbers do not support a generalised concern with overcrowding. The use of nonteaching spaces (dining halls and common rooms) is notable, but the overall situation does not point to a crisis in teaching spaces. For instance, science laboratories are used only 24 hours per week, primarily because it is traditional to have laboratory classes only in the afternoons. With better planning it may be possible to expand the use of the expensive laboratories and thus allow for an increase in student intake. However, it must be noted that, in addition to the teaching time, 4th year students use science laboratories for individual project work. This may slightly increase the use factor, although not to a level where it could be called efficient. The under-utilisation of computer laboratories for teaching purposes, averaging only nine hours per week, or 15 percent of the available time, is striking, as the mastery of ICTs ought to be compulsory for all university students.

2.1.2 SUPPLY OF TEACHING STAFF

This section deals mainly with teaching staff, although non-teaching staff should also be covered in education sector analysis. The gaps in terms of non-teaching staff can be considerable, so it is important to define the situation of each institution and stream precisely, and to question their relevance to the core business of higher education (student residences and restaurants, libraries and resource centers, laboratories, housing of central administrative services and so on).

Student-Staff Ratio

For teaching staff, the analysis may bear on quantitative, qualitative and prospective dimensions. The analysis of staff issues and availability is generally complicated by the variety and singularity of staff status in higher education, and the multiplicity of forms of personnel management. Depending on the institution or subject-area, all teaching staff may not be permanent and/or full-time and the use of overtime, contract and part-time associate staff is frequent. The approach here should therefore consist in computing a student-staff ratio (SSR), or supervision ratio, on the basis of the number of students per member of teaching or other staff. Example 8.6 presents an example of the student-staff ratios in Malawian universities.

EXAMPLE

8.6

(HE Student-Staff Ratio):

University Supervision Rate, by Faculty, Malawi, 2008

Source: Adapted from the Malawi CSR, 2010.

Table 8.4 below shows the student-staff ratios for both academic and support staff and compares the current ratios to those in 2001.

	Students (a)	Lecturers (b)	Ratio (a)/(b)		Support Staff (c)	Ratio (a)/(c)	
			2008	2001		2008	2001
University of Malawi							
Bunda College of Agriculture	886	145	6	6	219	4	6
Chancellor College	2,446	201	12	8			23
College of Medicine	529	139	4	1	292	2	3
Kamazuz College of Nursing	467	49	10	5	123	4	2
Polytechnic	2,305	214	11	8			18
MZUNI University	1,448	129	11	8	222	7	3
Adventist University	270	14	19		11	25	
Catholic University	363	27	13		70	5	
Livingstonia University	147	14	11		0		
U. Shareworld	221	20	11		28	8	
Mean	-	-	11	6	-	-	9

Findings

There have been marginal improvements in some colleges, but the ratios, averaging 11:1, are well below those of other countries in SSA, which averaged about 20:1 in 2006 (Source: Pôle de Dakar Database). The previous CSR (2004) noted that the student-support staff ratios were very low and contributed to high unit costs. The current data show improvements in the student-staff ratios for Chancellor College, Kamuzu College of Nursing, the Polytechnic and Mzuni University, but not for the Bunda College of Agriculture. Yet the improved ratios are still low, meaning that the institutions still have the capacity to increase enrolments without necessarily increasing their staff. This suggests inefficiencies in how staff are managed and utilised. Better utilisation of staff could go a long way towards reducing the current high unit costs. Improvements at Mzuni University have been made through a freeze in the hiring of support staff and an outsourcing of new noncore areas.

An alternative approach to the estimation of the supply of teaching staff is the computation of the full-time equivalent, considering the respective effective workloads of all teachers (permanent, contract) and overtime for the permanent staff. The positive consequences of the staff supply policy on costs can then be analysed by comparing total teaching staff costs (payroll, overtime, contract staff and so on) to the number of full-time equivalent (FTE) staff.

Full-Time Equivalent Teachers

HLE teaching staff generally include staff of both permanent and contractual status. The numbers of the former can be easily determined, although they may well perform additional duties in overtime. Although it would be possible to determine the number of contract staff, in the absence of defined services that they are paid to provide, the most helpful information for the analysis is the annual number of hours of teaching to be covered. Table 8.5 provides a guide to the type of information that can be gathered.

(Data is illustrative)	Institution 1		
	Number of Staff	Number of Hours of Teaching per Year	Cost
Permanent Staff			
Professors and Lecturers	50	200	120,000/year
Assistant Lecturers and Tutors	120	200	80,000/year
Assistants	230	250	40,000/year
Others (Associates, Guests etc.)	40	250	35,000/year
Sub-Total (Average)	440	(AWH=230.7)	(59,545/year)
Overtime Paid	(Total)	16,500	100/hour
Contract Staff			
Number	120	—	—
Workload	(Total)	4,800	200/hour

Table 8.5 can be adapted to national particularities, considering the different grades of seniority for permanent staff, for instance. The annual workload indicated in the third column is for a full-time member of teaching staff. If there is part-time staff or staff of any other status they should be added in further lines to the table. The volume of overtime performed by permanent staff may be difficult to extract from personnel spending files. If necessary, an estimate may be made of the average number of hours of overtime performed by each lecturer through a quick poll.

Full-time equivalent (FTE) evaluations of teaching workloads are helpful to incorporate overtime into the teaching staff supply indicator, as well as the workload of contract staff. Firstly a referential annual service time must be determined for full-time permanent staff (Average Workload Hours or AWH). This may be the average of the service hours of each of the permanent staff (PS) members (not including overtime). On the basis that PS work full-time, the total number of FTE lecturers would then be defined by:

$$FTE = \text{Number of PS} + \frac{\text{Number of Overtime Hours/Years}}{AWH} + \frac{\text{Number of Contract Hours/Years}}{AWH}$$

On the basis of the earlier data, this fictitious institution has 440 permanent full-time teaching staff that each provide 230.7 hours of service, on average. The volume of overtime hours paid to PS over the year is equivalent to a further 71.5 FTE lecturer positions (16,500 / 230.7). The 4,800 hours of contract service provided, on the same basis, represent a further 20.8 FTE lecturer positions ((4,800 / 230.7).

TABLE 8.6 - Full-Time Equivalent Computation of All Teaching Staff-Model Table, Malawi, 2008				
(Data is illustrative)	Number of Staff (a)	Annual Workload (b)	Annual FTE Workload	
			Per Staff Member (c=b/230.7)	Total (d=c x a)
Permanent Staff				
Professors and Lecturers	50	200	0.87	43.3
Assistant Lecturers and Tutors	120	200	0.87	104.0
Assistants	230	250	1.08	249.3
Others (Associates, Guests etc.)	40	250	1.08	43.3
Sub-Total (Average)	440	(AWH=230.7)	(1.0)	440 (e)
Overtime Paid	(Total)	16,500 hours	—	71.7(f=16,500/230.7)
Contract Staff				
Number	120	—	—	—
Workload	(Total)	4,800 hours	—	20.8 (g=4,800/230.7)
Total	—	—	—	532.3

Overall, the illustrative institution would therefore require 532.3 full-time equivalent members of teaching staff, accounting for overtime and contract staff. The data collected can also enable one to determine the financial benefit to a HLI of their human resource policies. Table 8.7 below follows through the theoretical approach and selected figures used in Tables 8.5 and 8.6 above. Overtime paid throughout the year, equivalent in workload to 71.5 full-time positions, only costs the equivalent of 27.7 ($=16,500 \times 100 / 59,545$). In this particular illustrative example, this represents a saving of 2.61 million [$=(71.5 - 27.7) \times 59,545$]. Similarly, contractual staff work the equivalent of 20.8 full-time positions, but are paid the equivalent of 16.1 ($=4,800 \times 200 / 59,545$), a further illustrative saving of 279,015 [$=(20.8-16.1) \times 59,545$].

TABLE 8.7 - Comparative Costs of Full-Time Permanent Positions, Overtime and Contract Staff-Model Table, Malawi, 2008

	Number of Hours (a)	Hourly Rate (b)	Total cost (Millions) (c=a x b)	FTE Positions (d)	Permanent Staff Annual Unit Cost (e)	FTE Cost (Millions)* (f=d x e)	Savings (millions) (g=f-c)
Overtime	16,500	100	1.65	71.5	59,545	4.26	2.61
Contract Staff	4,800	200	0.96	20.8	59,545	1.24	0.28
Total	21,300	—	2.61	92.3	—	5.50	2.89

Note: * This is the hypothetical cost if the workload covered by overtime and contractual staff had been assumed by additional permanent full-time staff.

2.1.3 QUALITY OF TEACHING STAFF

The quality of teaching can be appraised by the effective hours of teaching a student receives, according to its type (lectures, practicals, tutorials and so on). Although no doubt more complex, it can also be evaluated through the academic characteristics of the teaching staff, clearly differentiating between status types, particularly between those qualified for lecturer positions (thesis holders) and those committed to research.

Teaching staff's academic and professional qualifications should indeed be considered in addition to issues of staff supply. The required research experience suggests that professors, lecturers and recognised and qualified vocational training staff are in short supply. This represents a challenge for the supervision of more junior staff (tutors, assistants, associates and so on). In Africa today this pyramid is sometimes very imbalanced, with a very strong base of relatively lowly qualified staff, as illustrated in Example 8.7.

**(Staffing of HE - Quality):
Profiles of Academic Staff, Malawi, 2008**

Source: Adapted from the Malawi CSR, 2010.

Table 8.8 shows the staffing of the different faculties of the University of Malawi and of key private universities, by status. Table 8.9 shows the qualifications of the staff in public institutions for which such data was provided.

Findings

Public universities face difficulties in securing adequately qualified staff at both undergraduate and postgraduate levels. The data show that public institutions use staff associates and assistant lecturers to meet staffing requirements. The percentage of such staff ranges from 13.8 percent at the Bunda College of Agriculture to 38.3 percent at the Polytechnic. The Kamuzu College of Nursing and the College of Medicine have staff associates and assistant lecturers as close to 25 percent of their total staff. Given that nursing and medicine are very specialised areas, the use of under-qualified staff in these institutions should be a matter of concern. One third of the staff at Mzuni University are associates. The number of professors ranges from 0 percent at the College of Nursing to 8.3 percent at the Bunda College of Agriculture. Mzuni University has only two professors in its total staff of 129.

(Number)	Professor	Associate Professor	Senior Lecturer	Lecturer	Assistant Lecturer	Staff Associate	Instructor	Total	% of Staff Associates and Assistant Lecturers	% of Professors
Malawi U.										
Bunda College	12	10	24	79	-	20	-	145	13.8 %	8.3 %
Chancellor College	12	10	24	119	30	6	-	201	17.9 %	6.0 %
College of Medicine	6	8	25	62	38	-	-	139	27.3 %	4.3 %
Kamuzu College	0	1	11	25	-	12	-	49	24.5 %	0.0 %
Polytechnic	1	2	33	94	39	43	2	214	38.3 %	0.5 %
Mzuni U.	2	6	24	54	8	35	-	129	33.3 %	1.6 %
Adventist U.	-	-	-	-	-	-	-	14	-	-
Catholic U.	2	0	9	8	2	6	-	27	29.6 %	7.4 %
Livingstonia U.	-	-	-	-	-	-	-	14	-	-
Shareworld U.	1	1	7	10	-	1	-	20	-	-

The data of Table 8.9 emphasises the lack of staff with senior qualifications in public institutions. Of particular note is the percentage of staff with PhDs at the Polytechnic (5.6 percent) and Mzuni University (11.6 percent). The low percentages of staff with PhD qualifications and professors reduce the capacity of these institutions to support postgraduate programmes and conduct research, especially in areas associated with economic growth, such as mathematics and engineering. A key action in relation to increasing enrolments at the university level is recruiting and training more adequate staff to 50 percent of current levels, with 70 percent at master's

level and 30 percent at PhD level. This would imply a total elimination of assistant lecturers and staff associates, who comprise roughly 25.9 percent of current teaching staff in public universities. It will also require substantial resources, both in terms of upgrading staff qualifications and in remuneration for the additional and more highly qualified staff. Given the government's intention to reduce the percentage of the allocation to higher education over time, it is difficult to see how this can be attained unless other sources of financing for higher education are mobilised.

TABLE 8.9 - Distribution of Personnel in Public Universities and Faculties, by Qualification, Malawi, 2008

(Number)	PhD	Master's	Bachelor's	Diploma	Total	% with a PhD	% with a Master's
University of Malawi							
Bunda College	47	81	16		144	32.6 %	56.3 %
Chancellor College	59	125	53	1	238	24.8 %	52.5 %
Polytechnic	12	101	89	14	216	5.6 %	46.8 %
Mzuni University	15	69	45		129	11.6 %	53.5 %
Total	133	376	203	15	727	18.3 %	51.7 %

In all these analyses, it will be appropriate to keep in mind that the use of non-permanent staff may have implications for quality (they may not have the same skills and respect the same academic standards as permanent staff) as well as cost. If temporary staff have been invited from other institutions or businesses, their use may be a sign of good human resource management on the other hand, aiming to offer students perspectives and approaches that are at the heart of their future occupations.⁴⁸ Inasmuch as information must be collected to measure the different dimensions of staffing (such as payroll and numbers) and direct contact established, it may be worthwhile to organise an appointment with the human resource and recruitment officers to clarify the situation (active management or, on the contrary, total passivity).⁴⁹

It is also noteworthy that for all the analyses and indicators used above there are no references or benchmarks that enable one to appraise their relative value or their real contribution to the quality of training. There will, of course, be extreme situations, as in the earlier examples of infrastructure and equipment, where the overall appraisal (be it negative or positive) will be unarguable in terms of staff ratios or their academic and scientific qualifications. One potential approach would be to use international benchmarks, as higher education tends to share the same definition and characteristics world-wide.

2.1.4 PROJECTION OF FUTURE TEACHING STAFF NEEDS

The qualification issues analysed above should be reviewed in the light of the age pyramid of teaching staff, to consider the student-staff ratio not only in terms of current stock, but in terms of future supply. Today, a good number of developing countries' most qualified staff members are quite old and management has not always been able to plan their replacement in sufficient numbers.

Given the expected growth in HE student enrolment, student-staff ratios should especially be considered from a prospective angle. This analysis should anticipate future causes of staff attrition in the light of the age pyramid of teaching staff and the qualifications of existing lecturers, to estimate the future expected staff needs on the basis of student numbers.⁵⁰ These needs should then be compared to the pool of potential candidates.⁵¹ After having determined the potential growth of student numbers on the basis of projections for the earlier education cycles, it will be straightforward to estimate the number of teaching staff required on the basis of the chosen student-staff ratios (either the past ratio, or one based on comparable countries or international experience).

The consideration of the age pyramid of teaching staff in this dynamic exercise enables one to know if the supervision structure can be easily implemented. Is the number of young teaching staff of required rank sufficient? Is it likely to grow to a satisfactory level in the short term? Or are the existing staff close to retirement age and in likely need of imminent replacement? If this latter case applies, the implementation of an active recruitment policy for high-level teaching staff should be recommended and financial provisions made accordingly: scholarships, support to compile the required documentation, subsidies for the placement of national lecturers in foreign universities and so on.

The prospective analysis should consider how attractive the profession is, particularly in terms of salary, compared to other occupations available for individuals with similar skill levels, both at home and abroad. The international mobility of the most qualified individuals within zones that share the same language represents a risk (brain drain) to the long-term investments required to train adequate candidates, and justifies having specific policies to avoid it.

2.2 GOVERNANCE

This section on HE governance deals specifically with the representation of personnel and students' interests in the strategic decisions that affect the administrative and pedagogical functioning of their institution.

Governance arrangements of the institutions and streams of higher education are an important element in the description of their operations and a possible explanation of differences in their administrative and pedagogical performance, as well as in terms of internal and external efficiency. The description should examine the characteristics of management staff (profiles, appointment mechanisms, type and source of remuneration), but also those of the instances that support or control the activities of the institution's director or board of directors. In this process, and within these instances, the representation and role of staff and students can be a distinctive feature that it is helpful to document, especially when reviewing future organisational options. This question is also of importance in the next section on the quality of education, especially in terms of students' capacity to appraise the quality of the teaching received.

The approach to adopt is to present in summary form the key bodies in charge of the various aspects of HLI operations (university life, management and administration, scientific activities and so on), indicating how staff and students are represented in each. Again, beyond the formal presentation of these bodies, it will be helpful to collect more qualitative information on the effective activities of these instances from those responsible for them, as well as on their effective power to affect the strategic direction of institutions and course content.

In terms of the future development of HLIs and courses, it will be helpful to detail which bodies are responsible for the medium-to long-term strategic vision of the institution, and appraise the extent of the articulation of this vision with national HE policies. The degree of autonomy of each HLI with respect to the national authorities responsible for human, financial, academic and scientific resources should also be explained.

The approaches to the evaluation of course content by students should be exposed, as well as the impact of these evaluations on the management of teaching staff. An example of semi-structured interview points for the key players is presented in Annex 8.1 of this chapter.

2.3

INTERNAL EFFICIENCY OF INSTITUTIONS AND STREAMS

This section aims not only to retrace the schooling careers of students throughout higher education, but also to analyse these careers (access, retention, graduation) in terms of efficiency. What type of issues do the average schooling careers of students raise, and do they vary by type of institution or subject area?

2.3.1 NUMBER OF STUDENT-YEARS REQUIRED TO PRODUCE A GRADUATE

To retrace the schooling careers of students, the techniques to use are those presented in Chapter 2 on enrolment, particularly those estimating retention profiles and reconstructing cohorts on the basis of student numbers. Example 8.8 below uses a selection of indicators that can be highlighted in the course of the analysis of students' careers in a given stream of higher education.

EXAMPLE

8.8

Analysis of the Schooling Careers of Undergraduate Economics Students, Fictional Country

Source: Authors.

This example illustrates the typical progression of a group of economics graduate students through the stages of the course.

(Number)	Year 1	Year 2	Year 3	Graduates
2002/03 Enrolment (Including repeaters from 01/02)	55,000 (14,700)	33,000 (7,900)	25,000 (8,500)	14,000
2003/04 Enrolment (Including repeaters from 02/03)	56,500 (15,200)	34,000 (9,300)	26,000 (8,700)	14,300
2004/05 Enrolment (Including repeaters from 03/04)	58,000 (15,800)	35,000 (9,700)	27,000 (8,900)	15,000
2005/06 Enrolment (Including repeaters from 04/05)	59,600 (16,500)	36,000 (10,100)	28,000 (9,100)	15,200

The pass rate from one year to the next and the longitudinal retention profile (that describes the progression of students through the course – pass, dropout or graduation) are calculated on the basis of the methodology presented in Chapter 2 and displayed in Table 8.11.

Findings

The results illustrate the average progression of students through this course. Only 38 students of every 100 enrolled in the first year obtain the degree. The first year is particularly selective, given that almost 40 percent either repeat or dropout. Only 61 $[(34,000 - 9,300) / (55,000 - 14,700)]$ percent access Year 2.

On the basis of the data computed above, the proportion of repeaters is calculated in Table 8.12.

TABLE 8.11 - Promotion Rate and Longitudinal Retention Profile of Undergraduate Economics Students

(Percent)	2002/03	2003/04	2004/05	2004/05
	Year 1	Year 2	Year 3	Graduates
Effective Promotion Rate	-	62.1	74.5	84.9
Retention Profile	100.0	61.3	44.9	37.7

TABLE 8.12 - Proportion of Repeaters among Undergraduate Economics Students, by Year, Fictional Country

	2002/03	2003/04	2004/05	2004/05
	Year 1	Year 2	Year 3	Graduates
Enrolment	55,000	34,000	27,000	15,000
Repeaters	14,700	9,300	8,900	-
Share of Repeaters	26.7	27.4	33.0	-

Finally, knowing the share of repeaters in each level, it is possible to compute the number of student-years spent on the education of a cohort and compare that with the number of graduates. This computation is the direct application of the methodology to measure internal efficiency presented in Chapter 2.

TABLE 8.13 - Estimation of the Total Number of Student-Years Spent on the Education of a Cohort of Undergraduate Economics Students, Fictional Country

	2002/03	2003/04	2004/05	2004/05
	Year 1	Year 2	Year 3	Graduates
Retention Rate (%)	100.0	61.3	44.9	37.7
Share of Repeaters (%)	26.7	27.4	33.0	—
Number of Student-Years	$100 / (1-26.7\%) = 136$	$61.3 / (1-27.4\%) = 84$	$44.9 / (1-33.0\%) = 67$	38

Analysis

Thus, taking both repetition and dropout into account, the HE system will have dedicated a total of $136 + 84 + 67 = 287$ student-years to the education of 38 graduates, to be compared to an ideal number of 113 ($= 37.7 \times 3$) theoretically required.

2.3.2 INTERNAL EFFICIENCY COEFFICIENT

Data retracing the average schooling careers of students enable the evaluation of the internal efficiency of different courses, the analysis of the causes and the proposal of corrective measures. HE internal efficiency is rarely dealt with in analysis beyond considerations in terms of financial and pedagogical management. However analysis of HE internal efficiency can also potentially reveal reductions in student motivation due to decreasing prospects of finding employment after graduation (external efficiency issue). The detailed observation of HLI and course internal efficiency provides numerous elements that will help to define the basis of future reforms. The internal efficiency coefficient (IEC) synthesises the loss of student-years (and of resources, given that student-years have been financed by the system, either publicly or privately) resulting from repetition and drop-out, by comparing the effective number used to the theoretical number required.⁵² Example 8.9 illustrates the computation of the IEC for the cohort of undergraduate economics students examined in Example 8.8 above.

(Internal Efficiency in HE – Internal Efficiency Coefficient): Computation of the Internal Efficiency Coefficient for Undergraduate Economics Students, Fictional Country *Source: Authors.*

The computation of the IEC in this example draws on the data presented and the computations of Example 8.8 above. With 287 student-years SY having been dedicated to the education of the cohort instead of the 113 theoretically required years TRSY (3 years x 37.7 graduates), the IEC for this course is:

$$IEC = \frac{TRSY}{SY} = \frac{113}{287} = 39\%$$

The partial dropout-related IECs require repeating the estimation of the total number of student-years performed in Table 8.13, without considering repetition. Thus SY_{NR} would be equivalent to 206 (100 + 61.3 + 44.9). The dropout-related IEC (considering no repetition) is then:

$$IEC_{Dropout} = \frac{TRSY}{SY_{NR}} = \frac{113}{206} = 55\%$$

And finally the repetition-related IEC (considering no dropout) is:

$$IEC_{Repetition} = \frac{SY_{NR}}{SY} = \frac{206}{287} = 72\%$$

Analysis

The dropout-related IEC indicates that the theoretical number of years is only 55 percent of those effectively used (excluding repetition), meaning that dropout accounts for the remaining 45 percent. The repetition-related IEC on the other hand indicates that 28 percent of the student years effectively used are spent on repetition. As a result, in the case of this course, it will be necessary to spend almost three times the theoretical cost of the course (with an IEC of just 39 percent), to produce a graduate.

The IEC values, as well as the indicators used in their computation (repetition and promotion rates for retention profiles, plus the dropout rate for reconstituted cohorts), when compared with those of other courses or the same course in a different institution, may point to the debate on the relevance of the course organisation and content, and the financial implications.

On the one hand, there is the common opposition between the pre-selection or open selection of students for HE courses. By selecting students on the basis of prior knowledge related to the course content and considering the risk of failure in examinations, some efficiency may be gained by avoiding dropout or repetition due to unsuitable subject choices by students, or their not having the required academic level. If no selective admission of students takes place, analysing the causes of individual failure, especially when it results in such low internal efficiency as in the example above, is necessary. This will firstly require the analysis of which disciplines and types of delivery are related to student failure, and assess whether they are relevant to the content of the course. For instance, if economists do not graduate because they fail math, the math course content should be validated as

appropriate, and selection procedures reviewed. If it is confirmed that economists require the level of math expected of them in the exam, teaching should be reinforced in this subject to reduce the exam failure rate in the course of secondary school, and/or candidates with insufficient mastery of the subject should not be encouraged to apply.

2.3.3 FINANCIAL CONSIDERATIONS

Financial considerations are helpful to take into account when evaluating alternative HLI admissions policies (open, or selective admission).⁵³ In addition to the pedagogical considerations dealt with above, it is helpful to directly compare the cost of producing a graduate that takes both internal efficiency (which is probably better with the selective admission of students) and unit costs (lower where admissions are open because of high student numbers) into account. For instance, engineering faculties, which usually have comparatively high unit costs, may show a comparatively low cost of producing a graduate (even compared to faculties with lower unit costs), thanks to a better internal efficiency.

EXAMPLE

8.10

(Internal Efficiency in HE - Cost of Producing a Graduate): Cost-Efficiency of HE, by Faculty, Fictional Country

Source: Authors.

Table 8.14 presents information on the internal efficiency of different faculties and unit costs, to compute the effective cost per graduate of the courses offered.

	Unit Cost	IEC	1/IEC	Cost of a graduate (UC/IEC)
Humanities	600,000	0.21	4.76	2,856,000
Law	530,000	0.35	2.86	1,515,800
Sciences	740,000	0.37	2.70	1,998,000
Agronomy	2,300,000	0.76	1.32	3,036,000
Engineering	1,700,000	0.90	1.11	1,887,000

The inverse of the IEC (1/IEC) is the factor by which the theoretical number of years required to produce a graduate must be multiplied. The total cost per graduate is therefore the product of unit costs, the inverse of IEC and the theoretical duration of each course.

Findings

The hierarchy of courses established on the basis of the annual unit cost is almost inverted when considering the effective cost per graduate. Indeed, the faculties with the lowest unit costs are also those with the weakest internal efficiency (the Faculty of Humanities, in particular).

The analysis of internal efficiency does not only provide information on the delivery modes of each course, but also, in complement, on the behaviours of students. Economic theories of education do not condone letting demand for HE regulate itself, especially when the cost is largely supported by society.

Indeed, when faced with highly reduced expectations of their employment prospects, students adopt behaviour that is individually rational but collectively inappropriate, which involves a reduction of the time effectively devoted to their education. This is manifest in the degradation over time of the internal efficiency of courses, which then becomes a warning signal of a significant reduction in levels of student motivation.

2.4 EQUITY IN ACCESS TO HIGHER EDUCATION

The data of the previous sections on the schooling careers of students can also serve to better understand the equity dimension (Who attends which institution? How do study careers vary by socioeconomic characteristic?) Ideally, where data is available, the characteristics of the student population would be determined for each institution or course (nationality, gender, social status and so on), both in terms of its evolution and current situation.

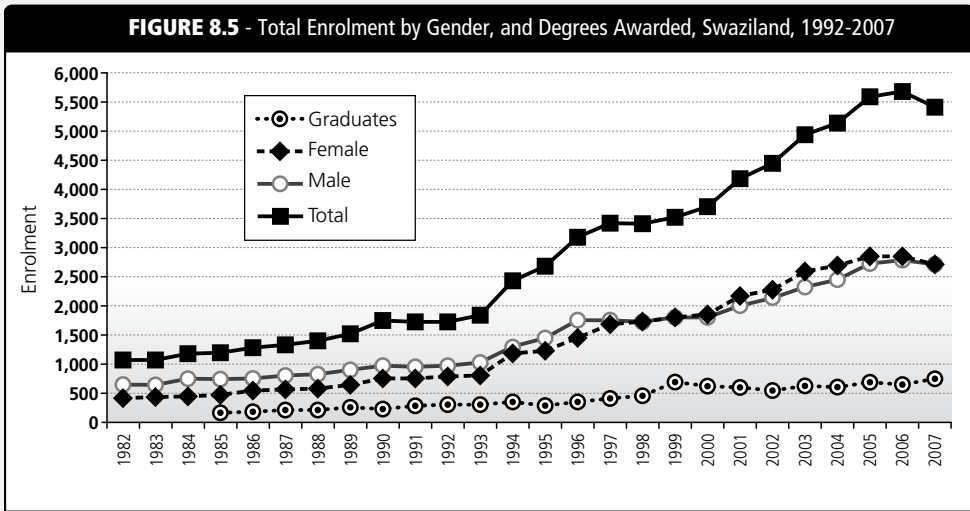
2.4.1 GENDER EQUITY

The analysis by gender should disaggregate the key access indicators for girls and boys. This involves the computation of the number of students per 100,000 inhabitants, and the share of them that are of each gender. This can also enable the comparison of the global access rate to higher education GAR_{HE} and its components for each (the secondary completion rate, the end-of-secondary exam success rate and the promotion rate to higher education).

After having retraced the evolution of the respective proportions of boys and girls in student enrolment over the past 10 to 15 years, the analysis may differentiate between numbers for each gender for each of the HLIs or courses for a recent year, as in Example 8.11.

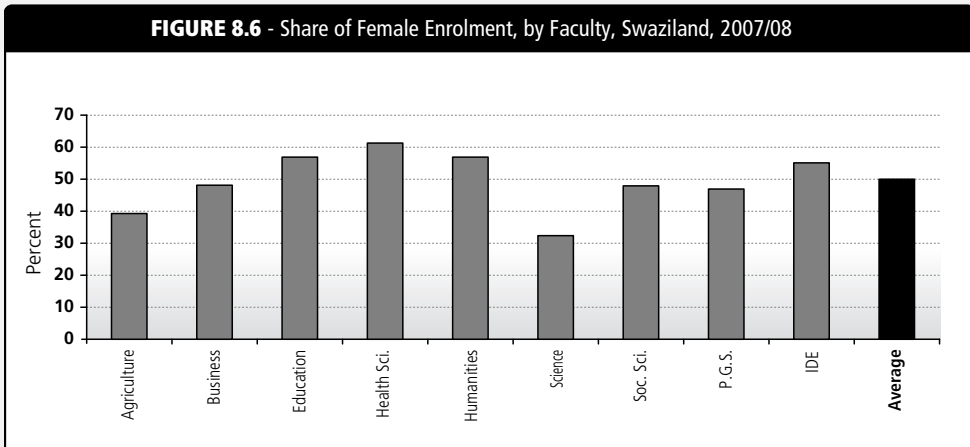
**(Equity in HE - Gender):
Gender Equity in HE Enrolment, Swaziland, 1992-2007**

Source: Adapted from the Swaziland CSR, 2009.



Findings

Gender parity has been attained in overall access. The gender gap that persisted through the first decade considered here closed in the late 1990s, resurfaced in the early millennium, but seems to have closed again by 2007 (See Figure 8.5). However, women are substantially underrepresented in the faculties of science, agriculture and business, and in postgraduate studies (See Figure 8.6).



Women are overrepresented in humanities and education. Their dominance in fields with low employment opportunities—humanities particularly—risks perpetuating the gender-related inequities in earnings. It also endangers the achievement of the gender equity goal of the poverty reduction plan, while denying households the widely documented benefits of women’s economic power. On the positive side, women dominate the domain of health, where regional and global demand is currently high, which may compensate for their absence in other scarce skills fields. However, these are still areas of lower earnings than other science-based specialisations.

2.4.2 SOCIAL DISPARITIES

Information on the social background of students is not as easily available as that on gender. To analyse this characteristic's impact on the access of students to HE, when the data is available, the proportion of students with a given characteristic may be compared to the share of the global population with that same feature (See Example 8.12).

EXAMPLE

8.12

Social Background of HE Students, by Parents' Occupation, Central African Republic (CAR), 2003

Source: Adapted from the CAR CSR, 2007.

Table 8.15 shows the distribution of CAR higher education students according to the social background of their parents, as determined by their occupation in this instance.

TABLE 8.15 - Distribution of HE Students, by Head of Household's Occupation, Central African Republic, 2003

(Percent)	Numbers	Share of Total	Share of Known Responses	Share of Active Pop.
Senior Professional	3,072	33.5	45.0	1.7
Mid-Level Professional	1,218	13.3	18.0	7.2
Administrative Employees	535	5.8	8.0	0.6
Qualified Workmen	440	4.8	6.0	3.1
Unqualified Workmen	77	0.8	1.0	3.4
Qualified Service Staff	455	5.0	7.0	1.4
Unqualified Service Staff	380	4.1	6.0	10.4
Farmers	693	7.6	10.0	72.3
Unknown	2,308	25.1	-	-
Total of Known Response	6,870	-	100.0	100.0
Overall Total	9,178	100.0	-	-

Findings

The table indicates that a third of students declare that their main working parent is a senior white-collar professional, whereas this category of workers represents less than two percent of the active population. Despite some reservations with respect to potential bias in the answers (frequency of responses, sincerity of responses, differences between the social status of the biological parents and the head of household), it appears that youth from the most advantaged households are largely over-represented in higher education, at the expense of children from other categories.

In countries where this information is not available, or pending it being collected more systematically, it may be necessary to compare less precise categories, like income quintiles, or students with a parent working in the modern sector against all the rest, as per Example 8.13 below. The analysis can be extended to compare courses and institutions, by comparing the most open courses (humanities, law) with the more closed ones (engineering and business schools, agronomy) where almost all students are from households where the head is employed in the modern sector of the economy.

Social Background of HE Students, by Parents' Sector of Employment, Fictional Country

Source: Authors.

Table 8.16 below provides the distribution of higher education students by type of institution and course, according to whether the head of household works in the modern sector of the economy or not.

TABLE 8.16 - Distribution of HE Students, by Institution/Course and Employment Sector of Head of Household, Fictional Country

(Percent)	University						Schools of		Total number of students	Reference: Active Population
	Humanities	Law	Economics	Science	Medicine	Agronomy	Engineering	Commerce		
Modern Sector	65	68	75	77	92	96	97	91	75	20
Other	35	32	25	23	8	4	3	9	25	80
Total	100	100	100	100	100	100	100	100	100	100

Findings

The comparison of the share of students whose head of household works in the modern sector (75 percent overall) and of the share of modern sector workers in the active population (20 percent) provides evidence that access to HE is more frequent among students from more advantaged households.⁵⁴

SECTION

3

COST AND FINANCING

The relative importance of the financing of HE (overall and by source) is examined in Chapter 3. The objective of this section is to: (i) breakdown the cost of study for each of the institutions or courses, using approaches already used for other education levels; (ii) to highlight and compare the key cost factors; and more generally (iii) reflect on the equity and efficiency dimensions of HE financing. Most of the computations presented in this section are based on the elements presented in Chapter 3.

3.1 INSTITUTIONAL BUDGETS

The first stage of this analysis on the cost and financing of HE by HLI and course consists of analysing the budgets effectively executed by different institutions. It will be helpful to obtain the budget directly from university chancellors to use effective spending in the analysis (rather than planned expenditure) and especially to consider the full array of the institution's resources. Generally speaking, income should be disaggregated into public subsidies, own resources (enrolment fees, income from services to students, income from the sale of research and expertise services and so on), loans and development, and aid projects.

The work of recomposing a budget, presented in Chapter 3, is particularly important inasmuch as it constitutes the basis of analytic differentiation between teaching expenditure, non-teaching salary spending, social spending (restaurants, accommodation, medical care and so on) and other recurrent operational and maintenance spending.⁵⁵ Investment expenditure (buildings, heavy equipment) will be broken down and their cost annualised according to their expected life-cycle.⁵⁶

As always in the education sector, but more so here considering the greater complexity and diversity of HE, particular care must be taken in the consolidation and allocation of teacher spending (See the methods offered in Chapter 3). The computation of total salary spending and of average salary spending per student does not present any particular difficulties, beyond gaining access to the relevant data (exhaustive executed budgetary data). Total teacher spending is the sum of all the forms of teaching activity remuneration (salary spending for permanent staff, overtime if separate, remuneration of nonpermanent and contract staff and so on). The average teacher spending per student is obtained by dividing this total amount by the number of students enrolled. The interpretation of average teacher unit costs will not be quite as straightforward, given that they encompass both permanent

and full-time equivalent staff on the one hand, and the average salaries of each on the other, which can vary considerably from one institution to another.

EXAMPLE

8.14

(Analysis of HLI Budgets):**Estimation of Universities' Income and Expenditure, Malawi, 2003/04-2006/07**

Source: Adapted from the Malawi CSR, 2010.

(Percent)	2004/05			2005/06			2006/07			2007/08		
	Sub.	Fees	Other	Sub.	Fees	Other	Sub.	Fees	Other	Sub.	Fees	Other
Bunda College	90	5	5	83	6	11	81	7	12	88	7	5
Chancellor College	85	6	9	90	4	6	89	3	8	86	10	4
College of Medicine	94	4	3	88	3	9	70	27	3	50	29	21
Kamuzu College	82	6	12	84	11	5	81	13	6	87	9	4
Polytechnic	76	22	2	89	9	2	84	12	5	80	14	6
(Administration)	89	-	11	89	-	11	91	-	9	94	-	6

Findings

Table 8.17 shows that for most faculties, government subsidies represent over 80 percent of income, except for the College of Medicine, where they were only 50 percent of total income in 2007/08. This emphasises the extent to which public institutions are highly dependent on government financing. Table 8.17 also shows that fees make up a very low percentage of HLLs' total income. The percentages have also varied by institution and by year. On average, the Polytechnic and the College of Medicine have averages in excess of 10 percent, whereas the averages for the remainder are below 10 percent (the lowest being Chancellor College which has averaged 6 percent).

Expenditure trends Table 8.18 shows the percentage of selected categories of expenditure for the University of Malawi, Mzuni University, Livingstonia University and Catholic University respectively. The data shows differences in their expenditure patterns, which could be attributed to differences in management structures, practices, programmes offered and the age of the institutions. The analysis shows that for the four institutions, staff emoluments and benefits consumed the largest share of expenditure. While the percentages for these categories fluctuated over the period, they were at their highest in 2006/07 for the public institutions. The University of Malawi has a higher percentage of its expenditure in this category than Mzuni University.

For Mzuni University, the second highest expenditure item was student provisions/allowances, which decreased from 17 percent in 2003/04 to 9 percent in 2006/07 with increased enrolments. This is substantial for an expenditure that is not considered core university business. Public institutions are hoping to reduce this category through outsourcing (expected to start in 2009). For the University of Malawi, except for the Bunda College of Agriculture, the second largest expenditure category was common services, which includes general administration.

TABLE 8.18 - Distribution of University Spending, by Category and Institution, Malawi, 2003/04-2006/07

(Percent)	University of Malawi				Mzuni University				Catholic			Livingstonia			
	2003/04	2004/05	2005/06	2006/07	2003/04	2004/05	2005/06	2006/07	2006/07	2007/08	2008/09	2003/04	2004/05	2005/06	2006/07
Emoluments and Benefits	59.9	54.4	53.6	60.0	39.8	46.2	43.6	50.6	45.7	58.8	74.4	12.9	36.9	35.3	34.7
Utilities	4.9	5.8	5.4	4.7	8.1	6.9	3.2	4.8	7.0	7.7	5.6	1.4	3.6	2.4	2.6
Student Provision-Allowances	6.3	8.6	7.2	7.1	17.4	13.6	10.3	9.0	17.2	11.5	0.9	34.2	29.4	24.2	23.2
Teachings Materials-Equipment	0.5	0.7	0.4	1.0	1.7	3.7	8.5	8.8	0.7	1.1	1.5	3.4	4.3	3.7	8.6
Books and Periodicals	0.0	0.9	0.2	0.2	3.6	1.8	1.4	1.4	0.7	0.9	0.8	3.1	0.0	0.1	0.0
Travel Subsistence	1.2	1.6	1.6	1.0	4.0	8.2	6.8	9.2	0.2	0.0	2.3	3.2	0.8	2.9	1.6
Vehicle Maintenance	3.7	3.8	3.6	2.5	4.1	4.4	0.0	0.0	2.0	1.9	3.1	8.5	10.9	7.9	15.1
Repair of infrastructure and Equipment	3.6	2.4	2.7	2.1	2.7	2.9	0.0	0.0	4.4	0.0	2.1	16.6	0.2	1.9	3.6
Lease Financing and Assets	1.1	5.2	6.1	2.0	9.8	0.4	15.7	9.7	5.0	0.0	2.1	0.0	0.0	0.0	0.0
Cleaning and Sanitation Materials	0.4	1.0	1.2	0.4	0.2	0.0	1.1	1.3	0.4	0.5	0.3	7.6	2.8	3.2	2.7
Training and Staff Development	1.4	1.5	1.8	1.3	0.8	1.7	3.4	2.0	0.0	0.0	0.2	0.0	0.0	2.5	0.0
Research, Publications and Conferences	0.2	0.3	0.4	0.4	0.6	0.8	0.7	0.8	0.2	0.1	0.1	0.0	3.3	1.0	0.7
Common Services (General Administration)	13.3	10.2	13.8	14.4	6.0	7.3	1.5	2.0	14.9	11.0	3.1	9.3	7.8	12.5	5.5
Other	3.4	3.5	2.1	3.1	3.0	2.1	3.7	0.4	1.5	6.5	3.5	0.0	0.0	2.2	1.9
TOTAL	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

The University of Malawi's student provisions/allowances fell into third place. The costs captured in the data do not include all the additional administrative costs incurred by the central office. If this was taken into account, the percentage for general administration would be higher. Provision of common services was the third highest expenditure for Mzuni University, but has decreased over time. Lease financing and the purchase of assets was Mzuni University's fourth largest expenditure category (except for 2004/05), closely followed by teaching materials/equipment expenditures. The increase in teaching materials/equipment is a step in the right direction because this is a core function.

Quality-related inputs such as teaching materials have shown low expenditure and the category has remained one percent and below at the University of Malawi. Books and periodicals have also not been a priority in both public institutions, especially at the University of Malawi, where again the allocation has remained below one percent, with no expenditure at all in 2003/04. An analysis of the expenditure patterns for the individual colleges shows that all colleges have spent very little or nothing on these two important categories despite the great shortage of teaching materials, books and periodicals in these institutions.

Allocations for staff development are low for all institutions, falling below two percent. Publications and research allocations are also low and not conducive to promoting research. However, visits to the institutions have revealed that some research is being carried out, in some cases with funding from external sources. But reliance on donor support for research is not sustainable and work thus supported may not address Malawi's research needs.

It has not been possible to carry out an in-depth analysis of expenditure patterns in private universities due to a lack of data. The expenditure pattern for Livingstonia University is somewhat different from those of public institutions. One major difference is the percentage spent on remuneration (emoluments and benefits), which is much lower than in public institutions.

3.2

FINANCING STUDENTS' HIGHER EDUCATION AND SOCIAL SPENDING

Student allocations, be they monetary (scholarships, grants, student loans and so on) or through subsidised services (accommodation, restaurants, medical care and so on) can constitute an important share of recurrent expenditure in HE institutions. Care must therefore be taken to precisely detail their admissions criteria and delivery and control modes before examining total and unit costs. This last analysis will also consider any HLI income and the share of the cost of HE borne by students and their families.

Ideally, this exercise should estimate the global amount of executed spending by type of expenditure and distribute this amount among beneficiary HLIs (using the number of student beneficiaries, for instance). The different components of each spending item must thus be identified, as well as their beneficiaries, differentiating by institution. Scholarships and student loan systems, being services provided to individuals, should yield this data. Sources include the ministry of higher education, university chancellors or the national student loans office, for example.

3.2.1 SOCIAL SPENDING

Social spending generally covers common services provided to various institutions or courses (university infrastructure, for instance), but some HLIs may offer social services independently (accommodation, restaurants, transport and so on).

Distribution of Social University Spending, by Faculty, Fictional Country

Source: Authors.

Table 8.19 below presents social university spending, by type and faculty, based on the experience of a theoretical university.

TABLE 8.19 - Distribution of Social University Spending, by Type and Faculty, Fictional Country

	Number of Students	Scholarships				Social Support		
		Number	Amount (Currency units)	% of Beneficiaries	Total (Millions of currency units)	Transport	Food/ Other	Total
Humanities	13,680	2,897	380,000	21%	1,101	282	704	986
Science and Technology	4,864	622	380,000	13%	236	100	250	351
Law and Political Science	8,308	733	380,000	9%	279	171	428	599
Economics and Management	3,427	243	380,000	7%	92	71	176	247
Agronomy	328	171	395,000	52%	68		17	17
Polytechnic	1,212	190	395,000	16%	75		62	62
Business School	1,256	151	420,000	12%	63		65	65
School of Management	1,745	224	420,000	13%	94		90	90
University Institute of technology	542	153	420,000	28%	64		28	28
Health Sciences	750	336	495,000	45%	166		39	39
Institute Of Sports	264	176	600,000	67%	106		14	14
Total	36,738	5,896		16%	2,344	624	1,873	2,497

Findings

Scholarship spending has risen to 2.3 million currency units. The distribution of this amount among HE faculties and colleges takes into account the number of scholarship beneficiaries by faculty and the amount of the scholarship, which varies according to the course of study. The table provides further information on scholarship policy: the amount of the grant is much higher in specific job-oriented courses, and benefits a greater share of their students.

Accommodation can also be considered an individual service and thus make the related costs easier to track. Other services (restaurants, medical care, transport) are more anonymous and the distribution of the cost among different institutions and courses will generally be based on average spending and income per student. In this perspective, the average unit cost of university restaurants is obtained by dividing the total cost of this service by the number of students that are likely to benefit (all institutions and faculties considered).⁵⁷ The total cost of university restaurants by institution is then obtained by multiplying the average unit cost of restaurants by the number of students in each HLI.

The lucrative nature or the scarcity of such services (free medical care, for instance) can lead to abusive behaviour or misuse of resources. Particular care should be taken when reviewing the evolution of global and unit costs for these services over recent years and their relation to student numbers. The conditions of eligibility and control should also be examined. These criteria (especially for accommodation and university restaurants) can lead to different students paying different prices for the same service. The analysis should also aim, especially where public services are concerned, to highlight the referential cost of the service provided, and compare it to the average cost per student and the sale price. In terms of accommodation for instance, the average annual cost of the service should be compared to the effective price charged to beneficiaries and to the average annual rent of similar accommodation let privately. This will enable one to determine the level of subsidies in the service. In the case of restaurants, the same analysis can be conducted by comparing the average cost of the service per student, the sale price and the price of a similar meal outside the university. Should they exist, private restaurants on the university campus should also be included.

3.2.2 DIRECT FINANCIAL SUPPORT

Direct financial support (grants, scholarships, subsidised loans and so on) should be dealt with separately inasmuch as they may reflect different policies that have an effect on equity and efficiency. These types of support help finance higher education, but can also be tools that can serve to orient students towards courses and subject-areas which reflect a lack of skills that society needs. It will therefore again be important to clearly detail eligibility criteria, the type (full or partial grant, amount of the loan, fixed or variable interest rates and so on) of support offered and the associated costs.

Loan systems' operation and reimbursement conditions should be described, detailing the guarantees expected of beneficiaries. If the loans are provided by private institutions, it is likely that these will have obtained satisfactory guarantees from students or their families. Public loan systems, or those where governments provide default insurance to private lenders, may effectively function as scholarship agencies, depending on their tolerance of non-repayment. In such cases, the financial consequences should be reviewed, as well as the impact on the evolution of the system and the risks it carries in terms of access by non-eligible students.

**(Financing of HE – Student Loans):
Financing of University Studies through Student Loans, Tanzania, 2010**

Source: Adapted from the Tanzania CSR, 2012.

Findings

Cost-sharing strategies in Tanzania are a means to improve higher education access and equity. The current policy regarding the financing of higher education is based on the government giving students grants and loans that cover university fees and some basic living expenses, with families, parents and guardians providing the difference. Although the policy was initiated in 1982, costs have gradually been transferred to families; the first loans were offered in 1994 to help with the cost of meals and accommodations, responding to parents' growing difficulty to cover the higher costs and the government's inability to offer grants to an ever increasing number of students.

An autonomous parastatal agency (the Higher Education Student Loan Board, or HESLB) was operationalised in 2005 to provide loans to eligible students within eligible HLIs/programmes. For students who meet the basic administrative criteria, access to HESLB loans is based primarily on merit, with greater leniency for students enrolled on priority subjects (teacher training and Science, in 2010). Secondly, students are means-tested to assess their relative need for the loan, and the proportion of the full loan amount they will receive. It has been established that most higher education students are from wealthier families and least in need of support.

The HESLB is today the main provider of loans, offering 97.4 percent of all student loans in Tanzania (the Tanzania Education Authority, the private sector and some NGOs also support students), to 81 percent of all higher education students. The effectiveness and sustainability of the student loan scheme relies heavily on the HESLB management's capacity to recover amounts lent. One of the board's mandates is to recover loans issued since 1994, which have never been reimbursed due to the lack of enforcement of the terms and the resulting perception by beneficiaries that the loans offered were more like grants. The HESLB is now working closely with firms and public services to identify and name former loan beneficiaries, who are given 10 years to pay back, or face prosecution. T Sh 3.2 billion (6.3 percent) are estimated to have been recovered, of the T Sh 51 billion lent. The sustainability of the student loan system will heavily depend on the effectiveness of the cost-recovery mechanism.

The distribution of study vouchers, that combine public financing with students' free choice constitute something of an intermediate situation, mid-way between public and private financing of university studies.

