SYSTEMATIC MONITORING OF EDUCATION FOR ALL

TRAINING MODULES FOR ASIA-PACIFIC

EFA

EFA

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CONTENTS

Foreword

Education for All (EFA) will only succeed if there is 'All for Education' - when all people who are concerned with education play a role in promoting education for themselves and for others: young and old. This is the key lesson learnt over the past twenty years since the first World Conference on EFA in Jomtien, Thailand, in 1990.

To do so, there must be awareness of what is happening in education, what the latest progress and achievements are, where the gaps are, and what can be done to help fill these gaps. Systematic monitoring and active communication of information about education can generate better understanding, accountability and widespread support to EFA.

As we approach 2015, the target year for achieving the Education for All and Millennium Development Goals (MDGs), it will be crucial to monitor progress both for guiding timely actions in the coming few years, and for assessing EFA achievements and shortfalls around 2015. This calls for a general upgrading of monitoring capacities across different levels of national education systems.

The development and spread of the Education Management Information System (EMIS) in Asia and the Pacific since 1985 has contributed greatly to improving the collection, processing, analysis and dissemination of management information on education. Most countries in the region have established their own EMIS which have been informing education policies, planning and management. These EMIS will have to be geared up for the crucial tasks of monitoring and informing EFA decisions in the coming years leading to 2015.

Having supported EMIS development in the Member States over the past three decades, UNESCO has helped to build technical capacities for education information management in many national ministries of education. One of the lessons learnt about EMIS development and in particular about EFA monitoring is that such information management capacities should spread to decentralized levels including provinces, districts and schools, especially for effectively 'Reaching the Unreached' under EFA.

This series of training modules draws on UNESCO's experiences over the past years in proposing the latest know-how in national capacity building for EMIS and EFA monitoring. Adopting a holistic approach from school-level records management to data collection, indicators, analysis, information dissemination and use at all levels of the education administration, these training modules aim in particular at strengthening knowledge and skills at decentralized levels not only in data management but more importantly in the use of data and information in support to decision-making and communications with stakeholders.

To help education managers, school staff, teachers and various stakeholders to develop their skills in education information management and use, these training modules will be available on the internet for direct access in self-learning. We look forward to your feedback.

Gwang-Jo Kim
Director
UNESCO Bangkok

Acknowledgement

We encourage the Member States in Asia and the Pacific and in other regions to adapt these latest state-of-the-art training modules for use in building capacities for EMIS and EFA monitoring at vari-ous levels of their education system. We keenly look forward to acknowledging future feedback and contributions from readers and users of these training modules.

Introduction

At this initial stage of the 21st century, Education for All (EFA) has gained ground, becoming the foremost, major world thrust in education.

At the World Education Forum held in April 2000 in Dakar, Senegal, education policy-makers from all the countries together with representatives of relevant development agencies, NGOs, institutions and educationists jointly adopted the Dakar Framework for Action1[1] which aims at achieving the following six EFA goals by the year 2015:

1. Expanding and improving comprehensive **early childhood care and education,** especially for the most vulnerable and disadvantaged children.
2. Ensuring that by 2015 all children, particularly girls, children in difficult circumstances and those belonging to ethnic minorities, have access to and complete **free and compulsory primary education of good quality.**
3. Ensuring that the learning needs of all young people and adults are met through equitable access to appropriate **learning and life skills** programmes.
4. Achieving a 50 per cent improvement in levels of **adult literacy** by 2015, especially for women, and equitable access to **basic and continuing education** for all adults.
5. Eliminating gender disparities in primary and secondary education by 2005, and achieving **gender** equality in education by 2015, with a focus on ensuring girls' full and equal access to and achievement in basic education of good quality.
6. Improving all aspects of the **quality of education** and ensuring excellence of all so that recognized and measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills.

In essence, these EFA goals are about ensuring full access and participation of all eligible persons in basic education of good quality so that they can acquire literacy and life skills for a decent living and learning throughout life. The EFA goals place special emphasis on helping disadvantaged populations such as girls and children of poor families, ethnic, linguistic and religious minorities, those in remote areas, with disabilities, and from other vulnerable population groups to fully participate in and benefit from education, under the priority of *'Reaching the Unreached'*.[2]

Information key to Education for All and All for Education

Education for All cannot be successfully achieved unless there is All for Education. Commitments of all the stakeholders down to the local, school and grass-root level are needed. This relates to the need on the one hand to mobilize actions of local schools and communities to identify the illiterates, out-of-school children and people with learning needs, as well as to implement effective

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1 World Education Forum: Dakar Framework for Action – Education for All: Meeting our collective commitments. 2000. (see website: http://unesdoc.unesco.org/images/0012/001211/121147E.pdf)

2 UNESCO: 2010 Education for All global monitoring report: Reaching the marginalized. 9 February 2010. (see website: http://unesdoc.unesco.org/images/0018/001872/187279e.pdf)

strategies and measures to help them to fully participate in education and learning. It has been understood that closer involvement of local stakeholders can greatly help the schools to ensure the quality of teaching/learning processes and learning outcomes.

Parents and community people increasingly want to know what is happening in the schools. There is now widespread awareness about the need for transparency and accountability within the education system. More systematic collection, dissemination and use of information on EFA will be key to informing the stakeholders at all levels in order to mobilize their active participation and support. More relevant and reliable data and indicators are needed to help raise consciousness and generate actions at the policy level and within local communities and schools. Capacities to systematically record, analyse, share and use data and information at all levels of the education administration, when strengthened, can help to more effectively identify bottlenecks, problems and issues in EFA, and make sound evidence-based decisions to address them.

At the same time, it has been realized that a wide range of data have been and can be collected for use in monitoring progress towards all six goals of EFA. Practically all countries have established mechanisms to systematically collect data from primary and secondary schools every year. Efforts are being made to gather data from early childhood care and education centers, and regarding adult literacy and non-formal education programmes. Many such data collection systems will have to be further upgraded to gather and disseminate more and better data for monitoring the six EFA goals. Referring to EFA Goal 5, efforts must be made to systematically collect gender-disaggregated data and produce indicators to monitor and promote gender equality in education.

A key lesson learnt during the past decades gives priority to strengthening education information management capacities especially at local and school levels, as these constitute the main source of data on education and at the same time the agents which can take direct actions to achieve the EFA goals in the local areas. Wider dissemination and more frequent use of data and information at all levels and by all stakeholders in support to informed decision-making and promoting understanding and participation are equally important.

Education Management Information System (EMIS)

Since the mid-1980s, many countries have developed EMIS (Education Management Information System). Most of them operate nowadays computerized EMIS databases to process the data and to use them in support to policy-making, planning, monitoring and management of education. Monitoring the six EFA goals especially those regarding early childhood care and education, literacy and continuing basic education, equity and quality of education is placing additional demands on the type of data to be collected from the educational institutions and homes, and how best to collect and use them. Appropriate adjustments to the ways and means for data collection will be needed.

Experiences of the past have demonstrated that priority will have to be given to systematizing the collection, recording and use of data at the source, i.e. at the school. It is only when all schools regularly maintain and make use of data, that the completeness, reliability and consistency of data at district, provincial and national levels can be guaranteed. Systematic recording and use of data and information at school can be crucial to improving school management as well as to mobilizing

local community support. The effectiveness of EFA monitoring and of subsequent actions depends to a large extent on the schools, particularly on their capacity to maintain and use quality data and information. Special attention will therefore have to be given to promoting capacity building in systematic EFA monitoring particularly at the local and school levels.

The design and operations of computerized EMIS databases are also undergoing major changes. Internet web-based EMIS systems are being introduced in order for the schools which have access to the internet to directly enter data into EMIS forms online, and for the data to be immediately checked, processed, stored and used in calculating indicators, analysis and rapid feedback to the schools and local education offices. Use of the internet in disseminating information to both school managers as well as the general public is reinforcing transparency and accountability within the education system.

Diagram 1. Main data sources for monitoring EFA
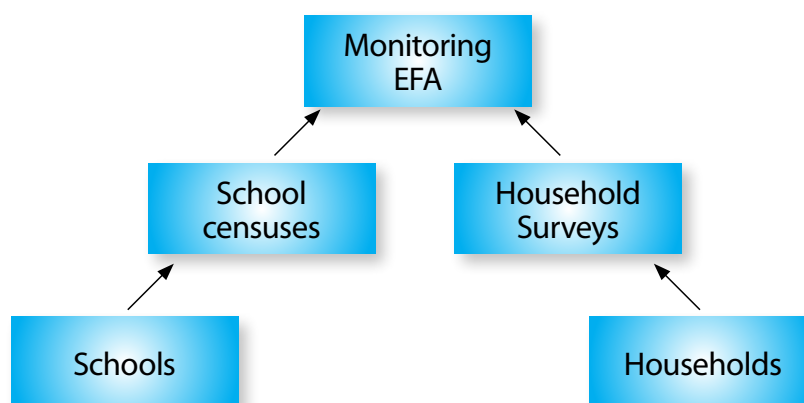
Population Censuses and Household Surveys
In parallel, national population censuses and household surveys constitute another main source of data for monitoring EFA (see Diagram 1). Such demographic censuses and surveys periodically collect data from households on:

- **Population especially school-age and school-entrance age population**
- **Literate and illiterate population**
- **Education attainment of the population**
- **Access to school and school attendance**
- **Ethnic, linguistic and religious profile of the population**
- **Disabled persons**
- **Employment and occupation**
- **Family income and poverty**

Data on school-age and school-entrance age population are necessary for calculating enrolment ratios and intake rates. Data on the adult population can be used to derive literacy rates and percentage distribution of the population by highest level of education attained. Data collected on school attendance during household surveys like the MICS (Multiple Indicators Cluster Surveys),

LSMS (Living Standard Measurement Surveys) and DHS (Demographic and Health Surveys) can lead to the calculation of school attendance rates and other education indicators which complement the enrolment ratio, repetition rate and dropout rate.

For reaching the unreached under EFA, the most useful data from population censuses and household surveys are those regarding the numbers, characteristics and location of disadvantaged population groups such as girls and women, ethnic, linguistic and religious minorities, the disabled, and the poor. These data when reviewed together with those on literates and illiterates, educational attainment and school attendance can help to identify who and where are those persons who do not benefit from education, for more effectively targeting priority EFA actions taking into account their conditions and constraints.

Much of these data from population censuses and household surveys can be used on the one hand to monitor aspects and goals of EFA which cannot be assessed through EMIS data from the schools, such as EFA goals number 3 and 4 on respectively lifelong learning and literacy, and on the other hand to supplement school data by identifying the out-of-school children and relating people's participation in learning to household and family characteristics in order to find patterns, factors and solutions.

As national statistical offices continue to carry out national population censuses and household surveys, the data sets are becoming increasingly available. It will be crucial to access them and to fully analysis the education data collected from the households. When fully utilized, these two main sources of education data together can contribute to a much more comprehensive and solid monitoring of EFA.

As the world approaches the EFA target year of 2015, efforts to monitor EFA are expected to intensify in the coming years in order to implement further actions to achieve the EFA goals. The present training modules aim at accompanying this process by strengthening education information management capacities at all levels and particularly at decentralized levels of the education administration, and spreading the practices of systematic analysis, dissemination and use of education data which have been collected through both EMIS and population censuses and household surveys.

How these training modules are designed

These training modules have been designed for use in strengthening capacities to monitor EFA among: (a) Education administrators at all levels and school managers on how to better record, collect, analyse, disseminate and use school data; (b) Education researchers, analysts and administrators on how to access, analyse and make full use of education data from population censuses and household surveys using statistical software/package. Two series of modules have been compiled with the Modules A1 to A5 addressing the needs of target group (a), and the Modules B1 to B5 catering to target group (b). Together they respond to the need to reliably produce and meaningfully use a basic set of EFA monitor indicators.

A wide range of indicators have been identified and recommended for use in monitoring the six EFA goals. They constitute a comprehensive EFA monitoring indicators system that can be applied by different countries according to their specific situation, priorities and needs. For the purpose of strengthening EFA monitoring capacities, the present training modules focus on a 'core' set of 55 indicators as shown in the table below:

Table 1. List of core EFA indicators

Goal 1: ECCE (Early childhood care and education)	(H)	(S)	1. Gross Enrolment Ratio (GER) in ECCE programmes
		S	2. Percentage of new entrants to primary Grade 1 who have attended some form of organized ECCE programme
		(S)	3. Enrolment in private ECCE centres as a percentage of total enrolment in ECCE programmes
		(S)	4. Percentage of trained teachers in ECCE programmes
		(S)	5. Public expenditure on ECCE programmes as a percentage of total public expenditure on education
	(H)	(S)	6. Net Enrolment Ratio (NER) in ECCE programmes including pre-primary education
		(S)	7. Pupil/Teacher Ratio (PTR) (children-caregiver ratio)
Goal 2: UPE (Universal primary education)	H	S	8. Gross Intake Rate (GIR)
	H	S	9. Net Intake Rate (NIR)
	H	S	10. Gross Enrolment Ratio (GER)

Goal 2: UPE (continued)	H	S	11. Net Enrolment Ratio (NER)
	(H)	S	12. Percentage of repeaters
	(H)	S	13. Repetition Rate (RR) by grade
	(H)	S	14. Promotion Rate (PR) by grade
	(H)	S	15. Dropout Rate (DR) by grade
	(H)	S	16. Cohort Survival Rate to Grade 5
	(H)	S	17. Primary Cohort Completion Rate
	(H)	S	18. Transition Rate (TR) from primary to secondary education
		S	19. Percentage of trained teachers in primary education
		S	20. Pupil/Teacher Ratio (PTR) in primary education
		S	21. Public expenditure on primary education as a percentage of total public expenditure on education
		S	22. Percentage of schools offering complete primary education
		S	23. Percentage of primary schools offering instruction in mother tongue
	(H)	S	24. Percentage distribution of primary school students by duration of travel between home and school
Goal 3: Lifelong learning and life skills	H		25. Number and percentage distribution of the adult population by educational attainment
	H		26. Number and percentage distribution of young people aged 15-24 years by educational attainment
	(H)	S	27. Gross Enrolment Ratio (GER) in technical and vocational education and training
		(S)	28. Number and percentage distribution of lifelong learning/continuing education centres and programmes for young people and adults
		(S)	29. Number and percentage distribution of young people and adults enrolled in lifelong learning/continuing education programmes

		(S)	30. Number and percentage distribution of young people and adults completing lifelong learning/continuing education programmes
			31. Number and percentage distribution of teachers/facilitators in lifelong learning/continuing education programmes for young people and adults
Goal 4: Adult literacy and basic education	(H)		32. Adult literacy rate (15 years old and above)
	(H)		33. Youth literacy rate (15-24 years old)
		(S)	34. Public expenditure on adult literacy and continuing basic education as a percentage of total public expenditure on education
		(S)	35. Number and percentage distribution of adult literacy and continuing basic education programmes
		(S)	36. Number and percentage distribution of facilitators of adult literacy and continuing basic education programmes
		(S)	37. Number and percentage distribution of learners participating in adult literacy and continuing basic education programmes
		(S)	38. Completion rate in adult literacy and continuing basic education programmes
		(S)	39. Number and percentage of persons who passed the basic literacy test
		(S)	40. Ratio of private (non-governmental) to public expenditure on adult literacy and continuing basic education programmes
Goal 5: Gender equality	H	S	41. Females enrolled as percentage of total enrolment
		S	42. Female teachers as percentage of total number of teachers
		S	43. Percentage of female school managers/district education officers

Goal 5: Gender equality (continued)	H		44. Gender Parity Index for:
	H		a. Adult literacy rate (15 years old and above)
	(H)	(S)	b. Youth literacy rate (15-24 years old)
	H	S	c. GER in ECCE
	H	S	d. GIR in primary education
	H	S	e. NIR in primary education
	H	S	f. GER in primary education
	H	S	g. NER in primary education
	H	S	h. Survival rate to Grade 5
	H	S	i. Transition Rate from primary to secondary education
	H	S	j. GER in secondary education
		S	k. NER in secondary education
		S	l. Percentage of teachers with pre-service teacher training
			m. Percentage of teachers with in-service teacher training
Goal 6: Quality of Education		S	45. Percentage of primary school teachers having the required academic qualifications
		S	46. Percentage of school teachers who are certified to teach
		S	47. Pupil/Teacher Ratio (PTR)
		S	48. Pupil/Class Ratio (PCR)
		S	49. Textbook/Pupil Ratio (TPR)
			50. Public expenditure on education as a percentage of total government expenditure
		S	51. Percentage of schools with improved water sources
		S	52. Percentage of schools with improved sanitation facilities
		S	53. Percentage of pupils who have mastered nationally defined basic learning competencies
	H	S	54. School life expectancy
		S	55. Instructional hours

The 'H' in the second column of the table above identifies those EFA indicators that can be derived using data from household surveys; and the 'S' in the third column points to EFA indicators to be calculated using school data. They indicate the respective focuses of the two series of training modules A1-A5 and B1-B5. The '(H)' and '(S)' denote those EFA indicators which can be derived if data are collected using either channels of data collection. For example under Goal 1 related to ECCE, the '(S)' points to those EFA indicators that can be produced if relevant data have been collected from ECCE centres. The same applies to the '(S)' under Goals 3 and 4 when data are available from literacy and non-formal education centres.

How to use these training modules

As there are thousands if not millions of education administrators, researchers, school managers and personnel in different countries, these training modules are mainly designed to be used in self-learning. Specific parts can also be extracted and adapted for use in organizing and conducting training in groups and workshops. For example, appropriate parts of Modules A1-A5 may be incorporated into pre-service and in-service training programmes for school teachers and head-teachers, and into training courses in education planning and management for education administrators. Besides being used in training education administrators, researchers and analysts, the contents and approach adopted in Modules B1-B5 are also suitable for university courses on education research and analysis. It is recommended to also upload these training modules into the internet for direct interactive e-learning online.

The Modules A1-A5 and B1-B5 are structured following operational sequences, but each module can be used as an independent learning unit. Attention has been given to include a maximum number of cross-references. Depending on the profile and need of the learners, they can choose to focus on one or more specific modules, and follow the cross-references to access relevant elements and explanations in the other modules.

The training modules therefore try to incorporate as many examples and cases as possible, together with practical tips, do's and don'ts, activities, Q&A, and glossaries. A special effort has been made to identify and facilitate access to a maximum number of relevant references in the footnotes and the 'Further Studies' section at the end of each Module, for the learners to further broaden and deepen their understanding, knowledge and skills. To help to assess the learning outcomes, the learners are given the opportunity of doing a small quiz at the end of each modules, right before the section on 'Further Studies'. Countries are encouraged to translate and upload these training modules into the internet as well.

It is suggested that the first-time learners follow the sections in each module in the order they are presented, and refer to the cross-references to the Glossary, other sections or modules, and/or additional references in the footnotes and 'Further studies', before returning to continue the current section of the module under study. The activities and Q&A at the end of the sections help the learners to contextualize what has been learned into their own environment and conditions, and to consolidate and internalize the learning. After having completed each module, the learners can attempt

to respond to the quiz to assess learning outcomes. Unsatisfactory response to specific question(s) in the quiz may indicate inadequacies in understanding. Please re-read the corresponding section and additional references if needed, before re-taking and passing the quiz.

All persons using these training modules are encouraged to freely contribute comments and suggestions to further improve them for the benefit of other learners. Please do not hesitate to point out errors, omissions and inappropriate elements. If possible, please suggest appropriate corrections and further improvements. Concrete examples, experiences, cases, stories, tools and ideas for use in enriching these modules will also be most welcome. All such contributions may please be sent by email or mail to:

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Acronyms

ADEA	Association for the Development of Education in Africa
AIDS	Acquired Immune Deficiency Syndrome
ARMA	International Association of Records Managers and Administrator International
ASER	Age-Specific Enrolment Ratio
CD-ROMs	Compact Disc Read-only Memory
DEO	District Education Officer
DevInfo	United Nations Development Information System software
DHS	Demographic and Health Surveys
DISE	District Information System for Education
DR	Dropout Rate
DVDs	Digital Versatile Disc
ECCE	Early Childhood Care and/or Education
EFA	Education for All
EMIS	Education Management Information System
GER	Gross Enrolment Ratio
GINI	GINI Coefficient
GIR	Gross Intake Rate
GIS	Geographical Information System
GNP	Gross National Product
HIV	Human Immunodeficiency Virus
IEA	International Association for the Evaluation of Educational Achievement
ICT	Information and Communication Technologies
LAMP	Literacy Assessment and Monitoring Programme
LLL/CE	Lifelong learning/ Continuing Education
LSE	Lower Secondary Education
LSMS	Living Standard Measurement Surveys
MDGs	Millennium Development Goals
MEA	Monitoring, Evaluation, and Assessment

MICS	Multiple Indicators Cluster Surveys
MOE	Ministry of Education
NEP	NGO Education partnership
NER	Net Enrolment Ratio
NESIS	National Education Statistical Information System
NGO	Non-governmental organization
NIR	Net Intake Rate
OECD	Organization for Economic Co-operation and Development
PBR	Pupil/Textbook Ratio
PEO	Provincial Education Office
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
PR	Promotion Rate
RI	Representation Index

Module A1 School Records Management

EFA

SYSTEMATIC MONITORING OF EDUCATION FOR ALL

TRAINING MODULES FOR ASIA-PACIFIC

EFA

Module A1 : School Records Management

Module A1 | School Records Management

1 Purpose and expected learning outcomes

1.1 Overview

This module provides an introduction to the building blocks of a School Records Management System (SRMS). After completing this module, you will **be familiar with the key elements of a SRMS and the fundamentals of creating, managing and using a SRMS to gather, analyse and disseminate information about a school.**

This manual focuses on using SRMS as a tool for monitoring progress toward Education for All (EFA) goals. The content is applicable to basic educational institutions such as primary and lower secondary schools, but many of the principles and practices can also apply to other types of educational institutions.

1.2 Getting started

A school manager needed to make a quick decision about a major roof repair which will affect three classrooms, but he suddenly realized there was not enough information about the conditions of these classrooms and the classes using them so as to help him make a good and reliable decision to move or re-schedule the affected classes. He knows that some of the needed information can be gathered from within the school, but he will have to make a special effort and spend extra time and energy to collect and analyse the data. "Wouldn't it be good if we had already recorded all such information and it is available now," he muttered to himself.

"What happened after I decided to start school yesterday one hour later due to local floods and difficulties for children to come to school?" A school manager wants to know how such decisions have been implemented, and what has been the effect. To be able to check the attendance sheets that show how many students attended the delayed first class in the morning, would have helped him to know how effective was the decision, and what to do next time.

"Oh no! Not again! How can I find all these data to report to the Ministry of Education?" Filling out school census forms and reporting to higher levels can be a nightmare for many school managers, especially those who do not have a school records management system. Each time when they are asked to supply data, they are obliged to make a special effort to collect and summarize the data so they can meet the reporting deadlines. As a result of such last-minute rush, some of the data are either incomplete or inaccurate, or both.

1.3 Learning objectives

Through this training module:

School managers, inspectors, local and district education officers will:

- understand the **importance of keeping systematic records** of data and information about a school's activities.

- be aware that **effective management of schools – and of the whole school system – depends on the availability of quality data** that flow from individual schools to other parts of the education system.

- learn that **information from school records can be used to support evidence-based management** of schools, **to improve reporting to higher levels**, and to help **inform and mobilize support** from local stakeholders.

- develop the **practical skills** that are needed to manage and use school records.

Education policy-makers and administrators at the central and provincial level will:

- understand the need to **promote the practice of SRMS throughout the school system** and ensure all stakeholders understand the importance of systematically managing school data that is required for monitoring, policy and decisions-making, planning and management.

- know that **school records should be standardized** throughout the school system **to ensure consistency, reliability and comparability of data**.

- know how **to develop policies to govern the management of data** in the school system.

- be able to **provide instruction to schools** that will enable them to develop and manage a standardized SRMS.

- know how to **share responsibilities for establishing, implementing and ensuring compliance to a standardized SRMS among various actor**s in the education system, including district education officers, school inspectors and school managers.

2 What is a School Records Management System (SRMS)?

School records are documented evidence of what a school does. School records contain data and information about various aspects of a school's operations, including data about its students, teachers, classes, facilities and finances. The main purpose of a SRMS is to systematically record, store and update the school's data and information.

The information from the SRMS is used **to support evidence-based management of the school.** School managers regularly make decisions about their school's operations. **To make good decisions, school managers need information that is up-to-date and accurate.** A SRMS helps school managers to systematically collect, store and analyse information about their school so they have relevant and reliable information readily available to support decisions they make in running the school.

People who are responsible for making education policy – and for planning and managing the education system – realize that both the quantity and quality of data needed to support evidence-based decisions improve when schools systematically maintain and use school records.
Furthermore, improving data and information management in schools is crucial to decentralized management and accountability in the education system. The implementation of a SRMS can help to distribute accountability throughout the school system, and enable the schools to better inform and cooperate with their local communities.

2.1 The school records management process

A School Records Management System typically involves the following eight activities[1] (see Figure 1):

1. Creation – beginning a new record and starting to record data and information, for example creating a student record card for a new student.
2. Storage – keeping the records in an organized manner so they can be accessed by authorized people but kept secure from unauthorized access, loss or damage.
3. Update – adding new information to a record or modifying existing information in a record.
4. Retrieval – searching for, locating and extracting records from storage.
5. Use – applying information from the records to help make management and policy decisions.
6. Appraisal and retention – determining whether and how long a record should be:
   a. retained for active use;
   b. archived; or
   c. disposed of.
7. Archiving – storing inactive records so they can be later retrieved for use.
8. Disposal – discarding, deleting or destroying a record.