3.3

STRUCTURE OF UNIT COSTS AND COST OF A GRADUATE BY INSTITUTION/STREAM

The elements considered in the previous sections of this chapter have already covered some aspects of the analysis of unit costs and their main components for higher education institutions and courses.

This section will first compare the social cost with the pedagogical cost, before disaggregating each into different components. The differences in social unit costs could be analysed in terms of beneficiaries and the direct cost of the services (the share of grant beneficiaries for instance). Differences in pedagogical unit costs will be explained, as in Chapter 2, in terms of average teaching and non-teaching salaries and other academic spending. A reminder of the previously examined structure of the teaching body and the average salary cost of permanent or temporary staff may be provided here.

EXAMPLE

8.17

(HE Unit Costs):

HE Unit Costs, by University and Faculty, Malawi, 2003/04-2006/07

Source: Adapted from the Malawi CSR, 2010.

Table 8.20 shows the differences in average unit costs for higher education across institutions in Malawi and Table 8.21 provides the breakdown by expenditure categories.

TABLE 8.20 - Unit Costs, by HLI, Malawi, 2003-06

(% of GDP per capita)	2003	2004	2005	2006
University of Malawi				
Bunda College of Agriculture	15.0	21.1	23.9	28.8
Chancellor College	10.3	10.4	12.6	14.4
College of medicine	48.2	41.8	56.2	52.3
Kamuzu College of Nursing	18.9	14.2	19.8	31.5
Polytechnic	9.7	8.7	16.9	16.3
Mzuni University	15.4	18.2	25.0	27.7
Adventist University	2.1	1.4	4.5	5.0
Catholic University	-	-	-	13.6
Livingstonia University	-	-	-	6.6
Shareworld University	-	-	-	7.9

Findings

Unit Cost by Institution The data shows variations in unit costs across institutions, the College of Medicine having the highest unit costs each year. Unit costs for all institutions have varied from year to year but have shown an upward trend. Of particular note is the low unit cost of private compared to public universities, in particular Livingstonia University. One possible reason for its

low unit costs is the nature of the programmes delivered. For instance, Livingstonia University provides only education degrees and receives a lot of support from well wishers in cash, goods and services. Unit costs are low because the college uses its small team to play various roles and handle other responsibilities. Because private universities rely entirely on fees, they are more likely to manage their resources better than public institutions, which receive much of their money from the government. The trend of unit costs increasing with enrolments would suggest that economies of scale are not being realised in these institutions.

TABLE 8.21 - Breakdown of Unit Costs, University of Malawi and Mzuni University, Malawi, 2003/04-06/07

(MK)	University of Malawi				MZUNI University			
	2003/04	2004/05	2005/06	2006/07	2003/04	2004/05	2005/06	2006/07
Emoluments and Benefits	254,822	239,538	329,891	404,965	222,496	306,233	395,920	508,378
Student Provisions and Allowances	26,955	37,788	44,591	47,594	96,990	90,346	93,668	90,948
Teaching Materials and Equipment	2,258	3,212	2,428	6,519	9,460	24,668	77,093	88,148
Books and Periodicals	209	4,104	1,210	1,374	20,226	12,039	12,737	14,307
Common Services (General Administration)	56,639	45,077	85,214	96,899	33,774	48,132	14,013	19,636

Unit Cost by Expenditure Category Table 8.21 shows that the unit costs for emoluments and benefits in both institutions have increased substantially for the period under review, with Mzuni University having higher unit costs than the University of Malawi, except in 2003/04. This shows a problem of staff usage in the institutions. With good management and efficient utilisation of staff, the unit cost of emoluments should decrease. The increase in this unit cost is also related to increases in salaries and benefits over this period. An analysis of enrolment data for Mzuni University shows that the institution offers courses to very small classes, especially in the newly introduced programme. Economies of scale that can be achieved from having large classes are obviously not being realised. A policy on the minimum number of students that are required before a class can be offered is needed. For example, Catholic University requires a minimum of 12 students before a programme can be offered.

3.4 EQUITY IN THE DISTRIBUTION OF RESOURCES

To conclude this section devoted to cost and financing, it is interesting to consider equity in the financing of HE. If any changes are required in terms of financing, to regulate access to institutions or courses that are more or less useful to society or because of important gaps with the level of financing of equivalent courses, it is important to first draw all the possible conclusions from the equity of current financing arrangements.

Firstly, the analysis can further detail the impact of cost, financing and attendance on equity. Secondly, on the basis of these elements, it can provide information on the likely impact on equity of any modification of the financing arrangements considered for cost-efficiency reasons:

- (i) The information on access to institutions and courses that is available disaggregated by gender, income and area of residence, produced for Chapter 2 and sections of this chapter, should be consolidated. Distributive equity, linked to the attendance of different levels and the costs associated with each, studied in Chapter 6, can be complemented here by considering the cost and financing of the different streams of HE. Thus, the distributive equity noted on the basis of the average cost of other education levels could in fact be much weaker if the most disadvantaged students, who already access HE comparatively less, only enrolled in the least costly courses (less subsidised by public resources).
- (ii) In the light of the above, the analysis can review the general principles of HE financing and the level of equity they encompass.

Analysing possible changes to financing structures should first consider the degree of equity achieved by the current system, as well as that which would be achieved through the contemplated changes, inasmuch as they will necessarily be discussed in the context of the reform debate. The fundamental question is who benefits from public financing of HE, and to what extent. Indeed, the analysis can focus, as it has done earlier for the entire education system, more specifically on the consequences of different financing policies for HE (grants, scholarships, student loans, HLI subsidies and so on) on the total distributive equity, or on the distributive equity by student population groups (social background, household income and so on).

SECTION**4****RESULTS, PERFORMANCE
AND QUALITY**

The objective of this final section is to consolidate any available information enabling the assessment of the quality and relevance of the courses offered. This relates to the delivery of degrees and qualifications, but first and foremost to the economic relevance of HE training offered (employability of graduates, socio-professional status achieved, income levels and so on). At very least, this section should examine the mechanisms implemented for the quality assurance of training and those that aim to offer graduates career guidance.

As for any terminal level of education (the one prior to employment), the real proof of the relevance of HE is the social and professional opportunities it offers graduates (employment, type of job, level of income, and so on). This information, while difficult to collect at the sector level, is even less available from each institution or faculty. HLLs are increasingly showing an interest in the future of their graduates, however, and improved approaches are spreading. Tracer studies are much more common today and provide detailed information on the employability rate of graduates from different institutions or courses.⁵⁸

Beyond the indicators for teaching staff qualifications presented earlier, it is now common to consider the individual scientific research performed by individual HE staff, department or laboratory as an indirect measure of quality. In many countries, these indicators are considered in the ranking of university departments used to determine their level of subsidies.

The debate on the type of research that should be encouraged in HLIs is based largely on the results of studies carried out on the theme of endogenous growth. Analytical work suggests that developed countries' investment in research should move closer to the technological barrier defined by the most advanced innovations. Developing countries, on the other hand, should focus their research on the adaptation of existing technology that is likely to be implemented more efficiently due to the low labour costs involved. This general orientation, that should extract the greatest contribution of national research to growth, should not exclude fundamental research's role as a form of training researchers, the best of whom benefit from being connected to international networks and the opportunities of exchange and ongoing training that they offer.

In this perspective, the analysis should distinguish between teaching staff's aptitude for research, particularly as reflected by their qualifications (thesis, higher university degree and so on) and the ongoing research conducted by active university staff. The definition and the accounting for the scientific production of lecturer-researchers is not, however, as simple as it appears to be. To avoid all ambiguity, publications should be accounted for by type and scientific credibility. Including articles that have simply been accepted for publication carries some risks and should be avoided. Works can be classified as scientific or general. The participation in conferences should be limited to those where the researcher gave a presentation.⁵⁹

Beyond the issues raised by precisely determining content, it is often difficult to produce such indicators if they are not already available from the institutions or the authorities responsible for the careers of lecturers and researchers. However, this type of data is often collected on an individual basis by the laboratories or departments where research activities are managed, more and more of which are choosing to collect this type of information, ultimately to facilitate reporting on their scientific output. Service contracts for research and expertise could provide a further valuable indication of the dynamism of the research teams in each HLI.

4.2 EXTERNAL EFFICIENCY

The measure of external efficiency is particularly delicate for HE, as it can raise questions about the level of public financing that the sub-sector receives. Given that existing studies show that at least 80 percent of the social benefits of education are obtained by the end of secondary, evidence of the real economic impact of HE is needed to justify the expenditure. In some relatively rare cases, the skills of graduates may have been directly measured. In terms of external efficiency, however, the principal point of interest is the performance of graduates in the workplace. The analysis of external efficiency with respect to the workplace enables one to distinguish between the courses that lead to real professional opportunities and those that do not. Further complementary information should then be provided enabling the appraisal of working conditions in addition to employability. Methodologically, this evaluation is very similar to that presented in Chapter 5.

This analysis calls on data that is relatively rare and difficult to produce, especially when each institution and/or stream of higher education is to be dealt with separately. Most often this data is available at a macro level on the basis of broad surveys that provide information on the employment and income status of individuals with different levels of training (employment surveys, demographic census and so on). In these surveys, considering the size of the samples used, it is generally not feasible to distinguish by degree, institution or stream. Analyses by type of training require specific data that is harder to gather. Specific surveys of higher education, or those focusing on particular degrees may be required, whereas tracer studies that examine in detail the status of graduates at least a year after their graduation may be most adapted.⁶⁰

TABLE 8.22 - List of Potential Indicators to Describe the Employment Status of Graduates

% of Active Graduates
% of Unemployment Length of Unemployment
For the active graduates: <ul style="list-style-type: none"> - Underemployment Rate - Unstable Employment Rate - Informal Employment Rate - % of Jobs Related to the Degree Obtained - % of Jobs for which Graduates are Overqualified - % of Graduates Seeking Better Remuneration - % of Graduates Seeking more Relevant Position - Average Salary as a % of the Average Salary of Graduates of the Same Level - Average Salary as a % of the Average Salary of Graduates Working in their Field

These issues should not, however, be insurmountable obstacles. In most cases, collecting and consolidating information on the main types of training (literary/scientific courses, open admissions/selective admission and so on) will be possible on the basis of the main employment surveys, and will provide helpful pointers for the diagnosis. Under the hypothesis of ideal data availability, it is helpful to consider graduate's employment status by: (i) course followed; (ii) the number of years of university; and (iii) crossing both above data sets. For each of the three dimensions; Table 8.22 above presents some of the potential indicators that could be estimated and analysed according to the methods proposed in Chapter 5.⁶¹

It is common to conclude this analysis of the external efficiency of HE by a review of the strategies to give maximum value to graduates in the workplace. Often it will be appropriate to review the tradeoff between the quantity of graduates HE produces and the quality and relevance of the HE services on offer. Reflections on a more equitable and efficient regulation and financing mechanism capable of solving this issue are often instructive. Likewise, discussions on the professionalisation of higher education, the involvement of the private sector and the relevance of the courses offered to the economy may provide valuable insight.

Tracer Studies

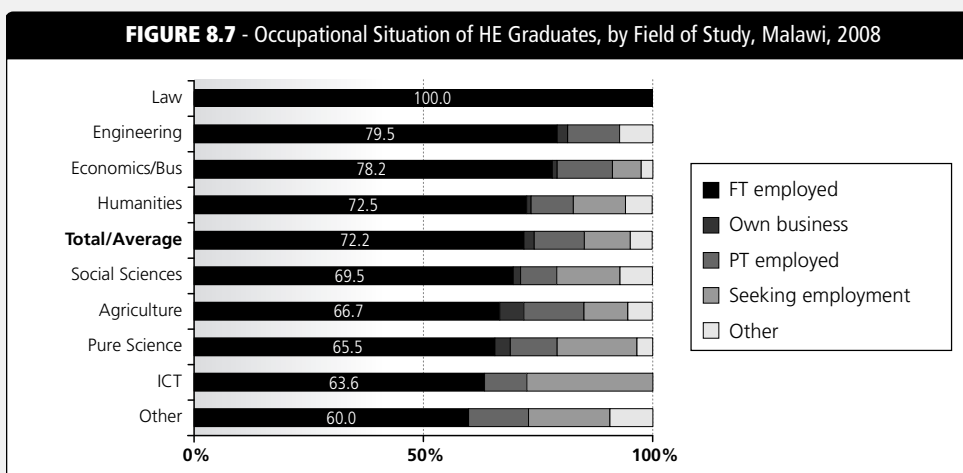
Example 8.18 illustrates the use of the results of a tracer study conducted in Malawi, and the use of international data on the employability of graduates.

EXAMPLE 8.18

(External Efficiency of HE): Results of a Graduate Tracer Study, Malawi, 2008

Source: Adapted from the Malawi CSR, 2010.

In 2008 the GTZ and the World Bank carried out a graduate tracer study in Malawi, surveying 492 graduates from five different HLLs.

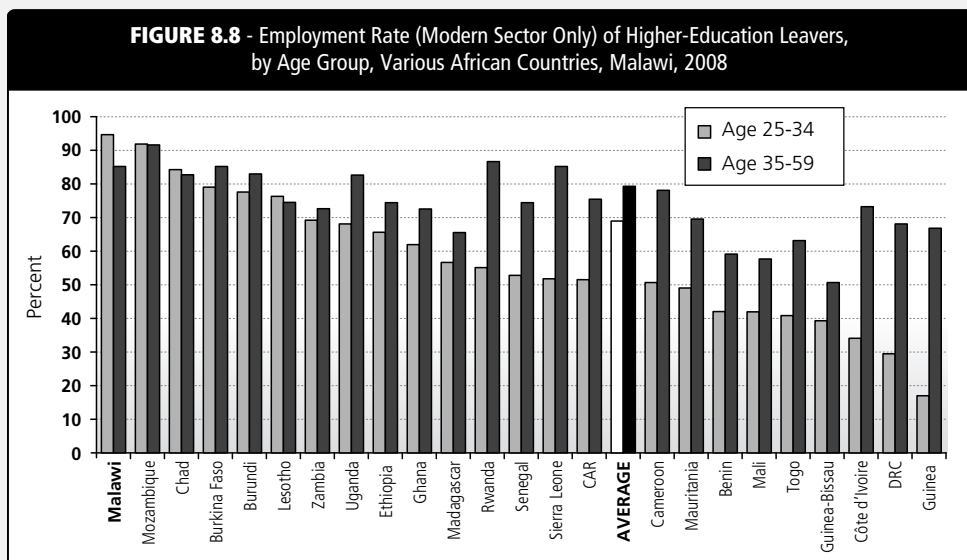


Findings

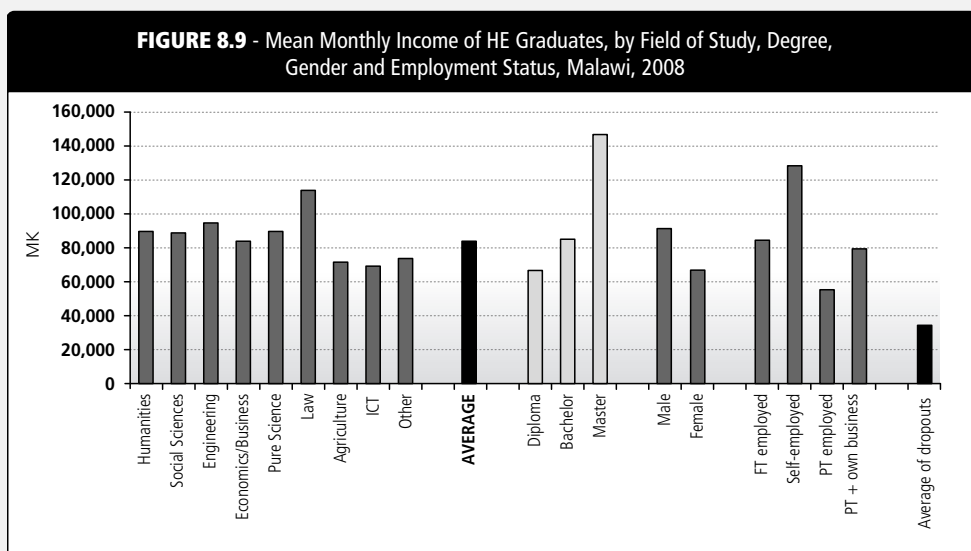
Overall, it would seem that the higher education sector in Malawi is to a large extent successful in preparing highly qualified human resources for employment. Graduates are well employed and have success upon entering the labour market. As Figure 8.7 shows, 85.3 percent of all respondents found employment after graduating from higher education, the vast majority (72.2 percent) in full time wage employment. Self-employment is small (2.1 percent), but a substantial share of graduates are working part time (11 percent). A relatively high amount – 9.9 percent – is seeking employment, of whom the most recent graduates (2007) have the highest unemployment.

Figure 8.7 also shows relatively clear variations by field of study. Law fares best by far, bringing all graduates into regular full time employment; engineering, business/economics and, interestingly, humanities, show above average full-time employment rates. Information and communication technologies (ICT), social sciences, agriculture and pure sciences have below average results. ICT also shows the highest unemployment rate, pointing to a possible saturation in the relevant labour market which calls for further analysis.

Comparing data with other African countries shows a very high employment rate for academically trained Malawians and reflects the generally low higher education enrolment rates. Interestingly, Malawi is the only country with a markedly higher employment rate for younger rather than older graduates, suggesting an even higher recent labour market demand.



As shown in Figure 8.9, not surprisingly, the income distribution of graduates in employment is characterised by a very large range, from MK 9,000 to MK 640,000. The arithmetic mean per month according to the tracer study was MK 83,681 in 2008. Eighty percent of all cases are



within the range of MK 30,000 to MK 150,000, with a median of MK 65,000. The mean income by study field (see Figure 8.9 below) suggests partly similar subject/occupational preferences, with a particularly high demand for lawyers and engineers. ICT and agriculture experts earn the least. The high average income of the self-employed is an interesting finding, although based on a very small number of cases that only point to the insignificance of self-employment for TVET graduates. The wage differences again demonstrate the superiority of qualified academics in the labour market compared to HE dropouts.

Data, however, also shows marked income differences by gender. Male graduates earn on average 37 percent more than their female colleagues, which can partly (but not completely) be explained by the fact that women are underrepresented in the better paid occupational fields. Available wage data also points to the good career promotion performance of academically trained people.

4.3 QUALITY CONTROL

A new set of analyses and activities have recently been initiated, falling under various names, including quality management, or quality assurance.

References to quality in the management of companies and organisations are abundant; the extension of the approach to higher education gains all its meaning when, just like companies, HLLs have to manage a significant pool of personnel, property and construction, sub-contracts for noncore services such as restaurants and transport and so on. In a relatively competitive local or regional context, HLLs also have to provide an attractive service to ensure full enrolment. In companies, quality control activities rarely consider the actual output and are often limited to the establishment of rules and procedures whose respect is expected to be a guarantee of the quality of the product or service. In education, quality control approaches must adapt to quite a different environment in which many HLLs, especially in Francophone Africa, are under-financed, face little competition and whose configuration differs substantially as a result.

In this diagnosis of the sub-sector of higher education, the different quality control initiatives should be mentioned, detailing their goals, procedures and noted results, considering that some of them are already present in the ongoing operations of the supervisory bodies of various institutions (study committees, council of university life, board of directors, scientific committee and so on) and may, regardless of their managerial relevance, not be part of a specific quality assurance strategy.

BOX 8.3**The African and Malagasy Council for Higher Education**

The **African and Malagasy Council for Higher Education** (CAMES) is a coordination committee for the HE activities carried out in countries of Francophone Africa. It was created in 1972, replacing the Consultative Commission of Experts for the Reform of Higher Education in Africa and Madagascar, created in 1966 after independence. Today it has 16 member states.

The CAMES' mission is:

- Promote and favour comprehension and solidarity between member states;
- Initiate permanent cultural and scientific cooperation among member states;
- Collect and share all university research: theses, statistics, examination results data, statistical yearbooks, information on job applications and so on;
- Prepare convention proposals to member states on higher education and research, and contribute to the promotion and enactment of agreements reached; and;
- Conceive and promote cooperation between partners to coordinate higher education and research systems, harmonise programmes and recruitment in HLLs, favour cooperation between institutions and exchange information.

CAMES is a think-tank for higher education and research reform for its member countries that promotes the quality of HE by directly managing a programme of accreditation of degrees and organises competitions for PhD places in medicine, law and economic science.

This section should especially focus on the practices of institutions in terms of evaluation of the quality and relevance of their courses, in particular by considering the efforts in terms of graduate employability monitoring, contacts with alumni and so on. Likewise, a description of the information system used by each institution, developed in response to national statistics and for its own guidance, may constitute a valuable quality indicator. Among these activities, evaluation procedures involving personnel and student representatives merit particular attention.

The multiplication of courses, their diversification, the gradually increasing contribution of the private sector and the creation of qualifications that encourage student mobility have led to an important need for information and its normalisation. The recognition of the role of HE in growth and development by most of the international education conferences held in recent years has systematically been accompanied by some insistence on the need that HE be of quality and, especially, that it combine quality content with socioeconomic relevancy. Indeed, various national and international organisations responsible for the certification of degrees and training courses, like the African and Malagasy Council for

Higher Education (*Conseil africain et malgache pour l'enseignement supérieur* – CAMES – See Box 8.3) have been created to harmonise training courses and qualifications. This normalisation, of course, targets contents and delivery modes more than it does graduates' performance in the workplace, but this last dimension is not excluded and HLLs will have the opportunity to underline the good performance of their graduates where it exists.

The affiliation of HLLs to such certification authorities surely shows an institutional will to give their degrees and qualifications greater recognition, including in the eyes of national students. The gradual generalisation of Bachelor-Master-PhD higher education structures and of the policy of breaking down courses into credits help to reinforce this tendency, the mobility of students only being possible in a relatively transparent framework offering minimum guarantees with respect to the quality and credibility of their graduates at home and abroad. In the context of this diagnosis, available information on the accreditation and external recognition of courses and qualifications will be important to collect, as well as on all activities carried out to ensure the best possible guidance, welcome and follow-up of students (information service, career advice, tutorials, social support to students in difficulty and so on). The multiplication of regional and continental normalisation authorities, strongly promoted by intergovernmental unions, should lead to an improvement in the production of indicators on the effectiveness of training, while at the same time facilitating the diagnosis of the sub-sector and offering possible benchmarks for comparison. It is hoped that these different data can also be harnessed in the context of analyses aiming to validate effective results (mobility, employability and so on) and the relevance of the adopted norms.

Annex 8.3 of this chapter provides a semi-structured interview guide, similar to that elaborated to collect data on the administrative and scientific bodies of HLLs, which may be helpful to collect the required information regarding quality.

NOTES

- 43 Data on students abroad can often be obtained by scholarship offices.
- 44 The recent evolution of enrolment by institution ownership often reflects new policies, especially in countries with a strong tradition of government higher education, common in Francophone countries, where financing difficulties have sometimes led to the growth of private sector provision. This phenomenon may be more marked still if considering the number of institutions rather than enrolment. The analysis of these developments, in particular in international perspective, should of course be performed taking care to mention national policy with respect to the opening of further higher learning institutions.
- 45 It is important that in Chapter 2 on enrolment, precise information on the secondary to HE transition rate be included, to provide some analytical continuity with other education levels.
- 46 It is worth keeping in mind that HE enrolment is expected to double about every five years in Africa, with greater expansion still in many countries (UNESCO/CRESA, 2010).
- 47 For instance, the average number of students enrolled for each 100 places in public African universities, on the basis of research over the period, was 350 in Benin (2007), 134 in Morocco (late 1990s), 260 in Central African Republic (2006) and 220 in Cameroon (2006). See UNESCO/CRESA, 2010.
- 48 The temporary nature of recruitment is all the more prevalent in the vocational area, as the updating of knowledge hinges on a real and recent involvement in the considered economic activities.
- 49 See Annex 8.2 for a typical semi-structured interview guide with higher education human resource staff.
- 50 Annex Table A8.6 provides a model table for the distribution of permanent staff, by age and level of qualification. This type of table may be helpful to elaborate in the context of this chapter, to project teacher demand.
- 51 Many institutions are involved in a vicious cycle where their output of tertiary graduates is insufficient to supply the high level professors and researchers needed to provide HE services to an ever increasing number of students.
- 52 As ever in this type of approach, it is implicitly assumed that unfinished courses are without individual or collective benefit. Employability studies sometimes contradict this assumption, showing that students who have not graduated still fare better in the work-place than their counterparts who did not study at all.
- 53 Open HLIs are those institutions that do not select their students (beyond requiring they pass the HE general entry exam, usually the end-of-secondary exam, or A-Levels). Selective admissions add further conditions (based on competitions, exam results, interviews). Conditional admissions have a direct effect (some candidates are refused a place) and an indirect effect (students that expect not to be accepted do not apply) on student characteristics.
- 54 All questions related to equity are dealt with in Chapter 6 that offers a selection of methodologies for its assessment.
- 55 Tables A8.3 and A8.4 of Annex 8.6 are models that can be used to present the different sources of HLI financing and types of recurrent spending.
- 56 Annex 8.4 presents a methodology to annualise investment costs.
- 57 Here the assumption is made that the restaurant service is common to various institutions. If an HLI has its own service, it should of course be excluded from the global computation and accounted for separately.
- 58 Annex 5.4 presents detailed information on the methodology and results of tracer studies.
- 59 The evaluation of research produced must of course consider variations between institutions, which is particularly important in academic faculties and disciplines and less so in more professional institutions, whose teaching staff is composed of active professionals of the relevant sectors.
- 60 See Annex 5.2 for a detailed presentation of such surveys and the end of this guide for a related specimen questionnaire.
- 61 In addition to the analyses of contributions presented in Chapter 5.

Jeudi, 07 juin 2007

des outils à l'école

Le cahier et l'ardoise

L'année dernière, Mamadou écrivait sur une ardoise. Il se servait d'un crayon d'ardoise très fragile. Le crayon d'ardoise se cassait souvent. Quand le crayon était trop petit, Mamadou le mettait au bout d'un porte crayon.

Askan wi am xëy ak xéew

CHEIK
Un
Conte

CHAPTER 9

NON-FORMAL EDUCATION AND LITERACY

› Chapter Objective:

Analyse the non-formal education and literacy subsector to enable its incorporation into global education policies in the framework of Education for All and promote lifelong learning.

1. DEFINITION OF NON-FORMAL EDUCATION

ISSUE

How is the non-formal education and literacy subsector to be defined in the national context? How is the subsector organised? Who are the key players? How are non-formal and literacy programmes designed and implemented?

OBJECTIVES

- Define, provide the framework for and describe the subsector and its links with the formal education sector;
- Present the key players, their programmes and the potential beneficiaries; and
- Determine what it is appropriate to include in the education and training sector analysis.

METHODS

- Compare national definitions for the subsector with those adopted by the international community;
- Adopt a historical approach to the description of providers and institutions and services responsible for the organisation of the subsector; and
- Present the delivery modes of different streams and courses.

SOURCES

National and historical documents from provider institutes and national authorities and ministries; specific surveys of players and beneficiaries.

2. NEEDS AND PARTICIPATION

ISSUE

Who are the subsector's potential beneficiaries (number and characteristics)? What are the enrolment figures for non-formal education programmes? Can internal efficiency be measured, and what information does the analysis provide for the management of the subsector? What is the staff-to-learner ratio?

OBJECTIVES

- Technically analyse non-formal education and literacy programmes as per other sub-sectors, reviewing the target population, the effective beneficiaries, supervision rates and internal efficiency; and
- Provide basic statistical information to define the subsector.

METHODS

- Evaluate needs on the basis of household surveys or census data to determine the number of illiterate individuals;
- Apply the methods explained in Chapter 2 for formal education to illustrate enrolment for the different non-formal education streams, and measure internal efficiency and supervision rates (in terms of group size);
- Produce coverage rates where clear estimations of the potential demand to satisfy have been made; and
- Provide an appraisal of the statistical coverage of the sub-sector based on available data.

SOURCES

Documents published by the authorities responsible for the subsector and by training centers (statistical yearbooks).

3. COST AND FINANCING

ISSUE

Can a financial balance sheet for the subsector be produced, that indicates the amounts, source and destination of financing? What is the cost of the training on offer and how is it broken down? In terms of cost, can the training offered be compared to formal education streams and other types of non-formal education, either at home or abroad?

OBJECTIVES

- Consolidate the available information on global expenditure, and detail each type of spending, as for formal education;
- Construct a balance sheet that shows the different sources of financing and operations, to ensure the analysis is coherent; and
- Provide an appraisal of the existing statistical system covering costs and financing.

METHODS

- Use the methods developed for the analysis of the costs and financing of formal education. Be especially careful of omissions and duplications (thanks to the reconstituted balance sheet); and
- Use a combination of macro and micro approaches for the breakdown of expenditure by type.

SOURCES

The budgets of financing institutions and training centers.

4. RESULTS AND QUALITY AND RELEVANCE INDICATORS

ISSUE

What services provide non-formal education programmes? Is it feasible to consolidate information regarding their quality, especially regarding the quality and sustainability of learning outcomes and the relevance of training (in response to beneficiaries' and society's expectations)?

OBJECTIVES

- Rate the quality and relevance of the training offered (this is more important for non-formal education than for formal education, given the non-standard nature of the former); and
- Provide information of use to the management of the subsector, often based on subsidies to training centers whose performance is variable.

METHODS

- Measure the overall effectiveness of training, especially in literacy, on the basis of the impact on the sustainable skills gained by beneficiaries and their social and health-related behaviours;
- Review the quality and sustainability of learning outcomes on the basis of tests of learning achievements; and
- Appraise the relevance of training based on the opinions of beneficiaries and their entourages.

SOURCES

Household surveys, specific literacy surveys and interviews with beneficiaries about their expectations and achievements.

Introduction

A consolidated vision of education and training systems must cover non-formal education, especially literacy, which is generally its most important component. In developing countries, non-formal education offers a second chance to those who were unable to follow formal education when of the correct age. Given the shortcomings of formal education systems, many individuals may be in this situation. Adult illiteracy continues to be a structural issue in many developing countries, and represents a considerable risk to African countries' development strategies, as it continues to hinder development initiatives (contributing to uncontrolled demography, poverty, weak productivity, waste and deterioration of natural resources, bad governance and so on). Economic development and the related consolidation of formal education systems do not contribute to the disappearance of the non-formal education sector, as can be noted in developed countries where non-formal education is undergoing something of a rebirth in support of lifelong learning.

In most developing countries, and especially in Africa non-formal education (NFE) focuses mainly on the literacy of adults and out-of-school youth. This chapter often refers to this component of NFE, although many of the approaches used can be applied to other types of NFE, which may be particularly common in some countries. The subsector as a whole varies considerably in terms of importance from country to country (See Annex 9.3).

Broadly speaking, the analysis of the NFE subsector uses the same categories and tools as those used in other chapters dealing with formal education as a whole: service delivery, financing and costs, relevance and results.

The subsector does, however, have some particularities that should be considered, particularly in terms of definitions and the sometimes unclear borders with formal education. NFE, and especially literacy, are usually poorly covered in terms of statistics, both in terms of service delivery and results. Obviously this limits the knowledge that can be gained of the subsector, but it also damages the confidence of potential investors, including governments themselves.

In most developing countries, the needs are immense and activities do not appear to be at the height of the challenge or in line with national and international policy commitments. Voluntary-type set-ups are used and goodwill is mobilised more than truly professional organisations, whereas the scale and sustainability of the challenge merit at least as much professionalism in the management of NFE activities as for the formal education sector, if not more. Indeed, there is little investment in the activities themselves and less so still in the knowledge of pedagogical and management best practices that are likely to improve the efficiency of the subsector and thus reassure potential investors.

This situation relates to issues that are specific to the NFE sub-sector such as: the multiplicity of service delivery modes, types of training and goals, the weakness in the overall management of the subsector that is often split in terms of responsibilities and so on.

A more systematic consideration of the different activities should thus enable both to better know and better integrate them into the overall management of the education sector to achieve broader human and economic development. The diversity of the subsector does not facilitate the definition of indicators that universally represent the main areas of analysis considered (i.e., service delivery, financing, results) and that can be used for international comparisons and the definition of benchmarks for the organisation and management of the subsector. For instance, NFE unit costs can relate to vastly different course content, duration and learning quality. The significant variations in the most straightforward results indicators may, in fact, illustrate the difference in terms of the courses offered at least as much if not more than variations in terms of their service delivery modes, which may have different levels of efficiency.

To be able to carry out international comparisons and update useful references for the management of the subsector, it is therefore necessary to use information that provides some context to the courses they describe in terms of goals, beneficiaries and duration, in addition to the usual indicators. This is the main objective of this chapter. Thus reference will often be made to a generally favourable situation in terms of statistical data, enabling the direct, or at least indirect, computation of these different indicators. It is clear, however, that in many countries the collection of such data will be an exercise close in nature to a study in its own right, that it will be necessary to carry out initially, and as quickly as possible, to systemise the production of basic information on the subsector.

Given the great variety of potential service delivery modes and beneficiary groups, the impact and results of the different NFE activities are more important than in formal education, enabling a more direct appraisal of the interest in each of the programmes, potentially also considering their respective costs. Literacy programmes, despite their comparatively lower teaching time, are often thought to provide results and benefits similar to those of formal education. In fact, the availability of indicators such as the share of sustainably literate individuals and/or the share of individuals with a given set of acquired skills may alone be sufficient, for a given beneficiary group, to deal with the relevance and efficiency of NFE activities and programmes.

If further efforts in terms of measuring results are needed in this specific area, it is undoubtedly because the organisation of the subsector is often decentralised and sub-contracted. NFE rarely comprises a significant government sector managed by experienced

professionals, but more often is composed of a network of private or community providers with weak support from the central government. The management of such networks (accreditation, subsidies and so on) and the identification and sharing of best practices would benefit greatly from a higher degree of professionalisation of managers and the implementation of regular results evaluations.

In summary, the NFE subsector is characterised by three key dimensions: (i) greater financial constraints; (ii) sub-par availability of human resources; and (iii) insufficient statistical visibility. The analysis of the subsector will explicitly deal with these three aspects in this chapter, through four sections:

- (i) A descriptive analysis of non-formal education;
- (ii) Needs in terms of non-formal education and literacy programmes, and participation in such programmes;
- (iii) Costs and financing; and
- (iv) Results and quality and relevance indicators.

DEFINITION OF NON-FORMAL EDUCATION

The objective of this mainly descriptive first section is to define the subsector context and the coverage of the subsector, which is more prone to national variations than formal education sub-sectors.. In this perspective, the chapter will aim to: (i) review the definition of different NFE types, equating them to internationally recognised categories; (ii) understand institutional, administrative and financial links between players, providing a precise mapping of the subsector; and (iii) describe the different programmes offered by each provider in the context of their respective mandates. By way of a conclusion, this first section should propose and justify the selection of providers and programmes to be analysed in the following sections.

1.1

NATIONAL AND INTERNATIONAL DEFINITIONS OF FORMAL, NON-FORMAL AND INFORMAL EDUCATION

Most definitions of the different forms of education and learning first and foremost include formal education, which refers to the attendance of a classic, general and professional education system, spanning preprimary to higher education, with clearly defined service delivery modes (i.e., standardised curricula, qualifications and so on). Formal education thus refers to traditional education systems. Non-formal education is defined as any form of organised and structured education outside the boundaries of the formal education system.⁶² The use of the term informal education is limited to the systematic and cumulative learning derived from ongoing activities such as daily tasks, the use of resources and interaction with the environment, interaction with families or neighbours, work, business, reading, using the media and so on.

In developing countries, non-formal education is considered to include all education services that aim to fulfill the education needs of population groups who do not benefit from the formal education system. Three main population groups are concerned: (i) children before the official primary entry age; (ii) out-of-school children of official and compulsory school age (typically those aged 6 to 14 years); and (iii) non-enrolled youth and adults aged 15 years and above.

- The first group is in a preparatory phase for a typical learning career. This phase includes early childhood development services covering parental and preprimary education, dealt with specifically in Chapter 7 of this guide.
- The second group includes out-of-school children in need of catch-up classes to reintegrate formal education and over-age children who are either too old to enroll in Grade 1 or who have repeated so many times that they are too old to pursue formal education. These children are targeted by second-chance school and street school type programmes that provide them with a basic education that may enable them to resume some kind of general or vocational formal education, or improve their employment status.
- Youth and adults aged 15 years and above but not enrolled in the formal education system are targeted by adult education programmes. These may be divided into two groups: (i) literacy and basic-education equivalent programmes targeting adults whose knowledge and skills do not meet basic education standards; and (ii) improvement and skills upgrading programmes for adults who have knowledge and skills equivalent to those acquired through basic education, often known as ongoing training and lifelong learning programmes.

In developing countries, in Africa in particular, where basic education is not available to all and where the vocational training of adults is still embryonic, non-formal education is generally limited to second-chance education opportunities offered to youth and young adults with little or no schooling.

These reflections on the categories and definitions of different types of education are not driven by semantics. On the contrary, they have a real policy impact. Where the NFE subsector is recovery-oriented, which is most common in African countries, the shape, financing and beneficiaries of non-formal education are directly determined in reference to formal education. Indeed, each non-formal education activity or programme constitutes an alternative answer to the shortcomings of formal education. Although adult literacy programmes are a palliative to the past failings of the formal education sector, NFE programmes for young adults or out-of-school children reflect current limitations. The question raised is therefore that of the tradeoff between investing in an NFE system to cater for those unable to attend or remain in school and further investing in the formal education system to improve access, retention and quality to avoid the recurrence of such situations in the future.

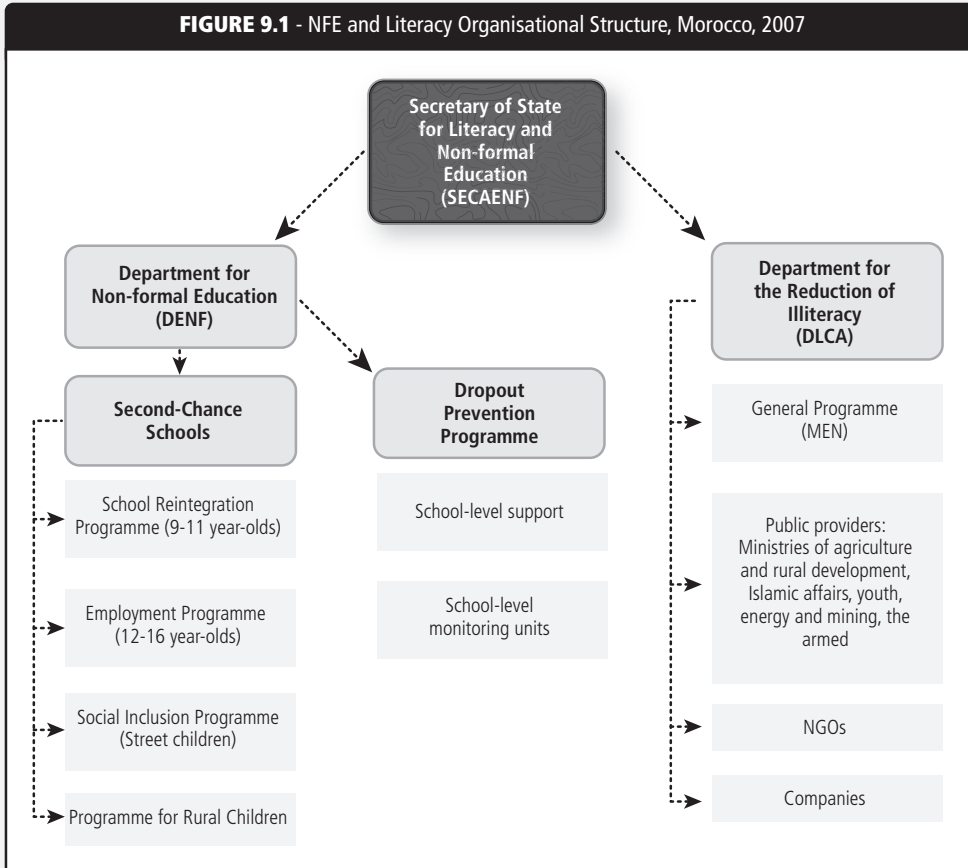
This section will therefore aim to define the objectives and potential beneficiary groups of non-formal education in the national context of the country being studied.

The objective of this subsection is to describe NFE as precisely as possible to facilitate the understanding of how it relates to the education and training sector overall. It will focus on elaborating a general map of the subsector and cover the main types of programmes by source of financing, ownership (public/private), goals and target beneficiaries, while highlighting bridges to formal education streams, be they general, technical or vocational. The overall picture provided should also indicate, where relevant to the common national service delivery modes, existing control and governance mechanisms, at the central or decentralised level.

The mapping of NFE should describe the general structure of the subsector by presenting the main activities by group: second-chance and street children types of non-formal teaching for out-of-school children; adult literacy, including basic literacy and functional literacy for job seekers or workers; specific programmes (health, family planning, women's rights and so on) for targeted groups (young girls, rural women and so on). The exercise should highlight the status of different players and their institutional and administrative relationships and facilitate an understanding of the national subsector's organisational model. The subsector may, for instance, include state-like institutions with government employees under a central or decentralised public administration responsible for pedagogical or financial aspects, or at the other extreme, completely private organisations both in terms of their staff and coordination and regulatory bodies. The evolution of the subsector has generally led to mixed models where public and private institutions may function in parallel, or under an integrating institutional framework. The following example presents the Moroccan configuration of the NFE subsector in 2007, where a strategy of delegation is part of the national literacy framework and in which central and regional administrative authorities are responsible for the programmes and finance activities based on the number of enrolled individuals. Private providers (NGOs) supply a service akin to that usually supplied by traditional public providers (the ministry of education, the ministry of Islamic affairs and so on).⁶³

(NFE Mapping):**Map of the Non-formal Education Subsector, Morocco, 2007**

Source: Adapted and translated from Cerbelle, 2010.

**Findings**

In 2007 the non-formal subsector was organised under the national responsibility of the Secretary of State for Literacy and Non-formal Education (SECAENF), which has a liaison officer in each of the regional education and training administrative offices. The State Secretariat includes two departments, respectively in charge of NFE and adult literacy programmes (See Figure 9.1).

Non-formal education includes two main types of activity: second-chance education, which offers various age-appropriate programmes to out-of-school youth and a dropout prevention programme that aims to avoid increasing out-of-school numbers.

Literacy is organised around a public national programme (with guides, textbooks and so on), according to a delegated approach. Traditional providers, the Ministry of Education (MEN), which is responsible for the general programme and other public providers today account for fewer learners than the NGOs. These generally operate according to a contract with the DLCA. Even when no contract is signed, NGOs can nevertheless benefit from SECAENF textbooks.

In addition, it is helpful to provide information on the administrative resources available to the subsector. It is especially recommended that the number and profile of the individuals in charge of the subsector be established for each of the bodies mentioned in the mapping exercise. Such information would thus cover the main administrative body (where it exists), programme coordination entities and local authorities. The number of staff can be related to the number of providers (or beneficiaries), and compared with similar ratios for the formal education subsector (the number of administrative staff related to the number of schools or pupils, for instance).

Furthermore, basic statistics for the subsector are often lacking, especially in countries where the government has greatly delegated the delivery of programmes to NGOs. As the quality of administration depends first and foremost on the existence of operational statistical services that provide the information required for the modern management of programmes and providers, it is also appropriate to evaluate (at least qualitatively) the capacities to produce, mobilise and publish data for the subsector and produce and use specific analysis and research. For this analysis, a selection of questions to be put to a sample of administrative officers and institution managers are proposed in Annex 9.6.

EXAMPLE

9.2

(Organisation of NFE):**The Delegation of Responsibilities Approach, Burkina Faso, 2010**

Source: Adapted and translated from the national FONAENF Burkina Faso document.

The NFE subsector in Burkina Faso is especially marked by the adoption of a delegation of responsibilities approach to boost literacy. Conscious of the fact that sustainable human development cannot be achieved if the majority of the population is illiterate, the Burkinabe state has sought appropriate literacy approaches and strategies to fight illiteracy.

Given the dynamism of civil society, the Burkinabe government decided to involve it in the management of literacy activities through a new delegated approach, adopted in 1999 during the first literacy forum. The strategy entered its implementation phase during the 2002-03 campaign with the creation of the Fund for Literacy and Non-formal Education (FONAENF).

Findings

Delegation is defined as a strategy providing the government and partners (NGOs, charities, technical and financial partners and so on) with a tool for the distribution of roles in the execution of non-formal education and literacy programmes. The institutional set-up consists of enabling each partner to play their corresponding role according to their comparative advantage. The effective implementation of the delegation approach has been facilitated by the creation of a dedicated fund, the FONAENF.

Thus, the government is responsible for guidance missions, the monitoring, evaluation and supervision of literacy activities and financial contributions. Charities and NGOs are responsible for the implementation of literacy activities in the field; these players are called literacy operators. Finally, the FONAENF, with the support of development partners and the government, is to mobilise the resources required for the implementation of literacy activities. The delegated approach has enabled the achievement of considerable results in terms of literacy and non-

formal education, with literacy rates improving from about 22 percent in 2002 to 28.7 percent in 2006.

Since the third literacy forum was held in 2009, focusing on the acceleration of the growth of literacy, the approach is referred to as the consolidated delegation approach, enabling the inclusion of new players such as local authorities, emerging actors and the private sector.

1.3 THE PROGRAMMES AND ACTIVITIES

Complementing the previous section, this part aims to describe the programmes, their objectives, access conditions and contents in detail. By way of a conclusion to this and the previous part, a presentation of the programmes retained for further analysis (where not all are to be dealt with) may be offered, explaining the basis for the selection.

1.3.1 OBJECTIVES AND CERTIFICATION

The different programmes and activities can be presented in detail thanks to various tables and variables. The objective is to produce an inventory of all the NFE and literacy programmes offered, regardless of their provider. For each institution, indications should be provided as to whether they belong to the public or private sector (including NGOs) and of their delivery mode (be it in their own name or as the operator of another institution). This last characteristic is likely to vary from one programme to another. The description of the programmes should highlight their objective, target beneficiaries (including, where possible, a projection of enrolment), contents (what are the learning objectives?), total work-load (and its distribution by class where appropriate) and the language of instruction. The certification information should clarify whether the training will lead to a participation certificate or a diploma. In the latter case, the type of examination should be explained briefly, as this will be further detailed for the main programmes in the section on the measurement of the quality of learning. The following example, drawn from an analysis of the subsector in Burkina Faso illustrates the main programme information to collect, based on the case of the main institutional player. In practice, this section should aim to cover as many active stakeholders as possible.

(NFE Programmes): Permanent Functional Literacy Centers and Specific Technical Training, Burkina Faso, 2010

Source: Adapted and translated from the national FONAENF Burkina Faso document

Literacy practices in Burkina Faso have mainly focused on a basic literacy cycle during a first campaign, followed by a complementary basic training cycle during a second campaign, after which a learner is declared literate. To reinforce the functional nature of literacy, learners are advised to follow a further technical and specific training cycle in a chosen activity area.

Findings

The idea of experimenting with new curricula for the permanent functional literacy centers was first discussed during the first NFE forum in 1999, which conducted a critical evaluation of the existing curricula and their weaknesses. This analysis noted the following shortcomings, among others:

- *Loss of momentum of literacy programmes that lacked appeal with learners, carrying the direct consequence of high system dropout; and*
- *The lack of performance of the technical and specific training courses, despite them being key opportunities to apply the skills acquired.*

The experimentation process was entrusted to the national department for NFE. It was initiated in 2004 and continues to this day. The new curricula are organised around two literacy cycles:

- *Cycle 1 (660 hours) - Basic Literacy Training: Includes two levels, Level 1 (Basic Literacy) and Level 2 (Complementary Basic Training). Learners are declared literate at the end of this cycle; and*
- *Cycle 2 is an optional cycle with three streams: Level 1 (scientific and technical culture/600 hours), Level 2 (fundamental and functional French/1,500 hours), and Level 3 (technical and specific training/1-5 weeks).*

The ongoing literacy training approach (Cycle 1 plus Cycle 2, including at least one technical and specific training course) approved by all during the NFE forum, is yet to be fully implemented and generalised. Indeed, the degree of attrition between the first level (basic literacy) and the second (complementary basic training) is cause for concern, especially considering that the latter alone provides access to reemployment opportunities.

In addition, there are few courses offered given the under-financing of technical and specific training courses, and most of them do not satisfy a real demand on behalf of learners or cannot be implemented due to the lack of a market or low relevance.

Furthermore, technical and specific training courses are randomly organised, according to the whim of each provider, without structure. Such courses are not governed by an official programme and curriculum, and as such have only been subject to approximate monitoring and evaluation on behalf of the state funding bodies. However, the multi-year TVET action plan does contemplate coded modular short courses for neo-literates. It would therefore be appropriate to define benchmarks by craft, on the basis of the Vocational Qualification Certificate.

Finally, it is to be noted that even when they do respond to demand, courses enabling learners to be involved in specific projects do not provide the expected results, due to lack of funding. Indeed, post-technical and specific training courses are completely marginal, subject to the goodwill of partners, and are generally not recognised by the decentralised financial system, microcredit, and even less so by banks. Here again, it would be appropriate to establish a link with national funds if bridges are established for young neo-literates.

To summarise the information on all the available programmes, a table such as Table 9.1 may be used.

TABLE 9.1 - Summary of NFE Programmes (Model Table)									
Non-formal Education									
	Institution/ Provider	Status	Delivery Mode	Summary Objective	Target Group	Training Contents	Total Nb. of Hours	Language	Type of Certification
Name of Programme 1									
Name of Programme 2									
Literacy									
	Institution/ Provider	Status	Delivery Mode	Summary Objective	Target Group	Training Contents	Total Nb. of Hours	Language	Type of Certification
Name of Programme 1									
Name of Programme 2									

Source: Authors.

1.3.2 ACCESS TO PROGRAMMES - CONDITIONS AND INCENTIVES

Building on the previous discussion, it is interesting to present the selection procedure of participants as well as the incentives used to stimulate demand for the programmes and retention within them. The importance of potential demand does not ensure the systematic enrolment of the target group in the activities designed for them. This is particularly true in non-formal education courses aimed at children who live in nontraditional social structures or with working adults, who may not always perceive the value of the approach, or for whom the economic, psychological or social cost may be too high. Incentives are often created to stimulate demand, either in terms of course content (reading religious texts, initiation to family and social law and so on), or in the shape of social or financial advantages (free medical care, access to microcredit, and so on).

Beyond enrolment, it is often retention that constitutes the main problem for non-formal education programmes, and especially for literacy activities. The measurement and potential causes of this phenomenon will be dealt with later. At this stage, it is worthwhile noting that the incentives are sometimes enhanced to stimulate access and retention, and it is

therefore interesting to evaluate their effectiveness in terms of these two aspects of individual learning careers. A summary table may be used to present the conditions of access to the programmes and the measures adopted to encourage enrolment and retention in the activities on offer.

TABLE 9.2 - Access Conditions to NFE Programmes and Incentives (Model Table and Illustrative Data)

	Eligibility	Duration	Incentives	Other Benefits	Outlook
Programme 1	Open to women aged 15-50 years. Option to repeat the programme.	- Two 1 year cycles - Three 2 hour sessions per week	Free medical check at the beginning and end of the cycle	Transport collection point	- Attendance certificate - Follow-up with consolidation programmes
Programme 2	Men and women aged 18 years or above.	One 1 year cycle	None	None	- Attendance certificate - Access to vocational training programmes
Programme 3	School-aged children	- One 2 year cycle - Two days per week	Monthly stipend	Transport expenses covered	- Access to vocational training programmes - Access to formal education
Programme 4	Rural women under 40 years.	- One 1 year cycle - One day per week - One day for production training	Supply of training materials and oil	Religious education	None

Source: Authors.

1.3.3 ACTIVITIES AND PROGRAMME CONTENT

This section aims to describe the pedagogical approaches of the different types of NFE activity, including their structure and content. Common pedagogical practices are then examined as well as the type and nature of evaluations performed. A set of typical questions are proposed below, which should enable documentation of each of the mentioned points, thanks to a direct survey of training institute directors and programme managers.

- What is the overall length of the training? How is time spent each month/week?
- Is the course part of a broader pedagogical approach (prior training required, further training available and so on)?
- Does the course comply with a national programme, or is it specific to your institution?
- Is there an inspection procedure to validate the course content and delivery, at the national or local level?

- Are programme beneficiaries provided with textbooks?
- Are programme instructors provided with guide books?
- What is the nature of the main programme content:
 - Mainly school-type, disciplinary?
 - Mainly context-specific?
- How are sessions generally organised (place, type of facility, size and composition of learner groups and so on)?
- What pedagogical approach is primarily used (general school-type pedagogical approach, adapted approaches for specific target groups and so on)?
- Are learning achievements evaluated? How? How often?
- Is a certificate provided to completers? Of what type? Does it consider the continuous assessment of learning?

The descriptive information provided by this section will be useful for the later comparison of enrolment, retention and results of different training modes.

NEEDS AND PARTICIPATION

In this section the analysis should aim to estimate the needs of the population groups targeted by non-formal education, as well as the extent to which each programme responds to such needs, at least in quantitative terms.

2.1

ESTIMATE OF THE POTENTIAL DEMAND FOR NON-FORMAL EDUCATION

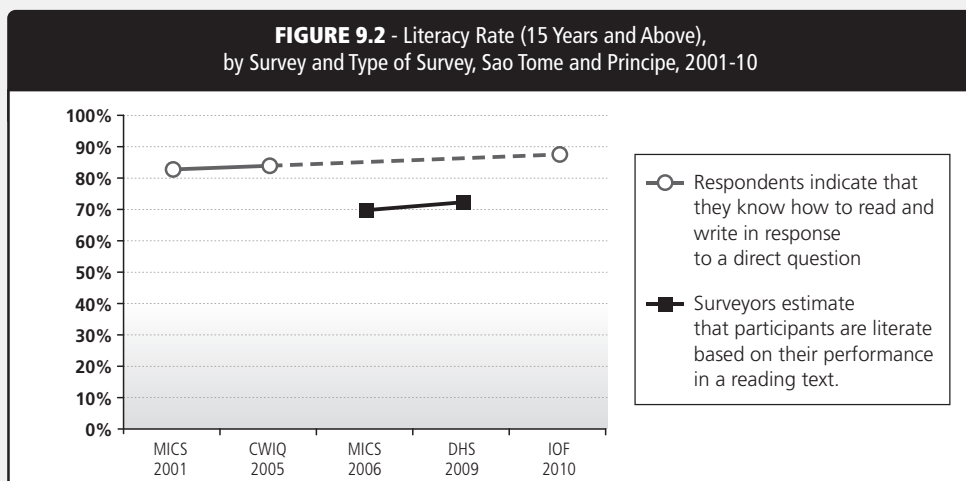
Estimating the potential demand for non-formal education (not including early childhood development activities) often amounts to estimating the size of the illiterate population. This includes school-aged children who have never attended school or dropped out early, and illiterate adults aged 15 years and above. The exact definition of these groups will vary according to the mandate given to the institutions responsible for NFE. The development and the relative precision of school statistics helps to account for the former, but information on the latter (the level of literacy of out-of-school individuals) must be obtained from other sources. Exhaustive surveys such as censuses are often based on participants' responses and self assessment of their level of literacy. In other sample surveys such as some household surveys (and specific, although rare, literacy surveys), the investigator assesses individuals' level of literacy on the basis of a reading and comprehension exercise (direct assessment). The first type of survey (self-assessment) tends to overestimate the literacy rate (See Annex 9.9 for further information on each approach).

The following example illustrates how to present the demand for literacy programmes, comparing very different types of information, based on various household surveys, individuals' own declarations and evaluations.

**(Demand for NFE – Estimate of the Illiterate Population):
Estimates of the Illiterate Population According to Different Surveys,
Sao Tomé et Príncipe, 2001-10**

Source: Adapted and translated from the Sao Tomé and Príncipe CSR, 2012.

In Sao Tomé and Príncipe, five household surveys were carried out between 2001 and 2010, each estimating the literacy rate of the population aged 15 years and above. Figure 9.2 presents the results obtained by each survey, differentiating between those based on participants' responses and those based on a direct evaluation.



Findings

The three household surveys simply asked respondents if they knew how to read and write, estimating the literacy rate of individuals aged 15 years and above at 82.9 percent in 2001, 84.4 percent in 2005 and 87.7 percent in 2010. However, when considering the surveys that actually tested respondents, the rate is lower: the 2006 MICS survey found the literacy rate for the age group to be 69.9 percent and the 2009 DHS survey 72.2 percent. There is thus a difference of about 15 percentage points between the rates estimated by each type of survey, for comparable years (between the 2005 CWIQ and the 2006 MICS, and between the 2009 DHS and the 2010 IOF survey).

Beyond the estimate of the numerical magnitude of potential demand, it is helpful to study its structure by age group, gender and geographic location. This information will of course be very helpful to target beneficiaries and intervention areas, and determine the trade-offs to be made.

Example 9.5 below, based on an analysis of the Malagasy situation, presents an estimation of the number of illiterate individuals, as well as their distribution by age, gender and area of residence (urban/rural).

EXAMPLE 9.5

**(Demand for NFE – Characteristics of the Illiterate Population):
Analysis of the Illiterate Population, Madagascar, 2005**

Source: Adapted and translated from *Analyse des besoins en alphabétisation*, a presentation of the results of the illiteracy survey in Madagascar, ONG Education Network, 2010.

In the 2005 permanent household survey (PHS), three variables enable the identification of basic literacy skills: (i) knowing how to read; (ii) knowing how to write; and (iii) knowing how to count. All three are based on participants' responses. The results of the analysis of the variables for the 6 to 14 years, 15 to 45 years and 46 years and above age groups is provided in Table 9.3.

TABLE 9.3 - Number and Share of Individuals Knowing How to Read, Write and Count, by Age Group, Madagascar, 2005

	Can Read				Cannot Read				Total
	Can Write		Cannot Write		Can Write		Cannot Write		
	Can Count	Cannot Count	Can Count	Cannot Count	Can Count	Cannot Count	Can Count	Cannot Count	
6-14 Years	3,223,671	69,695	36,361	45,296	13,179	3,169	204,395	1,450,047	5 045 813
% of Total	63.9	1.4	0.7	0.9	0.3	0.1	4.1	28.7	100.0
15-45 Years	5,934,016	25,730	46,131	13,970	9,871	3,673	735,030	1,135,813	7 904 234
% of Total	75.1	0.3	0.6	0.2	0.1	0.0	9.3	14.4	100.0
46+ Years	1,499,314	7,253	19,080	11,045	4,667	2,208	258,409	478,561	2 280 537
% of Total	65.7	0.3	0.8	0.5	0.2	0.1	11.3	21.0	100.0
15+ Years	7,433,330	32,983	65,211	25,015	14,538	5,881	993,439	1,614,374	10 184 771
% of Total	73.0	0.3	0.6	0.2	0.1	0.1	9.8	15.9	100.0

Findings

The results show, among other things, that of the 10.2 million individuals aged 15 years and above in 2005:

- (i) 73.0 percent declare that they know how to read, write and count;
- (ii) 15.9 percent cannot read, write or count; and
- (iii) 9.8 percent declare that they know how to count, but cannot read or write.

With respect to these three basic literacy skills, it can be derived that 27 (=100-73) percent of the Malagasy population (about 2.75 million) aged 15 years and above in 2005 is considered to lack some form of basic literacy.

Table 9.4 shows that with respect to the characteristics of the group:

- (i) The illiterate share of the population varies little by age group;
- (ii) The share of illiterate women increases with age, unlike that of men. Thus, the literacy gap between men and women increases with age, from 3.4 percentage points for the 15 to 24 years age group to 7.7 percentage points for the 35 to 45 years age group. In numbers, of all individuals aged 15 to 45 years, 1.12 million are women and 0.85 million are men; and

(iii) The share of illiterate individuals in rural areas is about 1.8 times higher than in urban areas.

TABLE 9.4 - Share/Number of Illiterate Individuals, by Age Group, Gender and Area of Residence, Madagascar, 2005

By age-group	15 - 24 years		25 - 34 years		35 - 45 years	
Share (in %)	25.2		25.3		24.1	
Number	844,796		626,120		499,302	
By Gender	Men	Women	Men	Women	Men	Women
Share (in %)	23.4	26.8	23.2	27.2	20.1	27.8
Number	379,591	465,205	266,037	360,083	203,317	295,985
By Area of Residence	Rural	Urban	Rural	Urban	Rural	Urban
Share (in %)	28.3	15.1	28.1	16.0	26.9	14.8
Number	723,469	121,327	534,805	91,315	426,883	72,419

Stock and Flow Needs

In addition to the estimates of the number of illiterate adults and youth, it may be interesting to differentiate between *stock* needs and *flow* needs. Indeed, a share of the potential beneficiaries of NFE programmes may reflect a need that can disappear in the short to medium term, whereas others reflect a long-term requirement. For instance, it is common in postconflict countries that a large proportion of school-aged children never attended school or had to drop out. At the end of the conflict, these children are therefore not enrolled and are often too old to follow traditional schooling, whereas younger children are more easily enrolled at the normal age. The need for NFE for this age group is thus the *stock* of over-age children, which will not be renewed; their younger peers will attend school. Less extreme cases are found in most countries where primary retention, although improving fast, is weak. There is therefore a decreasing stock of children who have dropped out of school early. On the other hand, the phenomenon of adults who have received an education of relatively low quality and relapse to illiteracy after some years tends to be a long-term situation, given the slow pace of quality improvement. In this instance there is a long-term, although decreasing, *flow* of new illiterate individuals in need of NFE.

The distinction between these two groups may be important inasmuch as it provides guidance on the need for the development of new programmes. More complex and costly solutions are usually sought for flow needs rather than for stock needs, which may disappear after some years.

2.2

ENROLMENT, LEARNING CAREERS AND INTERNAL EFFICIENCY

The analysis of NFE, as for other cycles of the education system, involves a detailed and comparative review of the number of beneficiaries and their learning careers. The methods used here are therefore those described in Chapter 2, to describe access, retention, completion, and in summary, the internal efficiency of NFE programmes.

Reflecting the earlier discussion on the difficulty of effectively determining the demand for NFE, care must be taken with the use of coverage indicators (enrolment, potential enrolment) that will not have the same relevance as it does for formal education. On the other hand, it is nevertheless helpful to compare the numbers enrolled (consolidated if various comparable programmes are offered) with the number of potential beneficiaries to appraise the quantitative and qualitative relevance of the programmes offered. This amounts to a gap analysis between potential and effective enrolment, possibly distinguishing between stock and flow needs. Likewise, the average characteristics of beneficiaries can be compared (age, gender and area of residence) to those of the target group. According to the complexity of the subsector in the country context, it may be helpful to separate non-formal and literacy activities in the tables presented.

If the data is unreliable due to the irregularity of the programmes or weak data collection capacities, the team responsible for the analysis should take care to compute averages for the available data over the most recent years to reduce the impact of the low quality of the data on the appraisal. The following example illustrates the type of tables and analysis that can be developed for all NFE providers, although it is based on one Burkina operator. In the absence of, or in complement to statistics for each of the players, household surveys may also provide items of information on the numbers of individuals enrolled in NFE programmes. It may also be feasible to carry out specific surveys of programme beneficiaries to compile a profile of service users (See Annex 9.2 for a model questionnaire used in Morocco).

(NFE Participation):**Literacy Learner Statistics, by Gender, Burkina Faso, 1995-2008**

Source: Adapted and translated from *L'alphabétisation et l'éducation non formelle en Afrique - Burkina Faso: Approche de Tin Tua en AENF: l'éducation de base communautaire*. Organisation internationale de la Francophonie, 2009.

TABLE 9.5 - Number of Enrolment and Access to Literacy Programmes, Burkina Faso, 1995-2008

	Enrolled			Tested			Passed			% Tested (Tested/Enrolled)			% Passed (Passed/Tested)		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
1995-1996	13,754	8,507	22,261	10,593	6,886	17,479	8,122	4,535	12,657	77.0	80.9	78.5	76.7	65.9	72.4
2000-2001	15,517	16,322	31,839	13,971	14,978	28,949	9,748	9,204	18,952	90.0	91.8	90.9	69.8	61.5	65.5
2005-2006	17,062	21,607	38,669	14,691	19,972	34,663	13,034	17,363	30,397	86.1	92.4	89.6	88.7	86.9	87.7
2006-2007	12,064	15,354	27,418	10,705	14,527	25,232	9,821	13,364	23,185	88.7	94.6	92.0	91.7	92.0	91.9
2007-2008	17,668	23,532	41,200	16,595	22,617	39,212	15,946	21,680	37,626	93.9	96.1	95.2	96.1	95.9	96.0

Findings

- Women represent 55.2 percent (calculated as per Table 9.5) of enrolment since 2000;
- Despite all constraints, the rate of attrition (dropout and failure) tends to drop over time, both for women and men;
- Trends in terms of participation show that women are more assiduous than men. The dropout rate (calculated as 100% - Tested) was 21.5 percent overall in 1995-96 (23.0 percent for men and 19.1 percent for women) and 4.8 percent in 2007-08 (6.1 percent for men and 3.9 percent for women);
- Learning trends show that despite the obstacles, the pass rates of both men and women have tended to increase. The pass rate (% passed) shows that skills for both women and men have been equivalent since 2006-07, whereas in 2000-01 only 61.5 percent of women passed (versus 69.8 percent of men); and
- The growth in women's enrolment has been accompanied by an improvement in their performance.

The comparison of the number of beneficiaries that reach the end of a cycle (and receive a certificate when they have sat for final tests or exams) to the number of enrolled learners provides a direct measure of the internal efficiency of the programme.⁶⁴

Review of the characteristics of the learners enables a direct appraisal of the capacity of each programme (and of all of them jointly) to reach their target groups. The indicators of internal efficiency (achievement and success rates) can be computed for different groups to analyse the issue of success, as per the last section of this chapter.

In the context of non-formal education, obtaining such data is not always straightforward and involves compiling information from diverse programme operators. This may be facilitated where a steering body exists (administration, federation and so on). Some parameters may be estimated through surveys of a sample of operators, covering

completion and success rates and the average characteristics of participants. However, to reach an informed management of the subsector, it is key that every effort be made to implement a sustainable NFE information system (See Box 9.1).

BOX 9.1

Non-formal Education Management Information System (NFE-MIS)

The Non-formal Education Management Information System (NFE-MIS) is a system specifically designed for the management of information on non-formal education that collects, saves, processes, analyses and disseminates data and information on NFE for planning and management purposes. It includes the following components: a conceptual framework and methodologies to ensure the census and follow-up of NFE, tool prototypes for data collection, a computerised database and a dissemination strategy that facilitates the circulation of information to and from between NFE stakeholders. The census here covers the location and identification of agencies implementing NFE activities, ongoing NFE programmes offered in a given area, the educators operating in a given area (including their specialisations) as well as learners. As a result, it produces a list, or a map of the items mentioned above.

The conceptual framework of the NFE-MIS includes four categories:

- NFE activity types
- NFE operator types
- NFE target group types
- Target age group types

At the national level, the NFE-MIS aims at providing policy-makers and planners with reliable, relevant and timely data to allow for informed decision making, better planning and delivery of NFE, as well as for monitoring and evaluation of NFE development. Thus, the objective is to improve the co-ordination of existing NFE programmes between NFE providers and managers. The NFE-MIS also provides baseline information about learners that is useful for studies on the way their acquired knowledge and skills are used, and on the impact they have on their quality of life.

Source: NFE-MIS Handbook – Developing a Sub-National Non-Formal Education Management Information System, UNLD-LIFE and UNESCO.

2.3 STAFFING/SUPERVISION

Staff-student ratios are as much an issue in NFE as they are for any education cycle, and possibly a more acute and complex one still. Indeed, there are generally no benchmarks for providers (like those in the formal education sector), and the level of professionalism of NFE's managers is often modest.

2.3.1 PEDAGOGICAL SUPERVISION

In formal education streams, because activities are normalised to some degree, the level of pedagogical supervision can be described by the pupil-teacher ratio or average class size. In non-formal education, where homogeneity of programmes and target groups is much lower, a learner-trainer type ratio is less appropriate. Indeed, it is possible that an important number of trainers each do a limited number of hours of teaching. For this reason, in NFE it is preferable to refer to the average size of groups (and/or estimates of the full-time equivalent).

A distinguishing feature of the quality of pedagogical supervision in NFE is the wide variety of points of access for teachers of non-formal or literacy programmes (basic apprenticeships, vocational courses, social or religious training and so on) leading to an equally varied selection of specialties among teachers. However, one of the most striking differences among NFE programmes (and between them and formal programmes) relates to whether teaching/training is the individual's main job or an activity on the side. In the former, the non-formal character of institutes is accompanied by real professionalism among the teachers (in terms of recruitment, training, career prospects and so on). In the latter the activities may be temporary or sporadic, and the professional commitment of teachers will necessarily be more limited.

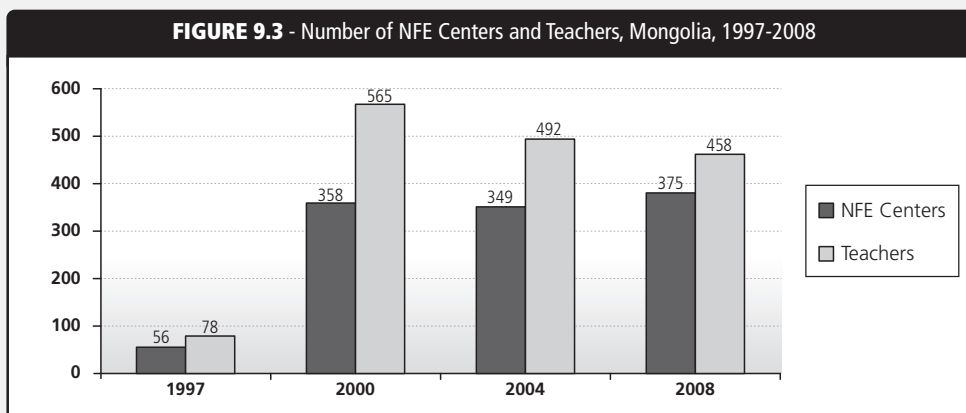
To approach these elements that, despite their highly qualitative dimension, provide a fairly precise image of the subsector, the description of the profiles of trainers should not be limited to traditional variables (initial training, vocational training). Additional, finer dimensions should be integrated, such as the number of hours of work performed in a year, the level of yearly remuneration (referenced to the minimum wage or the primary school teacher's starting salary), or whether trainers currently have another job. The following example, from Mongolia, presents some such information illustrating how the non-formal education subsector's teaching staff can be described. In addition to the number of trainers, the example deals with their training, remuneration and job stability.

EXAMPLE 9.7

**(Analysis of NFE training staff):
NFE Personnel Characteristics, Mongolia, 2008**

Source: Adapted from Non-formal education sector analysis, National center for Non-Formal and Distance Education, Mongolia, 2009.

This example illustrates a possible approach to the analysis of the characteristics of teaching staff in NFE programmes in Mongolia, including their numbers, type of job, qualification level, employment status and salary.

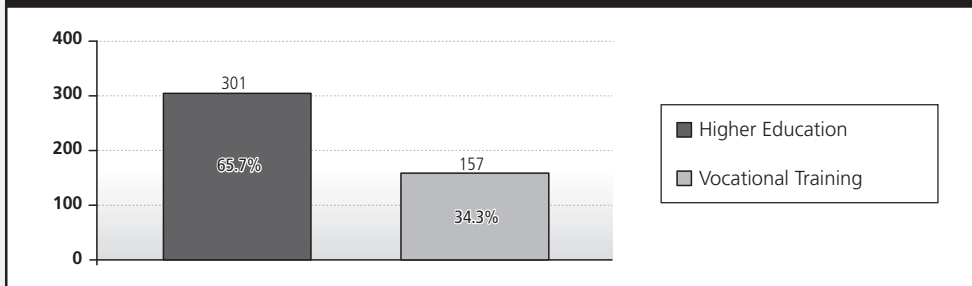


Findings

As of 2008, 458 teachers/facilitators worked in Soum and district NFE Enlightenment Centers (Figure 9.3). More detailed data shows that, of these, 220 are full-time teachers (62.5 percent) and the rest are part-time. The part-time teachers include those working in formal schools in addition to social workers. Furthermore, 130 NFE teachers/facilitators (28.4 percent) work in the 10 independent NFE Enlightenment Centers. The other centers have only one teacher/facilitator each. These numbers indicate an insufficiency of NFE activities in the community. Though independent NFE Enlightenment centers have difficulty providing training for adults with their current capacity, courses for children and youth are being offered efficiently and sustainably. In order to improve the quality of NFE services it is necessary to increase the number of teachers in the NFE centers, especially in rural areas.

Educational Qualifications of NFE Teachers. The educational qualifications of NFE teachers/facilitators is at the same level as formal school teachers (See Figure 9.4). The educational level of NFE teachers in Mongolia is generally higher than in other countries in the Asia-Pacific region. Two thirds (65.7 percent) hold university degrees and a third (34.3 percent) have vocational college degrees.

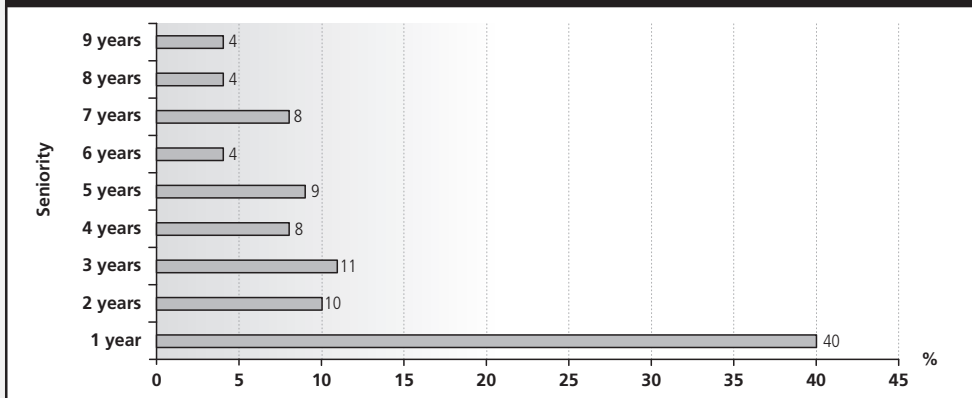
FIGURE 9.4 - Number of NFE Teachers/Facilitators, by Level of Qualification, Mongolia, 2008



Sustainability of Teaching Staff.

Another factor that influences NFE quality is the sustainability of teaching staff. Of the total number of teachers working in NFE Enlightenment Centers, 163 (61 (=40+10+11) percent) have been working up to three years (See Figure 9.5). Teachers tend to work for shorter periods either after their retirement from formal schools or while on the waiting list to become a formal school teacher. Based on data not displayed in the figure, of the 1,529 teachers/facilitators involved in training organised by NCFDE between 1998 and 2004, less than 20 percent continued to work in NFE. The high teacher turnover rate can be attributed to low salaries and the poor reputation and social welfare services available.

FIGURE 9.5 - Share of NFE Teachers/Facilitators, by Seniority, Mongolia, 2008



NFE Teacher Salary.

The average salary of formal school teachers is 200,000 to 300,000 Togrogs/month (approximately US\$ 165 to US\$ 265). The table below shows that the average salary of an NFE teacher is similar, although they do not receive the subsidies that formal school teachers do.

TABLE 9.6 - NFE Teachers' Monthly Salary (NFE Sector Analysis Survey Respondents), Mongolia, 2008

Amount of Salary (Tog)	Teachers	
	Number	Percent
170,000 - 200,000	27	27.6
201,000 - 230,000	3	3.1
231,000 - 260,000	46	46.9
261,000 - 290,000	21	21.4
300,000 and above	1	1.0
Total	98	100.0

Sustainable information systems providing such a detailed description of trainers may not be available in the country under analysis. In addition to regular administrative surveys aimed at the publication of statistical yearbooks for the subsector, such information may be collected through centers' registration or accreditation procedures or from representative bodies (federations, unions). If such sources are not available, a specific sample survey of programme operators may be carried out by the sector analysis team to shed further light on the quality of staff. Annex 9.4 provides the key themes (and questions) to be considered by each center, to provide information on each of its teachers.

Pedagogical supervision also makes the workers responsible for the quality control of training activities. Beyond the number of inspectors, to be related to the number of institutes to be inspected, information should be provided on their status and body of affiliation. This task is sometimes bestowed on education inspectors from the formal education sector, but some institutes may have an in-house inspector, especially in the case of large NGOs. The inspection function may also be provided by subsector officials when it has its own public or private administration. The inspection reports, where they can be consulted, may provide an interesting source of information on the quality of programmes. It may be wise to incorporate such inspection data to specific questions on the activities of programme operators in the framework of a survey. Annex 9.5 provides an example of a survey module relating to pedagogical inspections.

Thus Example 9.8 presents, for Uganda, an analysis of the support and supervision visits received by literacy centers, especially according to their distance from regional centers.

(Supervision of NFE Programmes): Supervision and Support to NFE Centers by Community Agents, Uganda, 2001

Source: Adapted from Adult Literacy Programme in Uganda, World Bank, 2001.

This example provides an analysis of inspection and support visits to literacy centers in Uganda by a community development officer (CDO), and how they vary according to the center's distance from the main regional town.

TABLE 9.7 - Number of CDO Supervisory/Support Visits, by Distance of Center from Subcounty Headquarters, Uganda, 2001

	Number of Instructors/Centers	Frequency of Visits		
		No Visit	1 or 2 Visits	3 Visits or More
1 - 3 kms	32	25%	28%	47%
4 - 6 kms	27	44%	41%	15%
7 - 9 kms	29	48%	35%	17%
10+ kms	21	48%	43%	10%

Findings

Twenty-nine percent [=32 / (32+27+29+21)] of centers were less than three kilometers (two miles) from the subcounty headquarters and so could easily be visited on foot, but a fifth were more than ten kilometers (six miles) away, which would indeed make regular visits difficult without transport. In fact, the reported number of visits by community development officers (CDOs) was very low. Only just over half had been visited at all by the CDO during the last year. The number of visits was clearly related to distance (See Table 9.7). Nearly half of those centers within three kilometers received three or more visits, compared to less than 15 percent of those seven kilometers or more away; indeed, nearly half of the latter received no visits at all.

While acknowledging transport difficulties, some instructors said that supervision by CDOs was minimal. In Hoima, some instructors observed that "the CDOs do nothing in terms of support," others that "those who used to support us went for further studies." FAL instructors in Mubende observed that CDOs rarely check classes. "In 1998 he checked only twice. When we need him he is not available due to other activities he is engaged in. We need him to check on us in order to boost our morale and that of learners. We elected a subcounty FAL committee in 1998, but it has never functioned." In Iganga, for example, one instructor said that "it is very rare to see the community development officer. The last time I saw him was during the literacy day celebrations." Some instructors, however, acknowledged that they received support in the form of materials, transport or funds for training from the District Office. Although this was sometimes quite substantial, it was irregular and the allocation for adult education activities was not received as budgeted: local councils tended to offer the excuse that tax collections were low, and hence budgets could not be funded.

The first objective of this section is to develop a relatively comprehensive account of the subsector's expenditure and reflect on how funding may evolve in the future. The second is to estimate the cost per beneficiary and by programme, and identify the causes of any variations. The methods to be used here are again similar to those identified in Chapter 3. Given the imperfect structure of the subsector and its likely dispersion among a plethora of operators, it is helpful, even more so than for other education sub-sectors, to use both macro and micro estimates of expenditure.

3.1 NFE FINANCING: SITUATION AND PROSPECTS

In reference to the global scheme and presentation of the sub-sectors' different institutions, the analysis should provide a reasonably comprehensive account of the funding of non-formal education. Ideally, this account would consolidate the expenditure carried out by the government (the ministry or authority responsible for NFE), the budgets of NFE institutions (federations, unions and so on), the spending supported by local authorities, that carried out by companies and, finally, the direct contributions of the beneficiaries themselves. As in Chapter 3, it will be preferable to use executed budget data (rather than budget allocations) and to take care when consolidating the account to be aware of how effective spending data and estimates are combined.

The account can be detailed by source of funding and type of income. This exercise allows the measurement of the financial weight of the subsector and comparison of it to other activities or to the same activity in other similar countries. The consolidation of spending should allow a separate review of those items relating to different programmes and key activities. That said, in the absence of an institution responsible for the majority of the financing of the subsector, it is likely that the elaboration of the account will first require an understanding of the spending at the programme level. The summary should include each of the main spending types (personnel, running costs, investment costs and so on), as per Table 9.8.

TABLE 9.8 - Estimation of NFE Spending, by Programme (Model Table)

	Programme 1	Programme 2	Programme n	Total
Personnel	F1	F2	F _n	F=F1+F2+...+F _n
Specific Administrative Spending	AS1	AS2	AS _n	AS=AS1+AS2+...+AS _n
Distribution of Overhead	AC1=A _x (F1/F)	AC2=A _x (F2/F)	AC _n =A _x (F _n /F)	AC
Specific Supplies				
Distribution of Common Supplies Spending	MS1	MS2	MS _n	MS=MS1+MS2+...+MS _n
Specific Running Costs	MC1=M _x (F1/F)	MC2=M _x (F2/F)	MC _n =M _x (F _n /F)	MC
Distribution of Shared Running Costs	OS1	OS2	OS _n	OS=OS1+OS2+...+OS _n
Miscellaneous	OC1=O _x (F1/F)	OC2=O _x (F2/F)	OC _n =O _x (F _n /F)	OC

Source: Authors.

The main difficulty of the exercise resides in the frequent multiple activities of operators. This holds true in the case of:

- NGOs, who often offer non-formal education programmes in addition to other social programmes. As in the case of the distribution of general administrative spending in the context of the formal education sector, where NFE operators offer different types of courses, the share of the global budget attributable to NFE (trainers, administration, supplies, investment and so on) should be calculated. Different breakdown keys are available (the pro rata of the specific personnel spending of each programme as shown in the table 9.8, the number of beneficiaries and so on). It is, of course, important to explain how the calculation is made and to apply the same approach to all operators who provide the same type of service.
- Some public (or occasionally private) operators whose NFE activities complement other main activities, such as school teachers who give literacy classes after school hours. In this case the only spending to be considered for NFE is that specifically incurred by those activities, without having to distribute the general administrative costs.

3.2 PER BENEFICIARY SPENDING, BY PROGRAMME

On the basis of the consolidated spending by nature and programme, unit costs should be computed to compare spending by beneficiary. However, due to the variety of programme delivery modes, unit costs do not provide a solid basis to appraise operations, as they do in the formal sector. The latter is indeed fairly homogenous, meaning that differences in unit costs reflect different choices in terms of the delivery of education, all of which share the same learning goal. They may reflect different decisions in terms of group size or the selection and remuneration of teachers.

In non-formal education, delivery modes can vary considerably, as can learning objectives. As such, effective teaching time and learning environments (classroom-based, activity-based learning and so on) can vary considerably. It is important to, at least, ensure that comparable programmes are dealt with together before comparing their unit costs. The mapping of NFE programmes completed in Section 1 will enable one to differentiate between groups of programmes with similar types of activities and goals, each group providing a framework for the comparison of costs. To solve the issue of programme content and goal comparability, an estimation of the hourly cost per beneficiary may be computed. However, even more so than in the formal education sector, such financial data will only gain full meaning when related to result indicators (the quality, sustainability and relevance of learning, beneficiary satisfaction, employability and so on). Example 9.9 illustrates the analysis of unit costs based on the cost per hour of class of a literacy centre in Senegal.

(NFE Unit Costs): Cost Structure and Estimated Unit Costs per Literacy Centre Learner, Senegal, 2010/11

Source: Data is from the Youth and Adult Education Department of the Ministry of Education, Senegal.

The following table presents the cost structure and unit costs of a literacy centre in Senegal working under the delegation approach. The centre has 10 classes and 10 facilitators for 300 learners.

	CFAF	% of the Total
<i>Recurrent Expenditure</i>	<i>15,940,000</i>	<i>82%</i>
<i>Pedagogical Material</i>	<i>1,350,000</i>	<i>7%</i>
Arithmetic Textbooks (300)	300,000	2%
Reading Textbooks (300)	300,000	2%
Other Reading Materials (Library, Newspapers, etc.)	750,000	4%
<i>Supplies</i>	<i>350,000</i>	<i>2%</i>
<i>Supervision and Evaluation</i>	<i>800,000</i>	<i>4%</i>
<i>Staff Remuneration</i>	<i>13,440,000</i>	<i>69%</i>
Facilitators (10)	12,000,000	62%
Supervisor/Inspector	1,440,000	7%
<i>Capital Expenditure (Equipment)</i>	<i>3,400,000</i>	<i>18%</i>
Sundry Equipment	2,000,000	10%
Chalkboards	600,000	3%
Building Subsidies	300,000	2%
Connection to Services	500,000	3%
TOTAL	19,340,000	100%
Number of Learners	300	
Average Per Learner Cost (CFAF)	64,467	(13% of GDP per capita)
Cost per Hour Per Learner - 360 hours (CFAF)	180	

Findings

- The average per learner cost reaches CFAF 64,467 for a programme of 360 hours distributed over 10 months, equivalent to an hourly cost per learner of FCFA 180 (=64,467/360);
- The cost structure shows that recurrent expenditure represents 82 percent of the total and equipment the remaining 18 percent; and
- Personnel remuneration constitutes the most important spending item, equivalent to 69 percent of total expenditure, or 84 percent of recurrent expenditure.

Again it is worth noting that such financial information on staff-learner ratios and running costs is far from being widely available in many countries. The analysis to be performed in these sections may therefore often require specific research, whose relevance and potential to be replicated will contribute to the establishment of stable statistical systems.

RESULTS AND QUALITY AND RELEVANCE INDICATORS

The diversity of goals and delivery modes in NFE and the weak knowledge of the subsector, especially in terms of best practices, limit the prospect of providing a one-dimensional appraisal of each of the NFE programmes, not to mention the subsector as a whole. More so than in other education sectors, accounting for the results obtained is therefore an essential ingredient to evaluate the relevance of the activities offered, and a valuable guide to optimise management. The heterogeneous character of learning careers and the relatively weak internal efficiency resulting from frequent dropout also mean that it is important to relate results to the cost of the activities, performing a cost-efficiency analysis. The production of data on results and costs by operators should therefore be encouraged, as it constitutes the basis for better management and improved efficiency, and encourages potential investors. Annex 9.8 suggests some of the issues to keep in mind in the course of the analysis of this section, specifically in terms of the results to consider and how such results are produced, analysed and interpreted.

4.1 EVALUATION OF LEARNING OUTCOMES

Many NFE programmes, especially literacy programmes, aim to provide basic learning to adults who have never attended school. The evaluation of learning outcomes will therefore aim to establish their mastery of such skills, both in reference to the course content followed, and also in absolute terms, by determining learners' ability to use their skills in everyday life (find their way, read and understand signs, keep simple accounts and so on). The concepts of internal and external efficiency are again touched upon here. Evaluating learning in reference to course content allows one to determine the degree of success or dysfunction of each programme, whereas the appraisal of basic skills in absolute terms enables a comparison of different programmes. With respect to this last point, the NFE subsector would benefit from the implementation of a common cross-country measurement of literacy outcomes initiative, as exists in the formal education sector.⁶⁵ The RAMAA initiative initiated by the UNESCO Institute for Lifelong Learning (UIL) might prove to be an option for this. The issue of the sustainability of learning is particularly relevant to non-formal education, given that learning periods are relatively short, but also because of the negative impact of often unfavourable contexts (little educated environments, common language, scarcity of post-literacy programmes and so on).

In the absence of data on the results of the different activities, it is advisable that the subsector diagnosis provide the opportunity to organise some assessments of learning outcomes, be they based on course content or effective skills. If the evaluation is too complex to implement in practice (either due to methodological complexities or time and resource constraints), it is now possible to refer to the experience of some countries that have participated in international standardized evaluations of learning assessments. Where they exist, learning assessments of reading or math outcomes achieved in the formal education sector (EGRA, EGMA, PASEC, SACMEQ and so on) may be used for literacy programmes or their equivalent. This allows the use of national know-how and the measurement of results in a way that is coherent with the formal sector, to compare the effectiveness of different programmes.

BOX 9.2

Research to Measure the Learning Outcomes of Literacy Programme Participants (RAMAA)

In some developing countries, the persistence of widespread illiteracy is reinforced by the absence of a reliable steering mechanism of the quality of programmes, indispensable to guide policy makers and add credibility to national and international advocacy for adult literacy. In this context, the UNESCO Institute for Lifelong Learning (UIL) and UNESCO-BREDA have conducted active research since 2010 to measure the learning outcomes of literacy programme participants (RAMAA). Five Francophone African countries were involved in the experimental phase: Burkina Faso, Mali, Morocco, Niger and Senegal. The target groups are individuals aged 15 years and above who have recently completed a literacy programme.

The issue of the quality of adult literacy programmes is dealt with by RAMAA from the angle of results, and focuses especially on the learning outcomes of individuals upon finishing a literacy programme. RAMAA aims to answer two specific questions:

- 1) What skills are acquired by adults upon their successful completion of a literacy programme?
and
- 2) What factors determine the variations in the skills acquired by different individuals and/or through different programmes?

Methodologically, RAMAA refers to the profiles expected of adults at their completion of a literacy programme, and thus constitutes an external evaluation of learning. The measuring tools are developed independently of the curricula, on the basis of skills benchmarks which are in line with the expected profiles, and that should be defined/elaborated by each country and compared according to a harmonisation logic. RAMAA promotes a horizontal approach based on the active participation of national teams in all the phases of the projects' implementation.

Beyond the identification of best practices in the subsector, RAMAA aims to reinforce the evaluation culture in the adult literacy domain and to develop national capacities for the task on the basis of validated measurement tools and through the promotion of South-South cooperation. In practice, RAMAA should also enable the development of a toolkit, including the

measurement tools used, and an analytical approach to the identification of literacy programme quality determinants.

After a preliminary phase to set up the partnership framework, create national teams and elaborate capacity-building and communication plans, RAMAA is now in the process of developing tools for the evaluation of learning outcomes. This phase was initiated with a review of literature and the development of a national skills benchmark. Countries are now to discuss and validate the framework of common skills to be assessed.

Furthermore, the Literacy Assessment Monitoring Programme (LAMP) offers a conceptual framework which may be helpful for specific country analysis (See Annex 9.1). The analysis of learning results can also enable the comparison of the impact of different programmes (See RAMAA in Box 9.2). In order to be more relevant, this comparison should consider the different delivery modes of each programme and their respective costs. It may also allow, as per Example 9.10, the identification of those programmes that best respond to the needs of different population groups (defined by their age and their initial education level). This requires the use of a standard test, to be administered to the participants of each NFE programme, as well as to school pupils, to obtain a comparison of the non-formal and formal education sectors.

EXAMPLE

9.10

**(NFE Performance – Learning Outcomes):
NFE Learner Performance in Standard Assessments, Uganda**

Source: Abstract adapted from Adult Literacy Programmes in Uganda, World Bank, 2001.

This evaluation assessed the difference between the performance of participants in the FAL and REFLECT programmes.

TABLE 9.10 - Mean Scores on Three Tests in FAL and REFLECT Programmes According to Different Levels of Schooling, Uganda, 2001

	Numeracy		Comprehension		Writing	
	FAL	REFLECT	FAL	REFLECT	FAL	REFLECT
No schooling	45.3	28.4	27.2	22.2	25.6	17.9
1-4 Years	58.1	64.7	35.6	52.9	29.6	35.8
5-8 Years	76.9	86.3	57.6	73.5	44.0	47.3

TABLE 9.11 - Mean Scores for Primary School Pupils Compared with NFE Graduate Groups, Uganda, 2001

	Simple Comprehension	Numeracy	Complex Comprehension	Writing (Attempts Only)	Writing (All)
Grade 3 Primary Pupils	53.1	42.8	11.3	38.9	34.3
Grade 4 Primary Pupils	64.6	43.4	15.5	52.4	36.0
Literacy Programme Graduates	93.9	66.6	49.5	52.3	39.3
Literacy Programme Graduates with No School	84.9	47.8	31.8	46.5	—
Literacy Programme Graduates Aged 50+ Years	90.5	50.7	42.2	51.6	34.8

Findings

Table 9.11 compares the test results of children of Grade 3 or Grade 4 formal primary education, literacy programme graduates, literacy programme graduates who had never been in formal school and those aged more than 50 years.

Note that one would not expect formal school pupils to do very well on the more complex comprehension questions, which were clearly oriented toward adults, and even the writing tasks were more adult-oriented. Focusing only on the simple comprehension questions and the numeracy questions, it can be seen that Grade 4 students surpass literacy programme graduates only in writing. This leads to the conclusion that under the prevailing conditions in the eight districts of Uganda, adults can acquire literacy skills thanks to literacy programmes rather faster and more effectively than children enrolled in formal primary education. Given that the overall sample performs better on this test than an apparently reasonable control group, one could argue that a significant positive outcome of the literacy programmes has been demonstrated.

However, apart from the obvious point that Grade 5 children should have been tested, it remains important to understand what affects performance at the test, and whether any of those influencing factors are amenable to policy intervention. In particular, there are quite large variations between districts (not shown in the table). So, if all those in Arua district had performed as well as those in Hoima district for instance, the overall pass rate would have been much higher. A priori, one supposes that these differences are due to the way the programme was implemented in the different localities, but the question arises as to whether some of these variations can be explained by the characteristics of individual participants.

Finally, the use of household survey data enables one, under certain assumptions, to provide a comparison of the efficiency of formal and non-formal programmes in providing participants with sustainable literacy skills. Example 9.11 below illustrates this approach with the case of the Central African Republic (See also Annex 9.7, which provides a summary result of this approach for 14 African countries).

(NFE Performance): The Sustainability of Literacy, CAR, 2000

Source: Adapted and translated from the Central African Republic CSR, 2008.

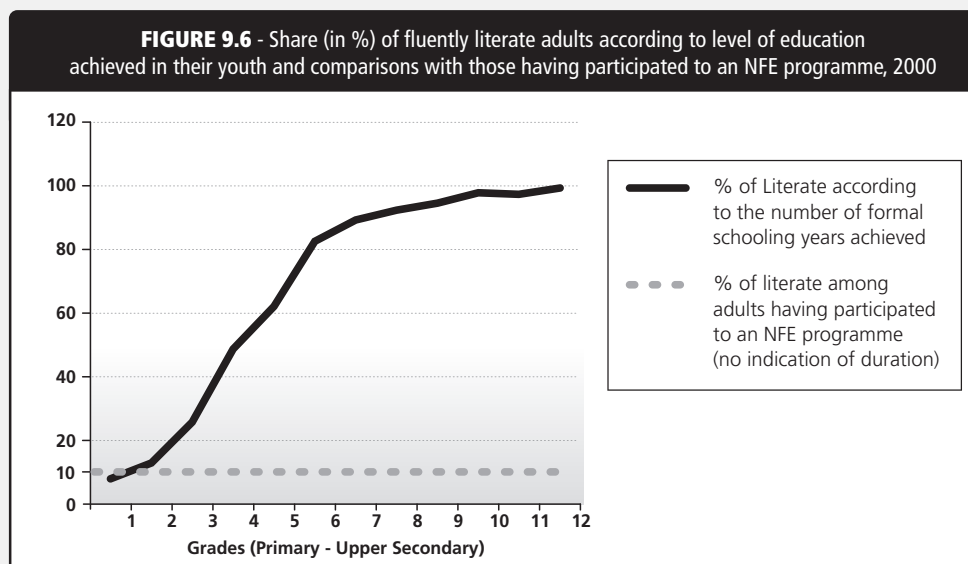
Table 9.12 and Figure 9.6 display the data of the MICS 2000 household survey, providing the distribution of adults aged 22 to 44 years according to their literacy level at the time of the survey and their school attendance when young, distinguishing between formal and non-formal education streams and comparing them to individuals who never attended school.

TABLE 9.12 - Literacy Level of Adults, According to their School Attendance when Young, Central African Republic, 2000

(Percent)	No School	Attended School (Stream)		Overall
		(Formal)	(Non-formal)	
Reads fluently	2	61	10	37
Reads with difficulty	3	26	22	17
Cannot read	95	12	69	46
Total	100	100	100	100

Findings

The data indicates with no ambiguity that a great majority of adults who never attended school when young are illiterate (95 percent). Only five percent declared knowing how to read, of which two percent declared they know how to read fluently. Among those having attended an NFE programme, the share of literate adults is higher than for adults having never been to school, but remains low: 32 (=10+22) percent can read, although just 10 percent fluently. Among those who attended formal education, 61 percent can read fluently. This figure no doubt corresponds to the majority of individuals in this category, but nevertheless, for 39 (=100-61) percent of adults, having attended formal school was not sufficient to achieve sustainable literacy.



Thus, even if following an NFE course has a positive impact on adults' probability of knowing how to read, it is clear that the attending formal schooling when young produces the best chances of achieving sustainable literacy. However, formal schooling when young, much as it is a necessary condition for literacy, is nevertheless an insufficient one.

Table 9.12 provides general information on school attendance without entering into detail regarding the length of schooling careers. For non-formal education, the survey provides no indication of this. For formal education, on the other hand, it is possible to identify, among those who attended school, the duration of their schooling, via the highest grade attained.

The relationship between the number of years of formal school attended when young and the share of adults who are fluently literate is quite clear (see Figure 9.6). It is also apparent that the literacy level of individuals having followed some form of NFE is equivalent to that of those having followed 1.5 years of formal schooling (the dotted line cross the bold curve around the value of 1.5 grades).