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1 Wikipedia. 9 May, 2011. Records Management. http://en.wikipedia.org/wiki/Records_Management (Accessed 26 May, 2011)

Figure 1. Activities in a typical SRMS
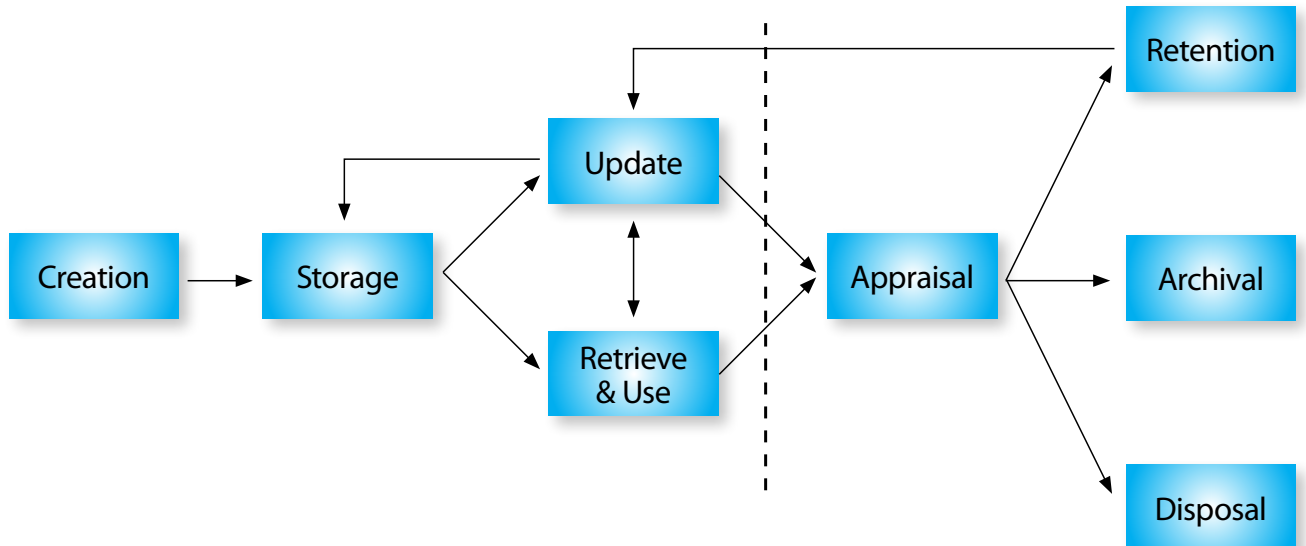
In a school, the SRMS has to involve various school staff to systematically record data and information about different aspects of the school's operations. **They use specific, pre-designed school record forms and follow procedures that are defined by school regulations and requirements.** Different staff can be responsible for different school records and procedures in recording, storing, updating and retrieving information. At the end of each school year, the records that have been accumulated are appraised to determine which records should be retained, archived or disposed of.

A good SRMS is characterized by **organized classification and filing of the school records in a way that makes it easy to search, access, retrieve and use the recorded data and information.**[2] Records about the same topic or issue are grouped and arranged in a logical order, such as by alphabetical order, chronological order, or sorted by other criteria. For example, individual student records can be classified and filed by grade, class or subject. Teacher records can be sorted according to years of service, and school facilities by type of facilities, etc.

If the information is recorded on paper, each file will group together all relevant supporting documents such as detailed inventories, receipts, invoices, payment records, copies of important correspondence and other related documents. If the records are computerized, such paper evidences can be scanned and stored in electronic format.

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2 Records Management Society of the United Kingdom. March 2008. Records Management Toolkit for School. http://www.rms-gb.org.uk/resources/848 (Accessed 25 May, 2011)

Computers can help to manage school records[3] by storing information in a way that allows for rapid sorting, searching and retrieval of data. Besides reducing the use and handling of papers, an additional advantage of a computerized system is that it can help to analyse the recorded data and quickly generate various summary statistics, performance indicators, tables and graphs, and even detailed school management information such as lists of students and teachers who were absent on a specific day, or list of equipment needing repair, etc. Computers can also be used to archive inactive school records in electronic form such as on CD-ROMs, DVDs or other media, for efficient storage and retrieval.

Each of the record management functions (items 1 to 8 above) has a direct influence on the availability of information and their use for school management. Since various people in a school generate and use information, poor recording of key school management information and poorly managed school records can seriously affect the efficiency and effectiveness of a school. To systematically manage school records, each person must assume their respective roles in creating and updating school records using correct records forms, terminology and practices, and submit the record files to the designated place of storage on time (see Section 4 for further details).

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3 Ramlan, Innovative Management in Education – The Malaysian Perspective: The Smart School Management System. Ministry of Education Malaysia. http://www.worldedreform.com/intercon2/11.pdf (Accessed 25 May, 2011)

ACTIVITY 1

Ask school managers in your local area, district, province, or country about their practices in school records management, and then answer the following questions:

For school managers and staff:

1. Does your school keep records of what is happening in school?
2. What kinds of records are kept in your school?
3. Who creates and updates which kind of records in your school? How well are they doing their SRMS tasks? What problems do they face? Do they feel they have adequate support from the school in terms of clear instructions, standards, forms and equipment to handle their SRMS tasks properly?
4. How do record-keeping practices in your school compare with the SRMS functions described in this section?
5. What do you think should be done in order to improve records management practices in your school?

For district and local education officers and school inspectors:

1. Do all the schools in your district or local area keep records of what is happening in their school? Based on the list of school record management activities outlined above, can you describe how their SRMS work?
2. What kinds of records are kept in these schools? What types of records are most commonly kept?
3. Who creates and updates which records in these schools? How well are they doing their SRMS tasks? What problems do they face? Do they feel they have adequate support from the school in terms of clear instructions, standards, forms and equipment to handle their SRMS tasks properly?
4. How do the records management activities in the schools in your district or local area compare with the SRMS functions described in this section?
5. What do you think should be done in order to improve records management in the schools in your district or local area?

For central and provincial education administrators:

1. Does your country or province have a SRMS policy?
2. If no, why has no SRMS policy been developed? Is there a need for such a policy? Why?
3. If yes, what percentage of schools implement the SRMS policy? How are they implementing it? What problems and difficulties do they face?
4. What kinds of records are kept in the schools in your country or province? What types of records are most commonly kept?
5. What needs to be done in order to further improve implementation of SRMS in schools?

3 What does a School Records Management System (SRMS) record?

Based on a review of school management practices in many countries,[4] school records should give priority to recording data and information about the following aspects of school:

1. **Students** – personal and family characteristics, previous educational experience, current grade, attendance, academic performance, behaviour, achievements/faults, outcomes (e.g. promotion to next grade, repeating grade, drop out, transfer, or graduation).
2. **Teachers** – personal characteristics, past education, qualification, pre-service and in-service teacher training received, years of service, employment status, subject specialization, class/subject taught, teaching load, special skills, attendance, performance, behaviour, achievements/faults.
3. **Finance** – school budget and income by source, expenditure by type, financial balance.
4. **Physical facilities** – quantity and conditions of school buildings, classrooms, furniture, equipment and other physical facilities; maintenance, repairs and new constructions; rate of utilisation.
5. **Teaching/learning materials** – quantity and conditions by type of material, new acquisitions, rate of utilisation.
6. **Learning achievement and outcomes** – results of tests, examinations and assessments (regarding academic, behavioural and other student attributes).
7. **Extra-curricular and co-curricular activities** – type of activities, schedules, staff involved, number of participants, results, impact.
8. **School and community interactions** – school management board meetings, parent-teacher association activities, school-and-community activities.

Based on good practices in school management and the need to monitor progress toward EFA goals, the following records are essential for SRMS in schools:[5]

1. Student record card
2. Class attendance sheet
3. Textbook record sheet
4. Student performance summary
5. Teacher record
6. Teacher performance evaluation report
7. Inventory of physical facilities
8. Inventory of furniture/equipment
9. Inventory of teaching/learning resource materials
10. Financial summary

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4 Chifwepa, V. NESIS module on Managing Records at School Level. http://www.adeanet.org/adeaPortal/adea/downloadcenter/NESIS/E-records-021065.pdf (Accessed 25 May, 2011)

5 Sub-sections 3.1 to 3.9 below show examples of these 10 types of school records, together with explanations and instructions. Please note that the design of the form, the suggested categories and data items shown in these examples can be adapted to suit the needs of individual countries and school systems.

These ten essential school records, when systematically kept, updated and used by all schools, will not only strengthen information management within the education system, but also enable each school, district, province and central education authorities to effectively monitor many aspects of EFA (see Module A3).

For school managers, administrative staff and teachers to better plan, organize, conduct, monitor and evaluate their daily school activities, additional school records may be created and used such as detailed financial ledgers, records of presence of school staff, records of use of school facilities and teaching-learning materials, school meals and scholarships, etc. Separate school records can be created and updated about extra-curricular and co-curricular activities organized, village education committee meetings, school management board meetings, parent-teacher association activities, other school-and-community activities, after each such activity has taken place.[6] Those additional records that are found to be most useful can become regular components of the school's SRMS.

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6 Udjuni. Udjuni School Management System. http://www.udjuni.com/login.php (Accessed 25 May, 2011)

ACTIVITY 2

Gather existing school records from your school or schools in your area, district, province, or country. Review and compare them with the eight key aspects of a school's operations and the ten essential school records described in this section. Then, answer the following questions:

For school managers and staff:

1. Which of the above eight aspects of school operations do you think should be given priority in a SRMS?

2. How closely do the records kept in your school correspond to these eight aspects and the ten essential school records?

3. What other aspects of a school's operations require systematic school records? Why?

4. What other additional record(s) should be kept in your school? Why?

5. How would you go about introducing these additional records?

For district and local education officers and school inspectors:

1. Which of the above eight aspects of a school's operations do you think should be given priority in a SRMS? What other aspects of a school's operations require systematic school records? Why?

2. How do existing records in the schools in your area correspond to the eight aspects of school operations and the ten essential school records? Please describe.

3 What other additional record(s) should be kept in schools in your area? Why?

4. Do you think all schools in your area should keep a common, standard set of school records? If yes, which records do you think should be standard? Why do you think all schools should keep a standard set of records?

For central and provincial education administrators:

1. In the schools in your country or province, which of the eight aspects of a school's operations should be given priority in a SRMS?

2. What other aspects of a school's operations require systematic school records? Why?

3. To your knowledge, how do existing records in the schools in your country or province correspond to the eight aspects of school operations and the ten essential records?

4. What other additional record(s) do you think schools in your country or province might need? Why?

5. Do you think all schools in your area should keep a common, standard set of school records? If yes, which records do you think should be standard? Why do you think all schools should keep a standard set of records?

6. What can be done to ensure that all the schools in your country or province keep a standardized set of school records?

3.1 Student record card

3.1.1 Purpose

Student record cards are used to record and manage information about individual students. The school creates a new student record card for each student when they enroll, to record information about the student's personal and family details. During the student's attendance at school, additional information about academic performance, progression, and changes in the personal and family details are included. Teachers and school administrators use student record cards to find detailed information about individual students, and to generate summary lists of students, data and indicators on enrolment, performance, grade repetition, drop out, sex ratios, age distribution, etc. The school uses this information to track and manage the students, to help teachers manage their classes, and to identify students who need counseling or extra teaching.

3.1.2 Content and presentation

Student record cards store information on the personal and family characteristics of each student when he/she enrolls in a school (see Example 1). It reserves fields for recording during the school year, additional information about individual student's academic performance, examination results, successes and failures, participation in school activities, behaviour, and observations by class teachers and head-teachers. Other information may also be included, such as whether the student receives a school meal, scholarship, free uniform, transportation, boarding and/or other incentives to attend school. In a SRMS, student record cards can be filed as record cards, on printed forms, as electronic records in a database, or using a combination of paper-based and electronic media. The student record card in Example 1 may be adjusted to suit national and local requirements and information needs.

3.1.3 Creation and use

The school staff member responsible for enrolment creates a record card for each student when he/she enrolls to attend the school. Each record is used for one school year and continues to be updated during the school year when there are changes in the student's personal and family data. Information is added at the end of each school term about the student's academic and behavioral performance as well as his/her progression in school. If the student continues his/her study at the same school in the following school year, a new student record will be created and the previous year's record will be archived. When a student transfers to another school, a copy of his/her records may be provided to the new school for reference. The same applies to new students transferred into this school. For students who dropped out of school, the item 'Dropped out' under 'Result' may be circled, together with the date of drop out so that action may be taken to bring the student back into school.

3.1.4 Storage, access and retention

Most schools keep their student record cards in the school manager's office in paper and/or electronic form. Only school management staff and the teachers responsible for teaching specific students can have access to their record. If feasible, computerized storage of student records can facilitate sorting, searching, retrieving and updating them. Each school should have a policy that specifies the period of time student records are kept. Ideally, student records are actively updated during one school year, and then archived and kept for a number of years so the school can track their performance over time and observe the progress of students after they leave school. Before student record cards are archived or destroyed, key information should be extracted to create summary lists or entered into a computerized database if that has not been done already.

Example 1. A Student Record Card

STUDENT RECORD

ID. No: .... Record creation date: ....

Student family name: .... First name: ....

Home address: ....

.... Telephone: ....

Sex: .... Date of birth: .... Place of birth: ....

Ethnicity:.. Religion: ....

Weight: .... Height: ....

Any physical or mental handicap: .... Blood type: ....

Any serious illness suffered: .... Any allergies: ....

Duration of travel from home to school: ....

Name of parent/guardian: ....

Relationship to the student: ....

Occupation: .... Highest level and grade attended: ....

Address: ....

.... Telephone: ....

Pre-school & school (s) previously attended by student	Starting date	Leaving date	Grade (s)	Results	Observations
1.					
2.					
3.					

Current Grade:.. Status (*Circle one*): New Entrant   Promotee   Repeater   In transfer

Performance record in grade:....................................... *(1 table for each school year)*

Subject	**1st Term**	**2nd Term**	**School year**
National language			
Foreign language			
Mathematics			
Science			
Social studies			
History			
Geography			
Physical education			
...			
Total number of school days			
Number of days absent			
Behaviour			
Result (*Circle one choice*):	Promoted to next grade	Repeat grade	Transferred out Dropped out

Observations on student behaviour: ....

....

Major areas of interests/hobby/skills/participation in extra-curricular activities:...

....

Overall observations by Head-teacher or senior teacher:..

ACTIVITY 3

Compare the student record card in Example 1 with existing student records that are used in your school, area, district, province, or country , and answer the following questions.

For school managers and staff:

1. How useful are student record cards for managing students in your school?

2. Are the questions and terms in Example 1 easy to understand? Is the design clear and is the form easy to fill out? Please circle any questions, terms and aspects of design you think are unclear or inappropriate, discuss with relevant school staff, and summarize the findings.

3. Do you find the instructions provided in this section clear and helpful? Any suggested improvements?

4. Which data items are relevant to your school? Which other data items are not relevant? Why?

5. What other data items should be added to the student record? Why?

6. How should the student record card look, taking into consideration your suggestions in questions 2-5 above?
   (Activity: Sketch your preferred new student record card and discuss with your colleagues in order to refine it.)

For district and local education officers and school inspectors:

1. How useful are student record cards for managing students in the schools in your area?

2. Are the questions and terms in Example 1 easy to understand? Is the design clear and is the form easy to fill out? Please circle any questions, terms and aspects of design you think are unclear or inappropriate, discuss with relevant school staff, and summarize the findings.

3. Do you find the instructions provided in this section clear and helpful? Any suggested improvements?

4. Which data items are relevant to the schools in your area? Which data items are not relevant? Why?

5. What other data items should be added to the student record? Why?

6. How should the student record card look, taking into consideration your suggestions in questions 2-5 above?
   (Activity: Sketch your preferred new student record card and discuss with your colleagues and school managers in order to refine it.)

For central and provincial education administrators:

1. In what way can the student record card in Example 1 be useful for the overall management of students in schools in your country or province? (Discuss this with your colleagues and some school managers, and summarize their suggestions).

2. Are the questions and terms in Example 1 easy to understand? Is the design clear and is the form easy to fill out? Please circle any questions, terms and aspects of design on the form you think are unclear or inappropriate, discuss with some relevant school staff, and summarize the findings.

3. Do you find the instruction provided in this section clear and helpful? Any suggested improvements?

4. Which data items, when summarized into tables, can be of particular interest to education administrators at central or provincial level?

5. What other data items should be added to the student record? Why?

6. If you were to standardize the student record card for all schools, how would you go about doing it?

3.2 Class attendance sheet

3.2.1 Purpose

Teachers use class attendance sheets to record the presence and absence of individual students. Schools can use these attendance sheets to calculate attendance rates by grade, class, sex, age in order to monitor the regularity and patterns of students attending class, and to generate lists of students with frequent absence from class, so that actions can be taken by the school and teachers to enquire into the causes of absence and to find ways to assist these student to regularly attend class. Example 2 shows a simple monthly class attendance sheet.

3.2.2 Content and presentation

A monthly class attendance sheet (see Example 2) contains essentially a list of names of students enrolled in a specific class, together with corresponding cells for each day of the month in which the class teacher records the presence and absence of individual students using specific symbols like those given below the attendance sheet in Example 2. At the end of each month, summary attendance indicators can be calculated such as attendance rate by day and the number of days absent for each student. By including additional columns with individual student information such as gender, age and other characteristics especially the duration of travel from home to school, the teacher and school management can monitor the pattern of student attendance and identify causes for absenteeism. Attendance sheets are usually in paper form but some schools or classes may be equipped to electronically record student attendance.

3.2.3 Creation and use

The school management or class teachers use individual student records to create monthly attendance sheets for each class. Teachers use these sheets to record the presence or absence of each student on each school day. School managers are responsible for defining the methods and the rules for recording class attendance (see symbols to be used at the bottom of Example 2), and for ensuring all the teachers consistently follow them. Class teachers and school managers use the completed class attendance sheets to count the number of days each student was absent and to calculate average student attendance rates. This helps the school to identify, analyse and solve problems of student absenteeism by grade, class, sex, age and other characteristics.

3.2.4 Storage, access and retention

Completed monthly class attendance sheets are kept as records at the school management office, where they are used to: (a) track student presence in classes; (b) identify frequently absent students; (c) calculate average student attendance rates; and (d) produce analytical tables of student absenteeism according to specific student characteristics. School records management policy may require monthly attendance records to be kept until the beginning of the next school year, before destruction. The calculated average student attendance rates for each class and grade may be maintained for use in comparing student attendance patterns from one school year to the next.

Example 2. Student Attendance Sheet

Grade: Class: Month: Year: Teacher:

Student name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	DA
1																																
2																																
3																																
4																																
5																																
6																																
7																																
8																																
9																																
10																																
11																																
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18																																
19																																
20																																
21																																
22																																
23																																
24																																
25																																
26																																
27																																
Attendance rate (%)																																

Symbols to use: - present   X absent   O sick   + requested absence   DA: Number of days absent

ACTIVITY 4

Carefully examine and compare the class attendance sheet in Example 2 with existing attendance sheet(s) and records used in your school, district, province or country, and answer the following questions:

For school managers and staff:

1. How have attendance sheets been used in your school to monitor students' attendance? What problems or issues did class teachers encounter while updating the attendance sheets? What were the lessons learnt?

2. Apart from the class attendance sheet, what other methods and tools has your school used to monitor student attendance? What were the results? List some advantages and disadvantages of the methods your school used.

3. Do you find the instructions provided in this section clear and helpful? What can be improved?

4. How should a class attendance sheet look, taking into consideration your comments above? *(Activity: Sketch a class attendance sheet and discuss with your colleagues in order to refine it.)*

For district and local education officers and school inspectors:

1. How have attendance sheets been used in the schools in your area to monitor students' attendance? What problems or issues did class teachers encounter while updating the attendance sheets? What were the lessons learnt?

2. Apart from the class attendance sheet, what other methods and tools have the schools in your area used to monitor student attendance? What were the results? List some advantages and disadvantages of the methods your school used.

3. Do you find the instructions provided in this section clear and helpful? What can be improved?

4. How should a class attendance sheet look, taking into consideration your comments above? *(Activity: Sketch a class attendance sheet and discuss with your colleagues in order to refine it.)*

For central and provincial education administrators:

1. How have attendance sheets been used in the schools in your country or province to monitor students' attendance? What problems or issues did class teachers encounter while updating the attendance sheets? What were the lessons learnt?

2. Apart from the class attendance sheet, what other methods and tools have the schools in your country or province used to monitor student attendance? What were the results? List some advantages and disadvantages of the methods your school used.

3. Do you find the instructions provided in this section clear and helpful? What can be improved?

4. How should a class attendance sheet look, taking into consideration your comments above? *(Activity: Sketch a class attendance sheet and discuss with your colleagues in order to refine it.)*

5. If you were to standardize and implement class attendance sheets in all schools, how would you go about doing it?

3.3 Textbook record sheet

3.3.1 Purpose

Every student should possess his own copy of basic learning materials such as textbooks by subject. **Textbook record sheets are created and used to monitor whether all the students in a class have all the textbooks required for all subjects.** Their main purpose is to record each student's possession of the required textbooks, and to identify students who do not have certain textbooks so that appropriate action can be taken to either directly obtain and distribute to them the missing textbook(s), or to contact the parents of the student in order to assist them in acquiring the text-books.

3.3.2 Content and presentation

A textbook record sheet (see Example 3) lists out the names of all the students in each class in a school, and records the number of copies each student possesses of textbooks required for each subject. A '0' is entered under a subject if the student does not have his/her own copy of the corresponding textbook. The list of subjects in the heading of the record sheet may be adjusted according to the kind of subjects offered in each grade, class and school.

3.3.3 Creation and use

The school creates textbook record sheets at the beginning of each school term. Teachers use these sheets to verify and record, in each class, whether every student has the textbook(s) required for that grade and each subject. Students who have '0' textbooks for any subject, or those who have less than the required quantity of textbooks, can be identified so that the class teacher and the school management can find out about the reasons and help these students to acquire the missing textbook(s). The school may use the records to calculate and compare the percentages of students without textbooks by class and by grade, and to analyse the patterns according to the characteristics of students and causes, so as to take appropriate actions. Textbook record sheets should be updated during each school term to monitor any loss or damage to textbooks. When some textbooks for a subject change from one school term to another, either update the existing textbook record sheet or create a new sheet for the new school term.

3.3.4 Storage, access and retention

Completed textbook record sheets are kept at the school management office, classified by class, grade or subject. Textbook record sheets may be kept for two or three years according to each school's SRMS policy, for use in monitoring the patterns of missing textbooks and actions taken to solve the problem over time. They can be accessed and used only by teachers who teach the corresponding class or group of students, and the school management.

Note: Similar record sheets may be created to monitor other learning materials, equipment and services that students should receive from the school, including school lunch, free uniforms, stationary supplies, scholarships or other incentives to attend school.

Example 3. Textbook Record Sheet

Textbook Record Sheet									
Grade: .... Class: .... School year: ....Term:									
Student Name	National Language	Foreign	Math	Science	Social Studies	History	Geography	Physical Education	Others
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
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16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									

(Indicate the number of copies of textbooks for each subject in the possession of each student.)

ACTIVITY 5

Carefully examine the textbook record sheet in Example 3, discuss with teachers and school staff in your school, district, province or country about their practices and problems in monitoring textbooks, and then answer the following questions:

For school managers and staff:

1. How do you and teachers of your school monitor the availability and supply of textbooks? What kind of records does your school keep to monitor textbooks?

2. How closely do the textbook record sheet in Example 3 and monitoring practices described in this section correspond to the needs and practices in your school? Which aspects are relevant, and which are irrelevant? Why?

3. Are the above instructions for the textbook record sheet clear and helpful? What can be improved?

4. What other information about textbooks should be collected by schools?
   (Activity: Sketch a textbook record sheet, discuss it with your teachers, and refine it according to their suggestions.)

5. How would you go about monitoring textbooks in your school in the future?

For district and local education officers and school inspectors:

1. How do schools in your area monitor the supply and distribution of textbooks? Discuss with some school managers and teachers in your area about the need for and practices in monitoring textbooks, and summarize their experiences and views.

2. How closely do the textbook record sheet in Example 3 and the monitoring practices described in this section correspond to the needs and practices in the schools in your area? Which aspects are relevant, and which are irrelevant? Why?

3. Are the above instructions for the textbook record sheet clear and helpful? What can be improved?

4. What other information about textbooks should be collected by schools in your area?
   (Activity: Sketch a textbook record sheet, discuss it with experienced school managers and teachers in your area, and refine it according to their suggestions.)

5. How would you go about monitoring textbooks in the schools in your area in the future?

For central and provincial education administrators:

1. To your knowledge, what kinds of records have the schools in your country or province used to monitor textbooks? Discuss with some district education officers, school managers and teachers about the need for and practices in monitoring textbooks, and summarize their experiences and views.

2. How closely do the textbook record sheet in Example 3 and the monitoring practices described in this section correspond to the needs of schools in your country or province? Which aspects are relevant, and which are irrelevant? Why?

3. Are the above instructions for the textbook record sheet clear and helpful? What can be improved?

4. What other information about the distribution of textbooks should be collected by schools in your country or province?
   (Activity: Sketch a textbook record sheet, discuss it with experienced school managers and teachers in your country or province, and refine it according to their suggestions.)

5. How would you go about monitoring textbooks in the schools in your country or province in the future? Will you standardize this record and the monitoring practices? If yes, how?

3.4 Student performance summary

3.4.1 Purpose

Student performance summaries monitor the academic and behavioural performance of a class of students (See Example 4). They are useful for recording, comparing and analysing the scores obtained by individual students in examinations and assessments on various subjects during a school term or school year, and to identify the top, average and low performers in a class. Teachers and school management use these results to take action to improve teaching-learning processes, examination questions or assessment tasks, and to specially help the low performers. Student performance summaries for consecutive school terms or school years may be used to monitor how the performance of individual students changed over time. Once an individual student's performance results are validated, they may be added to the corresponding student record cards (see Example 1).

3.4.2 Content and presentation

The student performance summary records the scores obtained by individual students in a class on different subject examinations or assessments (See Example 4). A student performance summary sheet lists the names of all the students in a class and the subjects which have been taught or assessed during a school term or school year. It records the scores obtained by each student in examination or assessment on these subjects. Depending on schools, this summary may also include the observations teachers make about each student's behaviour. If needed, information about individual student characteristics such as gender, age and other relevant attributes may also be added to the student performance summary sheet so that the class teachers and school managers can analyse student performance patterns against various individual characteristics. Then they can identify appropriate action to assist those students with learning difficulties.

3.4.3 Creation and use

When the scores from tests, examinations and assessments are available at the end of each school term and school year, the teacher who is in charge of each class creates a student performance summary by recording each student's score by subject. Both class and subject teachers use such student performance summaries to monitor and compare their student's performance, and to identify students with learning problems who need remedial support. School managers can also use these summaries to monitor individual teachers' use of examinations and assessments as part of teaching-learning processes. Behavioural performance can be recorded after the first behavioural assessment 1-3 months after the beginning of the school year. It is continuously updated and used as reference by all the teachers who teach this group of students. The school's managers also use the behavioural performance summary to record and monitor the students' behavioural patterns and incidences, awards and/or punishments given, and to arrange for further remedial or disciplinary measures if needed.

3.4.4 Storage, access and retention

Completed student performance summaries are kept at the school management office. They can be accessed and used only by those teachers who teach the corresponding group of students, and the school management. The student performance summaries should be maintained at the school for a period of five or more years, so that they can be used for comparing over time the performance of individual students or of different groups of students who study the same subject(s).

Example 4. Student Performance Summary

Student Performance Summary

Grade: .... Class: .... School year:...Term:...

Student Name	National Language	Foreign Language	Math	Science	Social Studies	History	Geography	Physical Education	Behaviour
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
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42									

ACTIVITY 6

Carefully examine the student performance summary in Example 4 and compare it with existing student performance summaries and records used in your school, district, province or country. Then, answer the following questions:

For school managers and staff:

1. What kinds of records are used in your school to monitor student performance? Discuss with the class/subject teachers about the advantages and disadvantages of each type of record, and list the lessons learnt and suggestions for how to improve the system in the future.

2. How closely does the student performance summary sheet in Example 4 correspond to the needs and practices in your school? Which aspects are relevant, and which are irrelevant? What else should be included in such a record?

3. Are the instructions for student performance summary in this section clear and helpful? What can be improved?

4. How should a student performance summary look, taking into consideration your comments above? *(Activity: Sketch a student performance summary and discuss with your colleagues in order to refine it.)*

For district and local education officers and school inspectors:

1. What kinds of records are used in the schools in your area to monitor student performance? Discuss with some class/subject teachers and school managers about the advantages and disadvantages of these records, and list the lessons learnt and suggestions for improving student performance records in the future.

2. How closely does the student performance summary in Example 4 correspond to the needs and practices of the schools in your area? Which aspects are relevant, and which are irrelevant? What else should be included in such a record?

3. Are the instructions for student performance summary in this section clear and helpful? What can be improved especially when used in your work to supervise and support the schools?

4. How should a student performance summary look, taking into consideration your comments above? *(Activity: Sketch a student performance summary and discuss with your colleagues in order to refine it.)*

For central and provincial education administrators:

1. To your knowledge, what kinds of records are used in the schools in your country or province to monitor student performance? Obtain some samples of these and discuss with class/subject teachers and school managers about the advantages and disadvantages of each type. List the lessons learnt and suggestions for improving student performance summaries in future.

2. How closely does the student performance summary in Example 4 correspond to the needs and practices of the schools in your province or country? Which aspects are relevant, and which are irrelevant? What else should be included in such a record?

3. Are the instructions for student performance summary in this section clear and helpful? What can be improved especially for use by district education officers, inspectors and school managers and teachers?

4. How should a student performance summary look, taking into consideration your comments above? *(Activity: Sketch a student performance summary and discuss with your colleagues in order to refine it.)*

5. If you were to standardize and implement student performance summaries in all schools, how would you go about doing it?

3.5 Teacher record card

3.5.1 Purpose

A teacher record is created for each teacher who teaches in a school. It **records each teacher's personal, educational and employment characteristics and information about the teacher's role and responsibilities at the school** (see Example 5). The school manager can use the teacher record cards to look up and compare the educational background, experience, competencies and aptitude of teachers to determine their assignments, duties, responsibilities and workload. Through updates based on periodic evaluation of teacher performance (see Section 3.6), school management can improve career development opportunities for teachers and give them more suitable work assignments. When individual teacher records are tallied and summarized, the resulting lists and tables can give an overall picture of the composition of the teaching staff by sex, age, qualification, work assignment and performance, thereby showing the availability, gaps, strengths and weaknesses of the teaching staff in the school. Some of these data can also be used for reporting during annual school censuses (see Module A2).

3.5.2 Content and presentation

Teacher records are individual records that include information about the personal and academic details of teachers in a school, and particulars about their previous work experiences and current responsibilities (see Example 5). Like student records, teacher records can incorporate key results from periodic evaluations of each teacher's performance. Information about pre-service and in-service teacher training each teacher has received, as well as plans for future career development may also be included in the teacher's record.

3.5.3 Creation and use

Teacher records are created when a new teacher joins a school. The school manager is responsible for ensuring that the record is complete and the information is correct and accurate, before validation for the teacher record to be maintained at the school and the information entered into the computerized teacher database. The same procedure applies when information updates and new performance evaluation results are added to the record. Teacher records are used by school managers and education administrators at district/provincial level and/or the Ministry of Education to manage the assignments, working conditions, transfers, promotions, in-service training, discipline and career development opportunities for teachers.

3.5.4 Storage, access and retention

Teacher records are confidentially kept in the school management office, and continuously updated when new information or performance evaluation results become available. If possible, all or part of the information in teacher records can also be entered into computerized storage in a teacher database either at the school or at the Ministry of Education. Some countries have a central teacher service register that can be used to facilitate sorting, searching, retrieval, processing and use of the information about teachers. When a teacher retires, resigns, dies or transfers out of the school, the teacher's record can be archived, but should not be destroyed.

Example 5. Teacher Record

TEACHER RECORD

School name: .... File number: ....

A. PERSONAL DETAILS

Family name: .... First name: ....Home address: ....

....Telephone: ....

Sex: .... Date of birth: ...... Place of birth:...............................Nationality: ....

Ethnicity: ....Language spoken: ....National identity number: ....

Passport number: ....Marital status: ....Number of children: ....

Boys: ....Girls:........................Religion: ....Any physical or mental disability: ....

Any major illness suffered: ....

B. CONTACT PERSON

Name of contact person:.. Relationship: ....

Contact address: ....

.... Telephone: ....

C. EMPLOYMENT HISTORY

Previous position	Name and contact address of employer	Dates
1.		
2.		
3.		

Date of first appointment as teacher:.. Date of appointment at this school: ....

Current employment status *(circle one)*:   Permanent   Contractual   Probation   Temporary   Other

Date of last promotion:.. Date of end of contract: ....

Present position: .... Present salary scale: ....

D. QUALIFICATION AND SPECIALIZATION

Academic qualifications	Institution	Year received
1.		
2.		
3.		

Teacher training received	Institution	Year received
1.		
2.		
3.		

Other training received	Institution	Year received
1.		
2.		
3.		

Subject specialization: Major .... Minor...

Teaching subject(s): Major .... Minor...

Special skills: ....

Number of teaching hours per week:..

Date:... Signature: ....

ACTIVITY 7

Carefully examine the teacher record in Example 5 and compare it with existing teacher records used in your school, district, province, or country. Then, answer the following questions:

For school managers and staff:

1. Are teacher records useful for managing teachers in your school? Why?

2. Are the questions and terms easy to understand? Is the design clear and easy to fill out? Indicate by circling the questions, terms and parts of design that might be problematic, for discussion.

3. Are the above instructions for the teacher record clear and helpful? What can be improved?

4. Which data items are relevant to your school? Which other data items are not relevant? Why?

5. What other data items should be added to the teacher record? Why?

6. How should the teacher record look, taking into consideration your suggestions above?
   (Activity: Sketch a teacher record and discuss with your colleagues in order to refine it.)

For district and local education officers and school inspectors:

1. Are teacher records useful for managing teachers in the schools in your area? Why?

2. Are the questions and terms easy to understand? Is the design clear and easy to fill out? Indicate by circling the questions, terms and parts of design that might be problematic, for discussion with school managers in your area.

3. Are the above instructions for the teacher record clear and helpful especially for your work in supervising and supporting the schools in your area? What can be improved?

4. Which data items are relevant to the schools in your area? Which other data items are not relevant? Why?

5. What other data items should be added to the teacher record? Why?

6. How should the teacher record look, taking into consideration your suggestions above?
   (Activity: Sketch a teacher record and discuss with your colleagues and school managers in order to refine it.)

For central and provincial education administrators:

1. In what way can this teacher record be useful for the overall management of teachers in the schools in your province or country?
   (Activity: Talk to your colleagues and some school managers, and summarise their observations.)

2. Do you find the questions and terms easy to understand? Is the design clear and easy to fill out? Indicate by circling the questions, terms and parts of design that might be problematic, for discussion with your colleagues and some school managers.

3. Do you find the above instructions for the teacher record clear and helpful? What can be improved?

4. Which data items in the teacher record in Example 5, when summarised, can be of particular interest to education administrators at the provincial or central level?

5. What other additional data items should be added to the teacher record? Why?
   (Activity: Sketch a teacher record and discuss with your colleagues in order to refine it.)

6. If you were to standardize the teacher record for all schools, how would you go about doing it?

3.6 Teacher performance evaluation report

3.6.1 Purpose

To improve teaching and learning at school, teacher performance evaluation can be organized on a periodic basis for each teacher, and the results can be summarised in individual reports (see Example 6). Such reports can be used by the school management and higher levels of the education administration to improve the assignment of teachers and to determine continuation of employment, transfer, promotion, demotion, further training, award or disciplinary measures. For the purpose of school improvement, it is important that such reports are systematically produced and kept at the school for reference in the management of teachers. As and when they become available, key performance evaluation results can also be added to the corresponding individual teacher record for future reference.

3.6.2 Content and presentation

A teacher performance evaluation report[7] (see Example 6) presents the results of an evaluation of a teacher's aptitude and actions in: (a) planning and organizing teaching-learning events; (b) using instructional techniques and strategies; (c) adhering to established curricular objectives; (d) creating a conducive learning environment; (e) implementing national and school policies, norms, rules and regulations; (f) teamwork with other teachers, school staff and substitutes; (g) keeping accurate and timely records and providing data when required; (h) communication with students, parents and local community members; (i) participating in supporting co-curricular, extra-curricular and other activities at school. A teacher's performance for each of these attributes can be scored numerically to compare teacher performance by individual attributes and the total of all attributes.

3.6.3 Creation and use

Each teacher's performance should be evaluated at least once a year, towards the end of the school year. The evaluator(s) score each teacher's performance according to each attribute, then record the scores in an evaluation report. In consultation with the teacher who has been evaluated, the school manager reviews, checks and validates the report, then stores it confidentially for use in managing the employment and career development of the teacher. The key findings of these reports are also summarized and reported to higher levels of the educational administration. Individual teachers can learn about their strengths and weaknesses from the report and take action to improve their work and to plan their own career development.

3.6.4 Storage, access and retention

Teacher performance evaluation reports are kept confidentially at the school management office, with restricted access granted only to top school management staff and the corresponding teacher. Key results of the evaluation can be added to the relevant teacher record for reference. Once created and validated, such reports will not be modified. When a new evaluation takes place, the new report will be added to past reports as an update. When a teacher retires, resigns, leaves or transfers elsewhere, the corresponding evaluation report can be archived at the school. Only when it is learned that the teacher has died can the report be destroyed.

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7 Hermosa Beach City School District: Guide to performance evaluation for teachers. (see http://hbcsd.org/contract/images/Appendix%20E. PDF) (Accessed 25 May, 2011)

Example 6. Teacher performance evaluation report

TEACHER PERFORMANCE EVALUATION

Name: .... Date: ....

Position: .... Grade(s) taught:...

Subjects taught: .... Hours per week: ....

Observation dates: ....Review dates: ....

Scoring: Please tick an appropriate box for each evaluation item according to the scores below.

1 PERFORMANCE IN THIS AREA IS UNSATISFACTORY/NOT MEETING STANDARDS
2 SATISFACTORILY MEETS STANDARDS OF EXPECTATIONS MOST OF THE TIME
3 SATISFACTORILY MEETS STANDARDS OF EXPECTATIONS ALL OF THE TIME

A. **PLANNING**	1	2	3
a. Systematically plans for instruction			
b. Assesses students on course objectives as required.			
c. Provides for instruction of students with exceptional needs			

EVALUATOR COMMENTS:

B. **INSTRUCTIONAL TECHNIQUES AND STRATEGIES**	1	2	3
a. Selects appropriate lesson objectives for curricular adherence and/or student level			
b. Selects teaching methods and practices strategies appropriate to the accomplishment of the objective			
c. Adjusts teaching techniques to meet the needs of the students			
d. Presents materials clearly			
e. Monitors student progress and understanding throughout the lesson/unit			

EVALUATOR COMMENTS:

C. **ADHERENCE TO CURRICULAR OBJECTIVES**	1	2	3
a. Adheres to curricular objectives and goals while considering students' individual differences			
b. Uses appropriate instructional materials, as available			
c. Provides for instruction of students with exceptional needs			

EVALUATOR COMMENTS:

D. **ESTABLISHMENT AND MAINTENANCE OF A SUITABLE LEARNING ENVIRONMENT**	1	2	3
a. Provides an educational environment to reflect subject areas taught; stimulates student achievement			
b. Maintains student discipline and classroom control consistent with school standards			
c. Maintains an orderly and safe physical environment			

EVALUATOR COMMENTS:

E. **PROFESSIONAL ACTIVITIES**	1	2	3
a. Employs grading practices which are consistent with school and national grade level policies			
b. Provides plans and materials for substitutes			
c. Keeps accurate, timely records and provide requested data from them			
d. Communicates with students, parents, and other personnel in a professional manner			
e. Participates in curriculum review and revision, and school plan development and implementation			
f. Actively supports co-curricular and extra-curricular activities			
g. Assumes responsibilities in accordance with school policies			

EVALUATOR COMMENTS:

EVALUATOR OVERALL COMMENTS: OVERALL RATING:

Re-Employment recommendation: Retain   Retain but must   Do not retain   Refer to
(*Circle one choice only*)   show improvement   School Board

SIGNATURE EVALUATOR ....DATE ....

SIGNATURE EVALUATEE ....DATE ....

This report has been reviewed and discussed with me in consultation with the evaluator. An opportunity has been extended to me to append comments regarding this evaluation.

(A SIGNATURE ON THIS FORM DOES NOT NECESSARILY SIGNIFY AGREEMENT WITH THE EVALUATION.)

ACTIVITY 8

Carefully examine the teacher evaluation report in Example 6, review the instructions above, and then answer the following questions:

For school managers and staff:

1. What kinds of records are used in your school to monitor teacher performance? Discuss with other school managers about their practices and experience with these records, the advantages and disadvantages of evaluating teacher performance, and list the lessons learnt and suggestions for the future.

2. How closely does the teacher performance evaluation report in Example 6 correspond to the needs and practices in your school? Which of its parts are relevant, and which are irrelevant? What other information should be kept in such a record?

3. Are the instructions for the teacher performance evaluation report in this section clear and helpful? What can be improved?

4. How should a teacher performance evaluation report look, taking into consideration your comments above? *(Activity: Sketch a teacher performance evaluation report and discuss with your colleagues in order to refine it.)*

For district and local education officers and school inspectors:

1. What kinds of records are used in the schools in your area to monitor teacher performance? Discuss with school managers in your area about their practices and experience with these records, the advantages and disadvantages of evaluating teacher performance, and then list the lessons learnt and suggestions for the future.

2. How closely does the teacher performance evaluation report in Example 6 correspond to the needs and practices of the schools in your area? Which of its parts are relevant, and which are irrelevant? What other information should be kept in such a record?

3. Are the instructions for the teacher performance evaluation report in this section clear and helpful? What can be improved to support your work in supervising and supporting the schools?

4. How should a teacher performance evaluation report look, taking into consideration your comments above? *(Activity: Sketch a teacher performance evaluation report and discuss with your colleagues and some experienced school managers in your area in order to refine it.)*

For central and provincial education administrators:

1. To your knowledge, what kinds of records are used in the schools in your country or province to monitor teacher performance? Gather some samples and discuss with school managers and district education officers about their practices and experience with these records, the advantages and disadvantages of evaluating teacher performance, and then list the lessons learnt and suggestions for the future.

2. How closely does the teacher performance evaluation report in Example 6 correspond to the needs and practices of the schools in your province or country? Which of its parts are relevant, and which are irrelevant? What else should be included in such a record?

3. Are the instructions for the teacher performance evaluation report in this section clear and helpful? What can be improved to support the work of district and local education officers in supervising and supporting the schools, and of school managers?

4. How should a teacher performance evaluation report look, taking into consideration your comments above? *(Activity: Sketch a teacher performance evaluation report and discuss with your colleagues and some experienced school managers in order to refine it.)*

5. If you were to standardize and implement teacher performance evaluation reports in all schools, how would you go about doing it?

3.7 Inventories of school facilities

3.7.1 Purpose

The main purposes of keeping and updating inventories of school facilities are: **(a) to record the number of buildings, classrooms, furniture, equipment and other physical facilities; (b) to monitor the conditions of these facilities in order to determine maintenance work, repairs, replacements and new construction/acquisitions; (c) to assess the physical capacity of the school in relation to the number of students and the scale of school operations.** If needed, such inventories can also include data on the frequency of use of specific facilities to ensure that they are being fully utilized.

3.7.2 Content and presentation

An inventory of physical facilities (see Example 7 for buildings, classrooms, school grounds and other structures, and Example 8 for furniture and equipment) contains summary tables of the quantity of different school facilities and information about their condition and use. If needed, the inventory can also record information about past repairs, replacements and new constructions or acquisitions. Each country or local school can identify and define the most common types of school facilities, furniture and equipment, and adapt the tables accordingly. If deemed important, additional data about the material used for the building, roof and/or floor, lighting, ventilation and noise level may be recorded. In some schools, certain school facilities are not used either due to poor condition of the structure, or because there are inadequate numbers of students or teachers. It can be useful to know the degree to which various school facilities are over- or under-utilized, so actions can be taken to improve their rate of use.

3.7.3 Creation and use

Staff within the school management who are responsible for the acquisition, maintenance, repair and replacement of school facilities create and update these inventories. Inventories of school facilities should be created when the school first opens, and be updated whenever changes occur such as new constructions or acquisitions, damages or destruction. Before the start of each school year, the school management must update these inventories in order to prepare enough capacity for handling the upcoming school activities, students and teachers. The updated inventories will inform decisions for maintenance work, repairs, replacements, new constructions or new acquisitions. These inventories can also help the school management to determine how to ensure these school facilities can be fully utilized during the new school year.

3.7.4 Storage, access and retention

Inventories of school facilities are kept at the school management office. Access to the school inventory records should be restricted to school management staff only. Construction plans and maintenance schedules must be systematically kept as evidence of new acquisitions, constructions and repairs, together with the invoices, purchase orders, receipts and other documents from the suppliers or constructors. All these documents should also be kept for accounting purposes. If possible, data and information about school facilities can be entered into computerized storage in the school database, to facilitate updates, search, retrieval and use for planning and commissioning maintenance, new acquisitions or construction work. Inventories of school facilities are created and maintained continuously from one school year to another, as long as such facilities are available. Records of school facilities that are no longer available or used can be archived for future reference.

Example 7. Inventory of school facilities

INVENTORY OF SCHOOL FACILITIES

1. BUILDINGS, CLASSROOMS AND OTHER BUILT STRUCTURES Date: ....

Type of structure	Quantity in use			Quantity not used	Total surface area (m²)	Remarks
	Total	To repair	To replace			
Buildings						
Classrooms						
Teacher rooms						
Administration rooms						
Library						
Laboratory						
Storage rooms						
Toilets						
Water facility						
Electric facility						
…						
…						
…						
…						
…						
…						
…						

2. SCHOOL GROUND

Type	Area in use (m²)		Area not used (m²)	Total surface area (m²)	Remarks
	Total	To repair			
Playground					
Garden					
School farm					
Bicycle/car park					
…					
…					
…					
…					
…					
…					
…					
…					
…					

Example 8. Inventory of school equipment and furniture

INVENTORY OF FURNITURE AND EQUIPMENT

1. FURNITURE   Date:…………………………………………

Type of furniture	Quantity in use			Quantity not used	Remarks
	Total	To repair	To replace		
Classroom desks					
Classroom chairs					
Teacher desks and chairs					
Blackboard					
Whiteboard					
Cupboards					
Open shelves					
…					
…					
…					
…					
…					
…					

2. EQUIPMENT

Type of equipment	Quantity in use			Quantity not used	Remarks
	Total	To repair	To replace		
Telephone					
Calculators					
Photocopier					
Computers					
Printers					
Projectors					
Scanners					
Radio					
TV					
DVD					
Science equipment					
Language equipment					
Art and craft					
Sports equipment					
…					
…					
…					

ACTIVITY 9

Carefully examine the instructions above and the sample inventories of school facilities, furniture and equipment in Examples 7 and 8. Compare these with existing inventories and records used in your school, district, province or country, and then answer the following questions:

For school managers and staff:

1. What kind of inventories and records are used in your school to monitor school facilities, furniture and equipment? Discuss with the relevant school staff about their practices and experiences as well as the advantages and disadvantages of these records, and list the lessons learnt and suggestions for improving them.

2. How closely do the inventories of school facilities, furniture and equipment in Examples 7 and 8 correspond to the needs and practices in your school? Which parts are relevant, and which are irrelevant? What other information should be kept in such inventories?

3. Are the instructions in this section for the inventories of school facilities, furniture and equipment clear and helpful? What can be improved?

4. How should such inventories of school facilities, furniture and equipment look, taking into consideration your comments above?
   (*Activity: Sketch inventories of school facilities, furniture and equipment and discuss with your colleagues in order to refine the*m.)

For district and local education officers and school inspectors:

1. What kind of inventories and records are used in the schools in your area to monitor school facilities, furniture and equipment? Discuss with school managers and relevant school staff in your area about their practices and experiences as well as the advantages and disadvantages of these records, and then list the lessons learnt and suggestions for improving them.

2. How closely do the inventories of school facilities, furniture and equipment in Examples 7 and 8 correspond to the needs and practices of the schools in your area? Which parts are relevant, and which are irrelevant? What other information should be kept in such inventories?

3. Are the instructions in this section for the inventories of school facilities, furniture and equipment clear and helpful? What can be improved?

4. How should such inventories of school facilities, furniture and equipment look, taking into consideration your comments above? (Activity: Sketch inventories of school facilities, furniture and equipment and discuss with school managers and relevant school staff in your area in order to refine them.)

For central and provincial education administrators:

1. To your knowledge, what kind of inventories and records are used in the schools in your country or province to monitor school facilities, furniture and equipment? Discuss with some experienced school managers and relevant school staff about their practices and experiences as well as the advantages and disadvantages of these records, and list the lessons learnt and suggestions for improving them.

2. How closely do the inventories of school facilities, furniture and equipment in Examples 7 and 8 correspond to the needs and practices in the schools in your province or country? Which parts are relevant, and which are irrelevant? What other information should be kept in such inventories?

3. Are the instructions in this section for the inventories of teaching/learning materials clear and helpful? What can be improved?

4. How should the inventories of teaching/learning materials look, taking into consideration your comments above?
   (*Activity: Sketch inventories of teaching/learning materials and discuss with some experienced school managers and school staff in order to refine them.*)

5. If you were to standardize and implement inventories of teaching and learning materials in all schools, how would you go about doing it?

3.8 Inventory of teaching/learning materials[8]

3.8.1 Purpose

Teaching and learning materials are essential for supporting teaching-learning processes in school. Their availability, conditions and use determines the quality and outcomes of education. Schools that receive teaching and learning materials from central or provincial education authorities should keep inventories of these materials, and encourage teachers and students to access and use them throughout the school year. **Such inventories will also enable the school to ensure that all students have the necessary learning materials including textbooks,[9] and to replenish those teaching/learning materials that are, or will be, in short supply.** Requests for teaching/learning materials from the schools that are based on up-to-date inventories will inform and help central and/or provincial education authorities to more reliably and efficiently plan their production and distribution.

3.8.2 Content and presentation

An inventory of teaching and learning materials (see Example 9) consists of summary tables of the quantity of various materials available at the school, such as teaching aids; textbooks by grade and by subject; supplementary reading and learning materials; and sports, music, arts, and practical work equipment and materials. If appropriate, additional information about new acquisitions, distribution to students, frequency of use, damage and disposal can be included in the inventory. Inventories of teaching materials and some shared learning materials may also record the number of times each material has been used per week or per month, so that utilization rates can be calculated to help in improving their use. Each country must take prevailing practices in the country into account to determine which type of teaching and learning materials should be inventoried in school.