4.2

THE IMPACT OF NFE ON SOCIAL BEHAVIOUR AND PRACTICES

Behavioural change in beneficiaries may be one of the central goals of NFE programmes, especially those that target marginalised youth in need of social skills and preparation for reintegration into more formal streams of training, be they general or vocational. This may also be the objective of some literacy programmes whose content is not limited to basic learning, such as any programme aiming to impart social or professional skills. The analysis of the impact of NFE programmes on behaviour requires individual-level survey data that identifies both the programmes followed and the behaviours and practices of interest, while providing a direct comparison with reference population groups (illiterate individuals not having participated in an NFE programme, primary school-educated individuals and so on).⁶⁶

Household surveys can also be used to measure the impact of non-formal education on behaviours and practices (See Annex 9.2 for an example of a questionnaire aimed at ex-participants in NFE programmes). To measure the net impact of literacy programmes in these areas, it is however appropriate to use econometric methods comparable to those used in the earlier analysis of the external efficiency of the formal education sector (See Chapter 5).

It is, however, difficult in these types of general surveys to identify specific programmes, and hence also to analyse them. To achieve such a goal it is absolutely necessary to implement dedicated specialised surveys (See Example 9.12 for a case of the use of a specific questionnaire in Uganda).

EXAMPLE

9.12

(NFE Performance – Impact on Behaviour):**The Impact of Non-formal Education on Behaviour, Uganda, 1999**

Source: Abstract adapted from *Adult Literacy Programmes in Uganda*, World Bank, 2001.

This research was designed to answer the following broad questions:

- How effective are NFE programmes in terms of the levels of attainment and retention of reading, writing, and arithmetic skills by graduates?
- How effective are NFE programmes in facilitating practical knowledge, attitude change, and skills, and in promoting income-generating activities?

Because the focus was on outcomes, particularly longer-term outcomes, in terms of skills, knowledge, attitudes and practices, the unit of analysis was the individual literacy graduate, not the literacy class. The implication is that the influence of individual instructors cannot be assessed. A total sample of 800 graduates was envisaged, comprising two equal groups: 400 recent graduates and 400 who had graduated two or more years previously. The reason for including the latter was the desire to assess how well graduates retained their skills, utilised their knowledge and changed their lives for the better.

As seen in the list below, the instruments used represent both qualitative and quantitative approaches:

- Structured interview questionnaires with mostly closed questions (see Table 9.13) for the graduates and a control sample (those who have not attended any literacy programme);
- A test of arithmetic, comprehension, and writing administered to the graduates, and a control sample of primary school children from Grades 4 or 5 from one of the better schools in each sample district;
- Guides for focus group discussions with graduates (including literacy use and benefit analysis) and with those who have not attended any literacy programme; and
- Topic guides for obtaining information from district, subcounty and local community leaders, and from local district and subcounty officials.

Findings

On all 18 items more literacy programme graduates than the control group gave the correct (modern) response and on 12 of the items those listed in table 9.13, the margin of difference was greater than five percentage points. An interval scale shows in more detail what the margins, measured between the lower of the graduate scores and the average scores of those having not attended any literacy programme (control group), were:

- Less than five percentage points: five questions;
- Between five and 10 percentage points: nine questions;
- Between 11 and 15 percentage points: three questions; and
- Sixteen or more percentage points: one question.

TABLE 9.13 - Share of Individuals Giving Correct/Modern Answers to Attitude Questions, by Group, Uganda, 2001

	Graduated from the literacy program more than 2 years ago	Recently graduated from the literacy programme	Control group	All
You should not plan your family as children are a gift from God. (Disagree)	76	71	55	70
Fruits are only for children. (Disagree)	91	84	82	87
Education no longer pays. (Disagree)	97	96	88	95
A man has the right to beat a woman if she doesn't obey him. (Disagree)	63	61	49	60
It is more useful for boys to go to school than girls. (Disagree)	82	83	75	81
Men and women should share equally in looking after the children. (Agree)	92	93	84	91
Women make as good village leaders as men. (Agree)	87	90	84	88
It is all right to drink as much as you like if you have the money. (Disagree)	88	86	80	86
If someone is arrested the police can beat him up as a punishment. (Disagree)	50	55	38	50
Breastfeeding is better than bottle feeding. (Agree)	90	89	77	89
If a woman earns money, she should give most of it to her husband. (Disagree)	67	74	64	70
People shouldn't help people with AIDS because they are going to die anyway. (Disagree)	90	89	79	88

4.3 SOCIAL AND ECONOMIC INTEGRATION

The measure of economic and social integration that can be attributable to NFE programmes should be performed as described in Chapter 5, albeit with greater focus on the external dimension. The effectiveness and quality of learning can be measured, new behaviours facilitated by the training identified, and social and economic consequences of such behavioural changes noted. For literacy programmes that specifically aim to promote such integration, each of the levels considered may be measured separately (knowledge, attitudes and practices) according to the needs of the analysis. Example 9.13 presents the employment outcomes of ex NFE-type programme participants in Senegal.

EXAMPLE 9.13

**(NFE Performance – Employment Outcomes):
Employment Outcomes of ex NFE Programme Participants, Senegal, 2001**

Source: Adapted and translated from *L'éducation non formelle au Sénégal: description, évaluation et perspectives*, UNESCO, 2001.

TABLE 9.14 - Main Activity of ex NFE Programme Participants, Senegal, 2001

Works in a modern company	9%
Works with the mastercrafts person who trained them	36%
Works for another boss	34%
Is self-employed	13%
Has no activity	0%
Is following complementary education	3%
Other (Activity more in tune with their vocation)	5%

Findings

None of the ex NFE programme participants surveyed remained inactive after their training. The vast majority of ex-learners (83 (=36+34+13) percent) worked in crafts workshops, mostly as assistants, and others set up business independently. Most, however, are far from achieving the goal they set themselves when embarking on their training. To satisfy their socioeconomic needs, their main motivation was to set-up their own workshop. Only 13 percent were effectively able to do so, whereas 70 (=36+34) percent continue to work as assistants with the craftsmen that trained them, or with another. A minority found employment in a modern company or continued their education.

NOTES

- 62 As a term, non-formal education is recent. Beyond research circles, it has only been used since the early 1990s, following the Jomtien Education for All conference that coined it. According to the European Education Thesaurus of 1998, non-formal education includes “activities or programmes organised outside the established education system, but nevertheless directed at education sector goals.”
- 63 This relatively old description is based on the thesis work carried out by Sophie Cerbelle on the external evaluation of literacy in Morocco. Since then, the NFE sector in Morocco is no longer under a secretary of state but falls under the responsibility of the national education ministry (See Sophie Cerbelle, 2010).
- 64 Repetition is not a distinguishing characteristic of NFE learner flows, but should be checked in each national context.
- 65 See for instance the Programme for International Student Assessment of the OECD (PISA) and its impact on education policy in developed countries (www.oecd.org).
- 66 In the absence of such benchmarks, one can only do comparisons between different NFE programmes.



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CHAPTER 10

TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET)

› Chapter Objective:

To introduce key questions, issues and methods to conduct an analysis of technical and vocational education and training (TVET) as a specific education sub-sector.

1. OVERVIEW OF TVET

ISSUE

TVET is often multi-faceted, diverse in organisation and delivery, and often fragmented.

OBJECTIVES

Understand and identify the different TVET provider systems in a country.

METHODS

Identify and describe the different provider systems.

SOURCES

Reports on TVET; interviews with authorities in charge of TVET.

2. PERFORMANCE OF TVET

ISSUE

Designed to prepare students for employment, performance of TVET needs to be measured in relation to labour market requirements. This includes access (how many and who is trained?), equity (are certain groups excluded?) and external efficiency (how well is TVET responding to the skills needs in the labour market?).

OBJECTIVES

Evaluate access patterns for the different TVET provider systems, as well as equity patterns by gender. Understand basic issues related to equity by social status and location of origin. Analyse the extent to which the TVET system responds to the needs in the labour market, and whether the TVET management and delivery structures and labour market services facilitate a demand-driven skills development system.

METHODS

- Establish enrolment in each provider system.
- Calculate different access indicators (transition rate, proportion of TVET in secondary education, private enrolment ratio and annual growth of TVET students).
- Compute female participation rate; applying general equity indicators to TVET.
- Compute different indicators to measure the labour-market relevance of TVET completers.
- Analyse labour demand and supply matching mechanisms.

SOURCES

EMIS, databases of regulatory authorities for TVET and TVET institutions, and registrar of schools; studies on TVET and more general economic development (e.g. Investment Climate Assessment); household and labour force surveys, labour market assessments; tracer studies; TVET institutions surveys.

3. COSTS AND FINANCING

ISSUE

Funding sources of TVET are more diversified than in general education and vary from one to another provider system. TVET is relatively expensive, but funding structures vary in different delivery systems. TVET is often underfunded, and unit expenditure do not match funding requirements.

OBJECTIVES

- Obtain an overview about different financing systems for TVET.
- Identify and quantify the different funding flows in TVET.
- Assess unit expenditure and unit costs.
- Benchmark TVET expenditure.

METHODS

- Identify funding sources.
- Identify flow of funds.
- Establish public expenditure on TVET.
- Analyse expenditure structures.
- Calculate unit expenditure.
- Apply different indicators to benchmark TVET funding.

SOURCES

Public budget; Budgets of ministries/authorities in charge of TVET; budgets from TVET institutions; enrolment data; TVET institutions surveys; TVET institutions expenditure assessments.

4. INTERNAL EFFICIENCY AND QUALITY

ISSUE

Internal efficiency is dependent on quality of training, and on the type of delivery. Training quality depends largely on the extent of appropriateness of practical training. Facilities in many TVET institutions as well as limited practical skills of teachers often do not allow for the full implementation of the curriculum. TVET quality depends to a large extent on the involvement of and the relationship with the world of work.

OBJECTIVES

- Assess internal efficiency through various indicators.
- Analyse the different determinants of training quality.
- Assess to what extent employers are involved in TVET.

METHODS

- Compute internal efficiency indicators: pass rate, drop-out rates, repetition rates, promotion rates, success rate in final examinations, graduation rate and internal efficiency coefficient.
- Compute selected quality indicators, such as the student-teacher ratio, ratio of qualified teachers and satisfaction indicators.
- Qualitatively assess quality assurance mechanisms.

SOURCES

Enrolment figures over various years from EMIS and other sources; statistics on teachers and teachers qualifications; TVET institutions survey; interviews with TVET institutions and regulatory (quality assurance) bodies.

Introduction

This chapter provides an introduction into the analysis of technical and vocational education and training (TVET) as part of an education sector analysis. Many performance indicators relevant for TVET are included in other chapters of these guidelines analysing specific issues across education levels, notably in chapter 2 (enrolment and internal efficiency), chapter 3 (finance), chapter 5 (external efficiency) and chapter 6 (equity). This chapter provides a more detailed and in-depth introduction into the analysis of each of these aspects specifically for TVET highlighting the distinct organisational patterns of the sub-sector.

Recent years witnessed increasing efforts in the analysis of TVET systems and structures in developing countries. This reflects a growing interest of both governments and donors in skills development. Evidence suggests that skills are at the core of improving individuals' employment outcomes and increasing countries' productivity and growth. As economies move up the technological ladder, skills become a more important determinant of business development. Enterprise surveys conducted by the World Bank over the last 10 years demonstrate that skills constraints impede firm performance, particularly in developing economies. Whereas in the OECD countries an average of 25 percent of firms were worried about inadequate worker education and skills, this percentage rises to 40 percent in Sub-Saharan Africa and 50 percent in East Asia and the Pacific. Research has also established positive rates of return to skills development, often in two-digit percentage points.⁶⁷ Comprehensive and adaptable skills development systems have therefore become an indispensable element for development policies in a growing number of countries.

Furthermore, structural changes in the education landscape in developing countries have nurtured a new interest in TVET. Previous success in raising access to basic education resulting in large cohorts of primary school completers has directed attention of education policy makers to post-primary education options. In this context skills development in preparation for jobs has gained importance as an alternative career path to general secondary and tertiary education. As a consequence, public TVET budgets, often rather marginal in the past, as well as donor commitment for skills development,⁶⁸ are rising which requires more knowledge and understanding about TVET system and system performance.

The following chapter addresses the major themes and challenges of a TVET sub-sector analysis within the framework of an education sector analysis. Due to its specific delivery patterns, which are usually much more diverse than in general education, the TVET chapter will provide a deeper, Sub-Sector Specific Analyses of the major broad analytical themes of the education sector analysis. Since performance of the TVET system is ultimately measured in its ability to increase employability of its graduates and to provide the labour market with an appropriately skilled workforce, external efficiency of TVET warrants special attention. Section 2.3 of this chapter, therefore, shows possibilities to assess the external efficiency of TVET. More broadly, Chapter 5 of these guidelines introduces the concept and analysis of external efficiency of education in general, and demonstrates how education and TVET have to be placed in the specific economic, social and labour market contexts of the country under analysis.

The first section (section 1) of the chapter provides an overview about the potential structures and delivery systems in TVET. Understanding the diversity of TVET provision - with different parallel systems often found in one country – is important in order to appreciate the methodological challenges in data collection and evaluation, and in comparative cross-country analysis. Section 2 deals with the core performance analysis of the TVET system suggesting indicators and methods to evaluate access and equity patterns and constraints, as well as external efficiency and labour market relevance of the TVET sub-sector. Section 3 on costs and financing presents an introduction into funding and cost structures in TVET and options to track and analyse expenditure. Again, this section stresses the variety of funding models found in the developing world and the inherent data collection and analysis challenges. How to measure and evaluate internal efficiency and quality in TVET is the topic of section 4.

SECTION

1

OVERVIEW OF TVET

The main purpose of TVET is to develop occupation-specific and generic skills needed in the economy, and which will help learners in finding employment (including self-employment). TVET is principally related to the labour market, and its performance must ultimately be assessed through its success in raising the skills level of a country's workforce in response to changing economic and labour market structures.⁶⁹

Skills requirements are usually diverse depending on occupational specialisation, technological requirements in different sectors and industries, level of comprehensiveness, or the composition of generic skills required in different segments of the labour market. This has generally nurtured a wide range of different ways to impart the specific mix of skills required. As a general rule, TVET is much less uniform in its delivery patterns than general education.

1.1 WHAT IS TVET?

According to UNESCO, TVET is defined as “those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupation in various sectors of economic life”.⁷⁰

In accordance with what has become common practice in most countries and international discussions, the term “technical and vocational education and training” (TVET) is used here as an overarching denotation of the wide and diversified landscape of programmes and opportunities for work-related skills development. What constitutes TVET under this definition is not limited to formal training or technical education programmes delivered as part of the education system. It also includes non-formal and informal ways of skills development delivered by a potentially broad range of public and private actors.

This definition may not always be common practice in all countries. Sometimes, there is a clear demarcation between vocational training and technical education, for example. Also, the horizontal and vertical scope of what is covered under TVET may vary. Agriculture training, health training or teachers training are examples at the limit of what may be understood as TVET. The delineation to higher education is another boundary that is differently defined. It is widespread practice to capture under TVET all programmes up to tertiary but non-academic level (up to ISCED 4), but there is room for discretion. Some

countries (e.g., Tanzania and Kenya) consider introducing technical degree qualifications under the umbrella of TVET.

BOX 10.1 **Historical Determinants of TVET Development**

To understand the specific TVET landscape and challenges in a country, it may be useful to hark back to historical and cultural patterns and major players in its development. The state of TVET development and its organisational set-up may be influenced by features such as the educational philosophy of the former colonial powers, different influences of foreign donors over the decades, industrial structures and industrial training cultures as well as patterns of previous TVET policies. It is not uncommon, for example, that changes in policy emphasis by different governments have resulted in frequent shifts of the TVET sector between parent ministries, and rollercoaster-like developments in the allocation of public resources to the sub-sector. This is sometimes an explanation for neglected facilities (TVET institutions being built during one regime, afterwards being denied sufficient funding to maintain the institutional structure by the succeeding regime). Frequent recent changes in the sector or ministerial association of TVET furthermore often influences availability and consistency of TVET data.

An analysis of TVET should initially seek to clarify what is specifically captured under TVET in the country under analysis, and should prepare from the outset a working definition and clarification of the scope of the analysis underway.

1.2 **DIFFERENT TVET PROVIDER SYSTEMS AND STRUCTURES**

Table 10.1 overleaf presents an overview of TVET provider systems/delivery types typically found in developing countries. It shows that TVET is complex and multifaceted. In most countries, various delivery types co-exist side by side with different degrees of integration or fragmentation. Some progress has been made during the last decades to foster integration of previously fragmented TVET provider systems through the development of TVET authorities with the regulatory mandate for a broader range of TVET. Yet, unlike in general education, TVET is hardly ever organised in one coherent system.

TABLE 10.1 - Synopsis of "Typical" TVET Provider Systems

Typical TVET Provider Systems	Delivery Mode	Initial and Ongoing TVET and Target Groups	Regulation/ Certification/ Quality Assurance	Ownership/ Management of Providers
"Formal TVET"				
(Formal) Technical and Vocational Education	Long-term school-based training, post-primary and/or post-secondary; usually articulated with the general education qualification system in terms of pathways and defined equivalences; alternative route to educational progression	Student population, target labour market includes both formal and informal sectors, as well as public employment	Regulated under ministries, authorities or other public bodies in charge of TVET; leading to recognised national certificates; quality assured through formal mechanisms (accreditation, national curricula, national assessments)	Provided in accredited private and public institutions; public institutions normally under ministries or public bodies in charge of TVET, or under special sector ministries (e.g., agriculture, tourism)
Formal Apprenticeship	Usually combination of on-the-job training in formal enterprises and school-based training in TVET institutions	School leavers, formal school certificate required, mainly preparing for formal sector employment	Regulated under TVET authorities, or Ministries of Labour leading to formal TVET certificates	Training jointly provided by companies in cooperation with formal TVET institutions under TVET authorities, or ministries of education or labor
"Non-formal TVET"				
Skills Development Programmes	Short or long-term, mostly provided in training institutions	Pre-employment training for out-of-school youth, unemployed and other target groups, or skills upgrading for existing workforce; targeting all employment and self-employment	Programmes often lead to trade testing certificates, or similar skills recognition; providers may be accredited by authorities	Provided by public training institutions under labour and other ministries (usually not including education ministries) and private profit and non-profit providers
"Informal TVET"				
Traditional Apprenticeship	On-the job training by master craftspersons in the informal sector	Out-of school youth including low educational achievers; preparation for work in the informal sector	Not regulated. Sometimes access to trade testing and other RPL opportunities available	Individual, usually non-standardised relationship between business owner and apprentice
Informal Learning	On-the job training and other unstructured forms of learning (self-teaching)	Everybody, but often workers in both formal and informal sectors	No regulation of learning, certification sometimes possible through RPL opportunities	N/A
Mixed System				
Firm-Based Training	Training in company-based training centers, long and short term	Company staff (in-service training) and prospective staff (pre-employment training), rarely also training for the general labour market	Registered by TVET authorities leading to formal qualifications, as well as non-formal training leading to in-house certificates	Owned and managed by firms

The multiplicity of parallel institutions, owners, delivery forms, regulation and funding arrangements creates considerable challenges to data collection, and experience shows that it often requires some investigative creativity to obtain a comprehensive quantitative picture of all skills development opportunities.

Some of the main distinguishing features of the different TVET provider systems can be summarised as follows:

Degree of Formalisation and Recognition

TVET is often clustered into *formal*, *non-formal* and *informal* training (see table 10.2). Exact definitions and delineations are often blurred and differ from country to country. They may be based on the type of certificates or curricula. Usually, formal training comprises long-term programmes, delivered in accordance with recognised “national” curricula leading to recognised certification. Formal TVET is usually regulated by ministries in charge of TVET (often education or labour) or special TVET authorities, and delivered by public and accredited non-public TVET institutions. Often formal TVET is considered part of the education sector with qualifications equivalent and/or articulated with general education qualifications.

Characteristic	Formal TVET	Non-formal TVET	Informal TVET
Conducted wholly or partly in training institution, or in cooperation with training institution	Yes		No
Structured learning, using curriculum	Yes		No
Leading to national (formal) qualifications	Yes	No	
Using national (formal) curriculum	Yes	No	
Regulated by ministry/authority in charge of TVET	Yes	No	
Integrated in clear pathway structure	Yes	No	
Having minimum educational entry requirements	Yes	Set by provider	No
Duration	Usually long-term	Short and long-term	

Source: Authors

Note: Matrix indicates frequently used delineations. Actual definitions vary from country to country.

Non-formal TVET usually includes all forms of structured skills development programmes with fixed duration and curricula but not leading to recognised national certificates. Programmes can be short-term or long-term, usually offered by a wide variety of training institutions. Even public institutions involved in formal TVET may offer non-formal programmes at spare times.

What is commonly called informal training is unstructured learning without curriculum and syllabus. Traditional apprenticeship or on-the-job training are typical informal training systems.⁷¹

These delineations are often problematic in practice and differ from country to country. For the analysis it is important to reach at a pragmatic definition based on the terminology and use of the terms within the country under analysis.

Duration and Type of Delivery

TVET programmes may be of longer or shorter duration. Formal training is usually long-term, while non-formal training is often (but not always) delivered through short-term programmes. School-/institution-based training, on the one hand, and on-the-job training, on the other hand, are typical alternative delivery modes. Formal apprenticeship training represents a special cooperative delivery mode where normally school-based training units are combined with structured on-the-job training in companies.⁷² Other distinct delivery forms may include distance learning, e-learning, or training with production, among others.

Initial and Continuous TVET and Target Groups

Each TVET provider system may serve specific target groups and target segments of the labour market. Programmes may provide pre-employment training for school leavers or skills upgrading for the existing workforce. The latter is gaining importance to keep the workforce abreast of technological developments (life-long learning).

Formal training is usually exclusively targeted at school leavers. It can be provided at different levels, which usually target different age groups: primary school leavers in case of post-primary TVET programmes or secondary school certificate holders in case the TVET programme is designed as a post-secondary educational stream. In both cases, the target labour market may include both employment in the formal and informal sectors of the economy. In many developing countries, particular the informal sector is gaining importance as a target labour market for TVET graduates, and programmes are reconfigured to better prepare youth for the specific skills requirements of the informal sector.

Firm-based training is usually meant to directly prepare trainees for employment in the company, or to upgrade skills of the existing workforce. For pre-employment training, companies usually apply certain minimum requirement rules in terms of educational attainment of graduates.

In the wide field of non-formal training each programme usually has its own specific target group and target labour market. This segment usually caters extensively for out-of-school youth and other marginalised groups, and prospective employment destinations of programme completers vary. Traditional apprenticeships normally represent a career option for youth with low educational background and clearly prepares attendants for informal sector employment.

A specific case, not particularly dealt with in this chapter, are vocational programmes provided as special subjects in general education, mainly at the secondary education level.

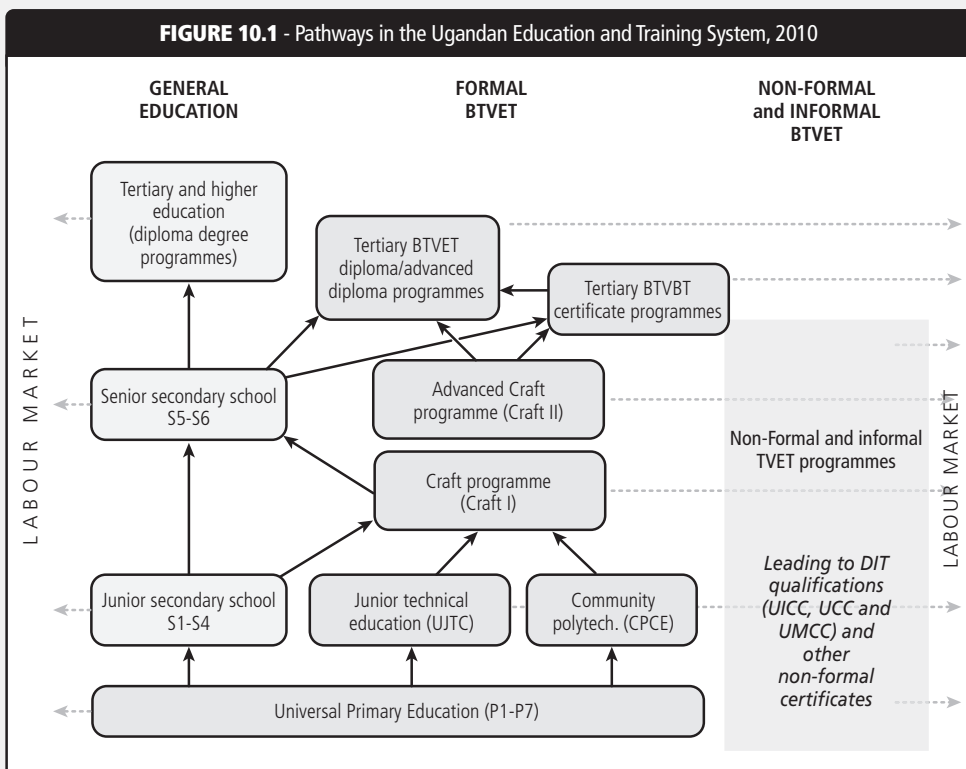
EXAMPLE

10.1

**(Depicting Pathways):
Pathways in the Education and Training System, Uganda, 2010**

Source: Authors.

The figure, specifically designed as an example for the purpose of these guidelines, takes stock of the different formal, non-formal and informal provider systems in the TVET system in Uganda and the officially defined potential pathways between the different streams.



Source: Author, based on Johanson and Okema, 2011 and Franz and Twebaze, 2011.

Note: * This chart is an example. It represents the situation before the official introduction of the Ugandan Vocational Qualifications Framework. Pathways are in transition at the moment.

Findings

Technical and vocational education streams in Uganda start at secondary level after completion of primary school. While there are options to move from general education into formal TVET programmes at all levels, the situation is more difficult the other way around. Only the completion of craft-level TVET programmes, which involves a cumulated post-primary education of minimum 5 years, formally provides for re-entry into general education at higher secondary level. However, this option is in reality only open to those students who achieved the high academic marks during their TVET programmes necessary to qualify for entry into this level of secondary general education. This, however, TVET students would rarely reach, because it is usually the academically weaker student who started in the TVET stream in the first place.

Within the TVET stream students can reach, provided the entry marks are achieved, into technical diploma level programmes. Thereafter, the career ladder stops. Entry from tertiary TVET (diploma level) into higher education is not foreseen, which is one important aspect contributing to the rather low image of TVET among the student population. No recognition of non- and informally acquired competencies, although certified within a parallel qualification system (DIT trade testing), is possible within the formal TVET or education system.

Regulatory and Quality Assurance Arrangements

There are different ways and institutional settings for regulating and supervising TVET. Sometimes different regulatory regimes operate side-by-side in one country. Typically, formal TVET programmes are run under ministries or authorities in charge of TVET, and their examination boards are in charge of assessments and certification. Sometimes, a parallel trade testing system, typically under labour ministries, is charged with assessment and certification for employment-oriented training programmes delivered through non-formal training programmes.

Sometimes, quality assurance (assessment/certification and accreditation of training institutions) is conducted by foreign bodies. For example, City & Guilds qualifications are widely used in many Anglophone countries. Foreign qualifications are also common in modern (IT) occupations or higher levels qualifications, for example for accountants. Other training sub-systems, such as traditional apprenticeship systems, are entirely unregulated, despite catering for a considerable share of the entire national training supply.

Ownership and Management of Institutions/Providers

Public formal TVET is normally run and managed by either education or labour ministries, or under a public body in charge of TVET. Other sector ministries may complement the range of providers in the case of special training, for example in agriculture, tourism, road construction, etc. A private training market as well as a segment of non-profit private training providers (NGOs, faith-based organisations, etc) complements public training provision.

In many countries, the private training provider segment is larger than the public segment in terms of operating institutions and aggregated enrolment. In Tanzania, for example, available data suggests a rapidly increasing role of the private training segment, which in 2007 enrolled close to 80 percent of all vocational students.⁷³ In many countries, large parastatal or private companies represent an often high quality segment of the national TVET landscape. This includes the water and electricity sector, airline training and mining, among others.

Annex A10.1 shows the example of a stocktaking of the TVET provider landscape in Kenya, showing a relatively complex set-up of parallel programmes and courses, and qualifications.

This brief outline of different TVET provider systems demonstrates the diversity of TVET and illustrates the complexity of TVET analysis and data collection. It needs to be highlighted, though, that the worldwide trend to establish semi-autonomous or autonomous TVET authorities and to build new unified qualification systems along qualification frameworks are usually meant to integrate at least the most important streams of TVET. Where such a reform has progressed, data collection tends to be more straightforward.

An education sector analysis should aim to capture TVET in the analysis country as comprehensively as possible, even if information in some segments is deficient. The minimum focus of analysis should be on the formal public TVET system. However, taking stock of the wider TVET landscape and its alternative skills development options is important to put access, equity and relevance issues into perspective.

1.3 DATA SITUATION FOR TVET SYSTEMS

The long neglect of TVET in public policies and the diversity of TVET system are the two main factors that have contributed to statistical data on TVET being often not as easily available as in the general education sector. In its analysis of TVET data availability of 2009, the *UNESCO Bureau for Education in Africa* identified a rather unsatisfactory availability of quantitative TVET information in all Sub-Saharan African regions. The study established TVET data *non-availability* rates for various key indicators, which showed that data gaps are particularly serious in West and Central Africa, and slightly better in East and Southern Africa. However, even in the latter part of Africa more than half of desired indicators cannot be established due to data unavailability. For all African regions, data availability was decreasing over the years 2003 to 2006. The analysis also showed that data tend to be better for formal TVET, while non-formal and informal TVET provider systems are usually not well recorded. Furthermore, data are usually not well prepared for TVET at tertiary level, where data tends not to be disaggregated by technical and academic streams of learning.

Nonetheless, the data situation appears to slowly improve, not least as a result of increased efforts of UNESCO and other multi-national development agents to standardise indicators and to build data collection capacities in countries.

The following sections highlight in detail potential sources for various TVET key indicators to be obtained in the countries under analysis. A first glance on available data for the specific country and comparative cross-country data are also generally available from the *UNESCO Institute of Statistics (UIS)* (<http://www.uis.unesco.org>) or the World Bank Africa Region Education Database.

In case of apparent data weaknesses, TVET researchers may consider conducting a baseline survey of TVET providers covering all relevant information on enrolments, programmes offered, financial aspects, quality and relevance aspects. An example of a comprehensive questionnaire for such a baseline survey used to assess the TVET landscape in Cameroon is attached in the annex (A10.2). Whether such a survey can be conducted as a census, covering the total population of public and private TVET institutions, or as a sample survey depends on the size of the TVET sector in each country.

This section is divided into three sub-sections, addressing the analysis of access, equity and external efficiency, respectively. Reference is made to chapter 2 (*enrolment and internal efficiency*), chapter 5 (*external efficiency*) and chapter 6 (*equity*), which present the relevant analysis for the overall education sector. In these chapters, TVET is also included as one sub-sector.

2.1 ACCESS

As discussed above, quantifying access comprehensively across the various provider systems is challenging. Almost always gaps will remain that can only be filled by informed estimates. A detailed outline of the TVET landscape in the country under evaluation identifying the different skills development paths and options as outlined in the previous section is a good starting point, because the identification of enrolment and intake quantities should usually be done separately for each provider system.

BOX 10.2 Enrolment and Intake

In most TVET streams – notably in non-formal and informal TVET programmes and opportunities – training durations may vary from programme to programme and from level to level. It is therefore important to distinguish between enrolment and annual intake, because each indicator may be used in different analysis contexts. For example, a unit cost analysis will require enrolment figures, i.e. a quantification of the number of students provided with training at a defined time period. On the other hand, intake figures counting the number of students that started training in a particular year, is used to analyse transition rates from school to TVET, or between different TVET programmes. Available data sources will usually use either one of these indicators depending on the specific context, in which data are collected.

To record initial access data a simple table as the one below may be used (see Example 10.2).

**(Enrolment in Different TVET Provider Systems):
Enrolment and Annual Intake, Fictional Country, 2007-11**

Source: Authors.

Table 10.3 includes fictitious figures and is an example for an initial stocktaking of the larger skills development access situation in a country. Note that the table may be complemented by extra columns showing the percentages of the individual provider system of the total enrolment and intake.

TABLE 10.3 - Overview of TVET Enrolment and Annual Intake in '000 (Fictitious)

Thousands	Enrolment					Annual intake				
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
Formal TVET post primary (3 years)	50.23	52.10	53.39	55.58	61.03	19.00	22.50	22.50	24.00	25.50
Formal TVET post secondary (3 years)	14.30	12.98	15.25	15.98	17.03	5.10	5.10	6.50	6.00	7.55
Parallel programmes in formal TVET institutions	38.76	28.40	25.00	31.45	40.86	14.02	12.00	10.05	16.88	24.03
NF training provided by NGOs/ other NF training providers*	100.0	110.0	110.0	110.0	120.0	100.0	110.0	110.0	110.0	120.0
Skills development programmes under the Ministry of Labour*	0.61	0.61	0.50	0.75	0.75	0.61	0.61	0.50	0.75	0.75
Firm-based training programmes (recorded minimum)*	2.5	2.5	2.5	3.8	3.9	1.25	1.25	1.25	1.9	1.95
Traditional apprenticeships*	15.00	15.00	15.00	15.00	15.00	n/a	n/a	n/a	n/a	n/a
Total estimated	221.4	221.6	221.6	232.6	258.6	140.0	151.5	151.3	152.7	179.8

Note: * rough estimates.

Findings

The example by and large shows that only a smaller share of the entire TVET supply is provided by the formal TVET system, and that non-formal programmes provided by NGOs and private providers account for the single most important source of skills development. Roughly 120,000 training places, measured as enrolment, are provided by the different streams of formal TVET in 2011 (including students in so-called parallel programmes, i.e. those who are not officially admitted by government but taken on directly by institutions on a self-paying basis). The same number is recorded for NGOs, private providers and other non-formal providers. Slightly less than 10 percent can be attributed to informal training. However, it needs to be considered that data for informal training are weak and indicated figures most likely considerably underestimate the real capacities in this training segment. As formal training programmes last three years, annual intake at given training capacities is relatively lower than for non-formal and informal training schemes. Of 180,000 students who started training in 2011, less than 60,000 were admitted to formal programmes, while the majority were catered for by non-formal and informal training segments.

Unless the ministry/authority in charge of monitoring skills development maintains an advanced MIS and monitoring system, data for each provider system need to be assessed or estimated separately. Potential data sources and data collection problems are listed below.

Until now, usually the formal, publicly financed and/or controlled TVET system represented the main focus of the TVET analysis. This is owed to the fact that reasonably disaggregated data over a significant time period are more often available for the formal system. Issues around the collection and analysis of access data in the formal TVET system will therefore be the subject of more detailed elaboration. Nevertheless, it is good practice to develop further information system analysis for the other TVET delivery modes.

2.1.1 ASSESSING ACCESS IN THE FORMAL (PUBLIC) TVET SYSTEM

Data Collection

Enrolment and annual intake data should be obtained for a reasonable time period, if possible in line with general education sector analysis time series (usually 5 years). Data should be disaggregated by:

- Gender;
- Level of training; and
- Programme (trade or occupation), important to assess gender, quality and relevance issues.

EXAMPLE

10.3

(Enrolment by Subject Area): Enrolment in Different Technical Institutions by Subject Area, Tanzania, 2006/7 and 2009/10

Source: UNESCO/BREDA 2011, Tanzania CSR.

Table 10.4 presents enrolment figures by subject area (represented by Subject Boards) for two academic years in technical institutes under NACTE, the regulatory authority for higher technical education in Tanzania.

Subject	Enrolment		Distribution of Learners, 2009/10			
	2006/07	2009/10	% by Subject Board	% of Female Students	% in Public Institutions	% on Degree Courses
Agriculture, Natural Resources and Environment	2,413	4,031	8.1 %	30.3 %	89 %	0.0 %
Business and Management	15,792	23,879	48.2 %	43.5 %	98 %	22.8 %
Engineering and Other Sciences	4,990	9,711	19.6 %	15.9 %	73 %	30.5 %
Health and Allied Sciences	7,633	4,700	9.5 %	63.7 %	55 %	0.0 %
Planning and Welfare	5,758	7,270	14.7 %	56.3 %	85 %	34.1 %
Total	36,586	49,591	100.0 %	40.8 %	84 %	21.9 %

Source: NACTE.

Note: Figures refer to academic years (September to June).

Findings

The example shows that in the 2009/2010 academic year, business and management programmes absorbed the majority of students (48%), followed by engineering (20%) and planning and welfare (15%). All subject areas have witnessed growth as compared to three years before, except for health and allied science, which have seen the number of students drop by 38% between 2007 and 2010.

TABLE 10.5 - Overview of Sources to Establish Access in Formal TVET

Source	Comments
EMIS	<p>EMIS data are usually the most comprehensive, but their reliability and comprehensiveness is often limited reflecting the low status of TVET in many countries. It is important to verify, whether EMIS data only include public TVET institutions or publicly financed formal TVET, or the entire potential spectrum of formal training, which may also be provided and/or financed privately. For example, if formal TVET provision is publicly financed or subsidised, data often do not capture parallel training programmes, which are not funded by government but nevertheless considered formal, as they follow the formal curricula.</p> <p>Experience shows that in countries with weak EMIS and generally underdeveloped data collection culture, EMIS data is often incomplete. It is important to cross-check recorded data with other sources (see below).</p> <p>In cases, where formal TVET is not under the auspices of education ministries, but under a TVET authority, ministry of labour, or other providers, data may not at all be captured by EMIS.</p> <p>Also consider that there may be more than one formal provider system, which may not all be regulated by the same ministry or authority. For example, long-term school-based technical education may be under the education ministry (and as such most likely be included in EMIS), but formal apprenticeship training is regulated separately, for example by the labour ministry.</p> <p>EMIS rarely includes data disaggregated by occupational programmes.</p>
Regulatory authority	<p>Parallel data sets, often collected through different methodologies, are usually available directly from the regulatory authorities, i.e. TVET authorities, or the ministries in charge. These are often based on school records and admission statistics, if admission to formal programmes is done centrally.</p>
Registrar of schools	<p>The office responsible for registration of private schools (often another unit in the education ministries) may avail data particularly of private schools, which is important if these are not recorded by public authorities. However, in rare cases these registers will contain enrolment and reliable capacity information. They may nevertheless allow for cross-checking the completeness of data provided by EMIS and regulatory authorities.</p>
Training institutions	<p>In any case it is advisable to cross-check central data directly at the level of training institutions, using a limited sample of institutions. In case, central data are very sketchy and incomplete, a survey of training institutions as suggested in Section 1 may be helpful. However, a survey would best need to cover the entire population of formal training institutions, as normally each institution has a very specific range of programmes and related size, making extrapolations based on sample surveys not reliable.</p>

Note: For more information, see UNESCO/BREDA, 2009.

To establish the level of training the International Standard Classification of Education (ISCED) may be used to enhance international data compatibility.⁷⁴ UNESCO classifies formal TVET at four different levels:

- vocational enrolment at lower secondary level (ISCED 2)
- vocational enrolment at upper secondary level (ISCED 3)
- vocational enrolment at post-secondary non-tertiary (ISCED 4)
- enrolment at tertiary level (ISCED 5B).

The UNESCO Institute for Statistics (UIS) database contains TVET enrolment data by ISCED level for a large group of countries, which may serve as a benchmark. However, data are based on national statistics and are subject to potential inconsistencies and data gaps. They do not replace the need for an in-depth stocktaking of enrolment and intake figures using in-country data sources. Another limitation of the UIS database is that it only captures training programmes that can be classified under ISCED, i.e., only those with specified educational background requirements. Usually the following in-country sources are available in most countries to establish access base data for formal TVET.

Indicators of Access

Labour market demands vary from country to country. It is therefore difficult to determine a generally applicable optimum level of participation in TVET. Enrolment rates according to different indicators vary widely among countries and regions.

• Indicators suggested by UNESCO - TVET Access

The **TVET transition rate** is the number of new entrants admitted to the first year of a cycle in the TVET system in a given year expressed as a percentage of the number of students enrolled in the final year of the preceding cycle in the previous year:

$$\frac{\text{New entrants in year one of a given TVET cycle in year } N \times 100}{\text{Number of students in the final year of the preceding TVET cycle in year } N-1}$$

The **Proportion of TVET in Secondary Education** is the number of TVET students at ISCED 2 and 3 as a percentage of the total number of students at the same level:

$$\frac{\text{Number of students in TVET at the secondary level} \times 100}{\text{Total number of students at the secondary education level}}$$

The **Private enrolment ratio** is the proportion of TVET students trained in the private sector in a given school year:

$$\frac{\text{Number of students in private TVET institutions for year } N \times 100}{\text{Total number of students in TVET programmes for year } N}$$

The **Annual growth rate of TVET students**:

$$\frac{(\text{Number of students in TVET for year } N) - (\text{Number of students in TVET for year } N-1) \times 100}{\text{Number of students in TVET in year } N-1}$$

Source: UNESCO/Regional Bureau of Education for Africa, 2009. Regional Contribution to Statistical Information Systems Development for Technical and Vocational Education and Training. Diagnosis for Identifying Quality Improvement Strategies. Dakar.

For benchmarking purposes different indicators can be used. A list of indicators suggested for access analysis by UNESCO is presented here. Potential indicators, to be selected in accordance with available data, include:

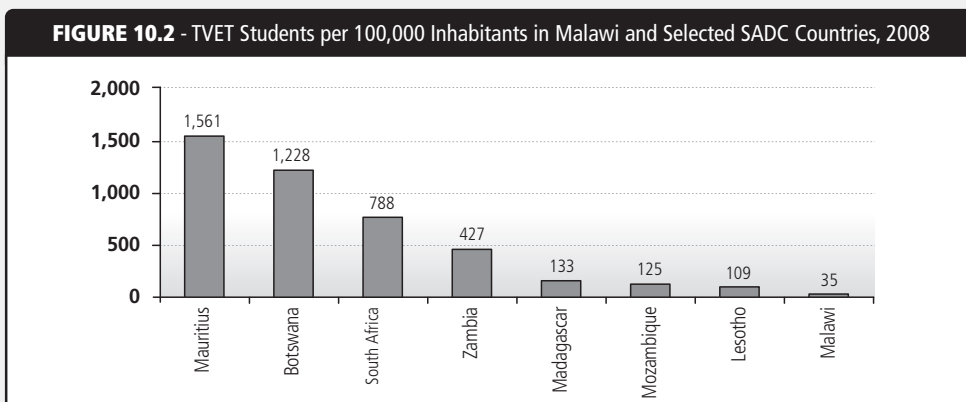
- 1) **TVET as a share of secondary**, which shows the TVET enrolment at a given education level as a percentage of the total number of students enrolled in all programmes (TVET and general education) at that level. This indicator underlines the relationship between the development of general secondary and that of TVET. The indicator can be computed for each level, according to the specific organisational structure of TVET programmes;
- 2) **Annual growth rate of TVET students** measuring the development of TVET enrolment/access at given levels over the years;
- 3) **Private enrolment ratio**, which shows the proportion of TVET students trained in the private training sector. This indicator helps analysing the relative importance of public and private training supply, and possibly changes over the years. The indicator can be computed for all TVET learners or by level, according to data availability;
- 4) **Number of TVET students per 100,000 inhabitants**, as illustrated by Example 10.4 below. The World Bank has compiled a considerable database for this indicator. The advantage of this indicator is that it uses TVET enrolment data at all levels and is therefore easier to administer in cases where ISCED classifications are not easy and clear-cut; and
- 5) **The transition rate**, that analyses the flow of learners through TVET and measures the effective mobility between different education system cycles.

TVET enrolment varies from country to country. Measured as a percentage share of total secondary enrolment, for example, 2006 UIS data show that average shares in Sub-Saharan African countries were lower than in other parts of the world, albeit significantly growing between 1999 and 2007. Rates are generally higher in francophone countries, with the highest shares in Rwanda (36 percent).⁷⁵

**(Comparison of TVET Enrolment between Countries):
TVET Students per 100,000 Inhabitants in Malawi, 2008,
as Compared with Other SADC Countries, 2008**

Source: Adapted from Malawi CSR, 2010.

Figure 10.2 presents comparative figures about enrolment in formal TVET as a share of the total population in selected African countries. Data was taken from a database compiled by the World Bank through education sector analyses and other relevant analyses. It should be noted that the analysis of such a comparison is problematic mainly for the reasons that it cannot be guaranteed that for each country figures represent the entire training supply, including formal, non-formal and informal TVET. Data deficiencies, which occur often for non/informal TVET lead to lower overall values.



Findings

Recorded enrolment figures for Malawi show that only 35 in every 100,000 inhabitants are enrolled in TVET programmes, which represents the lowest value of all countries, for which comparative data were recorded. According to available figures, the relative TVET supply in Mauritius is 45 times higher than in Malawi. It is evident that those countries that show a relatively good supply situation, such as Mauritius, Botswana and South Africa, are all belonging to the higher income groups.

Understanding Access Problems

Reflecting the increased interest in most countries in skills development, TVET enrolment rates will often fall short of countries' own targets leading to expansion policies. It is in this context useful to undertake some analysis of the causes of low enrolment. Such an analysis will often show that the aspirations of the target population and TVET management structures are often as much a problem as undersupply with TVET opportunities.

The most common reasons for low TVET enrolment rates are usually:

1. Insufficient training offers in terms of physical facilities and range of training offers by occupation or level. Often, training supply differs considerably between rural and urban areas, or between regions.
2. In many countries, a detailed look at supply structures and enrolment will reveal capacity underutilisation. What can best be evaluated through direct visits to training institutions is the fact that often training programmes are not fully occupied, and training facilities grossly underused. This may be caused by:
 - Lack of interest of the target group, related to an outdated range of programmes offered in a supply-driven training organisation, to curricula that are not relevant to labour market needs, and/or to high costs of participation.
 - Insufficient management of training capacities, whereby training programmes are continuously offered without effective demand or are under-resourced in terms of teachers/instructors, training material and equipment. It is also common in public formal TVET institutions that programmes are strictly offered in accordance with academic calendars preventing flexible delivery structures that may raise enrolment at a given resource level, through double shifts, weekend and holiday programmes, etc.

The following table provides a list of possible questions and information sources to identify potential causes of low access:

TABLE 10.6 - Key Questions and Information Sources for Access Issues			
Access Problem	Key Questions to Identify Access Problems	Data Needed	Data Sources
Insufficient Training Supply	Are national TVET capacities sufficient to cater for the potential demand? (demand measured in national enrolment targets or other indicators).	- Actual training capacities - National enrolment targets for TVET Calculate the percentage of actual capacities in relation to enrolment targets.	EMIS; national enrolment statistics; education/TVET sector development plans (see above).
	Are TVET institutions evenly distributed in the country in relation to the population distribution?	- Mapping of TVET institutions; - Location of TVET capacities by region or district; - Population distribution by region or district, or distribution of school-leavers Calculate percentage of TVET capacity relative to population for each region or district.	EMIS; information by TVET authority or responsible ministry; population statistics or school-leaver stats from EMIS.
	If TVET institutions are concentrated (typically in small countries), are boarding facilities sufficiently available that cater for students from outside?	- Policy on boarding - Actual availability of availability boarding facilities.	EMIS; TVET regulatory authority or ministry; individual school visits; TVET institution survey.

Capacity Underutilisation	Do actual enrolment match enrolment capacities?	- Calculated overall enrolment capacity - Actual enrolment - Calculate actual enrolment as a percentage of capacities.	TVET regulatory authority or ministry; EMIS, national enrolment stats.
	Are there notable differences between capacity utilisation between programmes, types of institutions or levels of TVET?	- Data as above, disaggregated by programmes (skill areas), level of training, and rural/urban - Calculation as above disaggregated by listed criteria.	Data as above; TVET institution survey; interviews with selected training institutions.
Management Problems	Are programmes offered in existing TVET institutions in line with demands from students and the labour market?	- Data on external efficiency (see Section 5) - Range of programmes offered - Perception surveys - TVET policy studies.	See section 5; EMIS; TVET regulatory authority or ministry; tracer studies; Other TVET studies
	Are appropriate input resources (instructors/teachers, training material, workshops, equipment) available to offer all programmes in accordance with curricula?	- Data on TVET institution facilities and resources.	EMIS; TVET institution survey; site-visits and interviews with TVET institutions
	Could TVET institutions increase their intake by better using their resources, i.e. through double shifts, more flexible training organisation, training provision in the evening, on weekends or during holidays? If not, what prevents them to do so?	- Qualitative management information.	TVET Institutions Survey; interviews with TVET institutions.
	Are TVET institutions allowed to modify the range of courses offered to respond to demand?	- Regulations and guidelines on TVET management.	Relevant legislation (TVET Act, Education Act, management regulations); interviews with TVET managers at school level and TVET regulatory authority/ministry.
Insufficient Interest of students in TVET	What is the reputation of TVET in general, and among school leavers in particular?	- Perception and reputation of TVET.	- Perception surveys; TVET sector studies and policy documents; interviews with stakeholders, instructors, parents and students.
	Are there any other known factors that prevent students from entering TVET programmes?		Interviews with stakeholders, students, parents and teachers, special studies.
Insufficient Effective Demand for TVET	Do high fees (tuition and boarding) prevent school-leavers to enroll in TVET?	- Information on actual fees, in relation to fees payable in general education; - Perception of impact on fee levels.	Accreditation bodies; TVET financing studies; TVET institution survey; interviews with stakeholders.
	Are scholarships available for interested poor students to cover cost of training and possibly opportunity costs?	- Information on scholarships and accessibility rules - Data on actual scholarships - Data on actual training costs to be borne by students.	TVET regulatory authority or ministry; TVET financing and cost studies; TVET institution survey.