3.8.3 Creation and use

Inventories of teaching/learning materials are created and maintained by school staff members who are responsible for managing the stock, distribution and use of such materials. Such inventories should be given a major update at the beginning of every school year to ensure that all the students and teachers have the necessary teaching and learning materials. Obsolete or irrelevant materials can be disposed of at the same time. During the school year, these inventories are continuously updated based on new acquisitions, distributions, damage and disposal. The school management uses the inventory to monitor the quantity, distribution and/or use of various teaching and learning materials so as to identify shortages and gaps. This allows the management to get new supplies, make new acquisitions, and to ensure that the materials are optimally distributed and used. School inspectors can be required to systematically verify these inventories during school visits.

3.8.4 Storage, access and retention

The inventories are kept at the school management office. Access should be restricted to school management staff, relevant teachers and inspectors. If possible, the data and information can also be entered into computerized storage in the school database to facilitate tracking, updates, search, retrieval and use. The inventory of teaching and learning materials should be continuously maintained and updated for as long as the school is in operation.

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8 Siders, K. How to Work with Teaching Aids. http://www.howtodothings.com/education/a3096-how-to-work-with-teaching-aids.html (Accessed 25 May, 2011)

9 See also Section 3.3 and Example 3.

Example 9. Inventory of teaching and learning materials

<table>
<tr><td colspan="6" align="center">INVENTORY OF TEACHING AND LEARNING MATERIALS</td></tr>
<tr><td colspan="3">1. TEACHING MATERIAL</td><td colspan="3">Date: ....</td></tr>
</table>

Type of teaching material	Quantity in use			Frequency of use (per week)	Remarks
	Total	To repair	To replace		
Maps					
Wall charts					
Flip charts					
Flash cards					
Kits					
Scientific models					
Toys					
…					
…					
…					
…					

2. SUPPLEMENTARY LEARNING MATERIALS

Type of supplementary learning materials	Quantity in use			Frequency of use (per week)	Remarks
	Total	To repair	To replace		
Books					
Newspapers					
Magazines					
Charts					
Kits					
Models					
Sports equipment					
Music instruments					
Visual art instruments					
Audio tapes, CD-ROM & DVDs					
Video tapes, CD-ROM & DVDs					
Access to computers					
Access to the Internet					
…					
…					
…					

ACTIVITY 10

Carefully examine the instructions above and the inventories of teaching and learning materials in Example 9. Compare it with existing inventories and records used in your school, district, province or country, and then answer the following questions:

For school managers and staff:

1. What kind of inventories and records are used in your school to monitor teaching and learning materials? Discuss with teachers and relevant school staff about their practices and experiences as well as the advantages and disadvantages of these inventories, and list the lessons learnt and suggestions for improvement.

2. How closely do the inventories of teaching and learning materials in Example 9 correspond to the needs and practices in your school? Which parts are relevant, and which are irrelevant? What other information should be kept in such inventories?

3. Are the instructions in this section for the inventories of teaching/learning materials clear and helpful? What can be improved?

4. How should the inventories of teaching/learning materials look, taking into consideration your comments above? *(Activity: Sketch inventories of teaching/learning materials and discuss with your colleagues in order to refine them.)*

For district and local education officers and school inspectors:

1. What kind of inventories and records are used in the schools in your area to monitor teaching and learning materials? Discuss with experienced school managers, teachers and relevant school staff about their practices and experiences as well as the advantages and disadvantages of these inventories, and list the lessons learnt and suggestions for improvement.

2. How closely do the inventories of teaching and learning materials in Example 9 correspond to the needs and practices in the schools in your area? Which parts are relevant, and which are irrelevant? What other information should be kept in such inventories?

3. Are the instructions in this section for the inventories of teaching and learning materials clear and helpful? What can be improved?

4. How should the inventories of teaching/learning materials look, taking into consideration your comments above? *(Activity: Sketch inventories of teaching/learning materials and discuss with experienced school managers and school staff in your area in order to refine them.)*

For central and provincial education administrators:

1. To your knowledge, what kind of inventories and records are used in the schools in your country or province to monitor teaching and learning materials? Discuss with experienced school managers, teachers and relevant school staff about their practices and experiences as well as the advantages and disadvantages of the inventories, and list the lessons learnt and suggestions for improvement.

2. How closely do the inventories of teaching and learning materials in Example 9 correspond to the needs and practices in the schools in your province or country? Which parts are relevant, and which are irrelevant? What other information should be kept in such inventories?

3. Are the instructions in this section for the inventories of teaching/learning materials clear and helpful? What can be improved?

4. How should the inventories of teaching/learning materials look, taking into consideration your comments above? *(Activity: Sketch inventories of teaching/learning materials and discuss with some experienced school managers and school staff in order to refine them.)*

5. If you were to standardize and implement inventories of teaching and learning materials in all schools, how would you go about doing it?

3.9 Financial summary

3.9.1 Purpose

Schools need financial resources to function. School finances should be carefully managed according to regulations. **Financial records must be maintained and regularly updated for management, reporting and auditing purposes.** Data about daily financial transactions are recorded in detailed school ledgers.[10] Such school ledgers may however be too detailed to be use directly in monitoring and decision-making. Monthly, term and yearly financial summaries of school income and expenditure can be produced and used by the school management. Financial summaries are also used to report information about a school's financial position to higher levels of the education administration, funding agencies, local government and community stakeholders that have made financial contributions to the school and are entitled to know how their contributions have been used.

3.9.2 Content and presentation

Financial summaries provide information about the flow of a school's financial resources, both into the school (income or revenue) and out of the school (expenditure). One side of such financial summaries shows the school's revenue, categorized by source of funding. The other side records the school's expenditure by type (see Example 10). The balance between the revenue and expenditure informs about the state of finance and management of the school. Each country may adapt the categories of sources of income and type of expenditure according to national practice.

3.9.3 Creation and use

Whilst detailed school ledgers are kept and updated on a regular daily basis, the school accountant or the officer who is in charge of finance should prepare financial summaries on a monthly, term and/or yearly basis, using the detailed data recorded in the school ledger. The school manager and the school management board use the financial summaries to monitor, verify and control the financial position of the school. These summaries can also be used to complete the corresponding school census form(s) and for periodic financial reporting to higher levels of the education administration. The summaries may also be incorporated into school reports to inform local stakeholders about the school's financial position. During financial audits, financial summaries together with supporting documents such as the school ledger and receipts, invoices, bills and payment records are used by the auditor to examine the accounts and financial management at the school.

3.9.4 Storage, access and retention

Financial summaries and ledgers should be kept in the school management office together with all supporting documents such as receipts, invoices, bills and payment records. Access to financial records is restricted to the school manager, the school accountant or the school staff member who is in charge of finance, and to the financial auditor during school audits. Financial summaries can be produced on a periodic basis and made available to the school management board and higher levels of the education administration. All financial records are to be kept at the school for a minimum duration of 5 years, but some countries require financial records to be kept for a longer period of time.

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10 Bookkeeping Course. (see http://bookkeeping-course.com/) (Accessed 25 May, 2011)

Example 10. Financial Summary

FINANCIAL SUMMARY

Period: ....to ....

Source of funds	Amount	Type of expenditure	Amount
1. Government		**1. Capital expenditure**	
a. Central government		a. Construction	
b. Provincial government		b. Major repairs	
c. District government		c. Equipment	
d. Local government		d. Bulk purchase of books	
2. Non-governmental		e. Other capital exp.	
a. Local community		**2. Current expenditure**	
b. Local business		a. Teacher salaries	
c. NGOs		b. Staff salaries	
d. Agencies/associations		c. Rental of premises	
3. School revenue		d. Purchase of supplies	
a. School fees		e. Scholarships	
b. Other fees		f. School meals	
c. Renting out facilities		g. Contracted services	
d. Products/services		h. Maintenance	
e. Donations		i. Transportation	
4. Other revenue		j. Electricity	
a. Interest earned		k. Water	
b.		l. Telephone	
c.		**3. Other expenditure**	
TOTAL =		**TOTAL =**	

Name and title of responsible officer: .... Signature: ....

ACTIVITY 11

Carefully examine the instruction above and the financial summary in Example 10. Compare it with existing financial records used in your school, district, province or country, and then answer the following questions:

For school manager and staff:

1. What kind of records and summaries are used in your school to monitor the financial situation? Discuss with the relevant school staff about their experiences and the advantages and disadvantages of these summaries, and list the lessons learnt and suggestions for improvements.

2. How closely does the financial summary in Example 10 correspond to the needs and practices in your school? Which of its parts are relevant, and which are irrelevant? What other information should be included?

3. Are the instructions in this section for financial summary clear and helpful? What can be improved?

4. How should the financial summary look, taking into consideration your comments above? *(Activity: Sketch a financial summary and discuss with your colleagues in order to refine it.)*

For district and local education officers and school inspectors:

1. What kind of records and summaries are used in the schools in your area to monitor the financial situation? Discuss with experienced school managers and school staff about their practices and experiences as well as the advantages and disadvantages of these summaries, and list the lessons learnt and suggestions for improvement.

2. How closely does the financial summary in Example 10 correspond to the needs and practices of the schools in your area? Which parts are relevant, and which are irrelevant? What other information should be included?

3. Are the instructions in this section for financial summary clear and helpful? What can be improved?

4. How should the financial summary look, taking into consideration your comments above? *(Activity: Sketch a financial summary and discuss with experienced school managers and school staff in order to refine it.)*

For central and provincial education administrators:

1. To your knowledge, what kind of records and summaries are used in the schools in your country or province to monitor the financial situation? Discuss with some experienced school managers and school staff about their practices and experiences as well as the advantages and disadvantages of these summaries, and list the lessons learnt and suggestions for improvement.

2. How closely does the financial summary in Example 10 correspond to the needs and practices of the schools in your province or country? Which parts are relevant, and which are irrelevant? What other information should be included?

3. Are the instructions in this section for financial summary clear and helpful? What can be improved?

4. How should the financial summary look like taking into consideration your comments above? *(Activity: Sketch a financial summary and discuss with some experienced school managers and school staff in order to refine it.)*

5. If you were to standardize and implement financial summary in all schools, how would you go about doing it?

4 How to operate a School Records Management System (SRMS)?

As shown in Figure 1 in Section 2, the life cycle of a school record involves many stages from creation to retention to archival and finally disposal. **A school records management schedule is closely linked to the schedule of school activities and the timing of tasks performed by teachers and school staff to manage the classes and the school**. A schedule of tasks that are required to manage the essential school records described in Sections 3.1 to 3.9 are summarized in Table 1.

Table 1. School records management schedule

Type of School Record	Management Schedule
1. Student record card	– Created at enrolment; continuously updated
2. Class attendance sheet	– Updated every school day by class teacher
3. Textbook record sheet	– Created at the beginning of each term
4. Student performance summary	– Created at the end of each term
5. Teacher record	– Created when teacher joins school; continuously updated
6. Teacher performance evaluation report	– Created during teacher performance evaluation
7. Inventory of physical facilities	– Updated at beginning of and throughout the school year
8. Inventory of furniture/equipment	– Updated at beginning of and throughout the school year
9. Inventory of teaching/learning resource materials	– Updated at beginning of and throughout the school year
10. Financial summary	– Created at the end of each term and of the school year

We can see in Section 3 and Table 1 that school record management schedules may vary depending on:

- **the type of record.**
- **what the record is created for.**
- **who creates the record.**
- **when the record is created.**
- **when should it be updated.**
- **how many records are to be created and updated.**

For example, individual student and teacher records and inventories can be created at the beginning of the school year, and continuously updated and used throughout the year. Teacher performance evaluation reports are created just once a year, towards the end of the school year. Other school records, such as student performance summaries and financial summaries may be created at the end of each school term.

The actions of the school staff who are responsible for creating and updating each type of school record must take into account the overall schedules for planning, conducting, monitoring and evaluation of specific school activities. For example, before the beginning of the school year, inventories of school facilities should be updated so they can be used for organizing and scheduling classes. Once the classes begin, attendance sheets must be systematically updated on every school day, and summarized at the end of each month to monitor the rates of attendance.

Example 11 shows a school records management schedule over a period of 12 months in a school with three school terms and a major school holiday in November and December to end the school year. This kind of schedule is necessary for school records management in defining the tasks and reminding the relevant school staff to create, store and update specific records on specific dates. Systematic school records management will require strict adherence to such schedules so as to maintain a complete, consistent and uninterrupted information base for monitoring and managing the operations of the school over time.

Example 11. School records management schedule

Month Record Type	1	2	3	4	5	6	7	8	9	10	11	12
											(Holidays)	(Holidays)
STUDENT:												
Student record card												
Attendance sheet												
Student performance summary												
TEACHERS:												
Teacher record												
Teacher performance evaluation report												
FACILITIES:												
Inventory of facilities												
Inventory of furn./eq.												
Inventory T/L material												
FINANCE:												
Financial summary												

Taking into account the organization of activities within the school, the school management can set up at the beginning of each school year a SRMS schedule like in Example 11. This schedule will include clear designation of SRMS responsibilities to ensure all the relevant school staff are clear about who is responsible for creating and updating which records, and understand when and how these records can be updated and used to support school management.

ACTIVITY 12

Discuss with school managers and staff about their respective roles and responsibilities with regard to the school records management tasks and schedule in Table 1 and Example 11, and then answer the following questions:

For school managers and staff:

1. Are school records management tasks and responsibilities well defined in your school? If yes, please list them. If no, why not?

2. Does your school have a school record management schedule like the one in Example 11? If yes, what does it look like? How is it implemented in reality?

3. If no, would such a schedule be needed? Why?
   (Activity: Sketch such a schedule based on your knowledge of the school calendar and school record management practices.)

4. What does it take to ensure that the school record management schedule is followed?

For district and local education officers and school inspectors:

1. Are school records management tasks and responsibilities well defined in the schools in your area? If yes, please gather and show some examples. If no, please find out and explain why not?

2. Do the schools in your area have a school record management schedule like the one in Example 11? If yes, what does it look like? Please gather and show some examples.

3. If no, would such a schedule be needed? Why?
   (*Activity: Sketch such a schedule based on your knowledge of school calendars and school record management practices in your area.)*

4. What does it take to ensure that the school record management schedule is followed in school?

For central and provincial education administrators:

1. To your knowledge, are school records management tasks and responsibilities well defined in the schools in your country or province? If yes, please gather and show some examples. If no, please find out and explain why not?

2. Do the schools in your country or province have a school record management schedule like the one in Example 11? If yes, what does it look like? Please gather and show some examples.

3. If no, would such a schedule be needed? Why?
   (Activity: Sketch such a schedule based on your knowledge of school calendars and school record management practices in the country.)

4. What does it take to ensure that the school record management schedule is followed?

5 SRMS roles, responsibilities and competencies

School record management tasks must be clearly defined and assigned to those school staff who are best suited to perform these tasks in relation to their roles, responsibilities, duties and skills within the school. For example, class teachers are responsible for updating class attendance sheet, the school accountant for maintaining ledgers and producing financial summaries, and administrative staff for updating inventories of physical facilities and teaching/learning materials. **Systematic and timely creation and maintenance of school records can be included as one aspect of staff performance appraisal and accountability.**

In cases where the school staff who would normally be responsible for a specific type of school record is not available, a second person must be assigned and trained to fill the gap so the systematic updating of school records is not interrupted. Small schools that have few staff may have difficulty managing and updating all the school records. In such cases, the school manager and the district or local education officer should identify those school records that are absolutely essential, and give priority to maintaining them with the limited staff resources. When there is no head of school, the local education officer together with school inspector can find ways to guide and support the existing school staff to manage a minimum set of essential school records.

To help school staff to correctly perform their SRMS tasks, initial training should be organized, either by the school manager or a knowledgeable member of school staff. The training can include general school records management principles, terminology and practices, as well as training about how to manage specific school records. Try to ensure that **at least two staff in each school know how to maintain each type of essential school record, so there will be no interruption even if one of the two staff is absent.** If necessary, such training can be supported by the district or local education officer or the school inspector who, together with the school manager, must be trained prior to training other school staff, using for example training materials like this module.

Besides the creation, storage, update, retention and retrieval of school records, it is **important to train the relevant school staff to use the school records and the information contained in them for evidence-based management of the school,**[11] for example to:

- **organize and conduct daily school activities;**
- **deliver school services consistently and with integrity;**
- **comply with school policies and regulatory requirements;**
- **monitor and evaluate the efficiency and effectiveness of school activities; and**
- **assist all stakeholders from both inside and outside the school to make good use of the information contained in the school records, better understand the school's achievements and shortcomings, and provide relevant support.**

These aspects are covered in more detail in the following sections.

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11 ARMA International. 2009. What is Records Management? http://www.arma.org/pdf/WhatIsRIM.pdf (Accessed 25 May, 2011)

Once the school staff are trained in school records management, the school manager and experienced staff should continue to provide regular advice, supervision and support to ensure that all staff apply what they have learnt to properly create, update, store and use school records in a correct and timely manner.

ACTIVITY 13

Find out about and review the practices in your school, district, province, country in: (a) defining and assigning roles and responsibilities in school for SRMS; (b) training relevant school staff to upgrade their competencies and capacity for the SRMS tasks; (c) ensuring they apply the SRMS knowledge and skills, and then answer the following questions:

For school manager and staff:

1. Are roles and responsibilities clearly defined in your school for the management of various school records? For which kind of school records?
2. How do you go about assigning people to various school records management tasks? Based on what criteria do you select and assign these persons?
3. What kind of training do you give to those persons who are responsible for school records management? How do you do that?
4. What kind of problems and issues do you face while ensuring that the persons assigned to school records management tasks apply their knowledge and skills to fulfil their SRMS roles and responsibilities?

For district and local education officers and school inspectors:

1. Are roles and responsibilities clearly defined in the schools in your area for the management of various school records? For which kind of school records? How can these definitions be improved?
2. How do school managers in your area go about assigning people to various school records management tasks? Based on what criteria do they select and assign these persons? What do you think of these practices?
3. Have you assisted the schools in your area to train persons assigned to records management? What kind of training have you given? How do you do this?
4. To your knowledge, what kind of problems and issues do school managers in your area face while ensuring that the persons assigned to school records management tasks apply their knowledge and skills to fulfil their SRMS roles and responsibilities?

For central and provincial education administrators:

1. To your knowledge, what kind of problems and issues can occur in the schools in your country or province when assigning school staff to school records management tasks and trying to ensure that they fulfil their records management roles and responsibilities?
2. How would you propose to help school managers in your country or province to go about improving the definitions of school records management roles and responsibilities?
3. What can be done from your level to help school staff to acquire the competencies and knowhow to manage school records?

6 Data quality assurance

An effective SRMS embodies clear and well-defined procedures, criteria, norms, mechanisms and practices to ensure the data and information recorded are complete, relevant, accurate and reliable. Furthermore, it incorporates functions to enable easy search, retrieval, analysis and use of the data and information to support sound management of the school as well as for reporting to higher levels of the education administration and to local stakeholders (see also Section 6 of Module A2).

The following principles are essential for maintaining a high standard of data quality in school records:

1. Regularity – all relevant school staff and teachers adhere to the planned SRMS schedule and methods in systematically creating, storing and updating the school records for which they are responsible.
2. Completeness – data and information in school records must be as complete as possible. If there are data omissions or partial data, a footnote should be added with clear explanations.
3. Accuracy – data quality norms and practices are clearly defined, understood and followed while gathering and entering data into the school record.
4. Consistency – all the data are recorded using the same definition and measurement for all schools and over time.

The design of the school record forms and summaries must, therefore, **be clear, unambiguous and easy to create, fill in and update.** All the terms and concepts must be clearly defined and explained in the instructions about school records management (see Sections 3 to 5 above). Thorough training and practical supervision, plus technical guidance and support by the school manager and district education officer, can decisively help to improve the quality of data in the school records.

The school manager has the ultimate responsibility to ensure that all school records are regularly created, completed, updated, stored and used. The school manager should frequently check the records to verify that all records have been submitted on time, are complete and up-to-date and to ensure that the staff members are performing their record-keeping duties in a correct and timely manner.

The school manager and other administrative staff must use the school records frequently. While using these records they can also verify if the data are up-to-date, complete and correct. If the assignment of SRMS responsibilities and schedule is clear, any errors in the school records can be referred back to the responsible person so they can explain and correct the errors, and complete the records.

District and local education officers and school inspectors can monitor the quality of school records during their school visits. They can verify that the records are well managed and that data quality assurance measures have been correctly applied.

Systematic cross-checking of data summaries and tally sheets against the original individual record forms, and comparisons of the resulting information and indicators, can help to identify errors or inconsistencies in data quality. During analysis, interpretation and use of the data and information, additional data problems can be found that require the records be re-checked and corrected. Many of the data quality control methods suggested in Section 6 of Module A2 can also be applied to school records.

ACTIVITY 14

Gather instructions used in school records management in your school, district, province or country. Examine their contents to see if they include information about data quality assurance principles and practices. Ask relevant school staff about their experiences in actual school records data quality assurance, and then answer the following questions:

For school managers and staff:

1. From your own experience and those of your staff, what kind of data quality problems and issues occurred in records management at your school? How did they happen?

2. What kinds of measures have been taken to ensure data quality in the SRMS? Please describe how effective each of these measures have been, and what lessons you have learnt.

3. What would you do to strengthen data quality assurance in records management at your school?

For district and local education officers and school inspectors:

1. To your knowledge, what kind of data quality problems and issues have occurred in the SRMS of schools in your area? How did these problems occur?

2. What measures have been taken to minimize these problems and ensure a high standard of data quality is maintained in the SRMS?

3. What can be done to strengthen data quality assurance measures in the SRMS of the schools in your area?

For central and provincial education administrators:

1. What kind of data quality problems and issues have you noticed in the school reports and data provided during annual school censuses?

2. What can be done to strengthen data quality assurance measures in the SRMS used by schools in your country or province?

7 Transformation, analysis and use of school record information

All the efforts to create, store, update and manage school records will be wasted if the data and information are not fully and properly used to:

a. Strengthen monitoring and management in schools.[12]
b. Report to higher levels of the education administration.[13]
c. Inform and mobilize support from the stakeholders.[14]

School record data and information can be used either directly, or transformed into other forms so as to facilitate analysis, interpretation, dissemination and use.[15]

7.1 Individual school records and summary lists

School records can exist in four forms:

1. **Records of individual persons** (e.g. students, teachers or school staff) or of physical items (e.g. classrooms, furniture, equipment, teaching/learning materials, ledger of financial transactions).
2. **Summary lists** (e.g. of students, teachers, equipment).
3. **Tally sheets** to count the number of persons, school facilities or occurrences.
4. **Summary tables.**

These forms complement each other, as they enable us to record and present data in ways that are more appropriate for use by different persons and for different purposes. As mentioned in Section 6, using school records in different forms can also help to cross-check data quality.

Records of individual persons – like the student record card[16] can be used to store detailed information about each person such as sex, age, grade, previous education, language spoken at home, family conditions, disabilities, performance scores in subjects and behavior. The same applies to teacher records.[17] Individual records can be created and added whenever a new student or teacher joins the school. They can also be archived or disposed of when a student or teacher has left the school.

Summary lists – like the class attendance sheet,[18] textbook record sheet[19] or the student performance summary.[20] If we want for example to compare the characteristics of all the students in a class, it can be quite laborious to flip through a deck of individual student record cards back and forth in trying to compare the data. Often, a summary list can be created by copying one-by-one the names of the students and specific characteristics such as sex, age, attendance and subject scores into a summary list (see Example 12). In this way, we can make comparisons at a glance across the list regarding, for example, who has been most frequently absent from school or who obtained the highest score in mathematics. Similar summary lists may be made of teachers, school facilities, equipment, etc.

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12 See Modules A3, A4 and A5.

13 See Module A2.

14 See Module A5.

15 See also Modules A3, A4 and A5.

16 See Example 1 in Section 3.1.

17 See Example 6.

18 See Example 2.

19 See Example 3.

20 See example 5.

Example 12. Summary list of student characteristics and performance

Name	Sex	Age	Grade	No. of days absent	National Language	Math	Science	Social studies	Behaviour
Himani MEHTA	F	8	2	3	93	88	85	95	A
Somsak VIROT	M	9	2	5	72	81	77	65	B
Vishnu SHRESTHA	M	9	2	11	66	71	76	89	B
Laxmi BHATTA	M	8	2	22	52	68	63	64	C
Mira JOSHI	F	8	2	0	84	59	82	87	A
Manju LAMA	F	9	2	8	90	78	67	79	A
…	…	…	…	…	…	…	…	…	…
…	…	…	…	…	…	…	…	…	…
…	…	…	…	…	…	…	…	…	…

Tally sheets – are used to count the number of occurrences of individuals, items or events that match certain criteria or characteristics. Example 13 shows the results of tallying the numbers of male and female students who match the criteria of being either under-aged, of the correct age, or over-aged for attending Grade 1.

We create a tally sheet by going through the individual student record cards or the summary list of students like in Example 12, count and record each occurrence of students who match these criteria. If, for example, the official age for being in Grade 1 is six years old, we can go through the individual student records (or summary list) and look at the information about 'Sex' and 'Date of birth' of every student in a class. For each student who is under, over or exactly six years old, a new stroke is added to the corresponding box in the tally sheet in Example 13. These strokes can be grouped five-by-five (or follow local practice) to help count the total number of occurrences in each box. The tally counts can then be summarized in the right-hand columns for further analysis.

Example 13. Tally sheet of under-aged and over-aged enrolment in Grade 1 by sex

AGE	Tally area		Counts		
	Male	Female	Male	Female	**Total**
Under-aged	‖	‖‖	2	4	**6**
Correct age	卌 卌 ‖‖	卌 卌 ‖	13	11	**24**
Over-aged	卌 ‖‖	卌 ‖	8	7	**15**

Summary tables – are another important form (or transformation) of school records. Taking Example 13 above, the tally counts in the right-hand columns can be further transformed into a summary table, as shown in Example 14 below.

Example 14. Summary table of under-aged and over-aged enrolment in Grade 1 by sex

AGE	Number			Percentages of under-/over-aged by sex (%)		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
Under-aged	2	4	6	8.7%	18.2%	**13.3%**
Correct age	13	11	24	56.5%	50.0%	**53.4%**
Over-aged	8	7	15	34.8%	31.8%	**33.3%**
Total	23	22	45	100.0%	100.0%	**100.0%**

Summary tables serve the **dual purpose of synthesizing detailed individual data into numbers in a structured table so they can be directly analysed, interpreted and used for monitoring and management.** On the other hand, and as illustrated in the percentages on the right-hand side of Example 14, the summary counts on the left can be used to **calculate indicators to better assess the situation, identify problems and issues, and support decision-making** at the school and higher levels of the education administration.

The percentages on the right-hand side of Example 14 show that only a little over half (53.4%) of the students in Grade 1 are of the correct age, whereas a third (33.3%) are over-aged and 13.3% are under-aged for Grade 1. There are proportionally less girls than boys who are of the correct age or over-aged, but there is a greater tendency for girls to be enrolled early (under-aged). Using such a summary table, we can quickly see the differences between the access of boys and girls to Grade 1 in this school, in order to identify ways of reducing over-aged and under-aged enrolments.

An additional benefit of the summary tables is that, very often, such tables can be designed and generated to sum up individual school records in ways that correspond to the data tables in the school census questionnaire or school reports. During the school census, the already tallied and summarized data can be directly copied or transferred into the school censuses questionnaire, or can be used to prepare standard tables in school reports. This will considerably reduce the time and workload of having to search for data and tally individual records each time the school has to respond to the school census or submit reports.

Take for example the key summary table showing student enrolment by grade and age.[21] This table can be produced by tallying and summarizing the number of students by age, grade and sex using the summary lists of students for each class in the school.[22]

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21 See Question 21 in the example school census questionnaire in Module A2, and Example 10 in Module A3.

22 See Example 12 and Section 4.2.8 in Module A2.

Figure 2. Use of school records at school
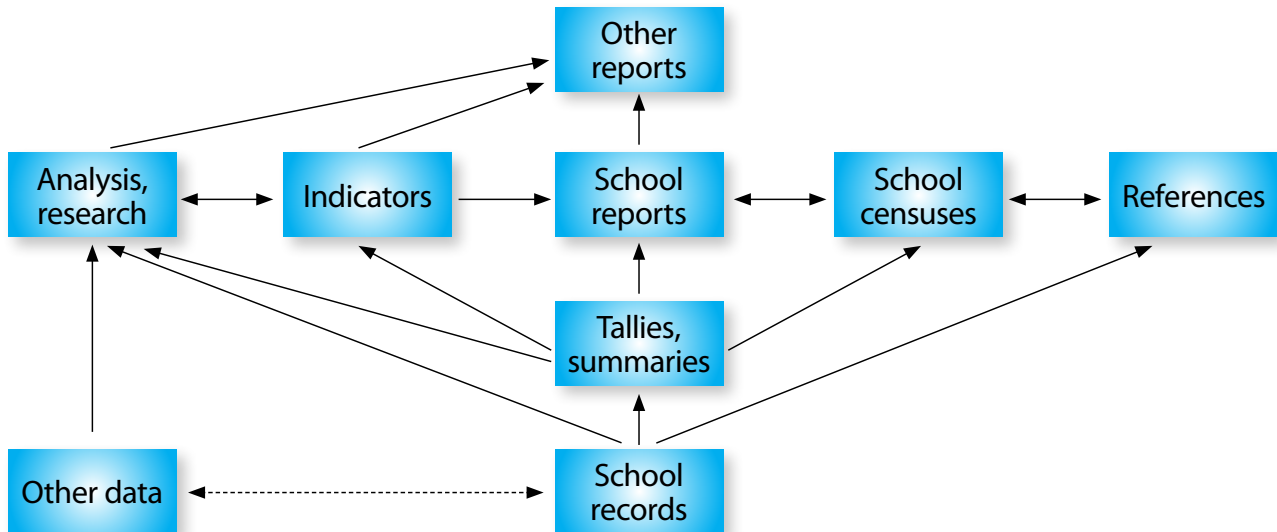
Figure 2 shows at a glance how data and information in the original school records can be transformed into summary lists, tally sheets and summary tables to be used in further analysis and reporting. Some of these summaries can be directly copied into the corresponding tables in the annual school census questionnaire, and used in school reports. More importantly, **indicators (including those for EFA monitoring) can be calculated from the tallied counts and presented in summary tables**. The summary lists and tables together with indicators can be further analysed and interpreted to give a more complete and in-depth picture about what is happening in schools and how is progress towards achieving the EFA goals in the local area.

Of particular relevance to the information in the school records are other data about the local population by gender, age-group, literacy level, educational attainment, employment, occupation, poverty and household conditions. Such data are often available from local government offices, or can be obtained from the national statistics office. They are used **to calculate many EFA indicators such as enrolment ratios, intake rates, literacy rates, gender parity index** (see Module A3), and for identifying the 'unreached' out-of-school children and youth as described in the next section.

7.2 'Reaching the unreached'

Due to their proximity to the local population, often school staff, local government officials and/or development bodies have more detailed and precise information about the disadvantaged population in the local area. They can tell us:

- **Who are the disadvantaged population?**
- **Where are they?**
- **What are their learning needs?**
- **What are their difficulties in accessing and participating in education?**
- **How well do they learn in school?**

Such data can help us to know who and where are the 'unreached' children, and their characteristics and needs, so that appropriate measures can be taken to encourage them and help them to participate in and complete basic education within the EFA perspective of 'reaching the unreached'.

Through daily contacts between teachers and students, and through frequent interactions between the school management and local communities, school authorities can gather information about children in the local area who are not attending school, plus those who have dropped out of school. Preliminary records may be made of their where-abouts using information from local government bodies. The school manager and teachers can then make follow-up visits to the households in order to collect more detailed information about who exactly are these 'unreached' children, and to understand the circumstances and reasons for them not attending school. Based on the findings of these visits, more effective strategies and measures can be taken to reach these unreached children.

Other relevant data can be obtained from civil registrations, household surveys, and other sources about the conditions of health, nutrition and sanitation of the local population, parents' employment and occupation, and about early childhood care and schooling in the local area.[23] This information can be analysed alongside school record data and summaries about grade repetition and incidents of drop-outs, so as to better understand the challenges facing education in the local area, and for new actions to be defined and implemented.

With respect to more advanced use of data and information contained in the school records to reach the unreached, please refer to Training Modules A3 and A4 for more details about indicators and data analysis, and about the use of information for monitoring, planning and management of education, plus Training Module A5 for information about data flow and information dissemination.

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23 See Section 5 of Module A2 and Section 6.2 of Module A3.

ACTIVITY 15

Examine existing school records in your school, district, province or country and classify them according to the four forms shown in Examples 1, pp. 12-14. Relate them to Figure 2 to determine how each kind of school record can be used, and then answer the following questions:

For school managers and staff:

1. What are the main forms of school records in your school? Please list the existing records and indicate to which of the four forms they correspond (individual records, summary lists, tally sheets or summary tables).

2. How do you use each kind of existing school records?

3. Which existing school record(s) can be further transformed into summary lists, tally sheets or summary tables? How can the resulting summaries be used?

4. How would you improve the use of school records for the purposes (a), (b) and (c) in the first paragraph of this section 7?

For district and local education officers and school inspectors:

1. What are the main forms of school records in the schools in your area? Please list the existing school records and indicate to which of the four forms they correspond (individual records, summary lists, tally sheets or summary tables).

2. How should the district and local education offices use the data and information contained in each kind of existing school record?

3. Which existing school record(s) should be further transformed into summary lists, tally sheets or summary tables for use by the district and local education offices? What kind of summaries? How will they be used?

4. What should be done in order to improve the use of school records for the purposes (a), (b) and (c) in the first paragraph of this section 7?

For central and provincial education administrators :

1. To your knowledge, what are the main forms of school records that are used in the schools in your country or province? Please list some of the existing school records and indicate to which of the four forms they correspond (individual records, summary lists, tally sheets or summary tables).

2. How should the data and information contained in each kind of existing school records be used by the central and provincial education administration?

3. Which existing school record(s) can be further transformed into summary lists, tally sheets or summary tables for use by the central and provincial education administration? What kind of summaries? How will they be used?

4. What should be done to improve the use of school records for the purposes (a), (b) and (c) in the first paragraph of this section 7?

8 Standardizing school records

Imagine a situation in which different schools keep different kinds of school records using different formats to record different types of data following different practices. The variety of information recorded and the diversity of data quality based on different terminologies and definitions, not to mention possible discrepancies in the methods and tools used to record information, would make it very difficult to understand and meaningfully compare the performance of schools.

The establishment of a nationwide standard for SRMS presents an occasion to address these problems by standardizing key school records and practices. The aim is to promote the systematic use of a uniform and common core set of school record forms and practices in all schools. This can help to ensure that all schools record the essential data and information and that these data are all comparable and consistent over time. This means they can be reliably interpreted and used both among schools and at higher levels of the education administration.

Not all the information generated in a school needs to be recorded. Similarly, not all the school records need to be standardized. **Standardization applies when common data and information needs are identified for all the schools and at higher levels of the education administration, where they can be used for monitoring, management and planning purposes.** If this is the case, it is necessary to collect and record the data and information in a uniform and comparable way using standardized record forms and following well-defined common definitions, norms and practices.

Standardization of school records can be organized following the steps below:
1. **Determine key data and information that must be systematically recorded by all schools.**
2. **Clearly define what are these data and information, and explain how they can be recorded.**
3. **Design standard school record forms that can be uniformly applied in all schools.**
4. **Specify the norms and requirements that must be met to ensure a high standard of data quality.**
5. **Describe good practices to be followed for managing standardized school records.**
6. **Document standard instructions that cover each of these point that can be used to guide and train school managers and staff.**

The end product of this standardization process is a set of school record forms accompanied by clear instructions about how to correctly fill out, update and manage each record, plus the definitions of terms and data quality norms. As can be seen in Examples 1 to 10 in Section 3, these standard forms and instructions should be professionally designed and meet the following requirements:

- **They are clear, compact and easy to use for recording data and information at school;**
- **Data are recorded according to uniform definitions and quality norms to ensure they are consistent, reliable and comparable;**
- **Records are designed so they are easy to store and locate when people need to search and retrieve data; and**
- **There are many possibilities to extract, analyse, interpret and use the data within the school and for reporting data to higher levels and stakeholders.**

In addition, the design of these standard forms and instructions should enable these school records to be used to rapidly and reliably produce summary data for reporting to higher levels. These standard forms and instructions should also be designed for easy use in organizing training and self-learning among school staff, plus technical support to the schools in SRMS.

CASE EXAMPLE

Standardization of school records in some states of India

The Departments of Education in some states of India instruct all schools within the state to maintain specific standard school records. In Andra Pradesh, 34 types of school records are required; in Maharashtra, 59; and in Kerala, 101.

The practice is to provide a list of required school records together with instructions for their use in the handbook for school head-teachers. Some states only provide the list of titles of the school records and allow the school head-teachers to design and manage the records for their school. Some states specify standard formats for the school records.

(Source: Information gathered during the Technical Workshop to Develop Training Modules on Systematic Monitoring of EFA held from 15-19 March 2010 in Chennai, India)

ACTIVITY 16

Discuss with the managers of 3-5 schools in your district, province or country about the need for standardization of key school records described in this section, and then answer the following questions:

For school managers and staff:

1. Do neighbouring schools record the same data and information in the same way and according to the same norms as in your school?

2. What kind of data and information from school records can be reliably compared between schools?

3. Will it be useful to standardize some key school records that are commonly used in many schools?

4. If yes, please indicate which key school records should be standardized.

For district and local education officers and school inspectors:

1. Do neighbouring schools record the same data and information in the same way and according to the same norms as schools in your area?

2. Which kinds of data and information from school records can be reliably compared among schools in your area?

3. Will it be useful to try to standardize some key school records that are commonly used in many schools?

4. If yes, please indicate which key school records should be standardized.

For central and provincial education administrators:

1. Are there standard school records in your country or province? If yes, which school records have been standardized? If no, why not?

2. Can the data and information drawn from these standardized school records be reliably and meaningfully compared?

3. Will it be useful to try to standardize some more key school records that are commonly used by many schools?

4. If yes, which school records should be standardized (from the central/provincial perspective)?

8.1 Designing standard school records

When designing a standard school record, we must first understand the following:
- **What is the purpose of the record?**
- **What data and information will be recorded?**
- **Who generates the data and information?**
- **Who will record and update the information?**
- **Who will access and use the information?**
- **When will the information be recorded and updated?**
- **How will the information be recorded, updated and used?**
- **How will the record be stored and maintained?**

To a large extent, the answers to these questions determine the design of each standard school record in terms of contents, organization and presentation. They also determine the practices and norms used to manage the quality of data and information, which can be summarized in the instructions that accompany the school record form.

As explained in Section 7, there can be different kinds of school records, such as records of individual persons (e.g. students, teachers and school staff), records by class or by grade (e.g. attendance sheets and summaries of student examination results), and records for the whole school (e.g. inventories and financial records). These records are used for various purposes including monitoring and management, and are created and used by different people in the school. Summary records in the form of summary tables or lists can be generated from these records for further analysis, interpretation and use in decision-making.

The following principles will help us create a good set of standardized school records. Such records must:
- **be simple.**
- **capture all the data and information needed.**
- **be presented clearly and unambiguously.**
- **have clear definitions and explanations for all the terms that are used.**
- **be easy to fill out and update.**
- **be easy to keep, maintain and protect.**
- **have clearly defined data quality norms.**
- **include complete and practical instructions.**
- **present the recorded data so they are easy to understand and use.**

8.2 Implementing standardized school records

While designing standardized school record forms, we should consider the complexity and cost of printing standardized forms, and the availability of the materials that are required to produce these forms in some locations. Are cards, paper of the required size, paper of the right quality, and printing facilities available in all locations?

Three alternative options can be adopted:

(i) the central or provincial education administration prints the standard school record forms in large quantities and distributes them to all the schools;

(ii) schools produce these forms based on models provided by the Ministry of Education; or

(iii) schools that are equipped with computers and capable of handling computerized school records may be provided with standard computerized templates of the standard school records. Individual schools can use these templates to create, store and update records using their computer. These computerized templates may also have built-in functions to check for data errors and to calculate certain monitoring indicators such as the percentage of boy/girl students or the percentage of qualified teachers.

To ensure that the standard school records have been properly designed to fulfill their purposes, the forms and instructions must be pre-tested in as many different schools as possible to identify problems and to gather feedback and suggestions about how to improve and finalize them.

During actual implementation of these standard school records, the Ministry of Education should make a systematic effort to gather feedback and suggestions from the schools, and use these to further improve the school record management tools and practices.

ACTIVITY 17

Discuss with the managers of 3-5 schools in your district, province or country about the design of standard school records described in this section, and then answer the following questions:

For school managers and staff:

1. What do you and neighbouring school managers think about the criteria, principles and method of designing standard school records described in this section?

2. How would you and other neighbouring school managers go about standardizing some common school records?

For district and local education officers and school inspectors:

1. What do you and school managers in your area think about the criteria, principles and method of designing standard school records described in this section?

2. How would you and school managers in your area go about standardizing some common school records?

For central and provincial education administrators:

1. From the central or provincial perspective, what do you think about the criteria, principles and method of designing standard school records described in this section?

2. How would you go about standardizing some key school records?

8.3 Establishing (or upgrading) a nationwide standardized SRMS

Strengthening information management and its use at school is a key to fundamental improvement of the school system. Implementing an effective nationwide standardized SRMS is an important step forward. For all countries, this training module offers some ideas and examples for establishing and upgrading the existing SRMS, especially in the context of EFA.

As the implementation of such a nationwide standardized SRMS requires the understanding and cooperation of a wide range of education officers and school managers across the country, it will be necessary to first define and issue national policies and instructions to ensure that all schools comply and correctly implement the standardized SRMS. The central Ministry of Education must lead this process of policy-making and oversee its implementation.

The steps to be taken by the Ministry of Education to develop policies for ensuring the implementation of a nationwide standardized SRMS include the following:

Step 1: Survey the information needs of key stakeholders: the schools, the Ministry of Education, provincial and district education offices, local government and community members.

Step 2: Review existing school records management practices, tools and capacities, and find out how they correspond to the information needs identified in Step 1. This will help to identify gaps, issues and priorities.

Step 3: Determine the kind of information that requires standardized records, storage and access at school. Design (or upgrade), pre-test and finalize a set of standard school record forms together with data quality norms and good practices that should be applied to recording, accessing and using the required data and information at school.

Step 4: Prepare and issue detailed instructions about how schools are to implement the nationwide standardized SRMS, and the respective roles of the other stakeholders especially those in the district and local education offices.

Step 5: Plan IEC (information, education and communication) strategies to sensitize, train, motivate and support school managers and staff to implement standard school record management. Such IEC strategies can include training of school head-teachers, teachers and administrative staff on how to manage a SRMS.

Step 6: Issue the policy accompanied by the instructions, standard forms, norms and recommended good practices, and activate the IEC strategies to promote and support nationwide implementation in all schools.

Parallel administrative directives may be issued to provincial, district and local education officers and school inspectors that specify their responsibilities to support all the schools within their respective areas and ensure that they implement the standardized SRMS correctly and efficiently. Cascading multiplier training may be organized to train the relevant staff from the provincial level down to the school level, and self-learning materials can be produced and made available in both printed and electronic form.

ACTIVITY 18

Discuss with the manager of 3-5 schools in your district, province or country about the steps described in this section for establishing (or upgrading) a nationwide standard school records management system, and then answer the following questions:

For school managers and staff:

1. Do you agree with the need to establish (or upgrade) a nationwide standardized SRMS? Why?
2. What do you think about the suggested steps to take in order to establish (or upgrade) a nationwide standardized SRMS? How would you go about it based on national practices?
3. If it is decided to establish (or upgrade) a nationwide standardized SRMS, will your school be prepared to participate in and contribute to this process?

For district and local education officers and school inspectors:

1. Do you and the schools managers in your area agree with the need to establish (or upgrade) a nationwide standardized SRMS? Why?
2. What do you and the schools managers in your area think about the suggested steps to take in order to establish (or upgrade) a nationwide standardized SRMS? How would you go about it based on national practices?
3. If it is decided to establish (or upgrade) a nationwide standardized SRMS, will you be prepared to participate in and contribute to this process?

For central and provincial education administrators:

1. From the central/provincial perspective, do you agree with the need to establish (or upgrade) a nationwide standardized SRMS? Why?
2. What do you think about the suggested steps to take in order to establish (or upgrade) a nationwide standardized SRMS?
3. If it is decided to establish (or upgrade) a nationwide standardized SRMS, how will you go about it based on national procedures and practices?

9 Benefits of SRMS

From the descriptions of SRMS and its features and functions in the preceding sections, we can see that a fully operational SRMS can produce many immediate benefits for school managers and education officers at the local and district level, as well as long-term benefits for policy, planning, coordination and monitoring at the provincial and national level.

In essence, systematic organized school record management helps:

- **school managers** to assess the performance and therefore the strengths and weaknesses of the school, so they can make informed decisions and easily respond to school censuses using reliable school data.
- **the local government and members of the community** to understand and support the functioning of the school.
- **district and provincial education officers, and the central Ministry of Education** to monitor and evaluate the performance of schools, to identify problems and issues and to establish policies, plans and measures to provide more appropriate guidance and support to schools.
- To provide documented evidences that **future school managers** can use to continuously improve the management of the school.

A good SRMS is one that fulfills the above expectations, and which enables systematic and reliable recording and updating of data and information. Such a system embodies mechanisms, procedures, tools and practices to record data and to keep them in organized storage for easy access, retrieval and use.

School records can, therefore, be used **to assess: (a) how the school uses various resources to organize educational programmes and activities, (b) how such programmes and activities took place, and (c) what were the outcomes, issues and lessons learnt.** Such information is important because it allows the school manager as well as education administrators at higher levels to evaluate the efficiency and effectiveness of the school's activities, and to improve future policies, planning, coordination and management of educational activities across the country.

School records must therefore respond to the information needs of three main groups of stakeholders/beneficiaries (see Figure 3).

Figure 3. School records and main stakeholders/beneficiaries
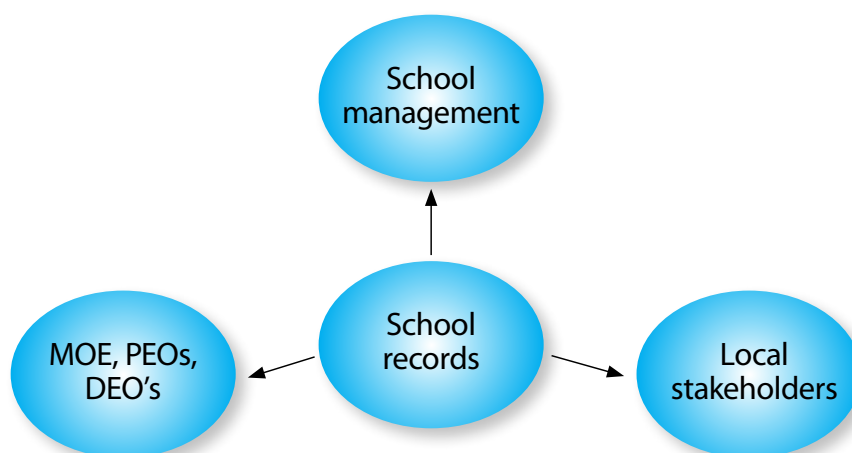
Foremost among these beneficiaries are the school managers and school staff, including teachers. They need information on a daily basis in order to better plan, organize, conduct, evaluate and manage school and class activities. They need frequent access to detailed and comprehensive data and information.

At the school level, some of the immediate benefits of a SRMS include:

- **better monitoring and understanding of the situation and problems in the school over time.**
- **the ability to make more informed decisions to improve the functioning of the school.**
- **easy access to reliable information they need for reporting and responding to annual school censuses.**
- **the ability to inform local stakeholders and administrators at higher levels of the education system, and gain their support (see Figure 4 below).**

Figure 4. Why we need school records
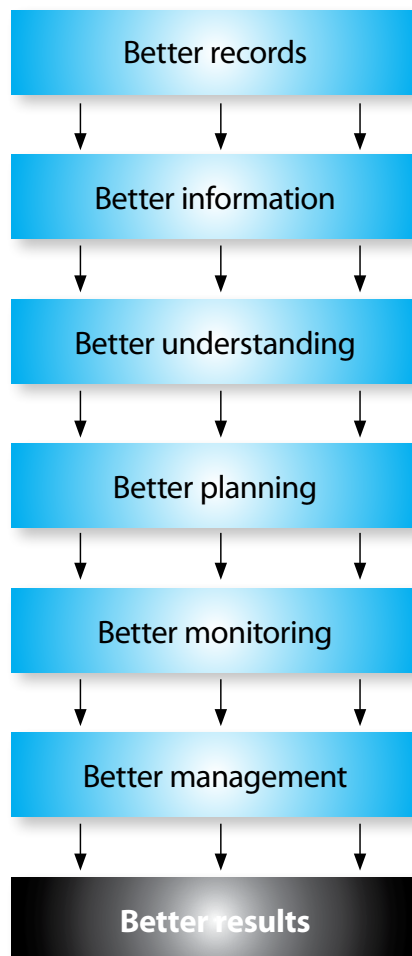
The second group of beneficiaries are the education administrators at the district, provincial and central ministry levels. They need data and information about what is happening in the schools under their respective jurisdiction so they can identify the achievements, gaps and issues for better policy, planning, management and/or coordination of the education system from their respective levels. This second group may not need direct access to the detailed school records, but do require summary information from the annual school censuses[24] and gathered from various school reports.

A third group of beneficiaries are the government officials, community leaders, parents and students in the local area, who benefit from having information about the school because it helps them to understand how the school operates and how they can help support it. This group includes members of the school management board and parents-teachers association. Summaries of relevant and reliable information can be produced using the SRMS and disseminated to them.

Information generated from school records can **improve the accountability and credibility of the school management**. By reporting and disseminating more complete and reliable information about the school to members of the school management board and/or parent-teachers association, local stakeholders will become aware of the achievements as well as the challenges faced by the school. In turn, they can help mobilize support from the local government, community and other development partners.

School records, therefore, constitute the **most important source of data and information for ongoing and future management of schools**. Systematic school record keeping will not only support sound management of the school itself, but will also help to better inform local stakeholders as well as higher levels of the education administration to mobilize their support. Furthermore, proper school record keeping can greatly facilitate reporting to annual school censuses by providing summary data that are based on solid source records to ensure the completeness and reliability of data. For non-governmental schools, school records are important for meeting government legal and fiscal requirements. School records must, therefore, be designed taking these factors into account.

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24 See Module A2: Data Collection and Quality Assurance.

ACTIVITY 19

Discuss with your colleagues the implications, benefits and constraints in establishing an effective SRMS in your school, district, province or country, and then answer the following questions:

For school managers and staff:

1. Do you agree with the benefits of SRMS described above? What other benefits might there be?

2. In what way do you think your school can benefit from improved school records management? In which aspects of school management?

3. What are the barriers or constraints that can prevent successful implementation of SRMS in your school? What can be done to address these constraints?

4. After completing this training module, how do you plan to apply the knowledge in your school?

For district and local education officers and school inspectors:

1. Do you agree with the benefits of SRMS described above? What other benefits might exist at your level and for the schools in your area?