2.1.2 ASSESSING ACCESS TO NON-FORMAL AND INFORMAL TVET

As highlighted before, it may be difficult to quantify enrolment and intake in other than formal TVET provider-systems to an extent that is sufficiently reliable and comprehensive to integrate it into quantitative analysis. In cases, household surveys or labour force surveys will provide indications about access of the labour force to skills development at an aggregated

level. In any case, an education sector analysis needs to make an attempt to capture all available information in order to demonstrate the extent to which alternative TVET paths complement the formal supply. The following table provides some indications about possible data sources for the most important non/informal training streams found in many countries.

Provider Systems	Potential Sources
Non-Formal Skills Development Programmes Provided by Government Ministries and Institutions	Data is rarely systematically recorded at an aggregate level. Previous sector studies may have captured relevant supply. Data can usually best be obtained directly in the relevant ministries and authorities. Typically these include ministries of labour, agriculture, trade and industry, health, tourism and transport, investment authorities, and the like, as well as public utility and other companies such as telecom, water and electricity corporations, airlines, etc. Budget appropriations for training under the relevant sectors may provide an initial starting point for identifying relevant organisations.
Non-Formal Skills Development Programmes Provided by NGOs and the Private Training Market	Register of accredited training providers with regulatory authorities (typically education and/or labour ministries, or TVET authorities); TVET provider directories; data compiled by private training provider associations, studies on non-formal training. Indirect sources also include trade test registration data or data from similar assessment and certification systems accessible for completers from non-formal training.
Firm-Based (in-Company) Training	Studies on in-company training; Investment Climate Assessments; documents with chambers of commerce and employers organisations.
Traditional Apprenticeship	Studies conducted in the context of micro and small enterprise and informal sector development initiatives and traditional apprenticeship support, interviews with informal sector operators and business associations.

Source: Author.

2.2 EQUITY

An important equity concern within an education sector analysis refers to access by gender. However, equity issues may also arise with respect to access of the poorest, of students living in marginalised areas (such as less developed regions, rural areas or conflict-affected areas), people with disability, and religious or ethnic minorities. The focus will therefore depend on the specific country context. The following section introduces analytical questions and methodologies with respect to gender equity, and subsequently briefly touches upon other equity issues, in particular related to social status.

Often, marginalised groups are specifically addressed by non- and informal TVET streams provided by non-public organisations. An equity analysis should therefore always take the entire TVET spectrum into consideration.

2.2.1 GENDER EQUITY

Indicators and Sources

Gender equity is usually measured by the **female participation rate (FPR)** expressing the percentage of female students of the entire student population. The formula to be used is:

• **Key Definitions**

Female Participation Rate (FPR):

$$\frac{\text{Number of females enrolled in TVET (or the specific segment of TVET under consideration)} \times 100}{\text{Total number of enrolled students in TVET (or same specific segment)}}$$

All enrolment and intake statistics are usually gender disaggregated providing the main source for a gender analysis. In TVET, FPRs vary considerably by trade/occupation. As far as data allows, the gender analysis should always include this dimension as well. Usually, FPRs also vary considerably between different TVET levels, often based on the fact that typical male or female occupations are more or less frequently occurring at different levels. Lower level TVET is often dominated by traditional technical trades, while modern office occupations, usually more attractive for girls, are often dominating the TVET supply at post-secondary level, as demonstrated in example 10.5.

EXAMPLE

10.5

**(Female Participation Rates in Different TVET Streams):
Enrolment by Gender and Type of Public Institutions, Uganda, 2009.**

Source: Adapted from Johanson and Okema, 2011.

The table records enrolment in different formal TVET streams in Uganda by gender and calculates the female participation rate. A similar table may be constructed for main occupational areas (such as construction courses, agriculture, engineering, manufacturing, textile, office services, handicraft, etc.).

TABLE 10.8 - Enrolment by Gender and Type of Public Institutions, Uganda, 2009

	Enrolment			% Female
	Male	Female	Total	
<i>Lower level- total</i>	8,511	2,314	10,825	21
Technical Schools	4,943	1,364	6,307	22
Farm Schools	889	274	1,163	24
Comm. Polytechnics	2,679	676	3,355	20
<i>Middle level- total</i>	9,313	1,464	10,777	14
Technical Institutes	7,564	1,299	8,863	15
Voc. Training Institutes	1,749	165	1,914	9
<i>Tertiary level- total</i>	8,404	4,878	12,832	38
Technical Colleges	1,844	116	1,960	6
Colleges of Commerce	2,054	1,745	3,799	46
Health Institutions	1,842	828	2,670	31
Agriculture & Related	1,268	844	1,662	24
Cooperative Colleges	672	723	1,395	52
Management Institutes	724	622	1,346	46
Total	26,228	8,656	34,434	25

Findings

The figures show a relatively uneven FPR between the three different levels of TVET, and between different types of schools. The FPR is with 14 percent on average particularly low at the middle-level (upper secondary level). This is a result of the dominance of traditionally male-dominated fields of training in technical institutes and vocational training centers. Note also the enormous difference in FPRs between technical colleges and Colleges of Commerce at tertiary level. This can be explained by the fact that colleges of commerce offer more than any other type of TVET institution courses that are attractive to female students (secretarial, accountancy, management, and so on).

As gender equality has featured prominently in education policies in the past, time series for FPRs are useful to analyse whether participation rates have actually been increasing in the years under analysis. This should preferably be done by occupational areas, if data allow, in order to establish whether increasing FPRs are a result of a diversification in the range of programmes offered, or of an increase in female enrolment in traditionally male trades. Table 10.9 suggests how such a table can be constructed.

TABLE 10.9 - Example of a Table to Compare FPRs Over Time, by Occupational Field

	FPR in 2005 in %	FPR in 2008 in %	FPR in 2011 in %
<i>Total across occupational fields</i>			
Construction occupations			
Engineering trades			
Manufacturing			
Office management/services			
Agriculture			
...			

If EMIS statistics or data from the TVET regulatory authorities are not disaggregating by occupations, data from examination boards on participation in assessments may be used as a proxy.

While participation of girls in TVET may be on the rise in many countries, structural barriers may still prevent them from being as successful as their male peers. A gender disaggregated comparison of examination pass rates may serve as a starting point to identify potential gender-specific performance barriers. The Malawi CSR of 2010, for example, revealed that female pass rates have constantly been between 10 percent and 20 percent below the rates for male students, indicating special performance problems of female students. A similar analysis may be conducted with respect to drop-out rates, if data allow.

Understanding Gender Issues in TVET

Gender dimensions in TVET are influenced by certain specific factors. An analysis of the factors of growth of the parity indexes is therefore an important contribution to the development of pro-gender policies in TVET. These factors include:

- 1) Arguably, the most important determinant of female participation is the **range of trades/occupational areas, for which TVET is offered**. By and large the traditional gender segregation in occupations remains, although some countries have made progress in increasing the share of girls in traditional male trades (metalwork, welding, electrician). An analysis of what drives increasing FPR (more girls in traditionally male trades, or more trades that are traditionally female) is an important input into the development of effective gender affirmative action policies in TVET.
- 2) Another factor may be the **share of female TVET teachers/instructors**, and the analysis may also consider including an examination of correlations between the development of female participation and the share of female teachers/instructors in the system.
- 3) Reasons for low performance and high drop-out rates of girls despite of increasing FPRs often lie in an **hostile learning environment for females**. These are structurally the same as in general education and include the low availability of female teachers (serving as role models), insufficient availability of dormitories and lavatories for girls as well as discriminatory practice and sexual harassment.
- 4) Dropping-out, as for general education, is often caused by **pregnancy**.

In most cases, such factors can only be identified through qualitative means (i.e. interviews with headmaster and teachers, gender officers, female students).

2.2.2 OTHER EQUITY ISSUES

Equity in TVET also means that all students (and other potential target group for that matter) have the chances to attend training if they wish to irrespective of their social status and where they live or come from. The following paragraphs briefly touch upon some equity aspects relating to social status and locations.

Equity by Social Status

An education sector analysis should try to assess to what extent the poor have access to TVET programmes, and what determinants effect their chances to attend.

National statistics, such as household surveys, usually provide sufficient data to analyse the **chances to access education and training at different levels of education by social background** of their households, measured in income quintiles. This analysis has been described for the entire education sector in chapter 6. A more detailed analysis, allowing for a more disaggregated analysis by TVET level and TVET providers systems may not be possible, because often household survey data do not distinguish between different TVET streams. Interesting is also a **beneficiary incidence analysis** estimating the distributional impact of public spending on TVET for different income groups. Reference is made again to chapter 6, which includes a discussion and methodological guide to such analysis.

TABLE 10.10 - Summary of Key Questions to Assess Issues Related to TVET Access by the Poor	
Issue	Key Questions
High Training Costs	Are training costs prohibitively high and create an access barrier for the poor?
	Are fees (total fees including tuition, boarding and other fees) in TVET higher than in the comparable stream in general education?
Impact of Scholarships	Are scholarships or other financial support schemes (loan schemes) available to TVET students to mitigate access problems through high training costs?
	Are scholarship awarded purely on merit, or do the award rules include some positive discrimination (quotas, etc) in favour of the poor?
	How effective are positive discrimination schemes?
Low Access to Education?	Are the poor discriminated in TVET because they are more likely to come from rural areas or less developed regions?
	Are the poor discriminated in TVET because they are less likely to reach the educational entry requirements for TVET programmes?

Some factors explaining findings related to access to TVET by social status include:

- 1) High training costs may create a barrier for access by students from poor households. TVET provision is more costly than primary and general education (see chapter 3), and this may translate into tuition fees that are above those due in the general education system. On top of this, TVET institutions are often away from where people live adding extra costs for accommodation (boarding) and extra food. Furthermore, trade testing and other examination costs are due, and these are often more costly than in general education.
- 2) In many countries, state-funded scholarships (or stipends) are available for a selected number of students attending formal TVET. Scholarships act to ease the financial burden for the poor. However, often scholarships are awarded not on the basis of social need, but on merit, i.e. the best students win the stipend. Presumably, the economically better off students fare best in school (see also the analysis in chapter 6). In this case,

scholarships do not act to counter discrimination on social grounds, but rather re-enforce them. This is also the case, if scholarships or loans are predominantly awarded to students in higher education streams (see Example 10.6).

- 3) In the same way, minimum educational attainment requirements for admission to TVET (depending on the TVET level either primary school, lower secondary school or upper secondary school certificate) tend to discriminate against the poor, as students from poor households are often less likely than students from better-off households to reach a higher level of schooling.

EXAMPLE

10.6

(Access to Student Loans):

Student Loans, by Level and Type of Institution, Tanzania, 2008/09

Source: Adapted from the Tanzania CSR, 2011.

The table taken from the Tanzania CSR of 2011 indicates social expenditures in the higher education and post-secondary technical education system that is given out as student loans. Three main factors determine the targeting of this kind of social expenditure: (1) the share of students that benefit from loans; (2) the average amount of the student loan; and (3) the share of that amount that is transferred directly to students for their expenses.

TABLE 10.11 - Social Expenditures, by Level and Type of Institution, Tanzania, FY 2008/09

	Higher Education	Technical Nonhigher	Total
Share of Student Loan Beneficiaries (%)	47.9%	1.3%	38.50%
in Government Institutions	43.0%	0.6%	34.60%
In Nongovernmental Institutions	65.4%	3.9%	52.60%
Amount of the Loan (Millions of T Sh)	2.18	2.37	2.18
Students in Government Institutions	1.96	2.25	1.96
Students in Nongovernmental Institutions	2.69	2.43	2.69
Overseas Scholarships	6.23	-	6.23
Share of the Loan Transferred Directly to Students	70.0%	69.9%	70.00%
Students in Government Institutions	74.2%	76.1%	74.20%
Students in Nongovernmental Institutions	62.7%	67.0%	62.80%
Memo Items			
<i>Number of Loan Beneficiaries</i>			
In Government Institutions	56,798	398	57,196
In Nongovernmental Institutions	39,858	133	39,991
Overseas Scholarships	16,940	265	17,205
	1,034	0	1,034

Findings

A total of 57,196 students benefited from the student loan scheme, representing 38.5 percent of all students in public and private postsecondary institutions. Approximately 70 percent of the average loan value was directly transferred to students. The value of the loan was in line with the Tanzanian cost of living. However, the share of higher education students benefitting from

the loan scheme (48%) was dramatically higher than the share of TVET students (1.3%). The share in higher education appears to be excessive and clearly inequitable considering the fact that less than 10 percent of postsecondary students' families are from the poorest quintiles.

Relevant data for assessing the above-mentioned issues are provided through analysis described in other chapters of the guidelines, notably chapter 3 for data on training costs, section 3 of this chapter specifically on training costs in TVET and chapter 6 for data on educational attainment and success in school by social background of students. Information on how scholarships are awarded is available with the granting authority in the TVET regulatory authority or ministry.

Access Constraints by Location and Urban/Rural

TVET institutions are often not equally distributed in countries. Some regions may be underserved, and often supply is less in rural than in urban areas. This is usually caused by the nature of TVET, which needs to be concentrated for efficiency reasons and gains from being close to industry. Yet, the spatial distribution of TVET supply is often a major political concern leading to costly expansion plans by governments.

Factors that influence the spatial supply and need to be considered when looking at equity issues by location and rural/urban divide include:

- 1) The spatial distribution of TVET supply usually varies considerably between levels of TVET. Basic training institutions providing lower level skills development may be more widespread and also reaching the rural areas. In many countries TVET policies are geared towards supply expansion with the aim of establishing decentralised TVET facilities throughout the country. These programme usually target lower level TVET, such as post-primary training provided in skills development centers, youth polytechnics, etc. The situation is different in higher level TVET requiring more sophisticated facilities and offering more specialised programmes. Institutions are fewer and concentrated.
- 2) TVET institutions tend to be located in urban areas, simply because good quality TVET benefits from the vicinity to markets and production. TVET institutions in rural set-ups encounter more difficulties to include business people in their governing boards, to organise industrial attachment opportunities for their students, to market goods and services produced during training for income generating purposes, to attract good teachers and to increase the quality of the training services through interaction with real producers. Political plans to place TVET institutions in rural areas in order to increase access for the rural population and to increase the attractiveness of rural life therefore have to consider the trade-off between accessibility and relevance.

An education sector analysis should as a minimum attempt to map the TVET supply throughout the country by level and, if possible, occupational field to produce evidence about the spatial supply.

2.3 EXTERNAL EFFICIENCY

TVET programmes are specifically designed to prepare completers for work.⁷⁶ External efficiency indicates the relevance of TVET programmes vis-à-vis the skills and competency requirements of the labour market. A detailed description of the labour market context of TVET will usually be included in the external efficiency chapter of the education sector analysis. Chapter 5 of these guidelines introduces more.

A well planned TVET system needs to be based on appropriate labour market analysis, and programmes need to be constantly fine-tuned and modified in order to meet changing skills needs and competence requirements in the world of work, i.e. through regular adjustments in curricula and in the selection of programmes offered. Programmes also stay relevant, if they are delivered close to the world of work and in close cooperation with industrial experts and business representatives.

This section focuses on indicators to measure the relevance of training delivery, indicators to assess the match between qualifications and competencies obtained by TVET graduates and needed in the labour market, and necessary analytical structures and services to safeguard external efficiency.

Measuring external efficiency of TVET often faced considerable challenges in the past, due to the fact that sufficiently disaggregated data about labour market outcomes in relation to TVET careers were weak or not available at all. With the growing interest in TVET by government and development partners, this situation is slowly changing, with more comprehensive tracer studies conducted, for example. A brief introduction into tracer studies is provided in annex 5.5.

2.3.1 RELEVANCE OF TRAINING DELIVERY

The way TVET courses are structured and delivered has an impact on its relevance, i.e. the likelihood that students will obtain those skills and attitudes that the labour market requires leading to good employment chances of graduates, and to employer satisfaction with the outcome of TVET.

International experience shows that training is more relevant the more companies are involved in training, and the more the curriculum is integrating workplace and job experience. Involvement of companies in training delivery can be organised through industrial attachment, or more strongly through cooperative training delivery modes, of which formal apprenticeships represent the most advanced form. Alternatively, or in addition to sharing the responsibility for training delivery, TVET institutions may also integrate some workplace exposure measures (e.g., regular enterprise visits) or incubator services into their operations. Running school businesses, as part of the training organisation or as extra-curricular activity may be another way to sensitise and better prepare students for their future professional destinations.

To capture the relevance of training in this sense, UNESCO is suggesting (and compiling international comparable data on) some indicators to capture the relationships of TVET institutions and the world of work. Some of these indicators, listed and further explained in the following UNESCO's key indicators:

- 1) The **share of secondary/tertiary level students in dual training** measures the relevance of TVET by assessing workplace vicinity in the TVET system. The indicator assumes that dual (or cooperative) training is closer to the world of work than mere school-based training;
- 2) The **ratio of TVET courses with compulsory practical training in enterprises** measures the relevance of TVET in terms of workplace exposure, and the incorporation of this exposure in the curriculum;
- 3) The **proportion of TVET institutions carrying out at least one visit to an enterprise every year** measures the relevance of TVET by assessing the possibility of obtaining exposure to the world of work. Data are obtained through TVET institution surveys; and
- 4) The **ratio of TVET institutions with an enterprise incubator or any other professional activity involving students** measures the relevance of TVET programmes through assessing the availability of self-employment promotion services available to students. The data are obtained through TVET institution surveys. This indicator is particularly relevant in countries where the importance of self-employment as an outcome for TVET graduates is high.

• *Key indicators suggested by UNESCO - TVET's market responsiveness*

The **percentage of secondary/tertiary level students in dual training** is the ratio of students enrolled in dual training programmes, where parts of the training is delivered in a company-context:

$$\frac{\text{No students in dual training} \times 100}{\text{Total No of secondary/tertiary level students}}$$

The **ratio of courses in TVET with compulsory practical training in enterprises:**

$$\frac{\text{No of TVET courses with compulsory practical training in enterprises} \times 100}{\text{Total No of TVET courses}}$$

The **proportion of TVET institutions carrying out at least one visit to an enterprise every year:**

$$\frac{\text{No of TVET institutions carrying out an annual visit to an enterprise} \times 100}{\text{Total No of institutions}}$$

Ratio of TVET institutions with an enterprise incubator or any other professional activity involving students:

$$\frac{\text{No of TVET institutions with some type of professional activity involving students or support to self-employment} \times 100}{\text{No of TVET institutions}}$$

Data to compute these indicators can be obtained from the ministry/authority in charge of TVET, or possibly through EMIS, in case of the first two indicators. Whether industrial attachment or not is mandatory, is usually a curricular issue. Note that mandatory industrial attachment may not always imply that attachment places are actually available for all students. Particularly in countries with a small industrial base TVET institutions find it often difficult to secure attachment places for the growing number of TVET students.⁷⁷

2.3.2 VALUE OF TVET QUALIFICATIONS IN THE LABOUR MARKET

The best measurement for assessing the value – and more specifically the relative value of different TVET schemes in one country, if data allow for comparative analysis – of TVET qualifications in the labour market are jobs and wages.

Measuring Professional Integration and Conformity

It is suggested to compute two indicators to assess whether TVET graduates find employment after training, and whether this employment is related to the actual programme that graduates had attended:

- 1) The **net integration rate after X years** shows the percentage of TVET graduates who have secured employment, measured after a specified number of years after graduation. The indicator measures the external efficiency of TVET, to assess the fields and sectors where professional integration occurs fastest and best. Data may be obtained from tracer surveys, possibly also household or labor force surveys. Jobs include formal and informal sector employment;
- 2) The **conformity rate** (or **training-related employment rate**) enables the assessment of the match between training and employment. Data are available from HHS of LFS. It is also possible to compute this indicator in a modified way from tracer studies taking the entire employed graduate population as a basis. It is best to disaggregate by field of study, and by formal/informal sector employment. Conformity between education and employment is strong when the conformity rate exceeds 50%.

• **Key indicators suggested by UNESCO - Job integration of TVET graduates**

The **net integration rate after x years** is the ratio of graduates who have secured employment X years after obtaining their qualification:

$$\frac{\text{No of graduates (by sector or field of study) who completed school after, at most, X years and who now have jobs} \times 100}{\text{No of graduates per area or field of study in the cohort}}$$

The **training related employment rate/conformity rate** is the ratio of workers in jobs that correspond to their initial field of study:

$$\frac{\text{No of persons plying a trade that corresponds to their training} \times 100}{\text{No of persons working in the area of activity}}$$

Net Integration Rate

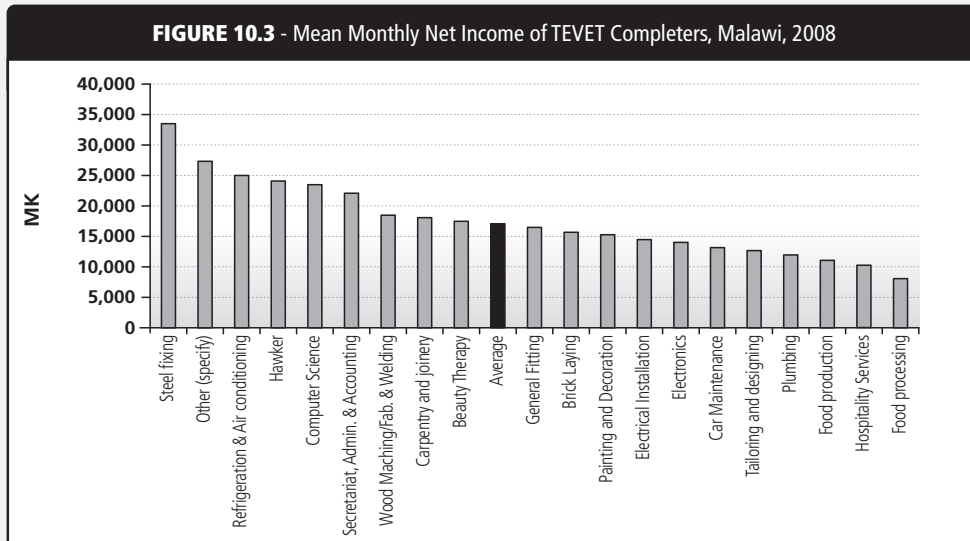
Data required to calculate this indicator include employment status by TVET qualification, and year of qualification. Data availability may be the biggest challenge here. Labour force surveys (LFS) and household surveys (HHS) often provide comprehensive data sets on employment status. The main bottleneck here is the availability, reliability and comprehensiveness of base data on educational background. Often, TVET is not at all included as a distinct educational classification. Where it is, the level of disaggregation is often an issue. TVET is often not classified by educational level, and rarely by type of TVET (formal/non-formal; long-term/short term). For example, data available for the CSR Malawi only allowed an analysis of completers of formal post-secondary TVET by employment sector.⁷⁸

The education sector analysis may also consider conducting a tracer survey of TVET graduates (see annex 5.5), if this has not already been done by the ministries/authorities in charge of TVET. Tracer surveys usually contain more disaggregated information about labour market outcomes by programmes and occupational fields. Hence they allow to compare

(Comparison of Income of TVET Graduates by Occupational Group to Analyse External Efficiency): Mean Monthly Income of TEVET Completers by Occupational Groups, Malawi, 2009

Source: Adapted from Malawi CSR 2010.

Figure 10.3 was constructed from results of a tracer study conducted among TEVET and higher education completers in Malawi in 2008.



Findings

The tracer study findings demonstrate considerable differences in the returns for TVET completers by field of study. Steel workers, specialised technicians (e.g., refrigeration) and those completers working in modern office occupations earn relatively more than car mechanics, cooks or bricklayers indicating a higher demand for those specialists in the labour market. The findings can partly also be explained by the fact that most of the below average paying occupational specialisations tend to lead to employment in the informal sector.

external efficiency across programmes (i.e. apprenticeship vs. school-based programmes, long-term vs. short term), provider systems (i.e. private/public) or occupational fields. As such they are not only providing information about the external efficiency of TVET as a whole, but also assist in sector planning and priority setting in terms of training modes to be specifically supported and training fields to be expanded or dropped.

Conformity Rate (or Training-Related Employment Rate)

Data to compute this indicator may be obtained from labour force surveys, or through tracer surveys.⁷⁹ Again, tracer studies usually allow for a more precise disaggregation by field of study and type of training programmes. In case a tracer study is conducted data will also allow for a simple tabulation of average wages earned by graduates by occupational field, which is instrumental in assessing the relative value of training by occupational field, as can be seen in example 10.7.

Results for assessment of integration and conformity rates, and average wages, have to be carefully analysed with a view to labour market determinants. For example, a low integration rate (i.e., a high unemployment rate of TVET graduates) may be explained by an oversupply with qualified workers, or simply by the fact that employers, despite of demand, are not satisfied with the skills, competencies and/or attitudes of the TVET graduates. In the former case, the finding would indicate the need to down-size the TVET supply in the particular occupational field. In the latter, the finding would point to the need to improve the quality of training. A sudden drop in the integration rates may also be the result of an economic downturn leading to increased unemployment.

Considerable wage differences between occupational fields, as indicated in the Malawi example (see figure 10.3), may be caused by the fact that employment in some occupational fields (e.g., food processing, car maintenance and tailoring) is predominantly in the informal sector where wages are generally below those gained in the formal or public sectors.

Rates of Return (ROR) to TVET

A comparative view of the rates of return to different levels of schooling provides evidence of the economic value added to each additional educational level attained. Rates of return (ROR) are assumed to reflect the increased labour productivity induced by education. Private ROR describe the average extra income gained by an individual through additional education in relation to the cost of this education for the individual (including the foregone earnings due to longer studies). The social ROR informs about the gain of society at large. It is calculated by relating the additional expected income to the total cost involved in the education, both private and public.

An analysis of the rates of return to each level of schooling helps understand whether investments in education for both private households and society are beneficial, and may serve as a tool to analyse the appropriateness of educational investment.

The ROR methodology is explained in more detail in chapter 5 on external efficiency. The analysis of external efficiency of TVET would gain significance if ROR could be computed by level of TVET as well as type of programme/provider. If data allows, a ROR analysis aggregated by duration may also be instrumental in shedding more light on the frequent discussions about optimal durations of TVET programmes. Relevant data on training costs

and wages can be obtained through the TVET cost assessment described in section 3, through household or labour force surveys and possibly through tracer studies.

2.3.3 LABOUR MARKET INFORMATION AND SERVICES

Accurate and timely labour market information is essential for TVET planning. In particular the following information is needed:

- Data on school leavers and potential other TVET target groups to establish the demand for training in terms of quantity, and educational background;
- Information on skills deficits and unmet skill demand in the labour market, both in formal and informal employment;
- Information on skills needs in the future, induced by emerging economic sectors;
- Indications for declining sectors and saturated labour market segments in occupational groups.

Often, considerable relevant labour market information is readily available. Potential sources for such information include EMIS statistics, household and labour force surveys, establishment and employers' surveys and other relevant surveys and studies, investment climate assessments, or sector-specific surveys.

However, the TVET sector often remains disconnected from such information sources, i.e., relevant information is not appropriately prepared and translated into information to be used by TVET planners. The analysis may assess the situation around labour market information and its use for TVET planning purposes in order to establish one important element of the framework conditions for labour-market orientation of TVET. Key questions in this context are summarised in table 10.12.

TABLE 10.12 - Key Questions to Assess Availability and Use of Labour Market Information in the TVET Context

	Key Questions
Availability/Quality of Information	<p>What labour market information is available, who is collecting it and how reliable is it?</p> <p>Are base labour market data on employment and waged disaggregated by TVET qualifications?</p> <p>Are data on skills demand collected?</p> <p>How frequently are data updated?</p> <p>Are data available?</p> <p>Are reports generated?</p>
Use of Information by TVET Sector	<p>To what extent are data and information available to TVET planners?</p> <p>In which processes of TVET planning are labour market data used? (e.g., curriculum development and revision, decision on introduction of new courses and cancellation of existing programmes, etc.)</p> <p>What institutional capacities for labour market analysis are available in the bodies in charge of TVET planning?</p> <p>Are there established communication mechanisms between TVET planning units and data collection organisations such as statistical offices, labour ministries, etc.?</p>

2.3.4 LABOUR MARKET MATCHING SERVICES

The labour market relevance of the TVET system is also influenced by the availability and quality of those services that assist matching the supply of labour with the demand for skilled workforce in the labour market, notably vocational counseling and guidance (VCG) and job placement (JP) services. VCG services assist school leavers and other target groups to make the right career choices when selecting a TVET programmes, while JP services help labour markets entrants to get connected to future employers.

Good quality VCG and JP services, provided either by central agencies (e.g., ministries of labour through labour exchange offices) or directly by TVET institutions are rare in developing countries, but considerable efforts, also supported by development partners, have been made in recent years to improve the availability of such services. An education sector analysis may assess the availability and quality of such services guided by key questions summarised in Table 10.13.

2.3.5 SELF-EMPLOYMENT PROMOTION AND BUSINESS DEVELOPMENT SERVICES

Access to entrepreneurship training and business development services (BDS) are essential when self-employment represents a significant target labour market for TVET graduates. It may be usually beyond the scope of an education sector analysis to undertake a comprehensive assessment of the landscape and quality of such services, but a quick stocktaking of whether and to what extent such services are available to TVET graduates may be instrumental to point to potential deficits in the labour-market orientation of TVET programmes. Key questions include:

TABLE 10.13 - Key Questions to Assess Labour Market Matching Services

	Key questions
Vocational Counseling and Guidance	<p>What kind of VCG services are available? Who is providing them? Who are the addressees of VCG? School leavers, TVET students, others? What percentage of the defined target group has accessed services in the past year? What instruments are used, and are these regularly updated? Are instruments based on up-to-date labour market information? Do TVET institutions conduct open days? Are VCG services electronically available (electronic media or internet) to counselors or students? Do schools and TVET institutions have designated vocational counselors? Are they trained and receiving regular updating? Are sufficient budgets available to maintain the services? Is the VCG system regularly monitored?</p>
Job Placement	<p>What kind of JP services are available? Who is providing them? Who are the addressees? What percentage of the addressees are effectively targeted? Are placement officers trained and regularly re-trained? How is the information on vacancies organised? What parts of the labour market are targeted by the JP system? How successful are the system, i.e. how many school leaver or TVET graduates found employment through JP systems? How are companies interacting with placement officers? Do TVET institutions organise regular open days for industry? Are job fairs organised? Is the system regularly monitored?</p>

- What services are available to support TVET graduates venture into self-employment? Who is organizing them?
- What share of TVET graduates have access to services?
- Are financial and incubator services linked to comprehensive market information?
- Are follow-up services available for young entrepreneurs?
- How effective are the services (i.e. how many TVET graduates have actually ventured into self-employment)?
- Is the impact of services regularly assessed, and are instruments and tools regularly updated on the basis of monitoring reports?

This section discusses the specific funding arrangements in TVET systems and their implications for an assessment of TVET cost and financing. It guides through the analysis of public expenditure for TVET, the assessment of other funding sources, the analysis and evaluation of expenditure structures and the challenges involved in unit costs expenditure. It should be read together with Chapter 3 of the guidelines, which addressed the analysis of costs and financing for the whole education sector.

3.1 INTRODUCTION

TVET is generally considerably more expensive than general education. This is a result of (usually) lower student/teacher ratios and high costs of training material. Furthermore, development costs are much higher because of expensive workshops and laboratories. Funding constraints and under-funding are frequent, particularly in public TVET programmes leading to low quality of training delivery.

More than general education, TVET is usually funded through multiple sources. To cope with funding requirements in the course of TVET reform processes, which often aim at both enrolment expansion and quality improvements, a further diversification of funding sources has featured prominently among TVET reform proposals more recently.

The diversity of funding sources poses some challenges to the analysis of costs and finances. Typical sources are outlined in Table 10.14 below.

TABLE 10.14 - Overview of Typical Funding Sources of TVET

Source	Remarks
Public Budgetary Allocation	In most countries limited to funding public training institutions, however, increasingly also private institutions may benefit. The latter is particularly the case if public allocations are not paid as institutional base funding and teachers salaries, but through vouchers, per capita grants, etc.
Training Levy Funds	Replacing or supplementing public allocations. Levy funds, where they exist, are usually sourced by companies.
Private Households	Main direct contribution to training is through training and other (e.g., examination) fees. Other, indirect costs, such as cost of living, transport, etc. may be added to calculate private contributions.
Companies	Apart from funding training through training levies and taxes, companies contribute through sponsoring staff training or direct support to training institutions.
Income Generating Activities by Training Institutions	May include "selling" of training services, but also sale of other products and services, which may, or may not be produced during the training.
Donors	Through contributions to the public budget, or direct support to training institutions or management structures.

Each TVET provider system has different funding structures, which need to be identified and quantified as far as possible, as example 10.8 shows.

EXAMPLE

10.8

**(Stocktaking of Different Funding Sources in One Country):
Sources of TEVET (Technical, Entrepreneurial, Vocational Education and Training) Funding, Malawi, 2009**

Source: Adapted from Malawi CSR 2010.

Findings

TEVET in Malawi is principally funded through six different sources: the public budget, the levy fund, private households that mainly contribute through fees, companies involved in in-company training and apprenticeship training, through income generating activities by TEVET institutions

TABLE 10.15 - Sources of TEVET Funding by Training Provider System, Malawi, 2009

Type of training Sources	Training in Public TEVET Institutions	Training by Non-Public Providers	Training by Employers (In-House, Apprenticeship and External)
Public Budgetary Provision	Base funding of TCs; funding of sector specific training (water, agriculture, medical, etc) and training for specific target groups (handicapped, etc)	Subsidies to (parastatal) providers with earmarked target group, e.g. MEDI	
TEVET Levy Fund (Paid by Public and Private Employers)	Subsidy for training material of formal Technical, Entrepreneurial, Vocational Education and Training Authority (TEVETA)-sponsored apprentices, selected grants for capital investment, bursaries to students	Funding of special programmes conducted by private institutions targeting mainly the informal sector	Part-reimbursement of cost of staff training programmes for levy-paying companies

Private Households	Tuition fees and boarding fees	Tuition fees. In case of private commercial providers these are cost-recovery fees	Acceptance of no or lower wages in case of traditional apprenticeship training
Income Generating Activities	Common in public TEVET institutions	Common in NGO TEVET institutions, occasionally as well in private commercial	
Companies	Indirectly co-financing through TEVET Levy, and offering apprentices places	Indirectly co-financing through TEVET Levy	Direct financing of company training centers, and sponsorships of (in-house and external) staff training programmes
Foreign Donors	No significant contribution at the moment; some special programmes are funded with donor support	Some foreign NGO and churches involved in funding of NGO training; some special programmes are funded with donor support; also programme funding of TEVETA	

and finally through contributions of development partners. Through the TEVET levy fund, companies are systematically involved in funding all major TVET provider systems. This source is more important than direct public budgetary allocations, which by and large only co-finance the formal regular programmes provided in public TEVET institutions.

Creating a flow of funds chart may be useful to illustrate the various funding sources and their uses within the entire TVET system, see Example 10.9 below.

EXAMPLE

10.9

(Depicting Sources of TVET Funding in a Flow of Funds Chart): Flow of Funds in Public TVET, Vietnam, 2007

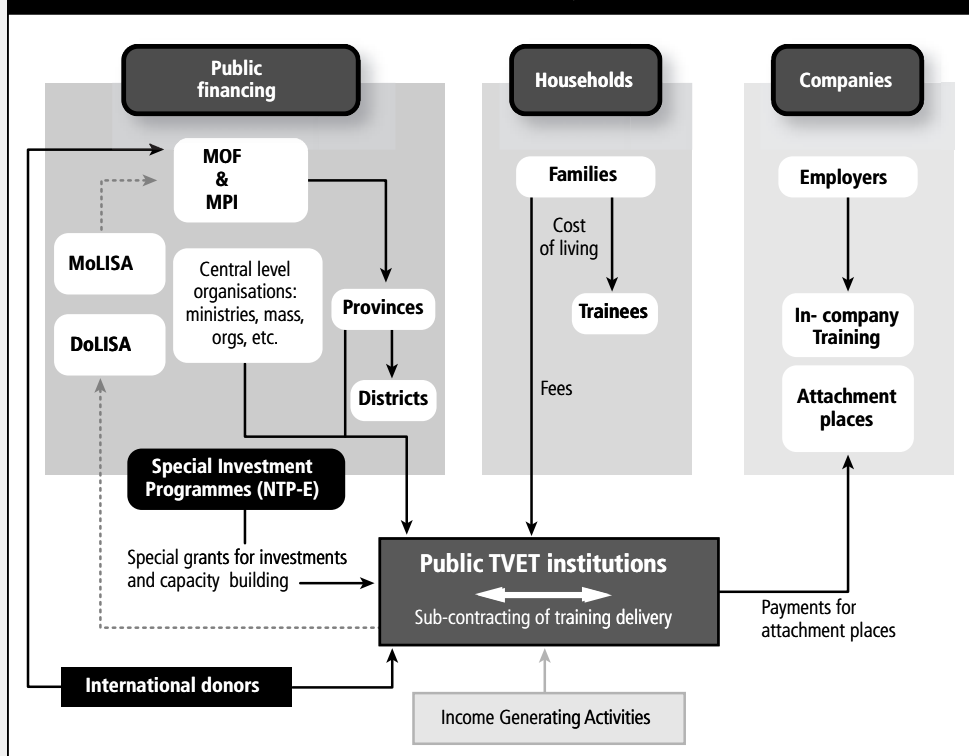
Source: Franz, Jutta. 2007. Financing of Technical and Vocational Education and Training (TVET). Vietnam. Draft Report of a Fact Finding Mission. Prepared for German Technical Cooperation with Vietnam, Promotion of TVET

The figure shows a flow of funds chart in the formal TVET system (under the Ministry of Labour and social Affairs (MoLISA) in Vietnam.

Findings

Public TVET in Vietnam is mainly financed by public funds, only partly co-financed by households, which pay student fees. Companies are not involved. Rather, TVET institutions usually have to pay companies to have students accepted for internships. Public funds are allocated to institutions through various channels: direct disbursements to central level institutions through their parent ministries, and provincial or district channels in case the institutions are under decentralised management. Investment funds are directly channeled to institutions from the Ministry of Finance through specially earmarked investment programmes. Development partners channel their contributions either directly to institutions, or through the government system as budget support.

FIGURE 10.4 - Core Flow of Funds Under Public TVET System (under MOLISA), Vietnam, 2007



3.2 ANALYSIS OF PUBLIC TVET EXPENDITURE

A TVET analysis should firstly establish total public spending in TVET, both recurrent and capital/development. This includes all expenditure associated with formal general TVET, including management expenditure at all administrative levels, expenditure related to examination and certification, teachers/instructors training and any allocations to a separate training fund, if applicable. Such expenditure are usually incurred with the ministry in charge of TVET, i.e. education ministries or labour ministries.⁸⁰ However, total public expenditure also includes, as example 10.10 demonstrates, the (usually) considerable expenditure incurred in running specialised training institutions and/or staff training institutions under other ministries.

**(Identification of Total Public Spending on Skills Development):
Total Public Spending for TEVET, Malawi, 2007/08**

Source: Adapted from SCR Malawi 2010.

TABLE 10.16 - Total Public Spending for TEVET 2007/08, MK	
RECURRENT	Malawi Kwachas
<i>Ministry of Education</i>	
Allocation to Technical Colleges	168,724,305
Administrative cost, Department of TVET	10,645,000
MOEST Subsidy to TEVETA	60,000,000
Staff Development Institute	40,832,395
TEVET share of global admin cost MOEST	7,636,322
MANEB, Share of TEVET	2,912,738
UNESCO National Commission, TEVET share	76,426
<i>Ministry of Labour</i>	
Trade testing Department	32,448,940
<i>Other Ministries</i>	
National College of Resources	6,000,000
Limbe Police Training School	26,611,680
Mtakataka Police Training School	22,442,527
Malawi Armed Forces Colleges	272,339,089
Malawi College of Forestry and Wildlife	18,489,195
Civil Aviation Training School	9,796,137
Marine Training College	14,831,550
MEDI	60,000,000
Works Training Unit	5,739,295
Sub-total	436,249,473
Total	759,525,599
CAPITAL	
Village Polytechnics (MoL), donor contributions	77,920,000
Trade testing modernisation (MoL), donors	303,156,000
Trade testing modernisation MOL, GoM	24,843,000
Total identified budgeted	405,919,000
Total identified executed	24,843,000

Findings

The figures clearly show that expenditure for formal TVET is only a lesser share of the total Government of Malawi expenditure for training. 57 percent of all public recurrent expenditure for TVET in the year under evaluation (2007/8) was under ministries other than the education and labour ministries, which administered formal TVET and the related assessment/certification systems. The Malawi Armed Forces College received more public funds than any other individual institution or provider system. Its budget is only slightly less than the entire budget for all training related activities (training delivery plus regulatory functions) of the Ministry of Education.

The major source for the assessment of total public spending is usually the national budget. If the budget presentation is not sufficiently disaggregated to identify training budgets and allocations to training institutions, it may be necessary to obtain detailed budgets of the individual ministries.

Note that the TVET sector often suffers from very low budget execution rates reflecting its low status in the education sector or, in case public allocations were increased, low absorptive capacity. Actual budget data should therefore be used if possible.

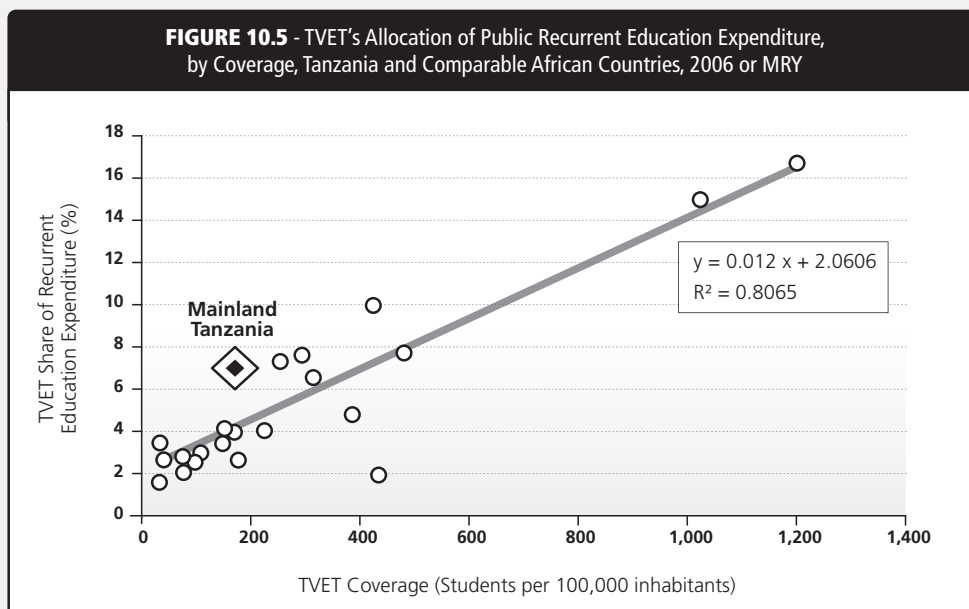
Public expenditure for TVET lends itself to international comparison to provide policy-makers with a benchmark for expenditure planning. An indicator for public TVET spending in this regard is the percentage of TVET expenditure in total education expenditure, which is only useful to apply if formal general TVET is considered an education sub-sector and accordingly is run and financed under the education ministry. The UNESCO Institute of Statistics (UIS) as well as UNESCO/Africa have compiled international comparative data on this indicator. An example is presented below.

EXAMPLE 10.11

(Public Allocation to TVET as a Percentage of Total Education Sector Expenditure): Allocation to TVET of Public Recurrent Education Expenditure, by Coverage, Tanzania and Other African Countries, 2006

Source: UNESCO/BREDA, 2011. Tanzania CSR.

Figure 10.5 shows TVET recurrent expenditure as a percentage of total recurrent education expenditure in relation to the coverage of the TVET system (students per 100,000 inhabitants).



Findings

The figure clearly shows that the share of TVET expenditure of the entire education budget in Mainland Tanzania is significantly above the average of comparable African countries indicated in the trendline.

A list of the indicators suggested by UNESCO for the analysis of TVET public funding is presented here. They include⁸¹:

1. The **share of education budget allocated to TVET** measures the importance of TVET in the public education and training budget;
2. The **public expenditure on TVET as a percentage of total public expenditure on education** measures the extent of state funding for TVET. If this percentage is considerably higher than the previous, it indicates that considerable expenditure for TVET is allocated by other ministries and public sectors;
3. The **public expenditure on TVET per student as a percentage of GDP per capita** assesses the relative importance given, in the proportion of national wealth, to funding for TVET; and
4. The **public expenditure on TVET by type of expenditure** provides an overview of the structure of TVET expenditure. The specific country context may suggest further disaggregation. For example, in countries where boarding costs are a topic of discussion, it may be instructive to calculate boarding expenditure separately.

• Indicators suggested by UNESCO - TVET public financing

Share of Education Budget Allocated to TVET

Ratio between public resources allocated to TVET and public resources allocated to education

Budget allocation for TVET x 100

Education budget

Public expenditure on TVET as a Percentage of total public expenditure on education

Amount of ordinary public expenditure allocated for TVET x 100

Total amount of ordinary expenditure allocated for education

Public expenditure on TVET per student as a percentage of GDP per capita

Ratio between average TVET per student spending and the average per capital income in the country

Amount of ordinary public expenditure per TVET student x 100

GDP per capita

Public expenditure on TVET by type of expenditure

Share for different types of expenditure as a percentage of total public expenditure for TVET

Public expenditure in TVET by type of expenditure x 100

Total public expenditure in TVET

3.3 ANALYSIS OF OTHER FUNDING SOURCES

A stocktaking and analysis of other funding sources of TVET is useful to obtain an understanding of the overall national resource base for skills development, and to inform the public discussion on funding diversification in TVET. The following table provides an overview about where to obtain information about the most important funding sources:

TABLE 10.17 - Data/Information Sources about TVET Funding Sources

Funding Source	Sources and Remarks
Private Households	<p>Public Formal TVET EMIS data on income of recorded training institutions. Consider reliability problems of EMIS data for TVET. Assessment of budgets of individual training institutions, obtained either from the parent ministry, or directly from the institution. In this case, the analysis may need to be limited to a smaller number of “typical cases”. Fee information from regulatory authorities about formal training programmes. Consider that officially set fees often do not represent real contributions expected from households. It may be useful to conduct a detailed assessment of private costs in TVET institutions, which includes also items such as examination fees, school uniforms, boarding costs, other social costs, transport, etc.</p> <p>Private Training Market The private training market is important to consider in this context, as these are usually exclusively financed through fee contributions from private households. Together with estimates about enrolment in private training institutions (distinguish between private commercial and NGO), information on average fees charged in private training institutions can provide an approximation of private contributions in this training segment. Information on fees charged in the private training market may be obtained from the public registration office, from associations of private training providers, or – most likely – only through a selected direct sample survey and/or pragmatic information collection methods such as screening newspaper advertisements. Selected studies may obtain information on financial arrangements in traditional apprenticeship training.</p> <p>Aggregated national level Household survey data may include data on education spending by level and type of education, which also include TVET. Consider that these data often combine very different kinds of TVET (formal, non-formal, teachers education, etc), so consider methodological inconsistencies.</p>
Employers/ Companies	<p>Employers contribute mainly through training levies, financing of in-company training and sponsorship of staff training programmes provided outside. Apart from levy contributions, data is usually difficult to obtain. Data sources include: Data on levy contributions is usually well documented with the managing authority, i.e. the Training Fund, the TVET Authority, or else. Investment Climate Assessments (ICA) incorporate data on training expenditure of firms, limited to the type of companies investigated. Special studies on in-company training and employers involvement in training. Labour market surveys and establishment surveys may contain data on training expenditure. Data and information collected by employers’ association and chambers/business associations.</p>
Development Partners	<p>It is usually difficult to obtain a comprehensive overview about foreign sources of TVET funding. Many NGOs receive donations from foreign countries that are not recorded, for example. However, the most important foreign donations are usually recorded in the sector budget (in case of budget support), by directories of development cooperation programmes, or by the ministry in charge of registering development cooperation programmes. Other sources include donor coordination groups or interviews with individual donors.</p>
Commercial Income of Training Institutions	<p>Revenues from income generating activities constitute in times a considerable supplementary income source for TVET institutions. Information may be included in EMIS data, or available from institutional budgets collected in parent ministries. Often, however, direct interviews with management of TVET institutions is the only way of obtaining reasonably reliable data.</p>

3.4 STRUCTURE OF TVET EXPENDITURE

An analysis of TVET expenditure structures, i.e. the percentages of major cost items of the total expenditure, is important to understand potential resource-induced factors that affect training quality. Cost structures in TVET differ from general education. Usually, the share of costs for training materials consumed in practical workshop training are supposed to be relatively high in TVET. An analysis of actual expenditure structures could show, for example, that actual expenditure for training material is falling short of what is expected under the given curricular structure, which would indicate problems in the quality of practical instructions. At the aggregate level, TVET expenditure structures are assessed in Chapter 3 as part of the overall education expenditure analysis. The TVET analysis, however, should go deeper into recurrent expenditure structures by disaggregating by TVET provider system and/or individual institutions or type of institutions to identify differences in the expenditure structures across provider systems and institutions. Results will inform, inter alia, the quality assessment in section 4 of this chapter.