2. In what way do you think the schools in your area can benefit from improved school records management? Which aspects of school management might benefit more?

3. What are the barriers or constraints affecting the successful implementation of SRMS in the schools in your area? What can be done to address these constraints?

4. After completing this training module, how do you plan to apply the knowledge in the schools in your area?

For central and provincial education administrators:

1. Do you agree with the benefits of SRMS described above? What other benefits might exist at your level?

2. In what way do you think the schools in your country or province might benefit from improved school record management? Which aspects of school management might benefit more?

3. What are the barriers and constraints affecting the successful implementation of SRMS in the schools in your country or province? What can be done to address these constraints?

4. After completing this training module, how do you plan to apply the knowledge at your level and in the schools in your country or province?

10 Quiz

Q1. School records are mainly used for:
(Please tick all correct cases)

☐ access by all school staff, students and parents

☐ opening new schools

☐ strengthening data and information use in monitoring at school

☐ sharing with other schools, districts or countries

☐ directly sending to the Ministry of Education

☐ reporting data to higher levels of the education administration

☐ managing school finance

☐ selling to businesses for use in marketing

☐ promoting evidence-based management at school

☐ informing local stakeholders and mobilizing their support

Q2. Which key aspects of school operations require systematic records?
(Please fill in the blanks marked by dotted lines)

- Students – personal and family characteristics; previous educational experiences; grade admitted to; attendance; academic performance; behaviour; achievements/faults; outcomes (e.g. promotion to next grade or repeating grade or drop out or transferred or graduated; etc.)

- ....

- Physical facilities – quantity and condition of school buildings, classrooms, furniture, equipment and other physical facilities; maintenance, repairs and new constructions; rate of utilization; etc.

- Teaching/learning materials – quantity and condition by type of material; new acquisitions; rate of utilization; etc.

- ....

- Extra-curricular and co-curricular activities – type of activities; schedules; staff involved; number of participants; results; impact; etc.

- School and community interactions – school management board meetings; parent-teacher association activities; school-and-community activities; etc.

Q3. Name the ten key standard school records that can be implemented in schools.
(Please fill in the blanks marked by dotted lines)

1. Student records

2. ....

3. Textbook record sheet

4. Student performance summary

5. ....

6. Teacher performance evaluation report

7. ....

8. Inventory of furniture and equipment

9. Inventory of teaching/learning materials

10. ....

Q4. Type of school records and management schedule:

(In the brackets below the table, please write the management schedule which corresponds to each of the listed types of school records A-J)

Type of School Record	Management Schedule
A. Student record card	**1** – Created at the end of each term
B. Class attendance sheet	**2** – Created at the end of each term and of the school year
C. Textbook record sheet	**3** – Created after teacher evaluation at the end of school year
D. Student performance summary	**4** – Updated at beginning of and throughout the school year
E. Teacher record	**5** – Updated at beginning of and throughout the school year
F. Teacher performance evaluation report	**6** – Created at the beginning of each term
G. Inventory of physical facilities	**7** – Updated at beginning of and throughout the school year
H. Inventory of furniture/equipment	**8** – Created at enrolment; continuously updated
I. Inventory of teaching/learning resource materials	**9** – Updated every school day by class teacher
J. Financial summary	**10** – Created when teacher joins school; continuously updated

A. (   ) B. (   ) C. (   ) D. (   ) E. (   ) F. (   ) G. (   ) H. (   ) I. (   ) J. (   )

Q5. All school staff must be trained in using the school records to:
(Please tick all correct cases)

❏ falsify information for personal interest

❏ monitor and evaluate the efficiency and effectiveness of school activities

❏ organize and conduct daily school activities

❏ deceive students, parents, school manager and colleagues

❏ set up their own schools

❏ maintain and manage school facilities

❏ contradict school policies and regulatory requirements

❏ misinform the local government and community

❏ assist all stakeholders inside and outside of the school to make good use of the information

❏ generate from school records a better understanding the school's achievements and shortcomings

❏ provide relevant support

❏ enhance the quality of education in the school

Q6. What are the stages in school record management?
(Please fill in the blanks marked by dotted lines)

1. **creation** – the act of starting to accumulate information into a record in a systematic and organized manner in order to enable easy access and retrieval;

2. **storage and protection** – the ways the records are stored and protected from illicit access and damage:

3. ....

4. **access and retrieval** – the acts to search for, locate and extract records from storage;

5. ....

6. **appraisal and retention** – the process of determining whether a record should be: (i) retained for active use; (ii) archived; or (iii) disposed of. Also to be determined is the duration of retention of different active records. The inactive records will be transferred to the archive and other records with little or no historical value will be destroyed.

7. **archival** – the process of storing inactive records in an organized manner so that they are available and can be retrieved for use;

8. ....

Q7. What do the following key principles of data quality in school records mean?
(Please write in the brackets below the table the number of the meaning which corresponds to each key principle)

Key principles	Management Schedule
A. Regularity	**1.** data quality norms and practices are clearly defined, understood and followed in gathering and entering data and information into the record forms
B. Completeness	**2.** make sure that data are recorded based on the same concept, definition and measurement among schools and over time
C. Accuracy	**3.** adhering to planned roles and schedule in systematically recording, storing and updating the school records
D. Consistency	**4.** fill in as much as possible all the data required in a record; explain clearly the reason for any omissions or partial data

A. (   ) B. (   ) C. (   ) D. (   )

Q8. School records can be directly used to generate:
(Please tick all correct answers)

- ❏ National education policy
- ❏ Summary lists
- ❏ School textbooks
- ❏ Summary tables and graphs
- ❏ Better examination results among students
- ❏ Indicators
- ❏ Misunderstanding of what the school does
- ❏ Students dropping out of school
- ❏ Responses to school census questionnaire
- ❏ Annual reports of the Ministry of Education

Q9. There is a need to standardize key school records because:
(Please fill in the blanks in the paragraph below using the following words: 'definitions', 'discrepancies', 'terminologies', 'types of data', 'formats')

"Imagine a situation in which different schools keep different kinds of school records using different .... to record different .... following different practices. The variety of information recorded and the diversity of data quality based on different........................and .... not to mention possible .... in the methods and tools used to record information, would make it very difficult to understand and meaningfully compare the performance of schools."

Q10. The principles to follow in designing standard school records are as follows:
(Please fill in the blanks using the following words: 'Complete and practical', 'data quality norms', 'unambiguous', 'Capture', 'keep/maintain/protect')

• Simple ....

• .... all of the data and information needed

• Clearly presented and ....

• Easy to fill out and update

• Easy to ....

• All the terms are clearly defined and explained

• Well-defined ....

• .... instructions

• Present the recorded data so it is easy to understand and use.

11 Further studies

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Module A2 Data Collection and Quality Control

SYSTEMATIC MONITORING OF EDUCATION FOR ALL

TRAINING MODULES FOR ASIA-PACIFIC

EFA

CONTENTS Module A2 : Data Collection and Quality Control

| Module A2 | Data Collection and Quality Control |

1 Purpose and expected learning outcomes

1.1 Overview

Building on the School Records Management System described in Module A1, this module will focus on **how to collect high quality data during school census for monitoring EFA.**

In this module, you will learn how data can be collected from schools and used for EFA Monitoring. You will learn about good practices for gathering data during annual school censuses – including **good practices that should be employed by the Ministry of Education, provincial or district educations offices, and individual schools – to ensure relevant and reliable data are available to support EFA monitoring.**

1.2 Getting started

"Our country has committed to achieve the international EFA goals by the year 2015," the Honorable Minister for Education told his staff, "The world is watching our progress. Please show me the latest data about our performance."

The Ministry of Education's staff hurried away to review all available data. They quickly realized, however, that there are many gaps in the data. Furthermore, they realized some of the data they do have are not up–to-date nor reliable. "How can we improve our data collection system so we are able to monitor our progress toward achieving the EFA goals?" they wondered.

A couple of weeks later, the staff of the District Education Offices received the latest instructions from the Ministry of Education about the new school census.

"Oh, I know about this," one said, "Nothing new here! This is going to be the same questionnaire like before, asking for the same data…"

"But, look!" another officer interjected, "This questionnaire looks quite different. This time the Ministry has also included clear instructions for us at the District Education Office to help the schools to improve the quality of data they report to the school census questionnaire."

Another few days pass and the schools start to receive their school census packages. When the head-teacher in a local school opens the envelope, she notices the changes.

"Hmm! It seems the Ministry of Education has improved the questionnaire," she mused, "They have improved the design of the form and also included clear explanations to help me understand the data I need to submit. Let me see what kind of data are needed now."

She studied the form for a few minutes and a sigh of relief appeared on her face. "Thanks to the latest improvements in our school records management system," she said to herself, "We have most if not all the data requested in the questionnaire. I won't have any problem filling in the questionnaire this year."

1.3 Learning objectives

This module aims to help school managers and education officers at all levels (from local to district to province to central level) to learn about:

- the **close relationship between school records and data collection** during an annual school census.
- the **responsibilities of school managers and education officers at different levels**, and the roles they play in the process of collecting and sharing data during an annual school census.
- **how to organize and conduct a school census.**
- the basic knowledge and skills for **reporting to a school census.**
- techniques for **controlling and improving the quality of data**, collected during a school census.

2 The need for data by level of education administration

Before going into specific aspects of data collection, it is important to first understand the purpose of conducting a school census. Relevant and reliable data are needed to support decision-making, planning, management, monitoring and evaluation at all levels of the education system. As Figure 1 shows, education officers at different levels of the education system have different needs and uses for data.

- **Education officers at the central (or national) level** need data from all the schools in order to make policies, plans and strategies for the entire national education system.
- **Education officers at the provincial level** utilize data to improve the monitoring, coordination and management of education in schools in their area of authority.
- **School managers and district education officers** use detailed data from school records management systems to manage daily operations within a school or for groups of schools in a district or local area.

Figure 1. Need for data by level of the education administration

Question: Which level are you in?
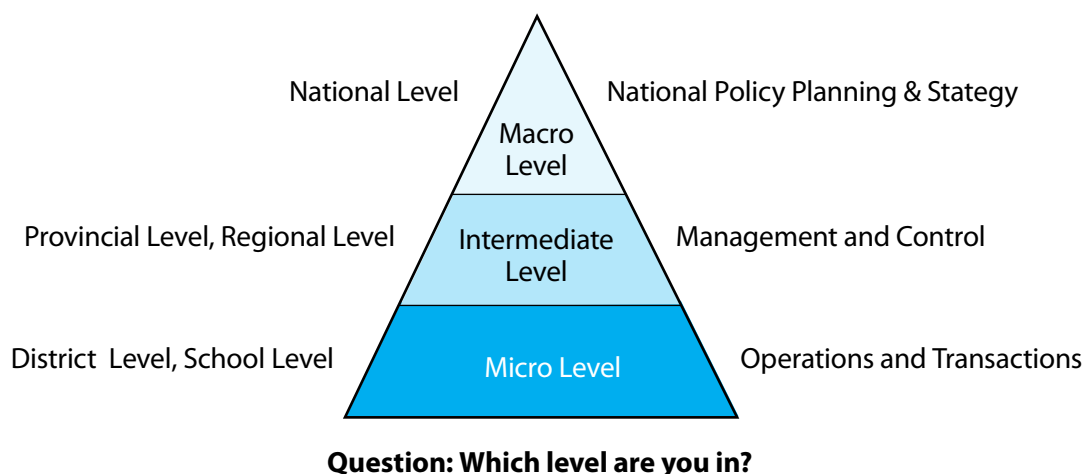
It is important to realize that, while people at different levels of the education administration system do have different needs and uses for data, there are certain core data that must be available to all. These essential data are necessary to ensure consistency in planning and management across the national education system.

In Module A1, we learned about the tools and techniques for systematically recording data in schools. In this module, we will review the roles of school managers and education officers at district, provincial and central levels in the collection of data during annual school censuses, using the data from school records. The emphasis is on developing the practical knowledge and skills that each person needs in order to contribute to such data collection.

ACTIVITY 1

With reference to Figure 1, please consider your role and functions and the types of data you need, and then answer the following questions:

1. What are your role and functions within the education system?
2. What type(s) of data do you need in your job? Please give examples.
3. How do you go about getting the data you need?
4. Have you have ever participated in a school census? If yes, what kind of difficulties have you experienced in responding to school censuses or using the data?

3 A general introduction to data collection

3.1 What is data collection?[1]

Data collection is a term used to describe a process of gathering (or obtaining) specific information about a phenomenon or an activity. Once collected, data can be stored in records or databases, analysed and used for purposes of monitoring or evaluation. The quality of data collected has a direct impact upon the quality of analysis that can be performed using the data, which ultimately impacts upon the quality of decisions that can be made.

In the education sector, data collection through school censuses aims to obtain relevant, up-to-date and reliable data and information regarding the education system as a whole. Officers at all levels of the education administration including school personnel can use the collected data to understand the current state of education in the country, and to support sound policy- and decision-making. While organizing and conducting a school census, the following **five principles of data collection** should be observed:

Relevance: the collected data should be relevant to the activity or phenomenon you intend to analyse and study.

Simplicity: the collected data should be simple in concept and easy to measure.

Accuracy: the collected data can accurately describe the activity, phenomenon, topic or issue you are studying.

Clarity: the collected data should be clear, unambiguous, easy to interpret and easy to understand.

Practicability: the collected data can be easily accessed and reliably used.

These principles may be summarized simply as the following **'5-right principles'**:[2]

Get the <u>right</u> data: collect data which are relevant to the specific topic or issue.

> *For example, to better understand gender disparity in school, one must collect data on students separately for boys and girls.*

Get the data <u>right</u>: collect data with precise definition and appropriate method of measurement.

> *For example, data on new entrants in Grade 1 must not include those who actually attended another school, dropped out, then enrolled in this school for the first time.*

Get the data <u>right</u> away: get current and timely data.

> *For example, school censuses should be organized as close to the start of the school year as possible, once enrolment is complete and attendance has stabilized.*

Get the data the <u>right</u> way: get data through a rigorous process which can guarantee data quality and ensure consistency.

> *Instructions about methods and data standards must be explained clearly. The people involved in data collection should be trained.*

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1 Association for the Development of Education in Africa (ADEA) Working Group on Education Statistics. 1997. Data collection for education statistics and management: national experiences.

2 Ligon , Glynn D. A Technology Framework to Support Accountability and Assessment How States Can Evaluate Their Status for No Child Left Behind. U.S. Department of Education Secretary's No Child Left Behind Leadership Summit, pp. 3-4 http://www.espsolutionsgroup.com/espweb/assets/files/NCLB_State_Readiness_ESPSolutionsGroup.pdf (Accessed 23 May, 2011).

Get the __right__ data management: collect reliable data which is guaranteed by good quality control conducted by relevant stakeholders.

> *It is important to involve all the stakeholders at different levels of the education system to check that the collected data are reliable and complete before they are processed, analysed and used.*

There is often a tendency for educational administrators to want to collect more data and in greater detail, but then failing to make full use of the data they collected. This should be avoided because the more data you require the schools to supply, the less data you will actually get, because of the negative effects of an increased reporting burden on schools. Always respect the motto: **'Do not collect data that will not be used.'**

ACTIVITY 2

Reflect on data collection activities in which you participated, and answer the following questions:

1. How did each of these data collection activities fulfill the key principles of relevance, simplicity, accuracy, clarity and practicability?
2. To what extent were the 5-right principles above applied?
3. What do you see as the difficulties in applying all these principles?

3.2 Sources of data - Where to get data related to education?[3]

It is necessary to understand from where data and information can be collected for education planning and management. There can be **five main sources of education data** (see Figure 2).

Figure 2. Sources of education data

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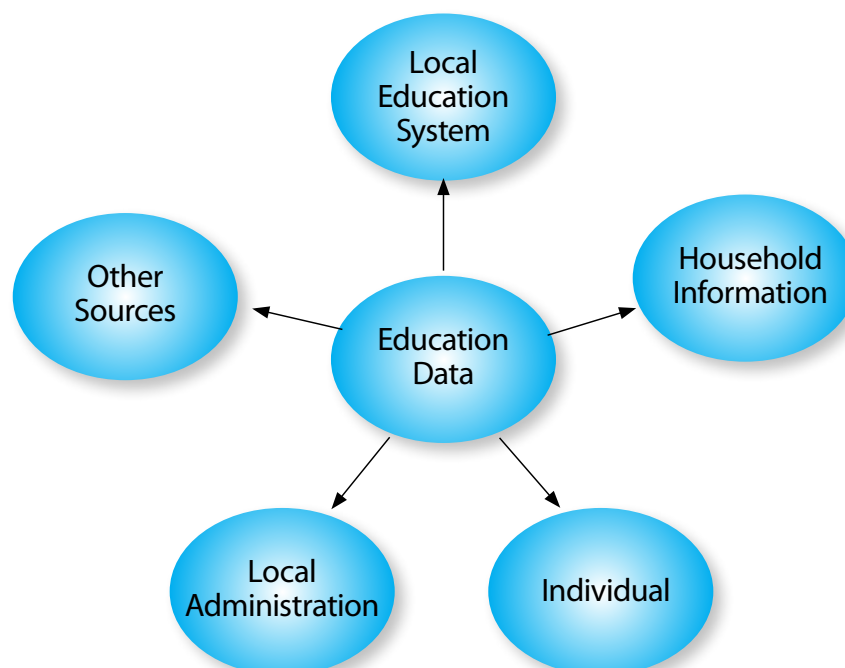
3 UNESCO Principal Regional Office for Asia and the Pacific. 1991. Micro-Level Educational Planning and Management Handbook. Bangkok, pp. 39-48.

3.2.1 Local educational institutions

Local educational institutions, which include formal institutions such as primary schools and secondary schools, as well as non-formal institutions such as Community Learning Centres and community-based education programmes, are the key sources of data about education. Records kept in these institutions contain data about education in the local area and are particularly useful as the basis for reporting data in response to the annual school census.

3.2.2 Household information

Local households are a second key source of data about education. Information regarding the social, economic and cultural background and the demographic characteristics of school-age children, youth and adults in the households are crucial for analysing factors that affect access and retention in education, and the impact of education.[4]

3.2.3 Individual persons

Individual persons refer to local people who are involved either directly or indirectly in education, such as students, teachers, principals, parents, local community leaders, etc. Detailed information about individual students and teachers is considered to be the most micro-level information about the education system. As individuals, students and teachers can provide information about the state of access and participation in the education system, the quality of education, as well as other data about the educational environment and realities within the local area. Gathering data from these individuals can help to identify the reasons why some children are not enrolled, drop out of school, or attend class irregularly, and how education impacts on their life.[5]

3.2.4 Local administration

The local government administration and other relevant local bodies may record and regularly update information about the local area and its population. Local administrative bodies may also keep information about public institutions, facilities and programmers, infrastructure, employment, social welfare and especially the disadvantaged population groups. Such information can help to identify ways to 'reach the unreached' which is key to the EFA goal of providing equitable access to quality education.

3.2.5 Other sources[6, 7]

There are other sources where useful data about education-related aspects of a local community may be obtained, such as:

- Health centres and health workers: information about family health status, epidemics, hygiene, nutrition, and disabilities.
- Police stations: information about juvenile delinquency, crime, security, etc.
- Religious centres: information about disadvantaged local population groups, social events with educational implications, etc.

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4 See Training Modules B1 –B5

5 See also Section 11 in Module A4.

6 UNESCO, Bangkok 2009. Developing Management Information Systems for Community Learning Centres: a Guidebook. Bangkok, p. 19. http://unesdoc.unesco.org/images/0018/001835/183534e.pdf (Accessed 23 May, 2011)

7 UNESCO. 1999. Monitoring and Evaluation of Literacy and Continuing Education Programs. Practitioners' Manual. UNESCO Principal Regional Office for Asia and the Pacific, Bangkok, p. 44.

- Local business entrepreneurs: information about the employment situation, skills in demand, and vocational training needs.
- The media (printed/electronic): information about community events; social activities; etc.
- NGOs and social workers: information about local development issues and disadvantaged people in the population
- Community neighbourhood bodies: information about children who are not attending school.

This module focuses on the first data source: schools and school records. Readers must however remember the other data sources and know that these are also useful for monitoring progress toward achieving the EFA goals.

Figure 3. Model of a NGO and formal education sector partnership

Case example: NGOs in Cambodia - "NGO Education Partnership (NEP)"

NEP is an organization that aims to improve access to quality education in Cambodia by promoting cooperation and dialogue among stakeholders. NEP works by developing dialogue about education between government and civil society organizations about issues in education, research on education and building the capacity of education-related NGOs.

Some of NEP's functions are to organize monthly meetings for sharing information, support school enrolment campaigns, publish research reports on education and participate in education policy reform discussions.

Information and data from monthly meetings, workshops, etc.

Information and data from monthly dialogue, reports, etc.

Local People ↔ NGOs ↔ Government

ACTIVITY 3

Please review the 5 sources of data above and, based on your own experience in your country, province or local area, answer the following questions:

1. What kind of data about education can be collected from the local education institutions? For what purpose(s)? Please give examples.

2. What kind of data about education can be collected from local households in your area? For what purpose(s)? Please give examples.

3. What kind of data about education can be collected from local individuals? For what purpose(s)? Please give examples.

4. What kind of data about education can be collected from the local administration? For what purpose(s)? Please give examples.

5. Please identify some other sources of data about education in your country, province or local area. What kind of data about education can be collected from them? For what purpose(s)? Please give examples.

3.3 Process of Data collection: How to collect data?[8]

There are various approaches to collecting data, depending upon the type of data you want to collect, and the source of the data. The **process of data collection must be systematic and based on well-defined procedures** that are appropriate to the context within which the data are being collected. **Questionnaire-based school census** is the way that is most commonly used to collect information about education. This section presents a concise introduction to the process of collecting data using a school census questionnaire.

There are **seven stages in the data collection process**, as depicted in Figure 4.

Figure 4. The process of data collection
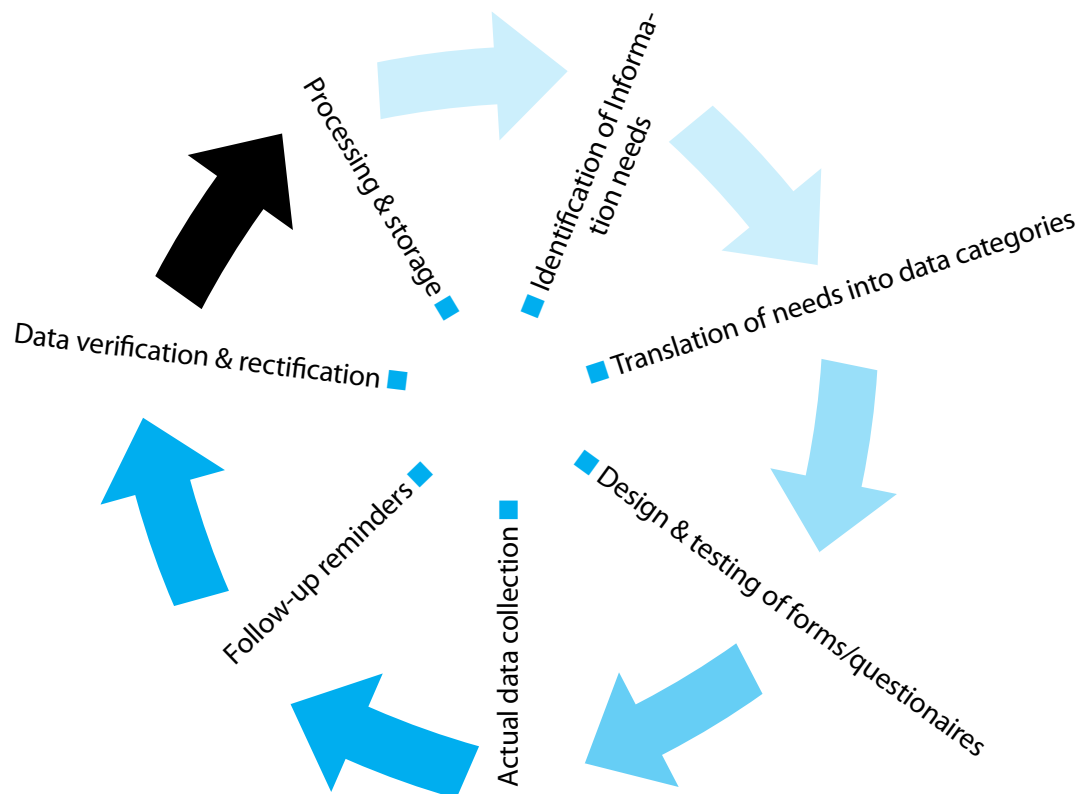
The process of data collection (circular diagram):
- Identification of Information needs
- Translation of needs into data categories
- Design & testing of forms/questionaires
- Actual data collection
- Follow-up reminders
- Data verification & rectification
- Processing & storage

8 UNESCO. 1996. Data Collection and Analysis: Improving the information base for literacy programs. Basic Manual. Paris, p. 16.

UNESCO. 2001. Educational management information systems Module 2A School Census Methodological and Technical Tools: Questionnaires and Data Collection. Bangkok.

UNESCO. 1991. Micro-Level Educational Planning and Management Handbook. Bangkok, pp. 44-45.

UNESCO. 1983. Training Seminars on Education Statistics, Basic Background Material Book 3 (Statistics of Education in Developing Countries). Paris, pp. 49-66.

Stage 1: Identification of information needs

Before you design a questionnaire or collect data, you must first have a clear understanding of what kind of information is needed and will be utilized.[9] You may recall that education stakeholders at various levels have different roles and responsibilities (see Figure 1 in Section 2), and they have different needs for information. **Find out what information these different stakeholders need and how they intend to use the information.** By comparing the information needs of various stakeholders, it is possible to identify common, core information that should be collected through the school census.

Stage 2: Translation of information needs into data categories

After identifying the core information that should be collected, the information should be prioritized and translated into specific data types and categories (for more information, see Section 4.2 below). These categories will provide the framework for designing the school census questionnaire. **Make sure that these data categories are easy to understand, the data is easy to find, as this will help school staff to respond to the questionnaire.** For example, more detailed data items under each main data category, such as the number of students by sex, grade or age, can be clearly defined and explained in practical terms.

Stage 3: Design, testing of forms/questionnaires and revision

After selecting the data categories, the next step is to design the questionnaire that will be used to collect data.

A. Designing the school census questionnaire
i. Choosing an instrument

A data collection instrument is a tool for monitoring or measuring an activity, behaviour or phenomena. It can be used to measure status, progress, shortcomings, performance, achievement, attitudes, or other particular attributes of the objects to be analysed. For a school census, the objects we are measuring are the schools, students, teachers, and teaching/learning activities. Most school censuses use questionnaires as the data collection instrument. Interviews, observations, group discussions can also be used to collect supplementary qualitative data.

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9 See motto in Section 3.1.

ii. Design of the questionnaire

The questionnaire should include specific questions and tables that will enable the collection of data for each category of data. While designing a census questionnaire, please refer to the following tips.

TIPS

■ The questionnaire must be respondent-friendly. The questions are clear and unambiguous. The layout of the form is simple and easy to follow. Most importantly, the design of the form should motivate the respondent to want to complete it from beginning to end.

■ The questions and explanations must be written in simple, clear language.

■ The questionnaire should not be too long, and the questions should be in a logical order.

■ Clear instructions about how to complete each part of the questionnaire must be provided, and the terms should be explained.

■ Make sure there is enough space to answer each question. Where appropriate, prompts for additional information such as 'Please specify' or 'Others' may be added to enable the respondents to provide additional information which is not included in the choices provided.

iii. Concise instruction and explanations

Provide concise general instructions in the beginning about how to fill out the questionnaire. Additional instructions may be placed next to complicated questions or tables to explain the terms and how best to respond to them. Some parts of the questionnaire may change from year to year. It is important to indicate what has changed and explain the changes.

B. Pre-test and feedback

i. Pre-test

It is very important to **try out the questionnaire with a representative sample of targeted respondents before distributing it to all respondents.** A pre-test helps to see how the respondents understand and interpret the questions, and what kind of difficulties they face in trying to respond to each question. The questionnaire's designers can then **use the feedback from the pre-test to fine-tune the design** and the questions that were misinterpreted or misunderstood by the respondents, or were too difficult to respond to.

In the initial pre-test, many of the questions may be presented as **open-ended questions** as this allows us to collect a wide range of possible responses. These responses to the open-ended questions can then be used to define a core list of possible responses and to develop **close-ended questions with multiple choices.**

ii. Feedback and finalization of the questionnaire

A thorough analysis of the feedback from the pre-test can help to finalize a fully operational questionnaire. **Based on the findings of the pre-test, ambiguities and difficulties in the questions and questionnaire design can be minimized by improving the phrasing of questions, response options, instructions and explanations**. This will ultimately contribute to improving the ease of data collection and the quantity and quality of data collected.

Stage 4: Collecting the data

After incorporating the feedback and finalizing the questionnaire, it can be disseminated to all schools to begin full-scale data collection. Responsibilities now shift from the Ministry of Education to the district education officers and local school managers. School managers, for example, should use the school records to prepare data and fill in the questionnaire, while district education officers would supervise and support the schools in such data collection processes, and ensure the completed questionnaires are sent to higher levels on time.

Such cooperation in data collection can help to strengthen the relationship and mutual accountability between the district education officers and the managers of school they oversee. This cooperation also allows the district education officers to gather first-hand information on the concerns and needs of the schools in their area.

There are several points about the data collection process that require special attention.

a) Date of distribution and collection of the questionnaire

The timing of the school census can influence the quality of the data that are collected. It is therefore important to launch the census at a time when data are available and likely to be most representative across all schools in the country. For this reason, **annual school censuses are often taken early in the school year at a time when enrolments have stabilized.** The Ministry of Education should consult with education officers in the field to determine when is the best date to launch the school census.

A deadline for the return of completed questionnaires must also be set. This deadline should allow enough time for the schools to prepare data and complete the questionnaire. It should also allow for extra delays in receiving the completed questionnaires from schools in remote areas. Equally important is for the deadline to respect the schedules for processing and analyzing the data, and final release of the information.

b) School registry and list of respondents

In order to make sure the questionnaires have been sent to all the relevant respondents, the Ministry of Education needs **to establish a system to track the distribution of questionnaires and record receipt of the completed questionnaires.** The school registry, which contains a comprehensive list of all schools and contact details of the school managers, should be updated for this purpose.

Prior to distribution of the school census questionnaire, every school should be contacted, either directly or through the district education office, to update and confirm their details. When the questionnaires are sent to a school, this can be recorded on the school registry. Likewise, when a school returns the completed questionnaire, the Ministry of Education can record the receipt in the school registry.

c) Distribution of the questionnaire to the respondents

Once the launching date of the annual school census is fixed, the Ministry of Education can distribute the questionnaires to all the schools that are listed in the school registry, either by mail or through administrative channels, such as through district education offices.

In many countries, the Ministry of Education prints the questionnaires at the central level and then distributes them through educational offices in the field. The district education offices are often in charge of forwarding the questionnaire to all the relevant schools within the district (see Figure 5). In some countries, however, the Ministry of Education decentralizes the printing and distribution of the school census questionnaires to the provincial department of education.

More and more, national ministries of education are disseminating the questionnaire using electronic media such as e-mail, CD-ROM, or USB stick. In a few countries, the Ministry of Education provides for direct, online data reporting through the Ministry of Education's website.

Figure 5. Flows of Questionnaire Distribution and Collection
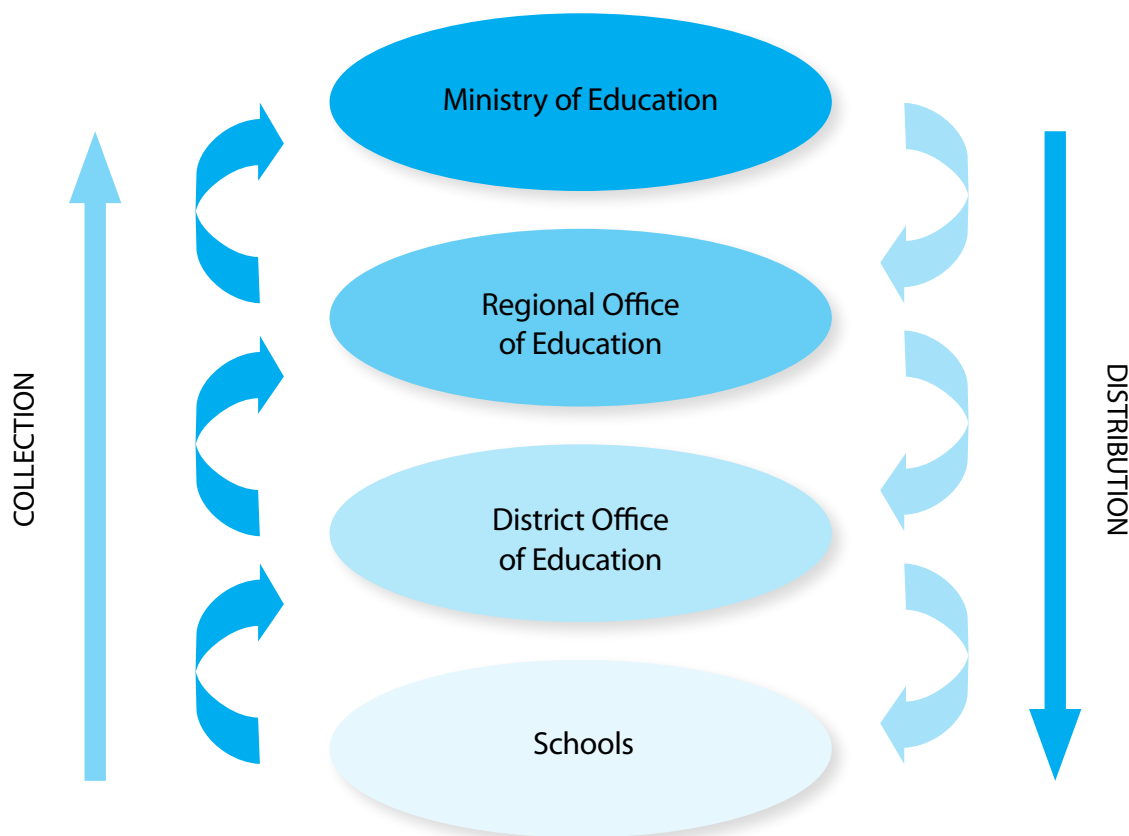
d) Completion of the questionnaire

School managers are responsible for completing the school census questionnaire accurately, clearly and in accordance with the questionnaire's instructions. It is, therefore, important that **the managers take time to read the general instructions and explanations before completing the questionnaire.**

If some of the questions cannot be answered, or if some of the data reported are incomplete, **appropriate footnotes and explanations must be given**. At this stage, **frequent communications between school personnel and education officers at district and local levels are crucial** to ensure that any problems and issues are addressed, and all parts of the questionnaire are completed properly.

e) Collection

In some countries, the completed questionnaires are collected by the district education officers, and then sent to the provincial level for onward transmission to the central level. Often, a copy of the completed questionnaire is kept at the education office at each level. In other countries, the school sends the completed questionnaire directly to the Ministry of Education, and provides a duplicate to the district and provincial education offices.

More recently, some countries have begun using Internet-based technologies, such as e-mail or the World Wide Web to conduct school censuses. When using the Internet, respondents can either return the electronic questionnaire file by e-mail, or be given an authorized log-on to the Ministry of Education website in order to fill out the questionnaire online.

Stage 5: Follow-up reminders

During a school census, district education officers should maintain regular contact with all the school managers in their district to ensure that all schools submit the completed questionnaire on time. It is the district education officer's responsibility to remind schools about the deadline for returning the completed questionnaire. **The district education officer should actively track the reporting status of each school and assist them if they need help**. By using computerized school databases, the Ministry of Education can automatically track the reporting status of each school, and inform district education officers and school inspectors to follow-up in reminding and assisting those schools that have not returned the questionnaire on time.

Stage 6: Data verification and rectification

Data verification is the process of cross-checking the completed census questionnaires for completeness and accuracy. Data verification is an important step in ensuring the data collected through the census is of high quality (see Section 6 for more details).

It is not uncommon for the schools to make errors or omissions while completing the questionnaire. Some of the errors can be detected directly by the school managers and corrected at the school level. Other errors and omissions can be identified by the district education officer and inspectors, or when comparing the data with those from other schools in the district. In such instances, the district education officer should immediately contact the school manager to clarify and rectify these errors.

Once the questionnaires have been returned to the Ministry of Education, other errors and omissions can be identified while entering data into the databases and during initial data processing and data analysis. **When a data error or omission is identified, the Ministry of Education should inform the relevant district education office to take action by contacting the school to obtain the correct or complete data.** Because of their physical proximity to the local schools, educational officers at the district and local levels are responsible for ensuring quality data are reported by the schools to the Ministry of Education.

During the data verification stage, three kinds of problems can arise. These are missing data, errors and inconsistencies. These are described briefly below, and further explained in Section 6:

Missing data – This occurs when there are questions that remain unanswered, or cells in tables that are not complete but which have no footnote to explain why the data are missing.

Errors – There can be obvious and not-so-obvious errors in the data. For example, when the total is not equal to the sum of the parts – like when the number of girl students is greater than the total number of students of both sexes, or when the total area of all classrooms is bigger than the reported total area of the school.

Inconsistencies – Different values for the same activity or phenomena are reported in different parts of the questionnaire. For example, the number of female students in Grade 2 in the table about school enrolment is 300, whilst the same number in another table is 289.

Some of the ways to either prevent, or handle these data problems are presented in Section 6.

Stage 7: Processing and storage

After data verification and rectification, the answers to questions and the data in the tables can be coded and entered into a database for computerized processing. In countries or provinces that have many schools, it **may be more efficient to enter, store and process the data using computers**. The EMIS database can be designed to capture, process and store every data item that was requested in the school census questionnaire. The database should also incorporate features to automatically check the quality of data, calculate the indicators, and generate summary lists, tables and graphics.

In cases where there are missing or inaccurate data which cannot be corrected immediately, it will be necessary to create a backup of the database in preparation for future corrections. In countries or provinces that do not have computerized facilities to process and store the data, it will be necessary to employ professional staff who can properly manage these data in paper files.

ACTIVITY 4

Based on your own experience of working with annual school censuses, please review the seven stages of data collection outlined in this section, compare them with your own practices, and then answer the questions below:

For school managers and personnel:

1. What are your roles and responsibilities with regard to the stages of data collection described above?
2. What kind of difficulties have you encountered when completing the school census questionnaire at your school?
3. How did you solve these problems when completing and returning the questionnaire?
4. What caused missing data or errors? How did you fix or minimize such problems?

For district education officers:

1. What are your roles and responsibilities with regard to the stages of data collection described above?
2. What kind of difficulties have you encountered while trying to ensure that all the schools in your district complete and return the school census questionnaire on time?
3. What do you think are the most important things to keep in mind during the seven stages of data collection? Why?

For central, provincial and regional education officers:

1. What are your roles and responsibilities with regard to the stages of data collection described above?
2. Based on your experience, what kinds of difficulties are often encountered when conducting a school census? How can you solve these problems? Please give examples.
3. What do you think are the most important things to keep in mind during the seven stages Of data collection? Why?
4. If you were to organize a school census, how would you go about it?

4 School census[10]

In most countries, the Ministry of Education uses the **school census as the main channel for collecting data from schools**. Yet, despite having well-defined procedures (see Section 3.3), many school managers continue to find it difficult to fill out the school census questionnaires and report to higher levels.

This section will help officers at all levels of the education administration to develop a better understanding of the purpose of conducting a school census and their respective roles and responsibilities in the process of completing the school census. School managers and district education officers will also understand the importance of maintaining good school records, and know how to utilize information from school records in reporting data to the school census (see also Module A1: School Records Management).

4.1 What is the purpose of a school census?

With networks of schools spreading far and wide across the country's territory, and thousands if not millions of students and teachers, the education system has to be closely monitored, regulated and supported not only by the government but also by all the concerned stakeholders so as to ensure that it delivers quality education for all.

The annual school census is an important nationwide action to collect relevant, reliable and comparable data from all schools in a country (see Figure 1 in Section 2). The data, indicators and information produced by the school census can be used as the basis for policies, planning, management and informed decision-making at each level of the education system's administration. They can also generate useful feedback to school managers and teachers so they can improve their practices in teaching, learning and school management.

In addition, by sharing the information collected during school censuses with key stakeholders such as national and local governments, community leaders, parents and the general public, everyone has the opportunity to stay informed about developments in the education sector. Key stakeholders can understand what is happening in education, where are the gaps, what are the latest issues, and what kind of support is needed from them in order to improve delivery of Education for All.[11]

In most countries, the Ministry of Education conducts a school census every year within one month of the beginning of the school year, when enrolment figures have stabilized. In such school censuses, data are collected about the students, teachers, textbooks, finance, condition of school facilities, etc. **Some countries conduct a second school census at the end of the school year to gather complementary data on the number of drop-outs and in-transfers, school income received and expenditure incurred, and the performance of teachers and students.**

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10 UNESCO. 1983. Training Seminars on Education Statistics, Basic Background Material Book 3 (Statistics of Education in Developing Countries). Paris, pp. 49-66.

11 See also Module A3 on Education indicators and data analysis, Module A4 on the Use of information in monitoring, planning and management, and Module A5 on Data flow and information dissemination.

For countries that operate a computerized EMIS (Education Management Information System) database, its design and functions should be synchronized with the seven stages of school census described in the previous section, so as to speedily and efficiently support data collection, processing, analysis, production and release of the needed education management information and EFA indicators.

ACTIVITY 5

Please review and discuss with various stakeholders about their perception of the purpose of the school census, and then answer the following questions. Where possible, please provide examples.

For school managers and personnel:

1. Why do you think it is important to conduct a school census?

2. What difficulties have you encountered when responding to the school census? What caused these difficulties? Please explain and give examples.

3. According to you, in what way can these difficulties be solved?

4. What kind of information resulting from a school census can be most useful for school managers?

For education officers at district and local level

1. Why do you think it is important to conduct a school census?

2. What kind of difficulties have the schools in your area encountered in responding to the school census? What caused these difficulties? Please explain and give examples.

3. In what way can you help to solve these difficulties?

4. What kind of information resulting from a school census can be most useful for education officers at the district and local education office?

For education officers at central and provincial level:

1. Why do you think it is important to conduct a school census?

2. To your knowledge, what kind of difficulties have the schools in your country/province encountered in responding to the school census? What caused these difficulties? Please explain and give examples.

3. In what way can you help to solve these difficulties?

4. What kind of information resulting from a school census can be most useful for education officers at the central or provincial level?

4.2 The school census questionnaire[12]

4.2.1 Components of a school census questionnaire

Most countries use questionnaires or forms as the main instrument for collecting data during school censuses. **The questionnaire should be designed to make it easy to collect reliable data from schools**, so as to produce useful information needed by all stakeholders to better understand what is happening in education and how to support effective policies, plans and management of the education system (see Figure 1 in Section 2).

The school census questionnaire must therefore cover most if not all key aspects of school operations (see Section 3 in Module A1). As different stakeholders have different needs for information, the choice of data to be collected during a school census must be determined by taking into consideration the:

    a. **Importance** of the decisions to be supported by the data.
    b. **Feasibility** of collecting such data from schools.
    c. **Capacity** of stakeholders to make good use of the collected data.

In the past, school census questionnaires in some countries were bulky, with pages after pages of blank forms that had to be filled in by the schools. The size and complexity of the questionnaire made it difficult for the school managers to assemble enough reliable data to complete it. Also, although large amounts of data were collected, the quality of the data was poor and the countries' education ministries could not fully utilize the data as the basis for policy, planning and decision-making.

Having learnt from these lessons, it is clear that **the size of the school census questionnaire matters.** Considering the trade-off between asking for more data and the difficulties for school managers to provide them, the recommended approach is not to over-load the questionnaire, but rather keep the questions, data queries and data details to a bare minimum. Collect only data that will be used, and limit the number of questions and their complexity strictly according to the degree of data details and disaggregation required.

The readers will learn in these modules that even with a very compact school census questionnaire (see example school census questionnaire on pp. 44-47 of this module), many useful education indicators and information can be generated for use in monitoring the education system and EFA.

In principle, **a national school census questionnaire should only request data that can highlight common issues and concerns across the entire national education system**. If special information is needed about education in a specific sub-region or sub-group in the population, either additional optional questions can be attached to the regular school census questionnaire, or a separate survey can be organized. For example, additional questions or surveys to collect information about the languages spoken at home in areas with ethnic minorities can help to assess the potential for mother-tongue education and preservation of linguistic plurality.

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12 UNESCO. 2001. Intensive Training course on Educational management information systems. Module 2A: School Census Methodological and Technical Tools: Questionnaires and Data Collection. Bangkok.

Association for the Development of Education in Africa (ADEA) Working Group on Education Statistics. 1997. Data collection for education statistics and management: national experiences. p. 14. http://www.adeanet.org/adeaPortal/publications/en_pubs_wges.jsp (Accessed 23 May, 2011)

The amount of information requested and the degree of data disaggregation required also matters. Not all information can be collected through the census questionnaire. For example, information about school facilities – materials used and conditions – are often technically detailed and complex. Reporting on these requires professional judgment based on specific technical standards and practices. Separate technical evaluation and reports may be required, and the annual school census questionnaire can only collect the more general summary data.

In terms of data disaggregation, the school census questionnaire should systematically request gender-disaggregated data about male and female students and teachers in order to help formulate gender-sensitive policies that will promote gender equality in education.

Careful decisions must therefore be made about which data to collect and the level of detail required. Always try to **strike a balance between collecting more key aggregate data, or more detailed disaggregated information** while remembering the need to make the questionnaire compact, easy-to-understand, easy-to-complete, and capable of collecting relevant and reliable data.

A school census questionnaire should include the following key components:
- **basic instructions and explanation of terms**
- **background information about the school**
- **school buildings/furniture/facilities/teaching-learning materials**
- **school income and expenditure for previous fiscal year**
- **teachers**
- **classes and students**
- **additional observations**

An example of a concise annual school census questionnaire is provided on pp. 40-45 to demonstrate how the key components listed above can be incorporated and presented. Each of these components is explained below.

4.2.2 Basic instructions and explanation of terms

It is clear from past experience that, when school managers don't understand how to respond to the questions and tables in the questionnaire, there is a higher incidence of errors, omissions, unreliable data, or simply failure to return the questionnaire. This problem may be reduced by providing concise explanations of all the terms and clear instructions about how to complete each part of the questionnaire. Such instructions can, for example:
- **clarify the purpose of the school census**
- **clearly define the terms and explain their meaning**
- **provide step-by-step instructions about how to fill in the data**
- **list any special symbols that may be used to indicate data limitations**
- **explain what to do and what not to do while completing the questionnaire**
- **advise of any changes to the questionnaire since the last school census**

General instructions and explanations that apply to the entire questionnaire can be presented either at the beginning of the questionnaire or as a separate annex to the questionnaire. **Specific explanations and instructions** are best shown next to the corresponding questions or tables. More detailed instructions may be provided for questions that tend to pose problems of misunderstanding, data errors and omissions. The advantage of placing the instructions next to individual questions is that the respondent can immediately see the explanations while responding to each question or filling in each table. It can, however, crowd the questionnaire design. Also, some explanations and instructions may be too long to fit in the pages. The example annual school census questionnaire on pp. 44- 47 shows how to embed instructions next to the questions and tables.

It is good practice to provide a combination of general instructions plus concise explanations embedded in the questionnaire. When school census questionnaires are distributed as an electronic file or accessed through the Internet, hyperlinks to the instructions may be provided alongside the relevant question so that by clicking on the hyperlink, the corresponding explanation and instructions can be shown on-screen.

TIPS

- Symbols used in the questionnaire: As shown in the example school census questionnaire on pp. 44-47, specific instructions should be provided to explain the use of special symbols to indicate various data limitations such as partial data or estimates.
- Information about the deadline for the return of the completed questionnaire should be clearly shown at the very beginning of the questionnaire.
- Location of instruction boxes: It is good practice to put the instruction boxes beside or below each question, or at least on the same page as their corresponding question. The explanation in the instruction box should be concise, clear and easy-to-understand.

ACTIVITY 6

Please gather and review the national school census questionnaire used in recent years, compare it with the example questionnaire on pp. 44-47, and then answer the following questions.

For school managers and personnel:

1. Do you understand the questions and the terms used in the national school census questionnaire?
2. Are the terms clearly defined, and are there adequate instructions about how to respond to each question? If yes, are they easy to find, easy to understand and easy to follow?
3. What additional explanations and instructions do you think will be needed in the national school census questionnaire?

For district, provincial and central education officers:

1. Are there adequate explanations of terms and instructions about how to respond to each question in the national school census questionnaire?
2. If yes, are they easy to find, easy to understand and easy to follow?
3. What kind of additional explanations and instructions do you think will be needed in the national school census questionnaire?

4.2.3 School background information

The first page of the school census questionnaire should allow the school manager to enter the most up-to-date information about the school, including the name of the school, its address, telephone numbers, type of school and names of key people on the school management board. The Ministry of Education can use information from this school background page to update the master list of schools in the Ministry's database, and to know about the governance of this school.

School name and address: Respondents should provide the **full name and address of the school to identify the school and for the Ministry of Education to record its location**.

> **TIPS**
> ■ Enough space: Provide enough space for the respondents to fill in the full school name and address and to minimize the use of abbreviations and acronyms.
> ■ Some countries assign a unique code to each school. Such codes may be either pre-printed on the school census questionnaire by the Ministry of Education or the district education office, or directly filled in by the school manager when completing the questionnaire. If the school manager is filling in the code, he/she should check to ensure that it is entered correctly.

Telephone No./Fax No./E-mail: It is important that all schools and especially schools in remote areas can be contacted quickly. Communication technologies such as phone, fax and e-mail can help to improve communications, but the contact details must be up-to-date. Each annual school census must collect the latest contact information from each school.

School type: Schools may be classified as government or non-government schools. Non-government schools may be sub-classified as community schools, religious schools or private schools, with or without government aid (see Question 7 in the example questionnaire on p. 44). Other specific types of school may be identified and included as appropriate in different countries. It is essential that **all the identified types of schools are mutually exclusive** so that there is no ambiguity of a school belonging to more than one type when responding to this question. The exact meaning of each type of school must be clearly explained in the instructions whilst allowing space for 'Others. Please specify:'

If needed, a separate question may be included to ask the schools to indicate whether they receive government aid or not, and what kind of aid.

> **TIPS**
> ■ Make sure that the school types are mutually exclusive with no overlap. A clear and concise definition of each school type must be given in the instruction box.
> ■ Open-ended question: Allow for exceptions to the given types by reserving space for 'Others. Please specify:' The specifications given can either help to better classify the school, or be re-grouped to form other major type(s) of school.

Information on the head of school and chairperson of the school management board: This information is used to identify the key persons who are responsible for school management. This information can also help to direct future queries about the data reported by the schools. Information about the key persons in the school should be updated any time there is a change of school manager or chairperson of the school management board. If no change, this information should be checked and confirmed during each annual school census.