Recurrent expenditure may be divided into the broad categories:

- teaching staff, including salaries, benefits and staff development
- management of training institution, including costs for management and support staff, transport, etc.
- institutional overheads, including utility costs, rental, office consumables, insurances, and others,
- training and teaching material, including workshop material, learning material, maintenance of equipment, etc.
- social benefits, including boarding and feeding costs, social events, stipends if relevant.

Each country uses their own broad structural classifications in line with budgetary structures and the analysis should follow the classifications used in the country of analysis (see Example 10.12). A template for a table to capture cost structures is presented in Table 10.18.

**(Structure of TVET Expenditure):
Distribution of Public Recurrent Spending, Tanzania, 2001 and 2009**

Source: Adapted from Tanzania CSR, 2011.

TABLE 10.18 - Value and Distribution of the Vocational Education and Training Authority (VETA) Public Recurrent Expenditure, by Key Items, Tanzania, 2001 and 2009

Constant 2009 T Sh (Billions)	2001		2009		Real Change (%)
	Value	Share (%)	Value	Share (%)	
<i>Training Expenses (VETA-owned Centers)</i>	10.44	60.9	10.26	41.9	-1.7 %
<i>Long Courses</i>	8.02	46.8	8.70	35.5	8.5 %
Personnel Emoluments	3.46	20.2	3.97	16.2	14.7 %
Training Materials	1.38	8.1	1.72	7.0	24.6 %
Boarding Expenses	0.39	2.2	0.66	2.7	69.2 %
Maintenance of Utilities and Facilities	2.79	16.3	2.35	9.6	-15.8 %
Short Courses	2.42	14.1	1.56	6.4	-35.5 %
VET Sector Management Costs	0.00	0.0	6.58	26.8	n.a.
<i>Administrative and Institutional Costs</i>	5.60	32.7	7.43	30.3	32.7 %
Personnel Emoluments (VETA-HQ)	1.85	10.8	2.55	10.4	37.8 %
Maintenance of Utilities and Facilities	1.10	6.4	1.19	4.8	8.2 %
Production and Other Operations	2.65	15.5	3.70	15.1	39.6 %
Financial and Other Operating Expenses	1.11	6.4	0.24	1.0	-78.4 %
Total Recurrent Expenditure	17.15	100.0	24.52	100.0	43.0 %

Findings

Over the decade, the expenditure structure in the VETA-administered training system changed considerably. Overall, VET recurrent administrative costs are very high. In 2009, the aggregate amount spent on VET sector management was close to 27 percent of recurrent expenditure, and a further 31 percent was devoted to VETA's administrative, institutional and financial costs. Effectively, only 42 percent of the recurrent budget was used to fund actual training delivery. These overhead costs may appear high. However, it is important to emphasise that since 2004 VETA provides considerable support to the VET sub-sector and other providers. This support is either direct (capacity building, subsidies, supply of equipment), or indirect (quality assurance, labour market monitoring, etc).

The nature and level of disaggregation depends on data availability, on the TVET delivery structure and the specific context of problems and policies in each country. If possible, different provider systems (formal and non-formal, apprenticeship training vs. full-time school-based training, public and private providers) should be compared and different types of institutions (technical colleges, vocational centers, community polytechnics). If there are indications for considerably different levels of funding among institutions, or visible differences in the quality of training across institutions, the analysis should be done for individual institutions, or a sample of institutions.

The main source for an analysis of expenditure structures are institutional budgets. It is important to use actual budget data, as actual expenditure structures may vary considerably from budgeted structures, in particular if budget cuts occurred or if institutions were, for example, faced with high inflation rates forcing them to re-allocate given resources across expenditure items.

Budget data may be obtained from the parent ministry (e.g. Ministry of Education) or organisation (e.g., TVET authority), or directly from institutions. If centrally available budget information is used, cross-checking of information in selected institutions is advisable. Often, public budgets do not reflect re-allocations done at school level during the budget year, or do not include external resources of the institutions, for example generated through income generating activities.

If a TVET institutions survey as suggested in section 1 has been conducted, this survey will provide the most comprehensive and comparable data across institutions and provider systems. As a last resort, institutional expenditure assessments may be conducted on a case-by-case basis, tracing expenditure in a selected small sample of typical institutions using a standard questionnaire. An example for a questionnaire of an expenditure assessment in a TVET institutions is provided in Annex 10.3.

3.5 UNIT EXPENDITURE AND UNIT COSTS

Unit expenditure refer to the amounts allocated by the government to TVET, by learner. Unit costs include the entire effective cost of a training, potentially including household contributions, grants, external funding and so on.

3.5.1 UNIT EXPENDITURE

The calculation of public recurrent unit expenditure is used to compare public costs of different education streams. Aggregated expenditure are analysed in Chapter 3. The specific TVET analysis should concentrate on general TVET under the education or labour ministries, or separately calculate recurrent unit spending at individual ministries, if sufficiently reliable enrolment data for those TVET segments are available. Different TVET provider systems usually show very distinct cost patterns leading to considerably different unit cost results. Only expenditure for so-called general TVET, however, represents expenditure for public education service delivery to be compared with other educational streams.

• Key Definition

Public recurrent unit spending per year is calculated by dividing the entire established annual recurrent expenditure for general TVET provision by the number of students enrolled in that year (full-time student equivalent):

$$\frac{\text{Total Recurrent Expenditure}}{\text{Total number of enrolled learners}}$$

The reliability of the indicator depends on the quality of enrolment data (see the previous section). The calculation of public recurrent unit spending should be as disaggregated by education level as data allow. However, in many cases this will not be possible.⁸²

International Comparison of Unit Costs

For international comparison of public expenditure, education sector analyses have used, as example 10.13 demonstrates, the indicator TVET public recurrent unit expenditure as percentage of GDP/p.c. This indicator is calculated on the basis of formal TVET recorded under the core regulatory ministries (education or labour). Data for a range of African countries has been compiled by the World Bank in recent years.

EXAMPLE

10.13

(Unit Costs in TVET): Unit Spending, Teachers Salaries, PTR and Enrolment in Different Education Levels, Sudan, 2009

Source: Education CSR Sudan, 2010.

TABLE 10.19 - Secondary Technical Education: Overview of State Education Spending and PTRs by State, Sudan, 2009

Secondary: Technical	Per pupil spending (current SDG)	Teacher salaries as a multiple of GDP per capita	Pupil-teacher ratio	Number of pupils
<i>Group 1: high GERS</i>	777	2.6	15	
El Gezira	669	2.9	16	3,302
Khartoum	567	2.5	21	7,336
Northern	911	2.4	11	1,256
River Nile	1,174	2.7	10	1,968
White Nile	564	2.6	18	2,507
<i>Group 2: intermediate GERS</i>	681	2.7	17	
El Gadarif	881	2.8	14	2,409
N. Kordofan	848	2.6	12	2,211
Sinnar	778	3.0	13	706
S. Kordofan	354	2.4	26	309
W. Darfur	542	2.6	21	620
<i>Group 3: low GERS</i>	838	2.5	15	
Blue Nile	1,137	2.2	8	614
Kassala	478	2.4	23	1,414
N. Darfur	608	2.3	14	1,696
Red Sea	1,194	3.1	14	1,074
S. Darfur	773	2.6	15	1,233
Total				28,655

Findings

The table reveals considerable differences in unit spending by region in each of the different levels of technical education. These are predominantly dependent on the PTR, which indicates different levels of capacity utilisation in the different regions. The lower the PTR (indicating low capacity utilisation) the higher the unit spending. On the other hand, the influence of teachers' salaries (in relation to the GDP/per capita) on unit spending is not significant.

If enrolment and expenditure data are available (from the responsible ministry) disaggregated by individual schools (in countries with a low number of public TVET institutions), type of schools (e.g. technical schools, polytechnics) or occupational focus (technical, commerce, agriculture, etc.), a **comparative public recurrent unit spending analysis** should be conducted. This may point to considerable cost differences between school types or occupational groups, or may reveal inefficiencies in allocation, if unit expenditure vary considerably between different schools of the same type. In Malawi, for example, the education sector analysis revealed in Technical Colleges all offering the same range and level of TVET unit expenditure differences of almost 1,000 percent. It turned out that public allocations were based on lump sum budgets independent of actual enrolment, with the consequence that low enrolling institutions, typically rural ones, operated with relatively high unit expenditure, while high enrolling institutions, usually found in urban set-ups, experienced lower per student allocations.

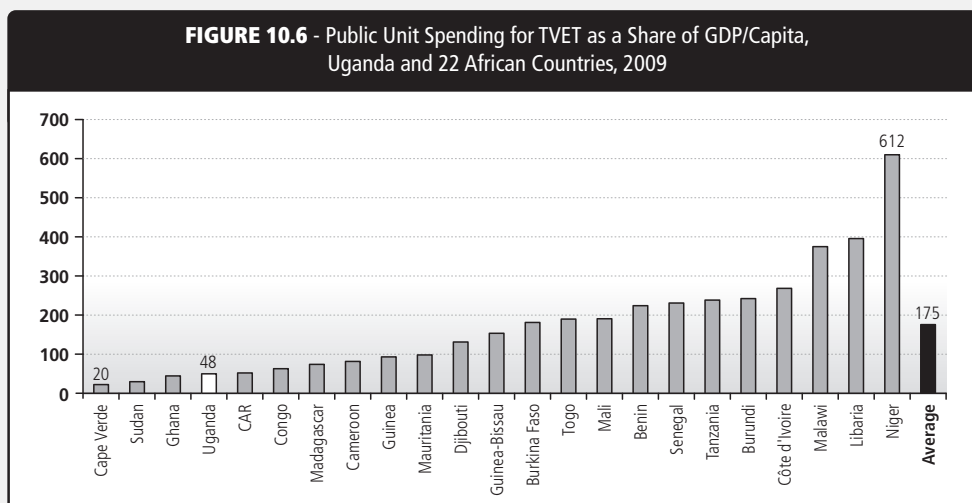
EXAMPLE

10.14

(Analysing Public Unit Spending in International Comparison): Public Unit Spending for TVET as a Percentage of GDP/p.c., Uganda, 2009, Compared to Other Countries.

Source: Adapted from Franz and Twebaze, 2011.

The analysis offered by Figure 10.6 was recently carried out in the context of an evaluation of TVET in Uganda. The figure helps to illustrate the low level of unit spending in this country.



Findings

The comparison of public unit spending for TVET, measured as a percentage of GDP/per capita, in selected African countries demonstrates the relatively low public expenditure level for TVET in Uganda. The country has budgeted less than 50 percent of its GDP/capita for each student in the (formal) TVET system, which is less than one third of the average of the African countries, for which data were available. However, the ratio is particularly high in countries with a low per capita income, such as Niger, Liberia and Malawi.

3.5.2 UNIT COSTS

Complementary to an assessment of public unit expenditure, an education sector analysis should also attempt to assess full unit costs that calculate for different provider systems and type of training institutions, ideally also for training in different occupational areas, all financial sources used for delivering TVET. Such unit cost assessments are useful to compare costs in different provider systems.

The evaluation of unit costs is helpful to compare the effective costs of different types of training, but also represents the first step of a cost-effectiveness analysis.⁸³ It is also an essential input into public TVET expenditure planning.

Unit-cost assessments consider only recurrent cost and primarily direct costs incurred at the level of TVET institutions. Indirect costs such as those related to instructors development, sector management at central level, etc. may be included as pro-rata costs (See Annex 3.1).

The most suitable data source in typical countries is information provided directly from training institutions. Data may be collected through case studies, or through the TVET institutions' survey (see chapter 1). However, experience with unit cost assessments through surveys points to considerable difficulties and inaccuracies due to reluctance of training providers to reveal budgetary data. Case studies conducted by principal researchers may generate less comprehensive but more reliable information, if a trustful relationship with individual training institutions can be built that understand the rationale of the evaluation. Sometimes, parent ministries of public training institutions collect and provide institutional budgets.⁸⁴ However, as mentioned before, those budgets may not always incorporate all funds available to the institutions, and they may not reflect unforeseen budgetary changes due to fluctuating income levels of institutions and possible budget cuts. In case of non-governmental training institutions, direct data collection at school level is essential. For institutions in the private commercial training market, fees may serve as a proxy to unit costs, as these institutions are usually fully financed through fees.

There are two options to calculate unit costs:

1. The cost of training one trainee over a specified time period, usually one year. The simplest way of calculation is to divide the full institutional cost over one year by the number of trainees enrolled. Note that not all trainees may be enrolled full-time, and not every programme may run for one year or longer. In such cases, full-time/one-year equivalences need to be established for those programmes that run shorter or part-time (or both). See in annex 10.4 a methodology for this approach.
2. Cost of producing one graduate. This may be useful, if different training schemes exist in parallel in one country with different organisational patterns (e.g. duration), but with the same output, i.e. leading to the same qualifications. This may be the case, when the same qualification can be obtained through formal apprenticeship programmes⁸⁵ and at the same time through institution-based programmes.

It should be emphasised that a unit-cost assessment as outlined above is actually a unit expenditure calculation based on actual or planned expenditure. It may represent a state of under-funding where unit expenditure are not dictated by requirements but resource constraints.⁸⁶ It is possible that considerable higher unit spending would be required to ensure training is delivered at desired quality levels.

In countries with considerable problems of underfunding, it may be useful to quantify the gap between actual and desired unit costs. For this purpose it is necessary to conduct a costing exercise. TVET authorities or parent ministries of training institutions may have conducted such costing already for planning purposes. Other sources may be training institutions directly.⁸⁷

Different training organisational patterns usually lead to very different costs and cost structures in TVET. This is compounded by the cost differences between occupational groups induced by different costs of training material. For this reason, international comparison of training costs may be problematic. However, a unit cost assessment should, where possible, try to generate comparative average cost data for different provider systems in one country, in order to inform the discussion on cost-effective training delivery.

A special aspect in the unit cost analysis should be the effects of economies of scale in TVET and the implied possible trade-offs between cost and relevance. Concentrating TVET supply in fewer and larger institutions will usually be more cost-effective, whereas decentralised, smaller institutions may be closer to the target groups and more attuned with labour market requirements.

INTERNAL EFFICIENCY AND QUALITY

Internal efficiency and quality are ongoing issues in TVET debates. Yet, data to measure these are not available at the comprehensiveness typical for general education. This section will suggest some quantitative and qualitative analytical steps to approach the assessment.

Testing and examination outcomes are key to the assessment of internal efficiency and quality. Unlike in general education, TVET often operates through parallel examination systems. In many countries, TVET examinations and certification are provided by the education examination authorities (or other examination bodies attached to the ministries/authorities in charge of TVET), but also by trade testing bodies, often run under labour ministries, targeting industry-based and non-formal training. In cases, TVET programmes prepare students for more than one assessment/certification. More recently, many countries are in the process of introducing national vocational qualification frameworks and a reform of the training system towards competency-based and modular training, which are often supposed to replace the old qualification systems.

To fully understand issues around internal efficiency and quality of TVET, it is necessary to carefully take stock of the different examination systems, their scope, rules and procedures. In most cases it will be useful to analyse internal efficiency for each of the parallel systems separately.

4.1 ANALYSIS OF INTERNAL EFFICIENCY

A considerable range of indicators can principally be used to measure internal efficiency. The table overleaf provides a list with selected indicators and their formulas suggested by UNESCO. Which indicators to use will principally depend on the specific country context, as well as on data availability. In the following, some frequently used indicators and their use are introduced.

An important indicator for internal efficiency in TVET are examination pass/failure rates.

• Indicators Suggested by UNESCO - TVET Internal Efficiency

The **promotion rate** and the **repetition rate** measure the internal efficiency of the system (see the formulas in chapter 2).

Dropout rate: Percentage of students enrolled in TVET at a given grade that have dropped out at the end of a specific school year

$$\frac{\text{Number of students in Grade G who drop out in Year N} \times 100}{\text{Number of students enrolled in Grade G during Year N}}$$

Success rate in final examination: Ratio of students who pass the final examination in a given cycle compared to the number of students who sat the examination

$$\frac{\text{Number of candidates who pass the final exam in a given cycle} \times 100}{\text{Number of students who sat for that exam}}$$

Graduation rate: Ratio of final year students in a given cycle who pass the exam to the number of students enrolled in the final year

$$\frac{\text{Number of graduates from a cycle in Year N} \times 100}{\text{Number of students in the final year of the cycle for Year N}}$$

Internal efficiency coefficient: Ratio between the number of student-years needed in theory to complete a learning cycle, if there are no drop-outs and repeaters, and the number of student years that the cohort has actually spent to educate each of the graduates (see the formula in chapter 2).

Final Examination Success Rate

Time series data is usually available directly from the examination or trade testing authorities. Often, examinations in TVET are only conducted once at the end of the programme. In case CBET (Competency-Based Education and Training) systems have been introduced, additional modular assessments may be conducted, which would allow, if data is centrally available at the examination authority, for more in-depth analysis.

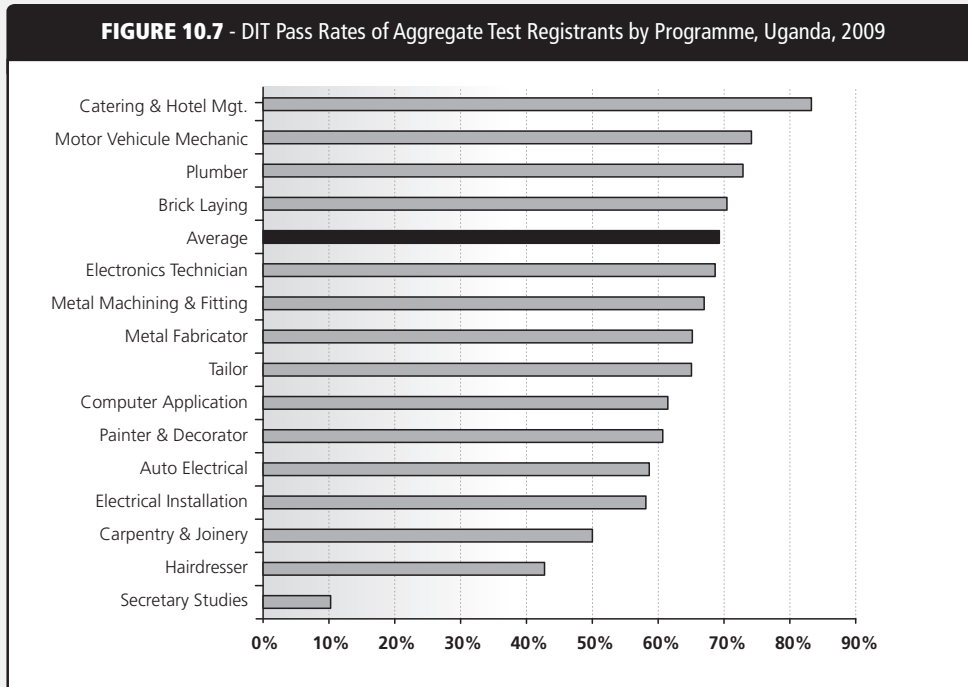
In order to compare efficiency across programmes and provider systems, pass/failure rates should be obtained by:

- Educational level of programme;
- Occupational/trade focus of the programme;
- Type of training institutions and/or provider sub-system;
- Gender.

The graph in example 10.15 shows an example of pass rates disaggregated by occupational fields of training from a TVET sub-sector analysis in Uganda.

**(Analysing Examination Pass Rates to Assess Efficiency):
Trade Testing Pass Rates in Different Occupational Fields,
Uganda, 2009.**

Source: Adapted from Johanson and Okema, 2011.



The figure used pass rates for two rounds of trade testing in Uganda in 2009 under the Directorate of Industrial Training. Trade testing is the typical examination for non-formal TVET programmes, and may also be attended by artisans who acquired their skills informally.

Findings

Data shows some alarming results. Firstly, the average pass rate is below 70 percent, meaning that almost one third of all candidates do not reach the set goal of the training undergone. It also shows considerable differences in pass rates between the different occupational fields. In three of these fields not even half of the candidates were able to achieve the certification. The examination authority, from which these data were taken examines mainly non-formally acquired skills obtained in training institutions that are often small and specialised in terms of occupational fields. The finding would therefore suggest low training quality in a specific segment of training providers, in particular for hairdressing and secretarial schools.

Dropout Rate

A frequently used indicator are drop-out rates, which establish the percentage of students enrolled in TVET at a given grade that have dropped out at the end of a specific school year. The drop-out phenomenon can be established by analysing the student flow through the different programmes. Enrolment data by year (grade) of training are required, disaggregated by the desired units of disaggregation (e.g. school type, level of training, occupational group, etc.). The table below suggests a table to establish drop-out rates for a TVET cycle over a period of three years.

TABLE 10.20 - Suggested Table Format to Capture Dropout Rates

School Type	Total Intake in Year 1	Enrolment in Year 2 Minus Repeaters	Enrolment in Year 3 Minus Repeaters	Candidates for Final Examination	Dropout Rate in Year 1	Dropout Rate in Year 2	Dropout Rate in Year 3	Dropout Rate over the Cycle
Technical Colleges	A Intake 1	B Enrolment 2 - repeaters	C Enrolment 3 - repeaters	D Candidates minus repeaters year 3	$(A-B) / A \times 100$	$(B-C) / B \times 100$	$(C-D) / C \times 100$	$(A-D) / A \times 100$
Business Colleges				

Reasons for drop-out can be very different, and interviews with management and instructors in TVET institutions may be the best source to obtain an understanding, if no special study on drop-outs is available. Common reasons include financial problems of students or pregnancy in case of female students. Often however, students also drop-out of TVET because they were admitted to other more prestigious general education programmes (often a reason for early drop-out) or because they found employment on the basis of skills already acquired during training.

Repetition Rates

The phenomenon of repetition is more common in Francophone than in Anglophone countries. Repetition rates measure the ratio of students enrolled in TVET at a specific grade who stay at the same grade the following year, compare example 10.16. The calculation of repetition rates requires data on student enrolments and student promotion by year. For more information compare Chapter 4 (internal efficiency), which discusses the calculation of repetition rates in more detail.

Internal Efficiency Coefficient

The analysis of repetition rates can be used to compute the internal efficiency coefficient, which measures the ratio between the number of student-years needed in theory (without drop outs and repetition) to complete a learning cycle and the number of student years that the cohort has actually spent. Compare Chapter 4 on internal efficiency in the education system for a detailed methodological description for computation of the internal efficiency coefficient.

**(Repetition Rates for Analysing Efficiency):
Repetition Rates in Public Technical Education by Occupational
Field, Benin, 2003/04.**

Source: Adapted from CSR Benin, 2009.

Table 10.21 presents an example of repetition rates calculated for two TVET cycles in Benin as part of the CSR Benin finalised in 2008.

	1 st Year	2 nd Year
Administration and Management	33 %	27 %
Engineering	22 %	19 %
Health	8 %	10 %
Social Work	0 %	0 %
Hospitality	3 %	n.a.
Agriculture	3 %	1 %
Average	15 %	17 %

Findings

The table demonstrates high differences in the repetition rates between the different occupational fields, with administration/management and engineering showing particular problems to promote students from one to the other grade. High repetition rates indicate low internal efficiency, because repetition implies that students need longer time (and more resources) to complete their technical education.

4.2 ANALYSIS OF QUALITY OF TRAINING DELIVERY

Internal efficiency outcomes are indicators for the quality of training delivery⁸⁸. However, particularly in TVET, examination results are often not sufficient to indicate educational quality. In those cases, where formal TVET examinations are conducted under the auspices of education examinations boards, the assessments are often largely limited to theoretical learning outcomes neglecting the practical content of TVET curricula. As such, quality problems in practical training, which is a common feature in TVET, remain hidden in examination results, and will only appear when students have to present themselves in the labour market.

Quality in TVET is determined by a number of factors including:

- The qualification and competence of technical teachers and instructors;
- The appropriateness of curricula, both in terms of labour market responsiveness and implementation capacity of TVET institutions;
- The appropriateness of training resources, including equipment, training material and teaching and learning material.

The involvement of employers and industry experts (including experts from the informal sector) in the planning, monitoring and implementation of all elements of the TVET system is a cross-cutting theme in the discussion on training quality. Principally, active participation of industry experts in standards and curriculum development, teachers' and instructors' training and further training, training delivery as well as in assessment raises the quality of learning in relation to the skills demand in the labour market. A TVET analysis should therefore always reflect on policies, mechanisms and instruments for the integration of expertise from the world of work, if the specific system elements are analysed.

The indicators suggested by UNESCO for the assessment of these factors are presented below. The list includes:

- 1) The **rate of qualified teachers**, to analyse the quality of the system's teaching force;
- 2) The **average level of satisfaction with equipment**, which can be obtained through a user satisfaction survey and a point system;
- 3) The **average level of satisfaction with infrastructure**, that could include classrooms, laboratories, workshops and so on; and
- 4) The **share of teachers that upgrade their skills**, which also enables one to assess the quality of teachers.

● Indicators suggested by UNESCO - TVET Quality

Student teacher ratio

Ratio between the number of full-time equivalent students who undergo training at a given level of education and the number of full-time equivalent teachers for that same level, in a given year.

$$\frac{\text{Number of full time equivalent students at a given level of education} \times 100}{\text{Number of full-time equivalent teachers for that same level}}$$

Ratio of qualified teachers

Ratio of teachers who have the necessary qualifications for their assigned field of teaching/learning

$$\frac{\text{Number of qualified teachers at a given level of education} \times 100}{\text{Total number of teachers teaching at that level of education}}$$

Average level of satisfaction with equipment

$$\frac{\text{Aggregate score on satisfaction with equipment for each establishment} \times 100}{\text{Total number of establishments providing TVET}}$$

Average level of satisfaction with school infrastructure

$$\frac{\text{Aggregate score on assessment of infrastructure for each establishment} \times 100}{\text{Total number of establishments providing TVET}}$$

Percentage of teachers who undergo retraining in new teaching/learning methods

$$\frac{\text{Number of teachers retrained in new teaching/learning methods at a given level of education} \times 100}{\text{Total number of teachers at that level of education}}$$

4.2.1 TEACHERS AND INSTRUCTORS

Among others, a commonly used indicator, which also provides for interesting comparison with the other education sub-sectors to establish basic quality features is the **student/teacher ratio (STR)**. It should be emphasised that target or standard STRs in TVET are often much lower than in general education, owed to the low optimum class size in practical training. In Malawi, for example, the standard STR set by the Ministry of Education was 7:1. Data on established teachers and TVET instructors are usually included in EMIS statistics or available in the parent ministry (education or labour) and/or the public (or education) service commissions in charge of employing teaching staff in the TVET sector. STR analysis should be disaggregated, as far as data allows, by type of TVET institutions, and possibly by individual institution. A disaggregated analysis often reveals considerable differences in the STR by school, depending on the location (rural/urban) and the occupational focus of the individual institution. It is common that for technical occupations with a high demand in the labour market it is difficult to recruit sufficient instructors, because salaries in the teaching profession fall short of what experts can earn in industry.

Data collection for STR analysis in TVET may face some methodological problems, including:

- Official enrolment data may only capture regular, publicly funded students, leaving out those students that are not considered regular and have enrolled on own costs. The STR therefore understates the actual situation, unless these non-regular students are also accounted for;
- TVET institutions often employ a considerable number of contract teachers financed out of fee income to cope with instructors' shortages. These are not employed by the government and thus usually not captured in central statistics. Information can normally only be obtained at institution level;
- A proper calculation of STR should take into account that some teachers are working part-time (e.g. professionals that train students for some hours per week). The common way to address this is to compute a full-time equivalent number of teachers (see the methodology in chapter 8 on higher education).
- In TVET, instructors are often qualified for training programmes other than the ones offered in the training institution. Many institutions carry on with instructors of trade programmes that have been abandoned long ago. These instructors are often idle, while other programmes suffer from undersupply of teaching staff.

The issues above are important to understand and interpret STRs in TVET correctly. Relevant data and information usually require assessment through case studies conducted directly at the level of training institutions.

**(Student/Teacher Ratio):
Number of Teachers and STR in Different TVET Streams, Uganda, 2009**

Source: Adapted from Johanson and Okema, 2011.

Table 10.22 below shows an example of a simple STR calculation by type of training institution in Uganda.

TABLE 10.22 - Teachers and Instructors by Gender and Type of Public Institution, Uganda, 2009				
	Teachers			Trainees per Teacher
	Male	Female	Total	
<i>Lower level institutions</i>				
Technical Schools	512	126	638	9.9
Farm Schools	57	17	74	15.7
Community Polytechnics	293	85	378	8.9
Sub-Total	862	228	1,090	9.9
<i>Middle level Institutions</i>				
Technical Institutes	654	100	754	11.8
Vocational Training Institutes	107	17	114	16.8
Sub-Total	761	117	868	14.8
<i>Tertiary Institutions</i>				
Technical Colleges	n.a.	n.a.	95	20.2
Comm. & Business Colleges	n.a.	n.a.	790	23.0
Health Institutions	n.a.	n.a.	274	11.4
Sub-Total	n.a.	n.a.	1,159	20.0

Findings

STRs tend to be higher in higher level institutions. This can be explained by the fact that programmes at higher level are more specific and advanced and it is difficult for the Uganda Education Service Commission to recruit appropriately qualified teachers for these occupational specialisations at that level.

Average Class Size

To cope with the methodological and data problems mentioned above, the **average size of a student group** may be calculated as an alternative to STR for each level, type of programme or occupational area. This helps to draw a better picture about actual sizes of learning groups and the number of groups each teachers have to cater for. The methodology for this is attached in annex 10.4.

Rate of Qualified Teachers

Given the difficulties to recruit qualified teachers, outlined above, another important indicator to assess the quality of teaching and learning is the **ratio of qualified teachers**, which measures the percentage of teachers who have the necessary qualification for their assigned field of teaching/instruction (see Table 10.23). Data needed to establish this indicator is the number of teachers for a given level, school-type or field of learning by highest formal qualification. Furthermore, information about the formally set minimum qualification is required, which can be obtained from the employing authority (e.g. education/public service commissions). A simple table to establish the ratio of qualified teachers by type of school is suggested below:

TABLE 10.23 - Suggested Table to Capture the Ratio of Qualified Teachers

Type of Institution	Total Number of Teachers/Instructors Employed	Total Number of Teachers Employed who Meet the Minimum Qualification or above	Ratio of Qualified Teachers
Technical Colleges	X	Y	$Y / X \times 100$
Colleges of Commerce
.....			
Average	<i>Sum (above) Xs</i>	<i>Sum (above) Ys</i>	$Ys / Xs \times 100$

The ratio can also be disaggregated by field of teaching/learning, or by level of TVET, depending on the country context and data availability. In the data collection, it is important to consider that the regular teachers' corps may include different categories of teaching staff with different required minimum qualifications (e.g., teachers and instructors).

EXAMPLE

10.18

(Teaching Staff by Qualification): Distribution of Teaching Staff in Technical Education by Qualification, Tanzania, 2008/9

Source: Adapted from the Tanzania CSR, 2011.

The example is taken from the 2011 Tanzania CSR and shows the formal qualifications of teachers in technical education under the National Commission for Technical Education (NACTE), which comprises post-secondary technical education.

TABLE 10.24 - Distribution of TE Registered Teaching Staff, by qualification, Tanzania, 2008/09

%	Male	Female	Total
Ph.D.	2.8	1.4	2.5
Master's Degree	36.5	35.0	36.2
Bachelor's Degree	29.3	21.8	27.5
Advanced Diploma	13.6	14.3	13.7
Ordinary Diploma	16.0	26.3	18.5
Full Technician Certificate	1.2	0.0	0.9
Ordinary Certificate	0.5	1.1	0.7
Total	100.0	100.0	100.0
Number	1,128	357	1,485

Findings

The table shows that around 66 percent of all teaching staff in the technical education stream registered under NACTE holds a degree qualification. Significant are the differences between the male and female group of teachers. While female teachers account for less than a quarter of all teachers, they also tend to be less educated than their male colleagues. They are underrepresented in the group of degree and Ph.D. holders, and increasingly overrepresented as the qualification level gets lower.

Share of Teachers that Upgrade their Skills

UNESCO also suggests the indicator **percentage of teachers undergoing retraining in new teaching/learning methods**. If teachers/instructors further training programmes exist, this is a very good indicator, which is particularly important in countries, which are undergoing a TVET reform forcing teachers and instructors to get adjusted to new curricula and delivery modes. It may be interesting to disaggregate this analysis by provider type, incorporating in particular non-formal and non-public TVET segments. Teachers and instructors working in private institutions often do not have access to publicly funded teachers upgrading schemes, and if they have, their employers may not promote their participation. Relevant data may be obtained from the regulatory authority/ministry in charge of teachers training/further training, and from the TVET institutions survey, if conducted.

Other Considerations

The indicators introduced above are merely concerned with formal teachers' qualifications and deployment. In TVET, however, it is a widespread phenomenon that teachers are formally qualified, however not sufficiently competent and skillful to teach the subject they are supposed to teach, in particular with respect to practical workshop/lab instructions. In particular in the formal TVET system, practical industrial experience is usually not a requirement for employment. Technical teachers are frequently recruited directly from teachers training institutions or technical colleges, which themselves are theory-biased and hardly in the position to impart relevant practical skills.

To what extent this issue is a problem in the country of analysis or not, cannot entirely be established through quantitative analysis. If a TVET institutions survey is conducted, a question of prior industrial experience of teachers may be included, and results computed accordingly. Other, more qualitative key questions to assess the extent of the issues, include:

- Is industrial experience a requirement (or an additionally desired qualification) for the recruitment of TVET teachers? Information can be obtained from the employing authorities (e.g. public or education service commissions).
- Are practical qualifications of TVET graduates considered adequate? Information is

generated in the assessment of external efficiency, introduced in section 2.3 of this chapter.

- Do TVET institutions organise workplace attachments for teachers and instructors?

The problems around qualifications and competencies of TVET teachers and the appropriateness of number of teachers employed have to be analysed in the wider context of TVET teacher deployment and management policies. In many countries, deployment of TVET teachers is a central government responsibility. In such systems some common issues occur frequently:

- Recruitment of teachers is based on public service rules regarding qualifications, which may not consider experience and skills that are important in the TVET context (such as industrial experience);
- Salaries are centrally set and inflexible, preventing special wage incentives to recruit skilled teachers in high demand occupations or in less attractive locations;
- Dismissal of redundant teachers is difficult, forcing training institutions to cope with a corps of teachers that is inadequately composed in relation to the occupational programmes offered.

In the context of TVET reforms, the question of whether the recruitment of teachers should become a sole responsibility of TVET institutions, more or less delinked from public service rules and requirements, has become an important point of discussion.

Finally, as in general education, teachers' absenteeism is occurring in TVET with negative consequences on training quality and learning outcomes. To date, comprehensive analyses of the specific phenomenon of absenteeism in the TVET sub-sector are rare, but the issue clearly merits more attention. Chapter 6 of these guidelines provides an in-depth introduction into issues and assessment methodologies.

4.2.2 CURRICULA

Quality training requires good curricula and its proper implementation in institutions. In TVET, more than in general education, curricula require frequent updating in line with changing workplace requirements and technological developments. If TVET is integrated into the overall education system with established equivalences between general and TVET qualifications, curricula often include considerable shares of academic learning. A good curriculum that enables learning with a view to employability needs to strike the difficult balance between theoretical and academic learning and practical skills and competence development. An important determinant of the appropriateness of curricula for the labour market is in this context the involvement of employers in the curriculum development process.

Yet another question is whether curricula are realistic in the sense that available TVET institutions have the capacities to implement it.

The analysis of the appropriateness of curricula needs to be assessed mainly by qualitative research methods, through interviews with education and TVET stakeholders and employers. The analysis of external efficiency, notably through tracer studies, may provide valuable insights into the satisfaction of employers with the learning contents of TVET programmes.

Key questions to assess the quality of curricula, and equally the process of curriculum development and revision, include:

- Are competency-based and modular curricula introduced, which orient learning contents on labour market requirements?
- Are employers systematically involved in curriculum development processes?
- What is the relationship between practical and theoretical contents in the curricula?
- How often are curricula updated?
- Are practical skills examinable?
- Are TVET institutions allowed to modify and adjust curricula in line with local labour market needs?

4.2.3 TRAINING RESOURCES: EQUIPMENT, WORKSHOP/LAB FACILITIES, TEACHING AND LEARNING MATERIAL

The capacities of TVET institutions to implement good curricula and with good teachers also depend on the quality of facilities, equipment and teaching and learning material. Systematic information on this is occasionally available through facility and resource assessments in TVET institutions, conducted for example by the authorities in charge of TVET. Alternatively, the TVET institution survey should include systematic questions in this regard.

Assessing the adequacy of facilities, equipment and teaching and learning material poses the challenge, that uniform standards are difficult to establish, because requirements depend on curricula and delivery methods. For example, apprenticeship systems systematically incorporate practical workplace learning in the programme. Consequently, equipment and workshop requirements in TVET institutions may be less than in full-time school-based training programmes, because practical skills are not developed primarily in the TVET institution, but in the workplace of the cooperating employer.

UNESCO is suggesting in this context two useful indicators, data for which can be collected through TVET institution surveys: average level of satisfaction with equipment, and the average level of satisfaction with school infrastructure. Both indicators are based on satisfaction scoring by schools themselves.

4.2.4 QUALITY ASSURANCE AND MANAGEMENT

TVET reform efforts have increasingly been drawing attention to the need of establishing and improving systems for quality assurance in TVET and quality management at the level of TVET institutions. Specifically, the following systems and instruments are considered important:

- *Registration and accreditation systems for TVET institutions* to ensure that providers meet minimum requirements in terms of inputs (facilities, teaching staff, etc) and management capabilities to conduct training in accordance with set standards. In modern accreditation systems, input standards tend to become less important as compared to standards relating to processes and management;
- *Alternatively or in addition to accreditation of training institutions:* accreditation of training programmes to establish whether curricula and other training resources (teachers, material, facilities) are adequate to deliver a specific training programme in accordance with occupational standards;
- *Quality management system for TVET institutions* comprising a system of management procedures to help institutions building and maintaining quality standards, labour market responsiveness and client orientation in their operations. It is not uncommon nowadays that larger TVET institutions seek ISO certification. Alternatively, TVET authorities develop national standard quality management procedures, which become part of the accreditation criteria;
- *Quality assurance of training outcomes* commonly done through examinations/assessments. Issues of importance in modern assessment systems include transparency issues, appropriate methods to test practical competencies, competencies of assessors and industry involvement in assessment. Assessments may be done at school level, or at accredited external assessment centers;
- *Quality of the curriculum* development process relating in particular to the involvement of workplace experts in the process and mechanisms of curriculum verification by employers in order to ensure relevance.

An Education sector analysis should assess the availability and state of development of such quality assurance and management systems with the aim to assess whether:

- Systems and mechanisms are well defined with respect to procedures, roles and responsibilities;
- Rules are regularly enforced; and
- Sufficient personnel (in terms of quantity and qualifications) is available in responsible bodies to manage and implement the systems.

NOTES

67 See also World Bank, 2010. Stepping up Skills. For more jobs and higher productivity.

68 For example, new commitments for vocational training under education sector support by the World Bank increased sharply after 2006. See Fasih Tazeen, 2010.

69 While Chapter 5 on external efficiency demonstrates how the labour market context is assessed, Section 2.3 of this chapter provides more guidance on how to assess the specific labour market relevance of TVET.

70 "Revised recommendation concerning Technical and Vocational Education", from "Normative Instrument concerning Technical and Vocational Education", 2001, p.7.

71 See also the overview of different (but similar in principle) definitions of formal, non-formal and informal education and learning in UNESCO/Regional Bureau for Education in Africa 2009.

72 The so-called "dual system", which form the core of vocational training in German speaking countries, is a particularly well established and formalised kind of apprenticeship system with strong influence and participation of employers.

73 UNESCO/BREDA, 2011. Tanzania Education Sector Analysis. Beyond Primary Education, the Quest for Balanced and Efficient Policy Choices for Human Development and Economic Growth, p. 88.

74 A detailed description of ISCED and its problems to apply the system in the TVET context see UNEVOC/UNESCO Institute of Statistics, 2006. Participation in Formal Technical and Vocational Education and Training Programmes Worldwide. An Initial Statistical Study.

75 See www.africaeconomicoutlook.org

76 Some TVET programmes are terminal, directly preparing students for entry into the job market after training. Other programmes, particularly at the lower levels of the formal TVET segment, provide two options upon completion: (i) employment; and (ii) progression to higher levels of TVET or general education programmes. Also in the latter case, the skills and competencies acquired must be relevant to the requirements of the labour market, because they are the foundation for acquiring a higher level of competence that ultimately leads to employment.

77 In this case it may be useful to establish – through the TVET institutions survey – the actual rate of students succeeding to be placed in attachment.

- 78 Nevertheless, the analysis revealed very interesting and unexpected results including a very positive impact on mean incomes as compared to general education leavers, but also a very significant gap to income opportunities with higher education qualifications.
- 79 If data is taken from a tracer survey, the indicator needs to be modified to reflect the share of employed TVET graduates in a particular occupational field that have undergone relevant training.
- 80 The TVET share of the total administrative expenditure in education ministries, or for example in education examination organisations, is often not easily identifiable. In such cases the percentage of TVET students of the entire student population administered by the ministry or organisation may be taken as a proxy.
- 81 See UNESCO/BREDA, 2009.
- 82 It may be possible to disaggregate expenditure figures by educational level for some expenditure categories (such as capitation grants and instructional material) and not for others (such as teacher salaries).
- 83 Due to a lack of data on training outcomes, a cost effectiveness analysis may not be possible in most cases.
- 84 In this case it is important to operate with actual (executed) budgets, if possible.
- 85 Assessing costs of apprenticeship programmes poses a particular challenge. Firstly, trainees are enrolled full time with a training institutions, but are actually not in the institutions throughout the year. For the purpose of cost assessment they have to be treated as part-time students. Secondly, costs incurred in companies to provide the in-firm part of apprenticeship training need to be added in a full-cost assessment. Here, it may be useful to distinguish between gross and net costs. Apprentices provide productive work during their in-firm training period, the value of which need to be deducted from gross costs to reach net costs. The value of work is usually calculated as the salary of a worker with the same skill level and responsibility who would replace the apprentice if s/he would not be there.
- 86 This is particularly pronounced in public training institutions, but often prevalent also in private training markets, because training institutions are bound to market fee levels, which may be lower than what would be needed to provide good quality training.
- 87 Using budget request data from individual training institutions may be problematic though, at least in case of public institutions, as such requests are often inflated to negotiate a higher budget allocation.
- 88 For measuring the quality of the TVET system as such, in terms of how well it serves national labour market needs, see Section 2.3 on external efficiency.



ANNEXES

CHAPTER 7 ANNEXES

ANNEX 7.1: DESCRIPTION OF KEY INDICATORS

This annex firstly presents the key indicators for the coverage of ECD services in the areas of health, nutrition and hygiene, as well as for parental practices.⁸⁹ A broad understanding of coverage should be adopted here, including the access to and use of services, which are its determinants.

HEALTH INDICATORS

It is helpful to distinguish between indicators of maternal health (pre and postnatal care) and those of child health (vaccinations and other preventive and curative health care).

Maternal Health⁹⁰

Indicators on the coverage of health services before, during and after birth are available.

The share of women (aged 15 to 49 years) having received prenatal care.

Pregnant women are advised to have at least four prenatal appointments in health centres with qualified health staff (WHO).⁹¹ Indeed, access to prenatal care plays a determining role in reducing maternal and child mortality and morbidity in as much as it enables the early identification of issues that may threaten the life of mothers or their babies.

The indicator is computed as the number of women having received prenatal care in the course of their previous pregnancy, as a share of the total number of women having given birth to live children over the same period. The indicator can be adjusted by the number of visits (one to four), or by distinguishing between the type of personnel who provided the service (doctors, nurses or midwives).

The effectiveness of prenatal care also depends on the type of care received and advice given. MICS surveys provide such information. For instance, it is interesting to establish the share of women who were vaccinated against tetanus or given advice during such visits, those who were provided with nutritional supplements when showing symptoms of undernourishment and those having undergone given medical examinations (blood pressure, blood and urine analyses).

Percentage of births (of women aged 15 to 49 years) assisted by qualified health personnel.

The presence of qualified health staff during birth delivery enables a precise diagnosis of health issues and quick and appropriate responses where needed, reducing maternal and neonatal mortality. The indicator is computed as the number of births assisted by qualified health staff, as a share of the total number of births given over the same period. Again, DHS and MICS survey data establish if births were given in a health centre by qualified personnel, or at home with the help of a traditional midwife, a dangerous practice that is nevertheless common in rural areas.

Infant and Child Health

Child health indicators are of two kinds: (i) indicators of vaccination coverage (computed for children aged 12 to 23 months); and (ii) indicators of services provided to children under the age of five years suffering from illness.

Vaccination coverage rate.

According to WHO standards, six vaccines are essential to fully protect children against tuberculosis, smallpox, polio, diphtheria, tetanus and whooping cough.⁹² All these vaccines should be administered to children in the first 12 months following birth, so the data collected relate to the immunisations given to children aged 12 to 23 months, during their first 12 months.

Percentage of children under 59 months presumed to have pneumonia that receive antibiotics.

Pneumonia is an acute respiratory disease affecting the lungs. It is the first cause of child mortality (WHO, 2011). Prevention is possible through immunisation, satisfactory nutrition and the improvement of environmental factors. Treatment is via antibiotics.

This indicator can be computed on the basis of DHS and MICS survey data to appraise the coverage of health services for children with the illness.

Percentage of children under five years with diarrhea and receiving a treatment of ORS and continuous feeding.

Diarrhea is the second cause of child mortality under five years in developing countries, after pneumonia (WHO, 2009). The illness is contracted through contaminated water or food, or from person to person where hygiene is insufficient. Children who suffer from diarrhea are often found to be close to malnourishment, which makes them more vulnerable to the illness. Each episode of diarrhea worsens malnutrition further due to dehydration, depriving children of the minerals required for survival and growth. Good hygiene practices are one of the most effective prevention methods (See next section on hygiene indicators). Treatment is often provided in the form of oral rehydration salts (ORS).

Percentage of children under five years having suffered from fever who received antimalarial treatment.

Malaria is also one of the main causes of under five mortality. It is also devastating in pregnant women, causing high rates of still-births and maternal mortality. It is to be noted that this indicator covers the antimalarial treatment of all feverish children and not only those confirmed to have malaria; it should therefore be interpreted with care. On this level, it is also relevant to examine the coverage of antimalarial prevention treatment. MICS surveys often provide estimates of the use of mosquito nets at home and on the use of prevention treatments by children and pregnant mothers.

Nutrition

Access to proper nutrition during early childhood is a determinant factor for children's physical and mental development. Breast-feeding should be exclusive until children are six months old according to the WHO, and complementary foods should be provided after that age. Various indicators can be derived from household surveys to establish both nutritional practices and the coverage of ECD nutrition services.

Rate of exclusive breast-feeding during the first six months.

This indicator is computed as the number of babies under six months who are exclusively breast-fed, as a share of the total number of babies of that age group.

Vitamin A supplementation coverage rate among children aged 6 to 59 months.

Vitamin A supplementation plays a key role in the prevention of infant mortality, particularly for those born with low birth weight or suffering from severe malnutrition. The indicator is computed as the number of children aged 6 to 59 months having received two doses (or one large dose) of Vitamin A supplement, as a share of the total number of children of the same age group.

The percentage of households that use iodised salt.

According to the WHO, iodine deficiency is the main cause of brain damage, which can alter the cognitive and motor development of children, jeopardising their performance at school. It is particularly important for pregnant women to have sufficient amounts of iodine in their diet for the development of the fetus. The indicator is computed as the percentage of households that consume an adequate amount of iodised salt.

Malnutrition

Undernourished children run a high risk of morbidity and mortality. Malnutrition also affects children's mental development. Three main indicators are used to evaluate the nutrition status of children.

The share of children under five years with low weight-for-height, or wasting.

This indicator is computed as the percentage of children whose weight-for-height is less than two standard deviations below the median for the reference population. This type of malnutrition is the consequence of insufficient feeding during the period immediately before the observation. It can also be the result of recent illness, especially diarrhea. Two states of malnutrition are generally used: moderate or acute/severe. The former is equivalent to a weight-for-height which is two to three standard deviations lower than the median for the reference population. Moderately malnourished children who do not receive appropriate help can evolve towards acute or severe malnutrition, which is defined as being more than three standard deviations below the median, a life-endangering condition (WHO).⁹³

The share of children under five years with low height-for-age, or stunting.

This indicator is computed as the percentage of children whose height-for-age is more than two standard deviations below the median for the reference population.⁹⁴ Stunting is the consequence of

insufficient nutrition over a long period of time, or of repeated infections. It is generally noted before children reach the age of two years, and its effects are largely irreversible (WHO). It carries the risk of delayed motor development, the deterioration of cognitive functions and low school performance (UNICEF).⁹⁵

The share of children under five years with low weight-for-age, or underweight.

This indicator is computed as the percentage of children whose weight-for-age is more than two standard deviations below the median for the reference population. This malnutrition status reflects the combined effects in children of stunting and wasting.

The share of children under five suffering from obesity, or overweight.

Long considered an issue relevant only to developed countries, obesity and overweight concern more and more children in developing countries, especially in urban areas, and could become a public health issue in the future. On the basis of DHS and MICS surveys, children whose weight for height is more than two standard deviations above the median for the reference population are considered to be overweight.

Access to Water, Sanitation and Hygiene

In addition to the earlier health and nutrition indicators, it is appropriate to analyse the indicators of access to water and sanitation and hygiene practices. Indeed, the lack of access to drinking water and inadequate hygiene practices are often the cause of detrimental illnesses in children, especially young ones.

The percentage of households having soap for hand washing.

The percentage of households with access to an improved source of water.⁹⁶

The percentage of households with improved sanitation.

This last indicator refers to households having a toilet connected to sewerage or a septic tank, a latrine, a composting toilet or ventilated improved pit design.

Good hygiene practices.

Various indicators may be available for the appropriate disposal of children's stools in DHS and MICS surveys, or for the adequate treatment of water for households without an improved water source, or hand washing (See below).

SCHOOLING INDICATORS

Education and schooling indicators generally cover parental education activities and preprimary education.

Stimulation and Parental Education Activities

Parental practices that favour children's development are generally difficult to appraise, due to their intrinsically private nature. MICS4 surveys do however provide valuable information that enables the evaluation of the frequency and quality of a number of parental practices relating to ECD. They include indicators on good parental practice in terms of: (i) stimulation; (ii) nutrition and hygiene; and (iii) parental practices in terms of dealing with children's behaviour. They also enable the assessment of the father's role in children's education and the perception of parents of dangers that children may be exposed to.

Playing games with young children and carrying out other stimulating activities provide them with an environment that is favourable to their intellectual development and generate interest in their environment. Various indicators may be available to establish the extent to which young children (under five years) are provided with learning activities, games, reading, nursery rhymes, songs and so on by their families.

The percentage of children under five years owning at least two toys at home.

The percentage of children under five years owning at least one book.

The percentage of children aged 36 to 50 months who have been engaged in activities with an adult to promote learning and school readiness.

This indicator is computed as the percentage of children who are involved in stimulating activities with one of their parents or another adult member of the family in four or more of the following activities in the past 3 days: a) reading books to the child, b) telling stories to the child, c) singing songs to the child, d) taking the child outside the home, e) playing with the child, and f) spending time with the child naming, counting or drawing things. The indicator can be disaggregated by age group, specific activity or the parent who participates in the activity with the child (mother or father).

The percentage of children under five years left alone or in the care of another child under 10 years for more than an hour, at least once in the week before the survey.

Parental Practices in Terms of Hygiene, Health and Nutrition

Some parents have little or no knowledge of good hygiene, health or nutrition practices for their children, such as hand washing before meals, or what to do when a child has diarrhea or fever.

The percentage of children who wash their hands before a meal.

The percentage of children who wash their hands after using the toilet.

Parental attitudes and actions when their child has diarrhea or a fever.

Parental Practices Deemed Detrimental to Children's Harmonious Development

It may also be interesting to examine the knowledge or attitudes of parents with respect to such practices. Household, MICS and KAP surveys may provide information on the prevalence of such practices and attitudes, in particular with respect to female genital mutilation, domestic violence and so on.

Explanatory, Coercive or Punitive Disciplinary Practices

Children's learning starts with understanding of their environment. Adults, and parents first and foremost, must play an important role to help children understand their physical and social environment, in particular by providing explanations. Also, children's adoption of rules is often achieved by explanations of the well or ill-foundedness of good or bad behaviour, and occasionally by coercive or punitive practices. These practices are an essential ingredient for children to correctly develop their cognitive and social abilities. Depending on the availability of data, these indicators may enable the assessment of such parental practices. MICS4 data enable to estimate a series of indicators of parents' coercive or punitive reactions to children's detrimental behaviour, including forbidding or depriving a child of something, insults, degrading behaviour or excessive physical punishment, all of which may be detrimental to children's harmonious development.

The share of parents/care-givers who take the time to explain rules to their children aged 2 to 14 years, or why their behaviour is detrimental.

The share of parents/care-givers that punish children for detrimental behaviour.

The share of parents who believe children must be physically punished to be properly raised.

Early Childhood Development

The early childhood development index

MICS4 surveys have introduced a new module for ECD (Module 6) whose aim is to measure the development of children in four areas: pre-reading and pre-numeracy abilities, physical development, socioemotional development and learning abilities, broadly speaking. On the basis of a series of questions, indicators on children's progress have been determined for each of the four areas (See Table A7.1 below). The answers are then aggregated to establish the index, which is a weighted score of the four areas. This global index, that is representative at the national level, enables to assess the extent to which children are on track in terms of their development (when on track in at least three out of the four considered dimensions).

**TABLE A7.1 - Areas of Early Childhood Development (Children Aged 36 to 59 Months)
Measured by MICS4 Surveys**

	Indicators and their Components (Responses are binary)	Evaluation Criteria - Children are deemed on track if:
Literacy and Numeracy Abilities	Can the child: 1. Identify or name at least 10 letters of the alphabet? 2. Read at least four common simple words? 3. Recognise and name the symbols for the numbers 0 to 9?	At least two responses are positive
Physical Development	4. Can the child pick up a small object off the floor, such as a stone or a stick? 5. Is the child sometimes too ill to play?	At least one response is positive
Socioemotional Development	6. Does the child get on well with other children? 7. Does the child kick, bite or hit other children? 8. Is the child easily distracted?	At least two responses are positive
Learning	9. Is the child able to follow simple instructions to correctly perform a task? 10. Is the child capable of doing something independently when asked?	At least one response is positive

Source: MICS4 questionnaires (childinfo.org) and preliminary survey results for Togo, 2011.

There are however limitations to this approach: (i) The questions are of a screening nature, where the child is not directly evaluated, but questions are answered by parents/care-givers (often mothers); and (ii) The same questions apply to all children, independently of their age, despite scores increasing with children's age. It will be particularly important to control this dimension when computing the aggregate score to avoid age-based bias.

Pre-primary Education⁹⁷

The indicators proposed here aim to analyse the evolution of preprimary enrolment over the past ten years. As mentioned earlier, the provision of preprimary education may be divided into various categories according to age groups. The main ones are for children under three years (mainly nurseries, day-care centres, integrated ECD programmes and so on) and formal preprimary education for children aged three to five years. When the data permit, it is worthwhile to analyse the evolution of enrolment for each category.

The evolution of numbers attending ECD services for children under three years.

Few countries in Africa have statistics on the number of beneficiaries of services for children under three years. This exercise might therefore be the opportunity to collect this information. It will be helpful in doing so to use the information compiled in the course of the mapping of ECD services (See Section 1 of this chapter).

The evolution of numbers attending ECD services for children aged three to five years.

For this age group the main indicator of choice will be the preprimary gross enrolment rate (GER). This indicator may be worth disaggregating by provider (public, private, faith-based, community and so on), and comparing the evolution of enrolment for each.

The MICS4 survey also allows to know if children aged three to four participate to formal or informal stimulation activities outside the house. This information, coupled with the one related to the participation of five years old pre-school programme allows to compute for children aged three to five a global pre-school/stimulation participation rate.

PROTECTION AND CHILDREN WITH SPECIAL NEEDS INDICATORS

Various indicators are available to assess the evolution of the coverage of ECD services in terms of: (i) protection (registration of births, child labour, female genital mutilation and so on); and (ii) providing for children with special needs. The indicators below are the main ones available through household surveys (DHS and MICS) or from administrative data sources. It will be particularly helpful to provide a historical perspective of practices such as birth registration and female genital mutilation.

The percentage of children under five years whose births were registered.

The registration of births is often considered as little more than an administrative formality. However, children whose births are not registered can be refused the right to an identity or to the fulfillment of their citizen's rights. It is also possible that children's access to health care, education and social services may be conditioned to their having a birth certificate. Birth certificates also provide protection against illegal adoption, early marriage, forced recruitment and trafficking and can help to reunite families in post-conflict countries.

The percentage of children aged five to fourteen years involved in paid or unpaid economic activities, as per the ILO definition.⁹⁸

The percentage of orphans and vulnerable children (OVC).

Orphans and other groups of vulnerable children are generally more exposed to risks than their peers.⁹⁹ Indeed, such children are more exposed to out-of-school, morbidity and malnutrition than their peers.¹⁰⁰

The percentage of girls under fourteen years having undergone a form of female genital mutilation.

It is worthwhile accompanying this indicator with a qualitative analysis of cultural and ethnic origin and parents' attitudes with respect to upholding the practice for their daughters. MICS data are usually very helpful in this respect.

ANNEX 7.2: INSTRUMENTS TO EVALUATE THE QUALITY OF ECD SERVICES

TABLE A7.2 - Tools for the Evaluation of the Quality of ECD Services

	Main Categories (Number of Indicators)	Objective	Participating Regions/Countries
Programme and Teacher Standards (International Step by Step Association)	<p>Programme Standards</p> <ul style="list-style-type: none"> • Teacher-child interactions (4) • Family participation (9) • Planning of a child-centred programme (5) • Strategies for meaningful learning (4) • Learning environment (3) • Health and safety (4) <p>Teacher Standards</p> <ul style="list-style-type: none"> • Individualisation (4) • Learning environment (3) • Family participation (6) • Teaching strategies for meaningful learning (5) • Planning and assessment (7) • Professional development (4) 	Planning and improvement tool. Accreditation for the Step by Step programme	29 countries: Albania, Armenia, Azerbaijan, Belarus, Bosnia/Herzegovina, Bulgaria, Croatia, Estonia, FYR of Macedonia, Russian Federation, Georgia, Haiti, Hungary, Kazakhstan, Kosovo, Kirghizstan, Leetonia, Lithuania, Mongolia, Montenegro, Moldova, Czech Republic, Uzbekistan, Romania, Serbia, Slovakia, Slovenia, Tajikistan and Ukraine
Self-Assessment Tool (International Association for Childhood Education)	<ul style="list-style-type: none"> • Environment and physical space (17) • Curriculum content and pedagogy (39) • Educators and caregivers (13) • Young children with special needs (24) • Partnership with families and communities (5) 	Self-assessment by centres	26 countries participated in the elaboration of the tool, including: Botswana, Chili, China, Ecuador, United States, Japan, Kenya, Mexico and Nigeria
Preprimary Education Project (IEA)	<p>Observation system focuses on process using three dimensions:</p> <ul style="list-style-type: none"> • Time management (e.g., time in three types of proposed activities, group structure, pacing of activities) • Child's activities (verbalisation, child-child interaction, adult-child interaction, children non-active engagement, time on task) • Adult behaviour (e.g., behaviour in major categories, directive teaching, degree of involvement, listening behaviour, child management) 	Research	17 countries and territories: Germany (ex-Federal Republic), Belgium (Francophone), China, Spain, United States, Finland, Greece, Hong Kong (China), Indonesia, Ireland, Italy, Nigeria, Poland, Portugal, Romania, Slovenia and Thailand
Assessment Scale (Save the Children UK)	<ul style="list-style-type: none"> • Professional practices (clear aims, protection policy, good practice referral, care plan, periodic review, continuum of care) (7) • Personal care (health and nutrition, recreation, privacy, informed choices, respect, relationships, sense of identity, control and sanctions, voice opinions, education according to needs) (12) • Caregivers (4) • Resources (accessible/adequate, promote health development) (2) • Administration (records, confidentiality, accountability) (3) 	<p>Planning and improvement tool (staff development, assessment, monitoring)</p> <p>Advocacy and policy development</p>	7 countries: Ethiopia, Kenya, DRC, UR of Tanzania, Rwanda, Somalia and North Sudan
Early Childhood Environment Rating Scale - Revised Edition, developed in the US*	<ul style="list-style-type: none"> • Space and furnishings (8) • Personal care routine (6) • Language - reasoning (4) • Activities (10) • Interaction (5) • Programme structure (4) • Parents and staff (6) 	Research and programme improvement. Now used as qualification criteria for some programmes	7 Caribbean countries: Bahamas, Dominican Republic, Granada, Jamaica, Montserrat, St. Lucia, St. Vincent and the Grenadines

Source: Myers, 2006 in UNESCO, 2007.

Note: * Similar instrument exist for infants/toddler programme and family day-care.

TABLE A7.3 - The Items of the Revised Version of the Early Childhood Environment Rating Scale (ECERS-R)

	Sub-Categories
Space and Furnishing	1. Indoor space; 2. Furniture for routine care, play and learning; 3. Furnishings for relaxation and comfort; 4. Room arrangement for play; 5. Space for privacy; 6. Child-related display; 7. Space for gross motor play; 8. Gross motor equipment
Personal Care Routines	9. Greeting/departing; 10. Meals/snacks; 11. Nap/rest; 12. Toileting/diapering 13. Health practices; 14. Safety practices
Language-Reasoning	15. Books and pictures; 16. Encouraging children to communicate; 17. Using language to develop reasoning skills; 18. Informal use of language
Activities	19. Fine motor; 20. Art; 21. Music/movement; 22. Blocks; 23. Sand/water 24. Dramatic play; 25. Nature/science; 26. Math/number 27. Use of TV, video, and/or computers; 28. Promoting acceptance of diversity
Interaction	29. Supervision of gross motor activities; 30. General supervision of children (other than gross motor); 31. Discipline; 32. Staff-child interactions 33. Interactions among children
Programme Structure	34. Schedule; 35. Free play; 36. Group time 37. Provision for children with disabilities
Parents and Staff	38. Provision for parents; 39. Provision for personal needs of staff 40. Provision for professional needs of staff; 41. Staff interaction and cooperation 42. Supervision and evaluation of staff; 43. Opportunities for professional growth

Source: FPG Child Development Institute (<http://ers.fpg.unc.edu/c-overview-subcales-and-items-ecers-r>).

ANNEX 7.3: EXTERNAL EFFICIENCY OF ECD ACTIVITIES ON HEALTH, NUTRITION AND HYGIENE

TABLE A7.4 - Example of Health, Nutrition and Hygiene Result Indicators

Result Indicators	
Birth	Premature birth Low birth weight
Mortality	Maternal mortality ratio Neonatal mortality rate (1 st month) Infant mortality rate (1 st year) Under five mortality rate
Malnutrition	Obesity Underweight Stunting Wasting
Morbidity	Diseases (Acute Respiratory Infections, Malaria, Diarrhea)
Explanatory Variables	
Antenatal and Natal Care	Attended at least once by skilled personnel Attended at least four times by skilled personnel Skilled attendant at delivery Post natal health check for the new born Anemia in mothers
Immunisation	Tuberculosis Polio Diphtheria, pertussis and tetanus (DPT) Yellow fever, etc.
Treatment of Illnesses	Malaria diagnostics usage Child sleeps under mosquito net Use of ORS in case of diarrhea in children Use of antibiotics in cases of acute respiratory infections
Sanitation	Use of improved drinking water Improved sanitation facilities Hand washing
Nutrition	Breastfeeding: Exclusive breastfeeding under 6 months Continued breastfeeding till age 2 Introduction of solid, semi-solid or soft foods Iodised salt consumption Vitamin A supplementation
Service Utilisation	Distance to the nearest health centre Perception of the quality of services received Use of health services when children are ill Participation in an ECD programme (including nutrition programmes)
Household Characteristics	Area of residence Region of residence Size of the family Household income level Education of the father/mother Gender of the head of household
Child Characteristics	Gender Age Rank among siblings OVC status If child is handicapped

Source: Authors.

Indicators and Explanatory Variables

Most health-oriented ECD activities relate to immunisation, feeding and nutritional supplementation, neonatal health care, parental education and good hygiene practice programmes. It will be worthwhile to determine their efficiency or the effect of such programmes in terms of improving the health and nutritional status of beneficiary children.

These indicators are generally produced with data on the prevalence of child illnesses, anemia, underweight, stunting and so on. They are generally available through household surveys such as DHS and MICS. However, when appropriate, data from health ministries (on the characteristics of programmes for instance) may also be used.

Methodology to Assess the Impact of ECD Activities on Health, Nutrition and Hygiene Indicators

The key question to be answered here is: Have the living conditions of ECD activity beneficiary children (as per the indicators of Table A7.4) been improved thanks to their access to or use of ECD services (as per the indicators of Table A7.4)? The identification of the explanatory variables to be considered does however require reasonable prior knowledge of the epidemiological processes in play. Close collaboration with the health ministry is necessary.

Initially, the results for ECD programme beneficiary children should be compared with those for children who did not benefit from such services to determine if significant differences exist between the two groups. An econometric analysis will then enable to establish the net effects of the variables, all other things being equal.

ANNEX 7.4: HOLISTIC EARLY CHILDHOOD DEVELOPMENT INDEX (HECDI)¹⁰¹

The development of a holistic index for early childhood development (HECDI) is the result of a UNESCO led initiative with the collaboration of an inter-agency technical committee established in December 2010 to implement the recommendations of the Moscow Action Framework adopted by the World Conference for Education and Early Childhood Protection in 2009.¹⁰²

Currently still in the conception phase, the HECDI aims to be a standardised and internationally comparable indicator. Such an instrument should enable governments and international players to improve their capacity to monitor and evaluate the performance of countries in providing equitable access to quality ECCE services and to closely monitor progress towards the achievement of the Education for All (EFA) Goal 1: *“Expanding and improving comprehensive early childhood care and education, especially for the most vulnerable and disadvantaged children.”*

The HECDI is holistic in that it adopts a global vision of children’s development, from pregnancy through to the age of eight years. It covers five key areas of ECD:

- The legal protection of children;
- The social protection of children and their well-being;
- Children’s cognitive and socioemotional development;
- Access to education and ECD services, and their quality; and
- Health and nutrition.

Table A7.5 provides a proposal of indicators to be included in the HECDI for each of the five areas.

TABLE A7.5 - Proposed Indicators for the Computation of the HECDI

	Area of Focus	Level	Possible proxies or actual indicators Currently available	Data source
% of children with access to clean water and sanitation	Health	Programmes & Services	Use of improved drinking water source Use of improved sanitation services	MICS MICS
% of children with access to comprehensive preventive and medical care, including well-baby checks, immunisation and responses to emergency needs	Health	Programmes & Services	Immunisation rates Health care providers per 10,000 population Level of access to essential ECD health interventions Presence of mandated ECCE services including health care	WHO WHO SABER SABER
% of mothers with access to pregnancy and birth services	Health	Programmes & Services	% children born with the assistance of a skilled birth attendant % mothers having attended at least 4 prenatal health checks	MICS MICS
Under 5 mortality rate	Health	Child Outcomes and Family Environment	Under 5 mortality rate	WHO
% of children with frequent illnesses or chronic conditions	Health	Child Outcomes and Family Environment	Use of ORS (diarrhea) Care-seeking for pneumonia Malaria diagnostics HIV	MICS MICS MICS MICS
Country provides legal guarantee of rights regardless of religion, race, national origin, gender or disability	Equity and Social Protection	Policies and Laws	None	
% of children registered at birth	Equity and Social Protection	Policies and Laws	% of children registered at birth	WHO
% of children with access to ECCE that meets the needs of working families, for infants/toddlers as well as preschoolers	Education	Programmes & Services	Preprimary enrolment % children with access to preprimary Programmes that target all beneficiary groups ECD is adequate to meet the needs of the population	UIS MICS SABER SABER
% of children with access to quality ECCE	Education	Programmes & Services	PPE teacher/child ratio Existence of learning standards Established registration and accreditation procedures for ECCE Established infrastructure and service delivery standards – i.e., minimum number of hours per week; coverage of infrastructure standards Existence of required teacher/child ratio for PPE	UIS SABER SABER SABER SABER
% of children entering Grade 1 with ECCE experience	Education	Programmes & Services	% of children entering Grade 1 with PPE access	UIS
% of children meeting developmental and learning goals	Education	Child Outcomes and Family Environment	EDI scores for children aged 3 to 4 years <i>Nothing available for younger children</i>	MICS
Share of coverage provided by policies for paid parental leave for newborns, in formal/informal settings	Parent Support	Policies and Laws	Presence of paid parental leave	NATLEX *

% access to parent support and education services	Parent Support	Programmes & Services	Programmes that target all beneficiary groups <i>Currently no measure of the extent of access or quality of programmes for parents</i>	SABER
Average years of maternal education	Parent Support	Child Outcomes and Family Environment	Education levels	
Maternal depression	Parent Support	Child Outcomes and Family Environment	None	
% of children exposed to domestic violence	Parent Support	Child Outcomes and Family Environment	None	
% of children with stimulating home learning environments	Parent Support	Child Outcomes and Family Environment	Support for learning (4 or more activities to promote learning and school preparedness in last 3 days) % of children with 3 or more books; 2 or more toys	MICS MICS
% of children with inadequate care	Parent Support	Child Outcomes and Family Environment	% of children left alone or in care of another child under 10 for more than an hour in the last week	MICS
Country or community monitors and responds to growth and nutritional status	Nutrition	Programmes et services	Programmes established in all areas of focus (education, health, nutrition, social and child protection) <i>None to directly measure access to nutrition programmes</i>	SABER
% of obese children	Nutrition	Child Outcomes and Family Environment		
% of stunted children	Nutrition	Child Outcomes and Family Environment	% stunted	WHO
% of children with low birth weight	Health	Child Outcomes and Family Environment	% Low Birth Weight	WHO
% of children with adequate neuro-development status in last 1,000 days	Nutrition	Child Outcomes and Family Environment		
Presence of policies to lift families out of poverty	Poverty	Policies and Laws		
Child poverty rates	Poverty	Child Outcomes and Family Environment	% of children living in poverty	DHS

Source: Draft HECDI description, HECDI Meeting, New York, June 21-22, 2012.

Note: * NATLEX is a global database on family policy. ** IMDPE is the ECD measurement tool.

ANNEX 7.5: MAIN ECD EVALUATION TESTS

TABLE A7.6 - Main ECD Evaluation Tests

	Name of the Test	Age Group	ECD Area	Countries
Direct Evaluation of Children	Peabody Picture Vocabulary Test (PPVT) and Test de Vocabulario en Imagenes Peabody (TVIP)	2.5 years and above	Linguistic Development	Madagascar, Mozambique
	Stanford-Binet Intelligence Scales	2.5 years and above	Cognitive Development	Madagascar
	Stroop Test (Adapted)	3 to 6 years	Executive Functions	Madagascar
	Bayley Scales of Infant Development (BSID I&II)	1 to 42 months	Cognitive, Motor and Socioemotional Development	DRC, Egypt, Ethiopia, Kenya, Seychelles, South Africa, Tanzania
	British Ability Scale (BAS), in the African Child Test (ACT) version	2.5 years and above		Zimbabwe, Kenya, Uganda, Zanzibar
Indirect Evaluation (According to Parents/Care-givers)	Ages and Stages Questionnaire (ASQ) 1	3 to 6 years	Multiple ECD areas	Mozambique
	Strengths and Difficulties Questionnaire	3 to 6 years	Socioemotional Development	Madagascar
	Early Development Instrument (EDI) 2	4 to 7 years	Multiple ECD areas and School Preparedness	Mozambique
	MICS4 (Module 6)	36 to 59 months	Cognitive, Motor Linguistic and Socioemotional Development	Algeria, CAR, Chad, DRC, Djibouti, The Gambia, Guinea-Bissau, Ghana, Kenya, Mali, Mauritania, Nigeria, Sierra Leone, Sudan, Swaziland, Togo and Tunisia

Source: Fernald et al., 2009 in Naudeau et al., 2011.

Note: * This list is not exhaustive, presenting only the assessments carried out in Africa.

1 Includes a direct assessment component administered to the child.

2 Test administered to preprimary care-givers and primary Grade 1 teachers.

CHAPTER 8 ANNEXES

ANNEX 8.1: SEMI-STRUCTURED INTERVIEW GUIDE - MANAGEMENT (ADMINISTRATIVE AND SCIENTIFIC)

The goal of these interviews, apart from collecting information to briefly present the bodies and councils upon which HLLs' management rely, is to appreciate main stakeholders' views of their operations (directors, teaching staff and students). Where appropriate, an analysis of the common bodies should be conducted before considering the particularities of each faculty and institution. The people interviewed should be effectively involved in these bodies.

I. Interview with a Manager

In your situation

1. Who sits on the board of directors?
2. How is each individual designated? Who appoints them?
3. What are the main bodies the management team relies on?
 - For financial and administrative management (steering committee for example):
 - Name,
 - Key functions,
 - Composition and
 - How members are appointed (if by vote, the share of voters by college in the last elections)
 - For scientific matters (scientific committee for example):
 - Name,
 - Key functions,
 - Composition and
 - How members are appointed (if by vote, the share of voters by college in the last elections)
 - In terms of academic management and student life (study or academic committees for instance):
 - Name,
 - Key functions,
 - Composition, and
 - How members are appointed (if by vote, the share of voters by college in the last elections)
 - Other bodies that support management:
 - Name,
 - Key functions,
 - Composition and
 - How members are appointed (if by vote, the share of voters by college in the last elections)
4. Development of the institution:
 - What management body is responsible for planning the institution's development?
 - Name,
 - Key functions,
 - Composition,
 - How members are appointed and
 - Documents produced (development plans, strategic vision and so on)

5. Autonomy of the institution: On a scale of 0 to 4, how autonomous would you say your institution is in terms of:

- Institutional/organisation matters
- Financial affairs
- Recruitment and human resources
- Academic and pedagogical matters
- Scientific research

6. Frequency of conflicts

- Number of days of teacher strike over the last 3 years (related to national conflict or institutional issues)
- Number of days of student strike over the last 3 years (related to national conflict or institutional issues)

II. Interviews with Members of Management and Teacher and Student Representatives

For each management body identified above, this section of the questionnaire aims to triangulate the opinions of management, student and teacher representatives. One option would be to request the presence of one of each within the highest governing body, like the steering committee for instance. Answers are coded on a scale of 1 to 5 (lowest to highest).

TABLE A8.1 - Information to be Collected from Management, Teacher and Student Representatives

	Management	Teachers	Students
Body No. 1 <i>Rank on a scale of 1 to 5:</i> - The importance of the decision - The point of view of management - The point of view of teachers - The point of view of students			
Body No. 2 - -			
Body No. 3 - -			
Main unsatisfied demands			
Rank your association <i>on a scale of 1 to 5 in terms of:</i> - Management decisions - Scientific choices - Decisions regarding studies and student life on campus			
Globally, how would you rank the level of dialogue in your institution <i>on a scale of 1 to 5?</i>			

ANNEX 8.2: SEMI-STRUCTURED INTERVIEW GUIDE - PERSONNEL POLICIES

This interview is to be conducted with a human resource official responsible for the institutions' teaching staff (personnel service, human resource department, chancellor). It aims to provide qualitative feedback on policies in terms of teaching personnel management, their objectives, ambitions and coherence. The interviewer must first be equipped with data on student-teacher ratios (for both permanent and full-time equivalent staff) and be able to appreciate their particularities compared to other institutions.

- How many permanent teachers are employed by your institution?
- Does your institution face specific constraints in terms of student-staff ratios (for lectures, group practicals, specialised disciplines and so on), and if so: How important is the gap? Which type of staff do you lack?
- To what extent does your institution use overtime (number of hours of overtime performed by permanent staff in addition to their usual workload)? (Rank from "Barely" to "Extensively")
- How would you qualify this situation: "Sui-generis" or "Managed"
- To what extent does your institution rely on non-permanent staff (associate lecturers, contract staff)? (Rank from "Barely" to "Extensively")
- How would you qualify this situation: "Sui-generis" or "Managed"
- Among such staff, what are the respective shares of associate lecturers and contract staff? How would you explain this situation?
- Do you feel that your institution is today in the position to develop a real teaching personnel policy (recruitment, status, supervision rates, costs and so on)?
- Why?
- What teaching personnel policy do you think should be considered in the short-term for your institution?
- Why (recruitment, status, supervision rates, costs and so on)?
- What teaching personnel policy should be considered in the long-term for your institution?
- Why (recruitment, status, supervision rates, costs and so on)?
- Is there a unique (exemplary) situation in terms of personnel policy in your institution that you would like to share and advocate?

ANNEX 8.3: SEMI-STRUCTURED INTERVIEW GUIDE - QUALITY CONTROL

The objective of this interview with an official of HLI management is to establish the existence of a quality control mechanism and appraise its general relevance to management. Again, where a common service exists for various HLIs, this should be considered before any of the specific arrangements that individual institutions or faculties may have. On the other hand, here it will be necessary to be equipped with knowledge of the regulatory bodies and framework at the regional and national level.

1. What procedure applies for the creation of a new HLI?
 - Is there a regional framework?
 - Is there a national framework?
 - What are the steps of the procedure?
 - What is your opinion of the procedure (strengths and weaknesses)?
2. What procedure applies for the creation of a new course?
 - Is there a regional framework?
 - Is there a national framework?
 - What are the steps of the procedure?
 - What is your opinion of the procedure (strengths and weaknesses)?
3. What procedure must be followed to suspend or terminate a course?
 - Is there a regional framework?
 - Is there a national framework?
 - What are the steps of the procedure?
 - What is your opinion of the procedure (strengths and weaknesses)?
4. What mechanisms exist within the institution to ensure that the courses offered reflect the needs of the workplace?
 - Are these mechanisms specific to your institution or nation-wide?
 - What is your opinion of the mechanism (strengths and weaknesses)?
5. Does your institution have a statistical service providing information on the following:
 - Student enrolment, marital status, personal and family characteristics and academic history
 - Administrative follow-up and application of admissions procedures
 - Academic follow-up (exam and individual results)
 - Follow-up of alumni, including their employment status
6. Does your institution have a student guidance service?
 - If so, what are its objectives, how does it work, and what do you think of it (strengths and weaknesses)?
7. Does your institution have a service to support students in social or academic difficulty?
 - If so, what are its objectives, how does it work, and what do you think of it (strengths and weaknesses)?
8. Do students formally participate in the evaluation of teaching?
 - If yes, how?
 - If yes, does this improve the quality of teaching, the recruitment of teaching staff and/or the dialogue among the institutions' stakeholders?
9. Would you say that you have implemented a quality management policy in your institution in recent years?
 - If so, what form did it take?
 - What are its objectives, supervisory bodies, operational modes, players and so on?

ANNEX 8.4: ANNUAL INVESTMENT COSTS

It is often helpful to determine the annual cost of equipment that has a life-cycle of more than a year. This is the amount that should be put aside at the end of each year after its purchase to cover the cost of its replacement. This annual amount is often called an annuity. The procedure of calculation of annuities is referred to as the **calculation of annual investment costs**. The approach used here is the standard accounting approach. For an investment amount I , with an economic life-span T , spent in year 0 with a constant nominal rate of return on capital (interest rate offered by banks) a_n , the annuity A_k for year k is obtained thanks to the following formula:

$$A_k = \frac{I}{T} + a_n (T - (k - 1)) \frac{I}{T}$$

Illustration

A machine is bought for a higher learning institution at a cost of 1 million. It has a life-span of 10 years and the nominal capital return rate offered by banks is 9.1 percent.¹⁰³ By applying the formula above the following annuities are reached:

Years	1	2	3	4	5	6	7	8	9	10
A_k	191,000	181,900	172,800	163,700	154,600	145,500	136,400	127,300	118,200	109,100

So, for year 1 for instance, the annuity is:

$$A_1 = \frac{1,000,000}{10} + 0.091 \times (10 - (1 - 1)) \times \frac{1,000,000}{10}$$

ANNEX 8.5: DOUBLE OR MULTIPLE COUNT OF HIGHER EDUCATION ENROLMENTS

In the absence of an information system that follows the individual academic careers of students (thanks to a unique registration number for instance), the total number of Higher Education (HE) students may be overestimated. This happens when:

- (i) Many students are enrolled in more than one course at once. In Benin for instance, a survey conducted by the ministry of higher education in 2011 showed that approximately six percent of students in public universities were enrolled in two courses in their university in the academic years 2005/06 and 2007/08. The ministry also noticed a steep increase in the number of double-enrolments, from 12 percent in 2008/09 to 14 percent in 2009/10, since public universities were declared fee-free in 2008; and
- (ii) Students are simultaneously enrolled in a public institution (such as a university) and a private one (a vocational school for instance). Such situations can become quite significant when the conditions of access to HE are particularly favourable (fee-free, study vouchers, scholarships and so on). Students can then register in public institutions to receive the benefits and advantages, and enroll in a private institution, lightening the opportunity cost of the choice.

A critical review of the available data is therefore necessary. An interview on the coverage and quality of statistical data with the officers in charge of the statistical service, at central (ministry, national HE authority) and decentralised (chancellors, HLI management) levels should help to identify the extent of the phenomenon.

ANNEX 8.6: FURTHER MODEL TABLES TO DOCUMENT HIGHER EDUCATION TRENDS AND STATUS

Example of a table highlighting the different basic information that could be collected from various institutions for the analysis of the study conditions, by institution/stream:

TABLE A8.2 - Learning Environments, by Institution or Course - Model Table								
	University Faculties						Schools of	
	Humanities	Law	Economics	Science	Medicine	Agronomy	Engineering	Business
Total Number of Students								
Number of Masters and PhD Students								
Number of Lecture Theatre Seats								
Number of Classroom Seats								
Number of Computers for Teaching Staff								
Number of Places in Specialised Classes								
Number of Internet/ADSL Connections								
Number of Projectors								
Number of Books on Loan								
Number of Hours of Usage of Classrooms per Day								
Number of Days of Usage of Classrooms per Week/Year								
...								

Example of a table highlighting the sources of funding of a university:

TABLE A8.3 - Distribution of Sources of Financing - Model Table	
Own Resources	38%
Enrolment Fees	7%
Training Contracts	17%
Other ¹⁰⁴	13%
Transfers/Subsidies from Government	59%
Grants	2%
Other Transfers	1%
Total	100%

Source: Calculations based on data from a public university and the Beninese Ministry of Higher Education.

Example of a table highlighting a university/s recurrent spending:

Personnel	67%
Permanent	64%
Overtime	1%
Contract Staff	2%
Purchase of Goods and Services	26%
Common Transfers	3%
Other Ongoing Spending	4%
Total	100%
Memory Item: Total Spending (Currency)	6,910

Source: Illustrative data and authors' calculations.

Example of an origin/stream balance similar to an employment/training balance:

(Number)	University	Study Abroad	Total	Secondary School Leavers
Humanities	382	20	402	508 (A Series)
Law and Economics	318	28	346	285 (B Series)
Health Sciences	53	52	105	747 (Math and science Series)
Math-Physics-Science	204	-	204	
Rural Development and Agronomy	84	45	129	
Engineering and Technology	-	50	50	
Total	1,041	262	1,303	1,539

Sources: Illustrative data and authors' calculations.

Example of a table highlighting the distribution of permanent teachers according to their age and level of qualification, required for the prospective analysis of teacher needs:

(Number)	Professor	Lecturer	Assistant Lecturer	Associate Lecturer	Class Assistant	Assistant	Other	Total
25-29 years				6			49	55
30-34 years	2	2		179	2		98	283
35-39 years	31	47	89	814	8		137	1,126
40-44 years	656	238	146	947	7	5	63	2,062
45-49 years	1,488	223	32	1,031	3	4	73	2,854
50-54 years	1,458	72	9	623	4	7	48	2,221
55-59 years	750	15	1	299		24	26	1,115
60-64 years	272		2	56		1	2	333
65 years and above	33	3	3	10			5	54
Total	4,690	600	282	3,965	24	41	501	10,103

Source: Moroccan Ministry of Higher Education.

CHAPTER 9 ANNEXES

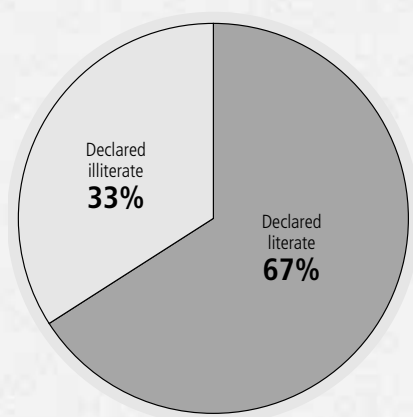
ANNEX 9.1: LITERACY ASSESSMENT AND MONITORING PROGRAMME (LAMP): A CORNERSTONE OF THE LIFE INITIATIVE

Context

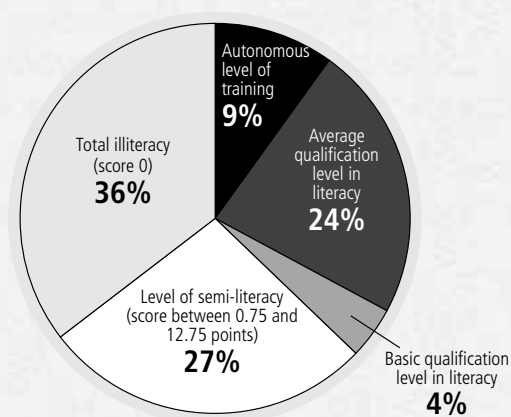
In November 2005 UNESCO launched the Literacy Initiative for Empowerment, (LIFE). This initiative contributes to achieving the Dakar goals, particularly goal 4 (*a 50% improvement in levels of adult literacy*) and goal 5 (*achieving gender equality in education*). The purpose of LIFE is to support the EFA goals in the field of literacy. This initiative is designed, as a global strategic framework, to enable all stakeholders significantly increase their efforts for literacy. Countries, with a high rate of illiteracy¹⁰⁵ or where the rate of literacy is under 50%,¹⁰⁶ will be given priority for the implementation of LIFE.

There is, of course, consensus of opinion on the fact that literacy is essential for economic prosperity, health, cultural identity, community involvement and tolerance, and for the capacity of individuals to use their full potential in increasingly knowledge dependent societies. Measuring literacy in all its dimensions therefore becomes de facto a functional and institutional necessity. For this reason, UNESCO considers LAMP as an essential tool to develop and implement policies deriving from the LIFE initiative, for it is true that the data "measuring" literacy in developing countries are fragmented and mainly originate from indirect assessments.¹⁰⁷

Usual measurement of literacy



Differentiated measurement of literacy



It is important to understand the distribution of literacy throughout the population, in order to define adapted development policies. Measuring literacy does not only mean determining who can or who cannot read, since there are diverse levels of literacy skills ranging from knowing how to write one's name on a form to understanding the instructions on a medicine label or being able to learn from written texts.

The LAMP programme attempts to answer these needs by providing the different countries with the methodological and technical instruments for a survey aimed at measuring a wide range of literacy levels going from basic reading and writing to higher levels of literacy needed to fully participate in a society where learning fills an increasingly important place.

LAMP Methodology

LAMP was developed to collect better quality literacy data through new household surveys¹⁰⁸ conducted on a five or ten year cycle. The instruments have been validated in 6 countries including 3 African countries.¹⁰⁹ The data collected within the LAMP framework will be used to develop and implement national action plans and better define adult literacy programmes.

LAMP is implemented in the different countries through a partnership grouping together national expertise,¹¹⁰ UIS expertise and literacy assessment experts coming from Statistics Canada and ETS (USA).

LAMP's conceptual framework, which enables a comparative assessment of adult literacy, is adapted from the Adult Literacy and Life Skills Survey (ALL). LAMP measures five levels of literacy (i) Level 1: for people who have very poor skills (e.g. *those who are unable to determine the correct amount of medicine from the label on a package*) (ii) Level 2: People who can only deal with simple, clearly laid-out tasks (iii) Level 3: considered a suitable minimum for dealing with daily life: this skill level is generally required to successfully complete secondary education (iv) Levels 4 and 5: Respondents demonstrate command of higher-order information processing skills.

The results of LAMP are expected to contribute to the political debate and at the same time fuel research on such questions as (i) How are skills distributed throughout the different sub-groups of the population and what are the consequences in terms of mobilisation of resources? (ii) What is the relationship between illiteracy and social participation and /or economic integration? (iii) What impact do adult education policies have on the degree of literacy in the populations? (iv) What is the effectiveness of formal education? LAMP data is intended to serve a wide range of users, from civil society to policy decision-makers and civil servants in the ministries.

ANNEX 9.2: MODEL QUESTIONNAIRES/INTERVIEW GUIDES FOR THE EVALUATION OF NFE PROGRAMMES

Source: Based on a survey conducted in Marrakesh in 2007 (See Cerbelle, 2010).

The following questionnaires can be completed by investigators on the basis of participants' responses.

Questionnaire for Current Literacy Programme Beneficiaries

Beneficiary Id. Number:	_____
Investigator Id. Number:	_____
I/ Programme	
1. What literacy programme do you participate in?	_____
General programme	_____
Government operated (Specify)	_____
Civil society or NGO operated (Specify)	_____
Privately operated (Specify)	_____
2. How did you hear about the programme?	_____
3. Is this your first participation in such a programme? (Yes/No)	_____
3.1 If not, how many times have you participated in a course?	_____
Once	_____
Twice	_____
Three times	_____
Four times	_____
More than four times	_____
3.2 What programme have you already followed?	_____
General programme	_____
Government operated (Specify)	_____
Civil society or NGO operated (Specify)	_____
Privately operated (Specify)	_____
3.3 Did you sit the final exam? (Yes/No)	_____
If so, did you pass? (Yes/No)	_____
4. Why did you enroll in the programme?(List your reasons by order of importance)	_____
5. Did you receive supplies? (Yes/No)	_____
5.1 What type of supplies?	_____
5.2 Did you receive DLCA textbooks? (Yes/No)	_____
II/ Personal Characteristics	
6. Surname:	_____
7. Name:	_____
8. Gender:	_____
9. Age:	_____
10. National Identity Card Number:	_____
11. Area of Residence (Urban/Rural):	_____
11.1 How many years have you lived there?	_____
12. What is your mother tongue? (Arabic/Tamazight)	_____

13. What is your family situation? (Married/Single/Widow/Divorced) _____

14. Total number of children: _____

 Number of children aged 6 to 15 years: _____

 Number of children under 6 years: _____

 Number of children aged 6 to 8 years: _____

 Number of children aged 9 to 12 years: _____

 Number of children aged 12 years and above: _____

15. Does your partner read and write? (Yes/No) _____

16. Were you ever enrolled at school (Yes/No) _____

 16.1 If not, why? _____

 16.2 If you were, for how many years? _____

 16.3 If you were, why did you leave school? _____

17. Do you have a professional activity? (Yes/No) _____

 17.1 If so, what is it? _____

18. Does your home have: _____

 A sewer _____

 Water _____

 Electricity _____

 Television (with cable?) _____

 18.1 If so, do you often watch television? (Yes/No) _____

 18.2 Which programmes? _____

19. Average annual household income: _____

20. Is not knowing how to read and write a daily issue? (Always/Sometimes/Never) _____

 20.1 If always, why? _____

 20.2 If sometimes, why? _____

 20.3 If never, why? _____

Questionnaire for ex-Literacy Programme Participants

Beneficiary Id. Number: _____

Investigator Id. Number: _____

I/ Programme _____

1. What literacy programme do you participate in? _____

 General programme _____

 Government operated (Specify) _____

 Civil society or NGO operated (Specify) _____

 Privately operated (Specify) _____

2. How did you hear about the programme? _____

3. Is this your first participation in such a programme? (Yes/No) _____

 3.1 If not, how many times have you participated in a course? _____

 Once _____

 Twice _____

 Three times _____

 Four times _____

 More than four times _____

4. Did you sit the final exam? (Yes/No)
 If so, did you pass? (Yes/No)
5. Why did you enroll in the programme?(List your reasons by order of importance)

II/ Personal Characteristics

6. Surname:
7. Name:
8. Gender:
9. Age:
10. National Identity Card Number:
11. Area of Residence (Urban/Rural):
 11.1 How many years have you lived there?
12. What is your mother tongue? (Arabic/Tamazight)
13. What is your family situation? (Married/Single/Widow/Divorced)
14. Total number of children:
 Number of children aged 6 to 15 years:
 Number of children under 6 years:
 Number of children aged 6 to 8 years:
 Number of children aged 9 to 12 years:
 Number of children aged 12 years and above:
15. Does your partner read and write? (Yes/No)
16. Were you ever enrolled at school (Yes/No)
 16.1 If not, why?
 16.2 If you were, for how many years?
 16.3 If you were, why did you leave school?
17. Do you have a professional activity? (Yes/No)
 17.1 If so, what is it?
18. Does your home have:
 A sewer
 Water
 Electricity
 Television (with cable?)
 18.1 If so, do you often watch television? (Yes/No)
 18.2 Which programmes?
19. Average annual household income:
20. Is not knowing how to read and write a daily issue? (Always/Sometimes/Never)
 20.1 If always, why?
 20.2 If sometimes, why?
 20.3 If never, why?

III/ Health

21. Did you touch on health issues in your literacy programme? (Yes/No)
 21.1. If so, which ones?
22. Do you feel that the information provided was: (Sufficient/Insufficient)?
 22.1 Why?
23. Did the information shared lead you to change your behaviour in terms of health? (Yes/No)
 23.1 If not, why not?
 23.2 If so, in which areas?
 23.3. Why did you change your behaviour?

IV/ Politics

24. Are you interested in politics? (Yes/No)
24.1 If so, in what aspects exactly?
24.2 If not, why not?
25. Have you ever voted? (**Where the individual is an adult**) (Yes/No)
25.1 If not, why not?
26. Have you ever touched on political issues in your literacy programme (such as the monarchy, the right to vote, the family code and so on)? (Yes/No)
26.1 If so, which ones?
27. Do you feel that the information provided was: (Sufficient/Insufficient)
27.1 Why?
28. Did the information you received lead you to change your behaviour in terms of politics? (Yes/No)
28.1 If not, why not?
28.2 If so, in which areas?
28.3 Why did you change your behaviour?
29. Are you aware of the elections in September? (Yes/No)
29.1 How did you know about them?
29.2 Were they mentioned in your literacy programme? (Yes/No)
30. Will you vote? (**Where the individual is an adult**) (Yes/No)
30.1 If so, why?
30.2 If not, why not?

V/ Children's Education

31. Respond to the next questionnaire (Questionnaire on Children's Education)
33. Have you touched on the issue of children's education in your literacy programme? (Yes/No)
33.1 If so, what did you discuss?
34. Do you feel that the information provided was: (Sufficient/Insufficient)?
34.1 Why?
35. Did the information you received lead you to change your behaviour in terms of your children's education? (Yes/No)
35.1 If not, why not?
35.2 If so, why?
35.3 In what have you changed?

VI/ Employment Outcomes

36. Did you have work while you followed your literacy programme? (Yes/No)
37. If not, did literacy assist with your employment prospects? (Yes/No)
37.1 If so, why?
37.2 If not, why not?
38. If so, what was your work?
38.1 Has being literate improved your work conditions? (Yes/No)
38.2 If so, why?
38.3 If not, why not?

Questionnaire on Children's Education (See Question 31 above)

Children Aged 15 Years and Above					
Child	Age	Gender	Current Schooling	Prior Schooling	
1.			Yes/No Level attained: School:	Yes/No Number of years of education followed: School: Reasons for terminating education:	
2.			
Children Aged 6 to 15 Years					
Child	Age	Gender	Current Schooling	Prior Schooling	
1.			Yes/No Level attained: School:	Yes/No Number of years of education followed: School: Reasons for terminating education:	
2.			
Children Under 6 Years					
Child	Age	Gender	Current Schooling		
1.			Yes/No Level attained: School:		
2.			...		
Child					
Child	Age	Gender	Current Schooling	Prior Schooling	Type of Activity
1.			Yes/No Level attained: School:	Yes/No Number of years of education followed: School: Reasons for terminating education:	Yes/No Which activity: For how long:
2.		

ANNEX 9.3: THE VARIABLE IMPORTANCE OF NONFORMAL EDUCATION ACCORDING TO EACH COUNTRY

Table A9.1 displays the relative size of NFE in 21 Sub-Saharan African countries where a MICS survey has been carried out, based on the participation in a programme of the population aged 15 to 49 years. On average, the size of NFE is relatively small, as only 3.5 percent of the group is concerned. It is also highly variable among countries: it ranges from a minimum of 0.0 percent in countries with developed formal education systems, to a maximum of 26.7 percent, in countries where the formal stream represents less than half of the sector. Clearly, in countries where access to formal education is low, reliance on NFE is not a systematic policy, and is mostly very marginal. In Côte d'Ivoire for instance, where the share of the group having attended formal education is only 51.6 percent, the share of the group having followed an NFE course is no higher than 2.2 percent. This is also the case in Guinea Bissau, the Comoros and Sierra Leone. On the other hand, in other countries where the share of formal education is low, the share of NFE beneficiaries is much higher than average (26.7 percent in Burundi, 14.7 percent in Niger, 13.7 percent in the Gambia, 7.5 percent in Chad and 6.5 percent in Senegal).

(Percent)	No Education	Nonformal	Formal	All
Angola	24.4	0.0	75.6	100.0
Botswana	13.1	0.0	86.9	100.0
Burundi	25.7	26.7	47.6	100.0
Cameroon	20.9	0.2	78.9	100.0
CAR	40.6	0.2	59.2	100.0
Chad	59.3	7.5	33.2	100.0
Comoros	52.1	1.7	46.2	100.0
Côte d'Ivoire	46.1	2.2	51.6	100.0
DRC	18.3	0.8	80.9	100.0
Equatorial Guinea	12.6	0.0	87.4	100.0
Gambia, The	48.0	13.7	38.3	100.0
Guinea Bissau	59.1	0.5	40.4	100.0
Kenya	11.9	0.2	87.9	100.0
Lesotho	11.6	0.3	88.1	100.0
Niger	65.2	14.7	20.1	100.0
Rwanda	26.7	0.1	73.2	100.0
Sao Tomé and Príncipe	12.1	0.0	87.9	100.0
Senegal	54.5	6.5	39.0	100.0
Sierra Leone	68.9	0.3	30.9	100.0
Swaziland	16.2	0.7	83.1	100.0
Zambia	17.7	0.0	82.3	100.0
Average	33.7	3.5	62.8	100.0

Source: UNESCO-BREDA, Dakar + 7 Report.

ANNEX 9.4: POTENTIAL CONTENTS FOR SURVEYS OF NFE TRAINERS PERFORMED ON A SAMPLE OF OPERATORS OF DIFFERENT PROGRAMMES

This questionnaire may be complemented with questions on enrolment and financing if such information is not available elsewhere.

Profile of Trainers/Teachers	Number
Highest qualification held - A-Levels/Baccalaureate - Undergraduate degree - Postgraduate degree	
Age - Under 25 years - 25 to 30 years - 31 to 40 years - 41 to 50 years - 51 to 60 years - 60 years and above	
Gender - Male - Female	
Experience as a trainer in the NFE sector - Under 4 years - 5 to 10 years - 10 years or more	
Teaching experience - Under 4 years - 5 to 10 years - 10 years or more	
Training as an NFE trainer - No - Yes, and duration of course Under 3 weeks 3 to 8 weeks 9 to 12 weeks	
Qualified teaching diploma - Yes - No	
Is the NFE trainer/teacher activity the individuals' main one? - Yes - No	
	Averages
Average annual hourly workload of trainers/teachers	
Average annual remuneration of trainers/teachers (Full-time equivalent) *	

Note: * Can be computed as a percentage of the average remuneration of a new primary teacher.

ANNEX 9.5: POTENTIAL CONTENTS FOR A SURVEY MODULE ON PEDAGOGICAL ISSUES AND MONITORING

Is your institute responsible for the choice of its programmes?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Does your institute determine its course time-tables?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is your institute free to manage its teaching practices?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are your trainers/trainers monitored/inspected in class?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If so, who performs the control function: - The director of the institute or his delegate - An inspector belonging to your institute - An inspector from another institution (Which one?)	(Multiple Choice) <input type="checkbox"/> Yes/No <input type="checkbox"/> Yes/No <input type="checkbox"/> Yes/No (Name if Yes)
If so, how often is each teacher/trainer inspected?	
Does the inspector monitor: Course content Respect of the time-table Teaching practices Teachers/trainers' attitudes with learners	(Multiple Choice) <input type="checkbox"/> Yes/No <input type="checkbox"/> Yes/No <input type="checkbox"/> Yes/No <input type="checkbox"/> Yes/No
Does the inspector hold meetings with teachers/trainers to assist/guide them in terms of pedagogical practices?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are inspection results likely to affect teachers/trainers' career development?	<input type="checkbox"/> Yes, favourably <input type="checkbox"/> Yes, unfavourably <input type="checkbox"/> No

ANNEX 9.6: POTENTIAL CONTENTS FOR A SURVEY MODULE ON NFE ADMINISTRATION

Would you say that the NFE subsector is under-staffed on the administrative front? If so, how is this most apparent?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Would you say that the NFE subsector's administration are less competent than their counterparts responsible for other education sectors/subsectors?	<input type="checkbox"/> No <input type="checkbox"/> Yes, they lack experience <input type="checkbox"/> Yes, they lack vocational training <input type="checkbox"/> Yes, they lack a stable institutional framework
Would you say that the statistical coverage of the NFE subsector is good?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is statistical coverage periodic?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is there a statistical yearbook (Paper, or digital)	<input type="checkbox"/> Yes <input type="checkbox"/> No
If so, does it cover all of NFE?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are there data/statistical publications on learning outcomes?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are there data/statistical publications on financing and the cost of NFE training?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Is there a service devoted to NFE?	<input type="checkbox"/> No <input type="checkbox"/> Yes (How many staff?)
Is there a service devoted to the publication of NFE guides and textbooks?	<input type="checkbox"/> No <input type="checkbox"/> Yes (How many staff?)
Is there a service devoted to NFE planning and strategy?	<input type="checkbox"/> No <input type="checkbox"/> Yes (How many staff?)
Is there a service devoted to pedagogical management in NFE?	<input type="checkbox"/> No <input type="checkbox"/> Yes (How many staff?)
Are there direct links between these administrative services and research?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Directors of NFE Institutes	
Does your institute have enough administrative staff?	<input type="checkbox"/> Yes <input type="checkbox"/> No (What are the main consequences?)
Apart from NFE courses, how many programmes does your institute offer?	
Does your institute have staff competent in producing data/statistics on programme participants?	<input type="checkbox"/> No <input type="checkbox"/> Yes (How many staff?)

ANNEX 9.7: COMPARED EDUCATION AND SOCIAL OUTCOMES OF NONFORMAL AND FORMAL EDUCATION PROGRAMMES IN THE AFRICAN CONTEXT

In the absence of a direct measure of the efficiency of specific NFE programmes, it is interesting to explore at least their impact on several education and social dimensions and compare this to that achieved by groups with no education, or with formal education. The data used is usually available in MICS surveys carried out by UNICEF between 2000 and 2002. In these surveys, NFE includes adult literacy activities and other nonformal education activities.

	% of NFE Literates/ % of Untrained Literates	Equivalent Number of Years of Formal Schooling
Burundi	8.4	1.6
Cameroon	3.2	3.4
CAR	1.0	0.9
Chad	166.2	4.6
Comoros	3.0	6.8
Côte d'Ivoire	4.6	1.6
DRC	40.6	7.9
Gambia, The	8.6	4.6
Guinea Bissau	4.8	2.3
Kenya	5.5	4.8
Lesotho	3.6	3.0
Niger	17.9	3.9
Rwanda	14.3	4.8
Senegal	4.0	3.8
Average	20.4	3.9

Source: Computations based on MICS survey data.

In almost all countries, the probability of literacy is much higher for individuals who followed an NFE course than for those without any education. The very high values noted for some countries such as Chad and DRC illustrate the low share of sustainably literate individuals with no education at all. If the equivalent number of years of formal schooling is low in Burundi, Côte d'Ivoire, CAR and Guinea Bissau, it is high (between three and six years) in the other countries considered. This indicates that in some cases the benefit of nonformal education in literacy terms compares very favourably to that achieved by completing primary school.

With respect to the impact of nonformal education on some social behaviours, the difference compared to individuals with no education is not significant. Where some impact is noted, it is often specific to a given country, pointing to differences in NFE course content from one country to another.

TABLE A9.3 - Impact of NFE on Social Behaviours, Compared to Uneducated Individuals

	Burundi	Côte d'Ivoire	Comoros	Gambia	Niger	Senegal	Chad
Birth registration	1.1	1.0	1.0	0.6	1.2	1.0	
AIDS	1.1	1.4	1.0	1.1	1.0	1.1	0.6
Demographics							
Use of modern contraception	1.8	—	2.5	1.0	1.0	—	0.5
Spacing of births	1.0	—	1.0	1.0	1.0	—	1.0
Maternal Health							
Prenatal health checks	—	0.8	1.0	1.0	1.4	1.0	0.6
Anti-tetanus vaccination	1.0	1.0	1.0	1.1	1.4	1.0	1.0
Vitamin A supplementation	1.0	—	1.0		1.0	0.9	1.0
Assistance at childbirth	1.5	1.0	1.2	1.0	1.7	1.0	0.4
Child Health							
Child's weight	1.0	—	1.0	—	1.0	1.0	—
Child's height	1.0	—	1.1	—	1.0	1.0	—
Fully vaccinated	1.2	1.4	1.0	1.0	1.2	—	—
Takes Vitamin A	1.2	1.0	2.4	1.1	1.1	1.4	—

Source: MICS survey data and authors' computations.

The data suggest that nonformal education often enables reaching sustainable literacy, without however guaranteeing some of the externalities that are usually associated with it when acquired in the formal education stream. What most stands out from this brief overview is the disparity of results, no doubt related to the variety of programmes, objectives, delivery modes, contexts and participants. There is therefore scope in the NFE subsector for evaluations such as those carried out in the 1990s in primary education and that have gradually enabled to distinguish between the impacts of different types of course.

ANNEX 9.8: ISSUES WITH THE ANALYSIS OF RESULTS AND QUALITY AND RELEVANCE INDICATORS

Which results to take into account?

The results to be considered in assessing the relevance of NFE activities are similar to those presented in the Chapter 5 of this guide, including:

- Learning outcomes (Levels/nature/sustainability)
- Behaviours and practices
- Contributions to the economy and society

These different items can be approached on the basis of declarations of participants and their family or work environment, or through the direct measure of learning outcomes, behaviours and so on (See Annex 9.2 for a model questionnaire for participants based on Sophie Cerbelle's work in Morocco). Reviewing NFE programme participants' views can help to: (i) improve the day-today management of course delivery; (ii) review how courses are organised and taught; (iii) provide an indication of programme quality in terms of learning outcomes; (iv) provide a measure of programme utility and participants' satisfaction. On the other hand, the direct measure of learning or the impact of NFE training on behavioural change requires more complex evaluation procedures and data processing methods. The choice of results indicators will depend on the type of analysis sought: in a programme management perspective the most external indicator should be used, the one that is most representative of the programme's basic goal. When the programme aims for instance to facilitate change in health behaviours or to improve employment prospects, it may be wise to focus on each of those particular dimensions rather than measure learning outcomes. On the other hand, in a perspective of knowledge or management of the choice between programmes, it may be helpful to measure the achievements of all programmes offered and to consider complementary objectives as designating contexts that may be more or less favourable to literacy.

How to produce and analyse the results?

If surveys of participants' opinions on the impact of the courses followed are methodologically straightforward, analyses based on the direct measurement of results are not. These are more complex to design and implement; the data produced is also more delicate to process. As far as the quality and sustainability of learning outcomes are concerned, a review of any existing assessments of NFE and adult literacy programmes should first be performed. This can be based on the gross learning outcomes related to each programme, and preferably through econometric analysis enabling greater comparability among programmes (beneficiary characteristics, contexts, incentives and so on) and to isolate the impact of the NFE course, all other factors being held constant.

How to assess the results?

The fact that the single measure of programme efficiency is insufficient to reach a full evaluation of NFE programmes from an improved management perspective has been underlined several times. The results generally require being qualified to be interpreted. It is also important that they be related to programme cost. The qualification of results refers directly to the absence of an absolute benchmark to appreciate participants' levels upon completion of a programme, or their social and economic outcomes. The qualification of results is produced by a comparison which enables to determine if better results are obtained by a given approach, context, or participant profile. It is therefore important to facilitate comparisons of the results achieved by different programmes, or to adopt an experimental approach in the research of best practices through the reasoned multiplication of programmes' delivery contexts. This has consequences for statistical systems that are important to promote, as well as on the type of links that it may be appropriate to establish with national research. International evaluations should also be encouraged, being indispensable for benchmarking. This involves the production of international surveys that enable to better identify and evaluate the different types of NFE programmes.

The value of cost-efficiency analyses was underlined earlier in the context of NFE, in reference to the fact that care must be taken in comparing courses in this subsector, which may have significantly different contents, delivery modes and costs. To provide full meaning to the results, it is also necessary to take the high level of attrition that characterises these activities into account. In the context of relatively variable internal efficiency, focus should be on those learners having completed their course, not least those having done so successfully. As for higher education that uses a cost per graduate to compare different institutes of the open and closed sector, a weighting indicator (the inverse of the internal efficiency coefficient) can be used to measure and compare the average cost per beneficiary of NFE programmes.

ANNEX 9.9: EVALUATION OF LITERACY THROUGH HOUSEHOLD SURVEYS

Most household surveys such as DHS, MICS and others include a section on literacy.¹¹¹ Two approaches are generally used: *self-assessed* literacy and *direct-assessed* literacy.

The first consists of simply in asking respondents if they can read, write and understand a simple text. The question is often put to the head of household, who should answer Yes or No for each member of the household aged five years and above. This approach, however easy to administer, produces a measure of literacy skills that is both questionable and dichotomous. Indeed, the method has various limitations in terms of the precision of the data collected (respondents tend to overestimate their level of literacy) and lacks detail in terms of the level of skills.

To overcome these deficiencies, the second approach aims to determine different literacy levels through a series of tests set for respondents by investigators. Most often, individuals are asked to read a short text or sentence aloud. On the basis of the ability to do so, investigators code results in three ways: (i) cannot read a word; (ii) can read part of the text; or (iii) can read all the text.

The results obtained by direct assessment provide more information and are more precise than self-assessment results. Indeed, empirical studies have demonstrated that self-assessed literacy systematically overestimates literacy rates by 15 percent on average, compared to direct-assessed literacy.¹¹²

This direct approach can be improved and tests are available for multiple skill areas (reading, writing, simple arithmetic, in different languages and so on). Within each, different levels of skills can thus be determined. In reading for instance, the level of skill may be qualified as: (i) preliterate (the capacity to identify letters and some words of a simple sentence); (ii) basic literacy (the ability to fully read a simple sentence); (iii) functional literacy (the ability to read and understand a long text); and (iv) illiterate (the inability to recognise any word of a simple sentence).

Table A9.4 below summarises the different approaches and variables used in the main household surveys.

TABLE A9.4 - Main Variables Used in Household Surveys

	Definition, Pros and Cons	Measures of Literacy and Main Source Surveys	Human Development and Employment Indicators
Self-Assessed Literacy	<p>Definition: Consists of asking respondents if they can read and write a simple text</p> <p>Age Group: All household members aged 5 years and above</p> <p>Pros: Easy to administer in terms of cost, time and human resources</p> <p>Cons:</p> <ul style="list-style-type: none"> - Subjective: provides the respondent's opinion of their literacy. Prone to overestimation bias - Dichotomic: only two answers are contemplated (Literate/Illiterate) - Does not therefore allow to determine different literacy levels 	<p>Typical Questions:</p> <ul style="list-style-type: none"> - "Can you read and write?" (DHS and MICS) - "Can you read?" "Can you write?" (as two separate questions) - Some surveys include more specific questions: "Can you read a 1-page letter in English?" (Malawi HIS), or "Can you read and write a simple sentence in English or French?" (Cameroon ECAM) <p>Main surveys including this module:</p> <ul style="list-style-type: none"> - Demographic and Health Survey (DHS 1-4) - Multiple Indicator Cluster Survey (MICS 1-3) - National living conditions type surveys (IHS, EMICOV, etc.) and CWIQ type surveys (Core Welfare Indicator Questionnaire) 	<p>Health and human development indicators:</p> <ul style="list-style-type: none"> - Child and infant mortality - Prenatal and postnatal health care - Birth assisted by qualified health personnel - Knowledge of family planning methods - Breastfeeding and good nutritional practice - Vaccination of newborns and young children - Use of safe drinking water - Knowledge of HIV/AIDS and sexual behaviour <p>Women's' Capacity building (DHS only):</p> <ul style="list-style-type: none"> - Who makes decisions with respect to your finances? - Does the woman participate in decisions? - Women's attitude with respect to beating <p>Wealth and possession of goods:</p> <ul style="list-style-type: none"> - Wealth quintiles - Home characteristics (building materials, electricity, water, sanitation, etc.) <p>Employment variables:</p> <ul style="list-style-type: none"> - Jobs held over the previous 12 months - Job status: permanent, temporary, season work, etc.
Direct-Assessed Literacy	<p>Definition: Consists of a reading test set directly for respondents by investigators. Most often, individuals are asked to read a text or a sentence aloud.</p> <p>Age Group: 15 to 49 years (to 54 years for men)</p> <p>Pros: Provides wealthier and comparatively more precise information</p> <p>Cons: Costly in terms of time and financial resources, as:</p> <ul style="list-style-type: none"> - The time involved in testing each individual and coding answers is greater - Investigators should be more highly qualified and have prior training in the use of reading tests - This reading test is not representative in as much as it only measures reading skills, at the expense of other dimensions of literacy (writing, arithmetic, etc.) 	<p>Typical Question:</p> <p>"Can you please read the following sentence:"</p> <p>Literacy levels are coded:</p> <ol style="list-style-type: none"> 1. Cannot read at all 2. Can read part of the sentence 3. Can read all the sentence <p>Main surveys including this module:</p> <ul style="list-style-type: none"> - Literacy modules of new surveys (DHS 5 and 6) use this approach - The most recent MICS surveys (IV) collect literacy data through the direct-assessment approach, but only for women aged 15 to 49 years 	

Note: * Available in most surveys, unless otherwise indicated.

CHAPTER 10 ANNEXES

ANNEX 10.1: SYNOPSIS OF DIFFERENT SKILLS DEVELOPMENT AND EMPLOYMENT PROMOTION SCHEMES AND INITIATIVES IN KENYA

Type of Training / Employment Promotion Intervention	Providers	Qualifications Achieved	Target Groups / Target Labour Market
<p>Formal post-secondary TIVET Long-term curriculum-based</p> <p>Current <i>enrolment</i> in institutions under MoHEST: 41,000 (of which 43% female) in formal programmes. Annual intake 15,000</p> <p>Under NYS: 10,000 – 15,000 Annual intake: 5,000</p> <p>Private and specialised institutions: not known</p>	<p>Technical Institutes, Institutes of Technology and National Polytechnics under MoHEST; Registered private TIVET providers, including many faith-based institutions; National Youth Service (NYS); specialised training providers including those under other government agencies</p>	<p>Craft certificates, KNEC diplomas and advanced diplomas, KNEC KASNET, and other certification bodies</p>	<p>School-leavers with O'Level below university entry level. Selected scholarships for needy students from MoHEST; access to poor school leavers often facilitated by faith-based institutions.</p> <p>Target labour market is formal sector employment, and self-employment.</p>
<p>Formal post-primary TIVET; Long-term curriculum-based</p> <p>Current estimated <i>enrolment</i>: 50,000 (estimated 30-35% female)</p>	<p>Youth Polytechnics under MOYAS; private providers including faith-based institutions; selected TIs and higher level institutions (additional programmes); NYS, other specialised TIVET institutions</p>	<p>Artisan certificate, KNEC NAVCET/KNEC</p>	<p>Primary school leavers. Target labour market is mainly employment in the informal sector and self-employment. Training also qualifies for progression in TIVET system</p>
<p>Pre-employment skill training programmes in various training institutions; short and long-term. Usually following set curricula (e.g. DIT trade testing curricula)</p> <p>Total <i>enrolment</i> not known</p>	<p>Private, including non-for-profit training providers; NGOs; public formal TIVET institutions (evening and part time courses)</p>	<p>DIT trade tests, Other in-house or specific qualifications</p>	<p>School leavers without access to formal TIVET; usually with at least primary school complete. Target labour market: formal and informal sector depending on occupation and level of training</p>

<p>Skills upgrading training (including trade test preparation)</p> <p>Estimated current enrolment: 1,200 - 1,500 (DIT only)</p>	<p>DIT, occasionally formal TIVET institutions, companies, consultants, private training providers (often financed by employer)</p>	<p>Depending on programme, possibly trade tests, DIT proficiency certificates, or selected other (incl. in-house certificates (computer package)</p>	<p>Employees in formal sector; Jua Kali operators</p>
<p>On-the-job training</p> <p>Enrolment not known</p>	<p>Companies, under certain circumstances supported by DIT (indentured learner scheme)</p>	<p>None</p>	<p>New employees, existing employees</p>
<p>Traditional apprenticeship training (training by Jua Kali master-craftpersons) Informal mid- to long-term on-the-job training in the informal sector</p> <p>Estimated enrolment: 150,000</p>	<p>Jua Kali operators, partly informally regulated/supervised by Jua Kali associations</p>	<p>No formal qualification; reference by master. Apprentices also sit for trade testing.</p>	<p>No specific educational attainment necessary. Traditionally targeting youth with low level of education. Selected indication that formal school certificate increasingly asked for by masters. Target labour market: Employment in the urban and rural Jua Kali sector.</p>
<p>Entrepreneurship and business management training programmes. Short-term programmes, often linked to other business development services such as credit, mentorship, market linkage facilitation, etc</p> <p>Total enrolment: Not known</p>	<p>Part of the curriculum in most formal and non-formal TIVET programmes; Different public programmes run by MOYAS, MoLSD, MoT, Mol; Youth Enterprise Development Programme; Women Enterprise Fund, etc. NGOs and other organisations involved in business development (e.g. ISBI)</p>	<p>Non-formal certificates (where not part of formal TIVET curriculum)</p>	<p>School leavers expected to venture into self-employment; existing micro entrepreneurs; potential start-ups. Target labour market: self-employment</p>
<p>Skills and business training embedded in market development initiatives Usually product/service/context-specific non-formal training</p> <p>Enrolment/beneficiaries: Not known</p>	<p>Public and private service providers, including unconventional service providers; associations; consultants; companies along the value chain (embedded services) Often facilitated by value chain and market development programmes (government and donor-funded)</p>	<p>No formal qualification, sometimes leading to market-specific certificates (e.g. Global Gap for farmers; trading or food handling certificates, etc).</p>	<p>Producers, service providers and other actors in targeted value chains, often farmers, traders, processors, micro manufacturers.</p>

<p>Training – cum – internship</p> <p><i>Enrolment in KYEP: 900 in first of eight planned cycles</i></p>	<p>Companies, facilitated through: KYEP (WB-financed pilot programme) Internship to complement formal TIVET facilitated through DIT</p>	<p>No formal certificate</p>	<p>School leavers in need of industrial exposure; participants of formal TIVET (mainly post O'Level); target group of KYEP are unemployed school leavers, minimum 8 yr. of school; Target labour market: employment, or employment in informal sector (depending on where internship was done)</p>
<p>Formal apprenticeship</p> <p><i>Current enrolment (DIT): 10,000</i></p>	<p>Formal TIVET institutions and companies; facilitated through DIT (dual training scheme in preparation by Eastlands Technical Training College/ISBI)</p>	<p>Formal TIVET qualification, mainly diploma level</p>	<p>School leavers with above average O'Level, target labour market employment in the formal sector</p>
<p>Training Vouchers (demand subsidisation)</p> <p><i>Enrolment in TVVP: 2,163 (50% received training voucher)</i></p> <p><i>Beneficiaries of MSE Voucher Programme: 24,000</i></p>	<p>Technical and Vocational Voucher Programme (TVVP) (research programme); MSE Training Voucher Programme (completed)</p>	<p>Various, depending on training attended</p>	<p>Youth (TVVP) MSE operators (MSE programme)</p>

Source: Jutta Franz, 2011. Realizing the Youth Dividend in Kenya through Skills for the Informal Sector: Institutional Assessment of Skills Development and Youth Employment Promotion Programmes and Projects. Prepared for the World Bank, Nairobi. June 2011.

ANNEX 10.2: EXAMPLE OF A QUESTIONNAIRE USED TO CONDUCT A BASELINE TVET INSTITUTIONS SURVEY IN CAMEROON

COLLECTION OF DATA FROM PRIVATE AND PUBLIC VOCATIONAL TRAINING INSTITUTIONS

Private and public vocational training institutes, Rural Arts and Craft/Home Economics Centers, Vocational Training Centers and apprenticeship centers

I. IDENTIFICATION AND LOCATION OF INSTITUTION

I.1. General Information (Do not fill out the boxes in the highlighted areas)

1101	Name of the Institution:		
1102	Code of the Institution (Not to be filled out)		<input type="text"/>
1103	Region	<input type="text"/>
1104	Division	<input type="text"/>
1105	Subdivision	<input type="text"/>
1106	Council Town.....	
1107	Zone :	1 = Urban 2 = Rural	<input type="text"/>
1108	Post box	<input type="text"/> .. Town.....	
1109	Telephone :	<input type="text"/>	
	Email : Website (If any).....	
1110	Year of Creation	<input type="text"/> 1 st Year of Accreditation <input type="text"/>	Order no. ____ of ____
	Year of last accreditation	<input type="text"/>	Order no. ____ of ____
	Name of Promoter of Institution (Private institution)		
	Land occupied	Area _____ m ²	Land title ? 1 = YES, 2 = NO <input type="text"/>
	Ownership	Tenant ? 1 = YES, 2= NO <input type="text"/>	Owner 1 = YES, 2= NO <input type="text"/>
1111	Name of Head of Institution		
1112	Sex of Head of Institution	1 = Male 2 = Female	<input type="text"/>
1113	To what type of institution does the training Institution belong? 1=Public, 2=Private, 3= Denominational		<input type="text"/>
1114	Has the Institution been rehabilitated ?	1= Yes, 2= No	<input type="text"/>
	Has the Institution an agreement with the Government? 1= Yes, 2= No		<input type="text"/>
1115	Does your Institution have an operational internet connection? 1= Yes, 2= No		<input type="text"/>
1116	Does your Institution have an operational multimedia room? 1= Yes, 2= No		<input type="text"/>
1117	Respondent's name and surname:		
1118	Respondent's status:		
1119	Respondent's address:		

II. TOTAL NUMBER OF LEARNERS IN THE INSTITUTION

II.1 Short-Term Programmes (Less than 12 Months)

Occupation Code (1)	Occupation Title (1)	Duration of Training	Number of Divisions / Groups	Number of Learners		Repeaters	
				Total	Of which girls	Total	Of which girls
				Date	Date	Date	Date
Add rows if necessary							

(1): If the occupation is listed, refer to the codes below to fill out the occupation code box. If not, just enter the occupation title.

II.2 Long-Term Programmes (12 Months and Above)

II.2.1 1st Year Learners

Occupation Code (1)	Occupation Title (1)	Duration of Training	Number of Divisions / Groups	Number of Learners		Repeaters	
				Total	Of which girls	Total	Of which girls
				Date	Date	Date	Date
Add rows if necessary							

(1): If the occupation is listed, refer to the codes below to fill out the occupation code box. If not, just enter the occupation title.

II.2.2 2nd Year Learners

Occupation Code (1)	Occupation Title (1)	Duration of Training	Number of Divisions / Groups	Number of Learners		Repeaters	
				Total	Of which girls	Total	Of which girls
				Date	Date	Date	Date
Add rows if necessary							

(1): If the occupation is listed, refer to the codes below to fill out the occupation code box. If not, just enter the occupation title.

II.2.3 3rd Year Learners

Occupation Code (1)	Occupation Title (1)	Duration of Training	Number of Divisions / Groups	Number of Learners		Repeaters	
				Total	Of which girls	Total	Of which girls
				Date	Date	Date	Date
Add rows if necessary							

(1): If the occupation is listed, refer to the codes below to fill out the occupation code box. If not, just enter the occupation title.

Occupation Codes

Codes	Occupation	Codes	Occupation	Codes	Occupation
01	Accounting Clerk	08	Electro-Mechanics	15	Production Engineering
02	Office Automation Secretary	09	Masonry	16	Boiler-Making
03	Office Employee	10	Building Plan	17	Sheet Metal Work
04	Medical Secretarial Work	11	Tiling	18	Sharpening-Sawing
05	Electronics	12	Sanitary Fittings	19	Building construction
06	Building Electricity	13	Cabinetmaking	20	Mechanical Repair
07	Refrigeration and Air-Conditioning	14	Roof Framing	21	Motor Electricity
				22	Diesel Motor Mechanics
				23	Automotive Bodywork
				24	Agriculture
				25	Industrial Sewing
				26	Home Economics
				27	Assistant Bio-Chemist
				28	Sculpture
				29	Ceramics

III. LEARNERS' ORIGIN

Learners' Origin	Aggregate Number of Learners			Of which Girls/Women		
	Date 1	Date 2	Date 3	Date 1	Date 2	Date 3
With no schooling (<i>Who can neither read nor write</i>)						
Literate (<i>Who can read and write</i>)						
Primary education						
First cycle of general secondary education						
First cycle of technical secondary education						
Second cycle of general secondary education						
Second cycle of technical secondary education						
Higher education						
Worker (<i>in search of re-training or promotion</i>)						
Retired						
Others (<i>People seeking retraining</i>)						
Total						

V. PERSONNEL CENSUS

V.1 Census of Administrative and Support Staff

N°	Staff categories	Total Number of Instructors		
		Men	Women	Total
1	Head of Training Institution			
2	Demonstrator			
3	Discipline Master			
4	Section Supervisor			
5	Bursar			
	Steward			
	Stores Accountant			
6	Secretary			
7	Teaching Counselor			
8	Guidance Counselor			
	P.E. Coordinator			
	Employment Counselor			
10	Social Worker			
11	Officer in Charge of the Information and Documentation Unit (IDU) or Librarian			
12	Nurse			
	Security Officer			
13	Others			
	Total			

V.2 Census of Training Staff

V.2.1 Instructors per Status

Instructor's status	Male	Female	Total
Civil servants / Permanent			
State Contract worker			
School contract employee			
Term employee			
Others			
Total			

V.2.4 Classroom Teaching Staff per Academic Qualification

Academic qualification	Male	Female	Total
DEA/DESS and above			
Master's Degree			
Bachelor's Degree			
DEUG/DUT			
BAC GEN / GCE Advanced Level			
BEPC / GCE Ordinary Level			
CEP/ FSLC			
Other academic qualifications			
No academic qualification			
Total			

V.2.5 Further Training of Trainers

Academic Qualification	Male	Female	Total
Number of trainers who have undergone further training			
Number of trainers trained in the "Competency-based Approach" (CBA)			
Number of trainers trained in Information and Communication Technologies (ICTs)			
Number of trainers trained in the new assessment system (based on the CBA)			
Number of trainers trained in HIV- AIDS prevention methods			
Number of trainers trained in first aid techniques			
Total			

V.2.6 Staff Information

N°	Names	Gender	Grade	Id No.	Date of Birth	Position	Seniority Position	Previous Post	Highest Degree	Occupational specialisation
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										

VI. BUILDINGS AND EQUIPMENT

VI.1 Workshops, Laboratories, Specialised Rooms and Classrooms

Type of Building	Quantity (Number)	Number of Seats/ Work Stations	Permanent		Semi-Permanent		Temporary Building
			Good State	Poor State	Good State	Poor State	
Ordinary classrooms							
Specialised classrooms							
Workshops / laboratories							
Multimedia resource units							
Offices (buildings)							
Documentation units							
Staff rooms							
Sick bays							
Toilet rooms (latrine, WC)							
Staff accommodation houses							
Others							

VI.2 Information on Other Equipment and Facilities of the Training Institution

1) Does the institution have an operational power connection?	1=Yes, 2=No	<input type="checkbox"/>
2) Does the institution have a potable water supply point?	1=Yes, 2=No	<input type="checkbox"/>
3) Does the institution have computers in perfect working condition?	1=Yes, 2=No	<input type="checkbox"/>
3.a) If the answer is yes, specify the number:		<input type="checkbox"/>
4) Does the institution have operating computers for trainers?	1=Yes, 2=No	<input type="checkbox"/>
4.a) If the answer is yes, specify the number:		<input type="checkbox"/>
4.b) If the answer is yes, are trainers trained in the use of computers?	1=Yes, 2=No	<input type="checkbox"/>
5) Does the institution have operating computers for learners?	1=Yes, 2=No	<input type="checkbox"/>
5.a) If the answer is yes, specify the number:		<input type="checkbox"/>
5.b) If the answer is yes, are learners trained in the use of computers ?	1=Yes, 2=No	<input type="checkbox"/>
6) Does the institution have playgrounds?	1=Yes, 2=No	<input type="checkbox"/>
7) Does the institution have a fire extinguisher?	1=Yes, 2=No If yes, how many	<input type="checkbox"/>
8) Do workshops/ laboratories have emergency exits?	1=Yes, 2=No	<input type="checkbox"/>
9) Does the institution have toilet rooms/latrines?	1=Yes, 2=No If no, go to 4306	<input type="checkbox"/>
10) Do girls have separate toilet rooms/ latrines from boys'?	1=Yes, 2=No	<input type="checkbox"/>
11) Is the training institution fenced?	1=Yes, 2=No	<input type="checkbox"/>
12) Does the institution have a medicine cabinet (health kit) provided with first aid materials?	1=Yes, 2=No	<input type="checkbox"/>
13) Is there a Parent Teacher Association (PTA) within the institution?	1=Yes, 2=No	<input type="checkbox"/>

IX. PARTNERSHIP AND RELATIONSHIP WITH THE EMPLOYMENT SECTOR

1) Does the institution have a relationship with the employment sector? 1=yes 2=no	<input type="checkbox"/>																
1.a) If yes, specify the type of relationship 1=formal (based on an existing agreement); 2= informal	<input type="checkbox"/>																
<p>1.b) Specify the type of partners involved:</p> <p><input type="checkbox"/> Public institutions</p> <p><input type="checkbox"/> Private companies</p> <p><input type="checkbox"/> SMEs</p> <p><input type="checkbox"/> Professional organisations</p> <p><input type="checkbox"/> Civil society</p> <p><input type="checkbox"/> Others.....</p>																	
<p>1.c) Specify the purpose of the partnership:</p> <p><input type="checkbox"/> Financial assistance</p> <p><input type="checkbox"/> Work-study programme</p> <p><input type="checkbox"/> Seminar/conference</p> <p><input type="checkbox"/> Ongoing training of company personnel</p> <p><input type="checkbox"/> Capacity building</p> <p><input type="checkbox"/> Company visit</p> <p><input type="checkbox"/> Others, specify</p> <p><input type="checkbox"/> Supply of equipment</p> <p><input type="checkbox"/> In-company practicum</p> <p><input type="checkbox"/> Open door days</p> <p><input type="checkbox"/> Internship</p> <p><input type="checkbox"/> Professionals in the management committee</p> <p><input type="checkbox"/> Technical projects with companies</p>																	
<p>1.d) If your institution received financial assistance in 2009, specify the nature and amount of the assistance</p> <table border="0"> <thead> <tr> <th style="text-align: left;">Nature</th> <th style="text-align: center;">Amount</th> </tr> </thead> <tbody> <tr> <td>Apprenticeship tax.....</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Donations.....</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Grants.....</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Internship fees.....</td> <td><input type="checkbox"/></td> </tr> <tr> <td>NEF subsidy.....</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Scholarships.....</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Others.....</td> <td><input type="checkbox"/></td> </tr> </tbody> </table>	Nature	Amount	Apprenticeship tax.....	<input type="checkbox"/>	Donations.....	<input type="checkbox"/>	Grants.....	<input type="checkbox"/>	Internship fees.....	<input type="checkbox"/>	NEF subsidy.....	<input type="checkbox"/>	Scholarships.....	<input type="checkbox"/>	Others.....	<input type="checkbox"/>	
Nature	Amount																
Apprenticeship tax.....	<input type="checkbox"/>																
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Internship fees.....	<input type="checkbox"/>																
NEF subsidy.....	<input type="checkbox"/>																
Scholarships.....	<input type="checkbox"/>																
Others.....	<input type="checkbox"/>																

ANNEX 10.3: QUESTIONNAIRE EXAMPLE FOR TVET INSTITUTION COST/EXPENDITURE ASSESSMENT

1. General information

1.1	Name of the Institution.....
1.2	Province.....
1.3	Address.....
1.4	Tel. :..... Fax:..... Email:.....
1.5	Ownership status:
	<input type="checkbox"/> under Ministry of.....
	<input type="checkbox"/> under (other organisation, e.g. trade union)..... <input type="checkbox"/> under prov. Department of
	<input type="checkbox"/> company-owned (SOE)..... <input type="checkbox"/> company-owned (private)
	<input type="checkbox"/> private not-for-profit
	<input type="checkbox"/> private for-profit
	<input type="checkbox"/> other, please indicate

2. Training programmes

Please list all training programmes that were provided during the last two years, and add the additional information required. Please indicate actual enrolment, not planned enrolment. Please list all programmes that were actually provided in the institution, irrespective of whether they were formal, non-formal, contract-training, or others. Use more sheets, if necessary

Name of course	Full-Time or Part-Time?		Duration (Months/ Years)	Total Fees (Tuition Fees and Any other Fees)	Number of Students Enrolled in	
	FT	PT			Year 1	Year 2
	<input type="checkbox"/>	<input type="checkbox"/> months years	Amount/year Amount/course		
	<input type="checkbox"/>	<input type="checkbox"/> months years	Amount/year Amount/course		
	<input type="checkbox"/>	<input type="checkbox"/> months years	Amount/year Amount/course		
	<input type="checkbox"/>	<input type="checkbox"/> months years	Amount/year Amount/course		
	<input type="checkbox"/>	<input type="checkbox"/> months years	Amount/year Amount/course		

3. Revenues

Please list all the income of the institution from the different sources indicated for the last two years (*in local currency*)

Source of Income		Year 1	Year 2
Government budget, state source (e.g. Min./Dep. of)			
Total Government Budget			
Training fees			
Payment from organisations (employers, donors, etc) for tailor-made courses			
Income from production and services (other than training services)			
Grants	From donors		
	From foreign/ international donors		
Other, please indicate			
TOTAL Revenues			

4. Expenditure

Please list all expenditure of the institution for the last two years (*in local currency*)

Expenditure Item	Year 1	Year 2
RECURRENT		
Salaries		
Management/administration personnel		
Training/teaching personnel (incl. part-time teachers)		
Training material		
Maintenance of buildings, equipment, machinery		
Other operational costs		
Rent/lease		
Water		
Power		
Telecommunication		
Other		
Capital cost		
Interest		
Redemption		
Other, please indicate		
DEVELOPMENT/INVESTMENT		
Equipment/machinery		
Infrastructure		
Staff training		
Other		

ANNEX 10.4: EXAMPLE OF A METHODOLOGY TO CALCULATE THE COST OF TRAINING ONE TRAINEE OVER A SPECIFIED TIME PERIOD, FOR EACH KIND OF TRAINING

The approach developed throughout the chapter 3 enables the “direct” estimation of unit costs (the budget allocated to an education level, divided by the number of trainees enrolled at that level). Although this is relatively straightforward for some education levels, this technique may not be appropriate for TVET when estimating unit costs by type of training (technical, professional and so on) or subject. This being an issue depends on the level of detail available in the budget. However, as TVET institutes generally offer various types of training, with teaching staff that covers several of them, the distribution of spending enabling the “direct” estimation of a specific budget for each type, and the associated unit costs, remains complex.

On the other hand, the estimation of aggregate unit costs would not fully render justice to the situation, as teaching conditions, operational expenses and so on can vary considerably according to the type of training and the subject chosen. Industrial training for instance is generally much more expensive than tertiary training.

To take the estimation to another level, the breakdown of public expenditure per trainee can be used, as per Chapter 3 (see Box 3.2), for each type of training and possibly subject (or according to any other relevant breakdown key). In first instance, by examining the unit costs of teaching salaries UC_{TS} , the following applies (for further detail, see the box below):

$$UC_{TS} = \frac{AS_T}{PTR} = \frac{AS_T}{CS} \times \frac{H_p}{H_T}$$

This in turn, can be defined, for each training course i , as:

$$UC_{TSi} = \frac{AS_{Ti}}{PTR_i} = \frac{AS_{Ti}}{CS_i} \times \frac{H_{pi}}{H_{Ti}}$$

Some terms of the equation are generally determined by considering that the values for the variables for the training course i are the same as those for the entire TVET sub-sector (which are more easily calculated), such as the average teacher salary ($AS_{Ti} = AS_T$) and the weekly workload of teachers H_{Ti} , which can reasonably be approximated by:

$$H_T = \frac{PTR \times H_p}{CS}$$

The weekly workload of trainees H_{pi} is known on the basis of the training programme i under consideration. On the other hand, it is necessary to be able to determine the trainee-teacher ratio PTR_i , or the class size CS_i for the training programme.

Enrolment statistics can directly provide a value for CS_i . When this is not the case, PTR_i can be obtained (if the number of training institutions is sufficient) through a linear regression (without constant), where the explained variable is the number of teachers, the explanatory variables are the number of classes (or pedagogical units) by type of training and subject, and observations are carried out on

each of the training institutions. The inverse of the coefficients obtained provides the pupil-teacher ratio for each type of training.

The same approach can be used in terms of institutions' administrative staff, to determine the trainee to non-teaching staff ratio *PNTR*, and to distribute operational costs *OC* per trainee, when they are available for each training institution (in this instance the coefficient directly provides the expense by trainee and by training course).

However, this technique works only where there is effectively a relation between the staff deployed, the operational budget and the type of training. In fact, the type of training institution often has a greater impact on the number of staff deployed than the nature of the training course itself.

Consolidating the different unit costs by training course *i* according to the number of trainees enrolled should provide the global unit cost. If this is not the case, a detailed examination of the results should help to identify the source of the discrepancy.

This approach can be applied to each subject and so on. However, other methods are of course available, and in some cases preferable, but they depend primarily on the precision and exhaustiveness of available information, both in terms of budgets and ministry-level statistics.

BOX

Link between the PTR and the size of a pedagogical group

The basic relationship of equality between the number of hours of teaching followed by students and the number of hours of teaching provided by teachers translates into:

$$NC \times H_p = NT \times H_T$$

$$\frac{NC \times H_p}{NP} = \frac{NT \times H_T}{NP}$$

$$\frac{H_p}{PTR} = \frac{H_T}{CS}$$

$$PTR = \frac{H_T}{H_p} \times CS$$

Where:

NC is the number of classes (or pedagogical units),

H_p is the workload of trainees (in hours),

NT is the number of teachers,

H_T is the workload of teachers (in effective hours),

NP is the number of trainees,

PTR is the trainee-teacher ratio, and

CS is class size.

The trainee to teacher ratio integrates various dimensions, and can be broken down according to the number of hours of teaching received by learners, the number of hours of teaching effectively provided by trainers (generally less than their theoretical workload, and all the more so if training institutions are small and their staff is highly specialised, which is often the case in TVET), as suggested by the box above.

Therefore, if the information is available, it is relevant to analyse the following dimensions:

Analysis of the deployment of teaching staff

The deployment of trainers can be better analysed by relating the number of trainers (specialised in the case of TVET) to the number of classes they teach, than by relating their numbers to the number of learners, as is common practice for the primary cycle, whose teachers are more versatile.

Analysis of provider systems

Secondly, the size of classes (pedagogical units) can be analysed to determine if (i) teaching takes place in acceptable conditions (class sizes are not excessively large), and (ii) if the organisation of delivery is efficient (class sizes are not minute, as the number of classes with just a few learners should be limited).

The degree of utilisation of trainers

On the basis of the trainee-teacher ratio, class size and the number of teaching hours received by learners (the theoretical course programme is often the best measure available), it is then feasible to estimate the average number of hours of teaching provided by teachers, and thus reach an approximation of their utilisation rate, to be compared with the theoretical workload that applies to their status.

NOTES

- 89 In practice, these indicators are available for the zero to five year age group, through DHS and MICS surveys.
- 90 Detailed information on maternal health is particularly abundant in MICS surveys. Such information includes women's access to health care, pre and postnatal care and birth delivery conditions. The examination of these indicators can help to identify gaps in the coverage of pregnancy and birth assistance services. They are also tools for the planning and evaluation of early childhood policies and health services.
- 91 Qualified or professional health personnel include doctors, nurses and midwives.
- 92 http://www.unicef.org/immunization/index_2819.html Recently, some countries have begun to administer the oral pentavalent vaccine instead of the whooping cough vaccine. This contains five antibodies against diphtheria, tetanus, whooping cough, hepatitis B and hemophilic influenza B.
- 93 http://www.who.int/nutrition/topics/moderate_malnutrition/fr/index.html
- 94 As above, stunting is considered to be severe if the child's height for age is more than three standard deviations below the mean for the reference population.
- 95 http://www.unicef.org/progressforchildren/2007n6/index_41505.htm
- 96 Improved water sources include taps, aquifers, wells and bottled water.
- 97 Users of this guide are strongly advised to consult Chapter 2 for the definitions and analytical approaches to the indicators of school coverage, given that the same approach is adopted here.
- 98 The exact definition is provided in Chapter 5.
- 99 Such children include those infected with or affected by HIV/AIDS, handicapped children, street children, victims of the worst forms of child labour, children with legal issues, or those affected by armed conflict (child soldiers). In some countries a further category is found, called local OVCs. These would include the Talibés in Senegal (children who beg for their religious leader, the Marabout), drug-addicted children in South Africa, or bewitched children in Benin and DRC (children disowned by their parents after being accused of witchcraft) for instance.
- 100 <http://info.worldbank.org/etools/docs/library/237384/toolkitfr/howknow/definitions.htm>
- 101 http://www.unesco.org/ulis/cgi-bin/ulis.pl?catno=189882&set=4D5E86D7_2_159&gp=1&lin=1&ll=1
http://www.unesco.org/new/fr/media-services/single-view/news/better_monitoring_in_sight_for_the_well_being_of_young_children/
- 102 The inter-agency technical committee includes specialists in childhood development from the Bernard van Leer Foundation, Un Kilo de Ayuda (Mexico), Save the Children, UNESCO, UNICEF, WFP, WHO and the World Bank.
- 103 The nominal return on capital is usually computed as the sum of inflation rate and the real rate of return on capital.
- 104 This category can be broken down into further categories where appropriate. Depending on contexts, it may include exam fees, income from medical care, rental of accommodation, income from restaurants and university transport, or other income from in-house activities.
- 105 Over 10 million people.
- 106 35 countries including 18 in sub-Saharan Africa.
- 107 From DHS, MICS surveys etc.
- 108 On a sample representative of the geographical and linguistic national diversity.
- 109 Morocco, Niger and Kenya.
- 110 LAMP national team.
- 111 Literacy is defined as the ability to read and write a simple text with understanding, relating to daily life. It implies having ongoing reading and writing skills, and often includes basic arithmetic skills (UIS, 2006).
- 112 2008 Global Monitoring Report (UNESCO 2007).



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CSR type analysis of education systems

The publications listed below are CSR (Education Country Status Report) type reports, usually the fruit of a collaboration between a governmental team and development partners such as the UNESCO-IIEP Pôle de Dakar, the World Bank, UNICEF or other partners. Most of the examples provided in this guide are drawn from these analyses. Most of the reports can be downloaded from <http://www.worldbank.org/afr/education> and <http://www.poledakar.org>

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EDUCATION SECTOR ANALYSIS METHODOLOGICAL GUIDELINES

VOLUME 2

The purpose of these guidelines is to provide methods for comprehensive education sector analyses to support the preparation and monitoring of education sector plans.

They are an update of a 1999 document that has been used to support the preparation of approximately 70 Education Country Status Reports (CSR) in more than 40 countries.

The goal of the guidelines is to strengthen national capacities in order that Government teams can conduct education sector analyses with progressively less external support.

They were prepared by education economists and specialists from UNESCO's International Institute for Educational Planning-Pôle de Dakar, UNESCO's Dakar Office, the World Bank, UNICEF and the Global Partnership for Education secretariat.

The guidelines are divided into two volumes. The present volume covers methodologies for analysing four education sub-sectors: early childhood development; higher education; literacy and non-formal education, and technical and vocational education and training. Volume 1 features methodologies for analysing six sector-wide thematic areas: context; access; costs and financing; quality, system capacity and management; external efficiency; and equity with an emphasis on the formal primary and secondary education sub-sectors.



The two volumes of the guidelines are available electronically, in English, French, Portuguese, Russian and Spanish at
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