Other school background information: Other relevant and useful background information about the school may be requested in this section. For example, the 'Year of establishment' question may help to assess the age of school facilities. Information about the levels of education offered at the school can be used in many ways, including rationalizing the local school network and strengthening the complementarily between schools (see Example 1).

Example 1. General School Information

PART 1 GENERAL SCHOOL INFORMATION

School Code: [   ]   School Name: [   ]

Phone Number: [   ]   Fax Number: [   ]   Email [   ]

Level of School: [   ]   1. ECE 2. Primary Only   3. Secondary Only   4. Primary + Secodary
5. ECE + Primary   6. ECE + Primary+Secondary   7. ECE to Grade 3
8. ECE to Form 2

Secertary of School Committee

Name: [   ]   Phone No.: [   ]

Contact Address: [   ]

Chairperson of School Committee

Name: [   ]   Phone No.: [   ]

Contact Address: [   ]

TIPS

- The choices given must be based on the national structure of levels of education.

- As some schools may offer more than one level of education, one can either provide the possibility of multiple choices of levels, or list out all possible combinations of levels of education and allow only one choice as in Example 1.

ACTIVITY 7

Compare the school background information and instructions in the latest national school census questionnaires with the example on p. 44, and then answer the following questions.

For school managers and personnel:

1. What kinds of school background information are requested in the school census questionnaire used in your country?

2. What kind of difficulties have you encountered when filling the section on school background information?

3. When compared with the discussion above and the example of school background information on p. 44, what do you think can be improved in your national school census questionnaire?

For district, provincial and central education officers:

1. What kinds of school background information are requested in the school census questionnaire used in your country? For what purpose are they included?

2. What are the strengths and weakness of these questions? How was the quality of data received so far? Please give examples.

3. When compared with the discussion above and the example of school background information on p. 44, what do you think can be improved in this part of your national school census questionnaire?

4.2.4 School facilities, buildings, furniture, equipment, teaching and learning materials

School facilities include tangible property such as buildings, furniture, equipment, and stock of teaching and learning materials. Depending on the overall state of school facilities in the country, and the need for up-to-date information, the national school census questionnaire may include questions about the **quantity and quality of each type of facilities**.[13] While planning the questionnaire, the Ministry of Education in each country should decide the degree of detail they require about each type of facilities in school. For some facilities, it may be necessary to ask detailed questions such as the age, condition, construction materials and frequency of use, while for other physical assets, a stock count may be sufficient.[14]

As can be seen in the example questionnaire on pp. 44-47, schools can have different types of buildings. Usually information about school buildings focuses on the number of classrooms and other rooms, and their surface area. In some cases, more detailed information may be asked about the year of construction, the materials used in construction, and the present condition of the building or rooms. Optional questions about classroom utilization, such as how many classrooms are used for double shifts or multi-grade classes, or the average number of hours per week classrooms are used, may be included in the questionnaire. Other additional details should only be requested if there is a

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13 See also Section 3.7 and 3.8 as well as Example 7, 8 and 9 in Module A1.

14 As mentioned at the beginning of Section 4.2, technical evaluation of the school's buildings may be required and requested as a separate report to avoid overloading the school census questionnaire.

genuine need and use for the information. As mentioned in Section 4.2, separate technical evaluation reports can be commissioned to examine the detailed state and conditions of school facilities, so as not to overload the school census questionnaire and over-burden the respondents.

In principle, information about the following list of school facilities should be collected in a school census:[15]

- **school land use**
- **buildings and fixed structures**
- **furniture**
- **equipment**
- **teaching materials**
- **learning materials**
- **electricity, water supply, latrine, etc.**

The purpose of collecting information about these facilities is to:

a. **check if there are enough facilities, materials and equipment for the number of students and range of school activities;**
b. **assess the quality and condition of these facilities so decisions can be made about acquiring new facilities or relocation, repair and maintenance of existing facilities, or disposal of expired assets;**
c. **collect data on the utilization rate to ensure the facilities are not laying idle and any money allocated to acquire new facilities or maintain existing facilities is being well spent.**

Data about school facilities should be updated regularly in the school records and used in response to related questions in the annual school census.

TIPS

■ Most countries have defined national standards and norms for school infrastructure and facilities. These standards should be clearly explained in the school census instructions. The questionnaire should be designed to collect information about the actual state of school facilities according to the standards.

■ Avoid requesting too detailed, technical information about school facilities in the questionnaire. Collect only summary data to help identify schools with specific problems in school facilities. Qualified experts can then be asked to conduct detailed investigations about the problems and provide technical reports.

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15 See Part 2 of the example on pp. 40–41.

 When requesting information **about the condition of school facilities, the criteria used for judging the state of repair should be objective and unambiguous**. If descriptions such as 'in good condition', 'in need of repair' or 'to be replaced' are used, the exact meaning of these terms should be clearly explained based on national standards. If no such standards have been defined, you may use a working definition of these conditions such as those in the instruction box in Part 2 of the example on p. 44, and adapt these for use. Avoid allowing non-technical people the opportunity to make subjective judgments about the state of school facilities.

4.2.5 Textbooks

Textbooks are a key resource for learning. **The main concern is about the availability and utilization of learning materials.** Some countries implement policies to provide free textbooks. They can collect data on learning materials using a table like the one shown in Example 2 below, to track the quantity of textbooks the school received from the Ministry of Education, and those distributed to students in each grade. By gathering this information, the Ministry of Education can manage the supply and distribution of textbooks from the government to the students.

Example 2. Textbooks received and distributed by school

Title of Textbook	New Textbooks received from MoE							Total Textbooks distributed to Students						
	G1	G2	G3	G4	G5	G6	Total	G1	G2	G3	G4	G5	G6	Total

To achieve the EFA goals by 2015, it is important that all students have access to appropriate learning materials including textbooks. This may be monitored by **identifying and counting those students who <u>do not</u> have the textbooks required** for their grade and subjects, so that appropriate actions can be taken to help them to obtain the missing textbooks. During the school census, such information can be collected using the table in Question 14 of the example questionnaire on p. 45. While filling in this table, the school manager can use the textbook record sheets in the school records.[16]

Data about missing textbooks can be used to compare the availability of textbooks among schools and to know the number and percentage of students who do not have each required textbook.[17] It is important for the schools to regularly update their textbook records to track the availability of textbooks, at least once at the beginning of each school term and during the school term.

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16 See Section 3.3 and Example 3 in Module A1.

17 See Section 8.1 and Example 30 in Module A4.

Schools should ensure their environment is safe and all students have access to basic amenities such as clean water, separate latrines for boys and girls, electricity, school meals, and other essential services at school. **Providing these facilities encourages students to actively attend class and aids their learning and completion of schooling**, which contributes to achieving the EFA Goals.[18] Questions 15 and 16 on p. 45 present possible ways to collect such data.

ACTIVITY 8

For school managers and personnel: Try to fill out the tables in Part 2 of the example school census questionnaire on pp. 44 regarding school buildings, furniture, facilities, equipment, and teaching/learning materials using recent data available in your school, and then answer the following questions.

1. How relevant and useful are these data on school building/furniture/equipment/ facilities/ teaching/learning materials? Why?

2. What kind of difficulties did you encounter while filling out the tables in Part 2 of the example annual school census questionnaire? Why?

3. What is the best way to collect data about your school's facilities? Please give examples.

For central, provincial and district education officers: Please compare your recent national school census questionnaires with the example tables given on pp. 44-47, and then answer the following questions.

1. How useful and important is it to collect data on school building/furniture/ equipment/facilities/ teaching/learning materials? Why?

2. In what ways do your data collection practices, and the type of data you collect, differ from those in the example annual school census questionnaire or in Example 2? Why?

3. What kind of difficulties can prevent a school from recording and reporting reliable data about its facilities? How might these problems occur?

4. What is the best way to collect data about a school's facilities? Please give examples.

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18 See Section 7.1 and Examples 24 and 25 in Module A4.

4.2.6 School income and expenditure

All schools must manage financial resources effectively. **Monitoring school finance by collecting income and expenditure data from schools** is an important part of nationwide education management and monitoring for EFA. The Ministry of Education can then identify funding gaps and problems in financial management in schools so as to take action to fill the gaps and address the problems.

With increasing decentralization and autonomy being given to schools to generate and manage financial resources, such data collection can help to **better understand the degree of diversification of school finance and accompanying issues and gaps.** Requiring schools to report on their financial status strengthens accountability and improves overall accountability in the financial system. It has the additional benefit of encouraging schools to maintain detailed and accurate ledgers and accounts as part of standard school management practices.

TIPS

- School managers should ensure that detailed and accurate financial ledgers and accounts are maintained and regularly updated for both school management and reporting purposes .

- School-level financial summaries should be prepared periodically. These financial summaries can be used for school management, reporting to local stakeholders and higher levels of the education administration.

Part 3 of the example school census questionnaire on p. 45 shows how data about school income and expenditure can be collected during an annual school census. School censuses, which usually take place at the beginning of the school year, collect summary financial data from the previous school year or financial year. Financial summaries[19] prepared by the school on a monthly or semester basis during the school year are used in ongoing school management and reporting.

Data about school income should be categorized by sources of income. Data about school expenditure should be categorized by type of expenditure. The 'type of expenditure' categories may either follow standard national practices, or include the categories suggested in Questions 17 and 18 on p. 45. Clear and concise definitions of the income categories and expenditure types must be attached to the questionnaire. If needed, a telephone hotline or Internet FAQ should be provided to answer questions so as to minimize errors in data on school finance.

Income

With decentralization, schools have gained autonomy and diversified their sources of income. Besides central government budget allocations, they can receive additional provincial, district and local government funding, and funding from non-governmental organizations, local business and communities, private bodies, donations, not to mention from school fees and income derived from products and services provided by the school. Collecting data on school income categorized by

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19 See Section 3.9 and Example 10 in Module A1.

source of fund can help to assess the effectiveness of decentralization and the degree of diversification of school finance. Clear instructions about reporting on school income by funding sources must accompany the school census questionnaire to minimize double-counting and other errors. Guidance can also be provided to the schools in mobilizing and managing diversified financial support.

Expenditure

In most countries, school expenditure is categorized as capital expenditure or current (or recurrent) expenditure. Each of these two main categories contains more detailed sub-categories of expenditure. While choosing which sub-categories to include in the school census questionnaire:

a. apply the national accounting standards as implemented by Ministry of Education;

b. include appropriate sub-categories to collect additional data on expenditure in schools.

For example, Part 3 of the example questionnaire on p. 45 includes specific expenditure sub-categories of: school transportation, school feeding programme, and boarding. When monitoring EFA, these are important expenditure categories to 'reach the unreached' by facilitating the participation of disadvantaged students from poor families or remote areas. Schools that do not have these expenditures can report their expenditure on these items as either zero or 'not applicable'. Based on the reported data, education officers at different levels can take more effective actions to 'reach the unreached' and monitor their impact.

ACTIVITY 9

For school managers and personnel: Using data available at your school, fill in the tables about school finance in Part 3 of the example questionnaire on p. 45, and then answer the following questions.

1. Why is it important to report data about school income and expenditure?

2. What kind of difficulties did you encounter while filling out Part 3 of the example school census questionnaire on p. 45? What was the reason for these difficulties?

3. Which sub-categories of school income and expenditure do not apply to your school? Which other sub-categories should be added?

For central education officers: Based on the discussions above, compare Part 3 of the example questionnaire on p. 45 with the practices of monitoring school finance in your country, province or district, and answer the following questions.

1. How important is it to collect data about income and expenditure from schools?

2. What kind of difficulties have you encountered in collecting data on income and expenditure from schools? What are the reasons for these difficulties?

3. Which sub-categories of school income and expenditure do not apply to the schools in your country/province/district? Which other sub-categories should be added?

4.2.7 Teachers

Teachers are the backbone of any education system. Without the devotion, commitment and contribution of teachers, it will not be possible to achieve EFA goals. Monitoring the teaching force and school personnel is therefore essential for EFA and school censuses.

School censuses can collect data about teachers using two alternative approaches:

a. Summary statistical tables; or

b. Summary list of teachers

Statistical summary tables: One or more statistical tables (see Examples 3 and 4) can be designed and used to collect data on head-counts of teachers according to various characteristics such as by gender, age-group, qualification, employment status, years of service, subject specialization, language and special skills, and from other individual information contained in teacher records as shown in Example 5 in Module A1.

Example 3. Number of teachers by gender and age-group

Gender	Age-groups						
	Below 20	21-30	31-40	41-50	51-60	Over 60	TOTAL
Male							
Female							
TOTAL							

Example 4. Number of teachers by highest academic qualification and teacher-training

Qualification and training	Highest academic qualification						
	Primary	Lower Secondary	Upper Secondary	Technical-Vocational	Post-Secondary non-degree	University Degree or above	TOTAL
Trained							
Untrained							
TOTAL							

The advantage of using summary tables is **that the reported head-count data can be immediately used to calculate various indicators** such as male-to-female teacher ratios, percentages of untrained or under-qualified teachers,[20] and other useful EFA indicators. The main disadvantage of using the summary tables approach is that a number of separate tables are required to collect data about head-counts of teachers according to different characteristics. The number of such summary tables may be too many and difficult for the school managers to fill in all of them. A solution will be **for the schools to use the latest teacher records to produce in advance such summary statistical tables**, so that the data can be readily and directly copied into the corresponding school census tables.

TIPS

- Marital status can be a key data to collect as it helps to decide on deployment of teachers to remote or disadvantaged areas, and on related salary scales and incentives.
- Data on the nationality, ethnicity and language capabilities of teachers can help to map the geographical distribution in the country of teachers of different nationalities and ethnicities, and of those who can teach in specific languages.

Summary list of teachers: Another way to collect information on teachers in schools is to include in the school census questionnaire a summary list of teachers (see Part 4 of the example questionnaire on p. 46). The school manager will use the teacher records in school to fill in this summary list by putting each teacher's name alongside key information about for example the teacher's gender, year of birth, highest academic qualification, pre-service and in-service teacher-training received, employment status, years of service, main responsibilities, subject and grade taught and average teaching hours per week. **This summary list does not need to include all the information in the teacher records** at school, but rather only those characteristics for which reliable information is available and which will be useful for education human resource management at the national and provincial level.

The Ministry of Education can use this information about individual teachers reported by all schools to update the central teacher database, and if applicable also the teacher records kept at the provincial and district education offices. By using a computerized database, the Ministry of Education can then easily generate a wide range of summary tables showing the number of teachers by different characteristics like the Examples 3 and 4, and by school, district, province as well as for the whole country. **This approach can minimize the workload of school managers, and reduce the risk of them making errors,** as they do not need to perform multiple teacher head-counts according to different characteristics, or to sum up and tabulate the resulting data. Schools that do not maintain and regularly update their teacher records will however have difficulty filling out this summary list. This approach can therefore encourage schools to maintain up-to-date and accurate teacher records.

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20 See Section 6.1 and Example 22 in Module A4.

TIPS

- Provide clear definitions and descriptions of each kind of teacher characteristics next to or below the summary list (see Part 4 of the example questionnaire on p. 46).

- Some teachers may teach several grades or subjects. The questionnaire should allow the respondent to indicate more than one grade and more than one subject.

- Those teachers who can teach in languages other than the national language should be identified in the teacher records, reported in the school census, and counted in summary tables by language and location as this can help to identify those teachers who may be deployed to specific schools based on their language abilities.

ACTIVITY 10

Gather samples of national school census questionnaires used in your country in recent years, review the section about teachers, compare with Part 4 of the example questionnaire on p. 46. Then, answer the following questions:

For school managers and personnel:

1. Is Part 4 of the example questionnaire on p. 46 different to the corresponding part about teachers in your national school census questionnaire? If so, in what way is it different?

2. What are the pros and cons of the two different approaches, namely using statistical summary tables or a summary list of teachers?

3. Do you maintain and update teacher records at your school? If yes, how would you go about using data from the teacher records for the school census? If no, how will you obtain reliable data about teachers for use in responding to the school census?

For district, provincial and central education officers:

1. How will you collect reliable data about teachers? Will you use the summary table approach, or the summary list approach described above? Why?

2. How will you use the data collected about teachers in the school census?

3. Does your Ministry of Education or education office maintain a teacher database? How regularly is this teacher database updated? How can the annual school census help to update your teacher database?

4. What kind of statistical summary tables about teachers will you create based on the data available in your database or data that could be collected through a summary list of teachers during the school census?

4.2.8 Classes and Students

Students are the main constituents, clients, beneficiaries as well as products of education. Students learn in groups or classes at school. In this section, we look at ways of collecting data about classes and students in the school census. Please also refer to Part 5 of the example school census questionnaire on p. 47.

Bear in mind the following two principles when collecting data about students:

Data accuracy: Tables about students require many head-counts by grade and by gender. Remind the respondents to take special care to ensure they enter accurate data and in the correct cells in the table.

Data completeness: Always fill in every cell in the tables. Where appropriate, use designated special symbols to indicate the nature of the data provided, for example '*' for 'Estimate'; '…' for 'Data not available'; '-' for 'Magnitude nil/negligible'; etc. For partial or incomplete data, remember to add a footnote to explain the limitations.

Number of classes by grade

Question 20 in the example school census questionnaire on p. 47 presents a simple table for collecting data about the number of classes in a school. A class is defined as a group of students who study together in a classroom, and are normally (but not always) in the same grade. The purpose of Question 20 is to identify how many classes, or groups of students, are in each grade in a school. The data may be extracted from general school records, or class records. To obtain the 'student-class ratio', or average class-size, simply **divide the total number of students by the total number of classes**. This ratio can be compared between grades and schools to identify classes that have too many, or too few, students.

Collecting data about classes is not always easy as there are many different class situations. Some schools, for example, have classes that are divided into morning and afternoon shifts, while some other schools may operate multi-grade classes. Example 5 presents one method to collect data a bout the number of classrooms used for multi-grade teaching.

Example 5. Number of classrooms with multi-grade classes

Grade	1+2	1+2+3	2+3	2+3+4	3+4	3+4+5	4+5	Others	TOTAL
No. of classroom									

Enrolment by grade, gender and age, and repeaters and in-transfers

The table for collecting data about enrolment by grade, gender and age is an important table in school censuses (see Question 21 in the example school census questionnaire on p. 47). It shows how participation in education varies by age and gender, and can be used to detect disparities in enrolment for planning remedial actions.

Student records contain the information needed to complete this table,[21] or student summary lists by class can be used.[22] The step-by-step instructions in the diagram below show how school managers and personnel can use student records and/or the student summary lists to accurately complete this summary table.

TIPS FOR COMPLETING THE AGE-GRADE GENDER TABLE
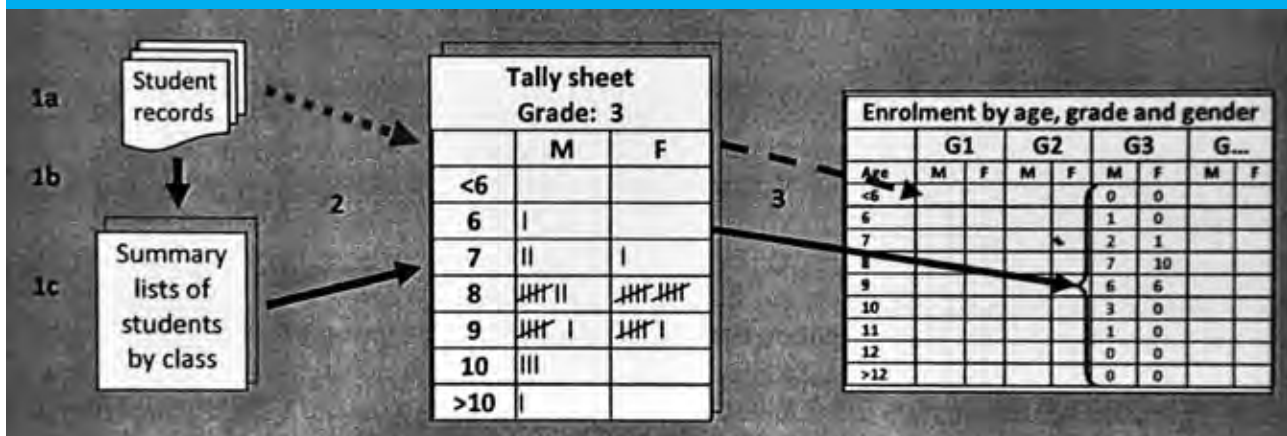
- ■ **Step 1a:** Gather together all the student records and group them by class and grade.

- ■ **Step 1b:** Copy each student's name, age and sex into a student summary list by class (see Section 7 and Example 12 in Module A1).

- ■ **Step 1c:** Gather all the summary lists of students by class/grade (if these exist).

- ■ **Step 2:** Read through the individual student records, or the summary lists of students by class, and then tally the number of students in each grade by age and gender.

- ■ **Step 3:** After completing the tally sheets for all the grades and students in the school, count the tallies and fill the corresponding numbers into each cell of the age-grade-gender enrolment table, grade-by-grade, and then add up the horizontal and vertical totals.

    Age: Based on national practice, a date can be indicated as the cut-off date for determining the age of students (see the instruction below Question 21 on p. 47).

    Grade: Apply the age-grade correspondence as defined in the national education structure.

    Reference date: Data about enrolment should refer to a common date for all schools, or for a limited range of a few days. This reference date should be clearly defined in the census instructions.

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21 See Section 3.1 and Example 1 in Module A1.

22 See Section 7.1 and Example 12 in Module A1.

Students who repeat a grade, 'in-transfer' students and drop-outs by grade

Data about students who repeat a grade and 'in-transfer' students by grade can be used to assess the internal efficiency and quality of the school.[23] Data about the number of students who repeat a grade and 'in-transfers' can be tallied from student records[24] or student summary lists by class,[25] and reported using the same table for enrolment by grade, gender and age in Question 21 of the example school census questionnaire on p. 47. Data about drop out students by grade can be recorded throughout the school year, and reported separately either at the end of the school year, or in the school census questionnaire in the following year.

New entrants to Grade 1

Data about new entrants to Grade 1 are essential for gauging the degree of admission, and hence first-time access, to primary education. Data about the number of new entrants into Grade 1 can be tallied in the same way as above from either the student records[26] or student summary lists by class for Grade 1 (see Section 7.1 and Example 12 in Module A1), and directly copied into the statistical table in Question 22 on p. 47. The data collected can be used to identify disparities in access to primary education between boys and girls, and the number and percentage of over-aged or under-aged students who entered primary education for the first time (see Example 14 in Module A1).

> **TIPS**
>
> - Be careful not to confuse 'New entrants to Grade 1' with 'Enrolment in Grade 1' as the latter may include students who repeat Grade 1.
>
> - To the extent possible, separate 'In-transfers into Grade 1' from 'New entrants to Grade 1' by identifying those students who transferred into this school from another school.
>
> - Data about the number of new entrants to Grade 1 who participated in early childhood care and/or education (ECCE) are useful for monitoring EFA. These can be added to the bottom of the table in Question 22 of the example questionnaire on p.47.

Examination results for the previous school year

Tests and examinations are organized in school to assess progress and identify students with learning problems. Schools can retrieve data about students who successfully passed examinations during the previous school year from school records , and use them to fill in the table in Question 23 of the example school census questionnaire on p. 47. Students who passed the final examination in the highest grade may be considered as students who have successfully completed primary education. Such data can be used to calculate the indicator of **completion rate**.[27]

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23 See also Annex 3 of Module A3.
24 See Section 3.1 and Example 1 in Module A1.
25 See Section 7.1 and Example 12 in Module A1.
26 See Section 3.1 and Example 1 in Module A1.
27 See Sections 3.1 and 3.4 and Examples 1 and 4 in Module A1.

Duration of travel of students from home to school

Experiences in many countries have shown that **the distance between students' home and school, or the duration of travel to and from school, can affect access and participation in education** especially student's regularity in class attendance and learning. Question 24 in the example school census questionnaire presents a table to collect data about the number of students according to duration of travel from home to school, by grade and gender. Such data can be extracted from student records.[28]

Example 6 below shows a similar table based on the distance between home and school. This table can be used to collect data on the number of students in terms of distance from school. Either this or the table in Question 24 can be used, and the common purpose of both is to identify students who either live too far from school or take long hours to reach school.[29] These data can **guide rational planning of the location of schools as well as measures to adjust class schedules, organize transportation services, and/or establish boarding facilities** for students from distant areas.

Example 6. Number of students by distance from home to school, by grade and gender

Distance	Grade 1		Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Total all grades		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	Total
< 1 km															
1–2 km															
2-3 km															
3-4 km															
> 4 km															
Total															

Other optional questions and tables

Depending on specific contexts and information needs, other optional questions or tables may be added to the school census questionnaire, providing they apply to all schools and are absolutely essential. Otherwise, **special surveys may be organized separately** to ask these optional questions to specific individual schools.

In Example 7, the school census questionnaire from the Lao People's Democratic Republic requires the schools to provide data about the number of new entrants to Grade 1 by gender and **language group**. These data can in principle be extracted from the student records.[30] The Ministry of Education can use information about the size and location of students from different language groups to organize appropriate actions to: (a) teach them in the mother tongue; (b) adjust curricula for language teaching; and (c) recruit, train and deploy teachers with different language capabilities.

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28 See Module A3.

29 See Section 3.1 and Example 1 in Module A1.

30 Distance can be measured either by physical distance or time of travel from home to school, depending on each country/region's context. See Section 5.2 and Example 19 in Module A4.

Example 7. Number of new entrants to Grade 1 by gender and language group in Lao PDR

Type and sex / Language	With ECCE			Without ECCE			TOTAL		
	M	F	Both	M	F	Both	M	F	Both
Lao Tai									
Mon Khmer									
Chinese Tibetan									
Hmong Yuemian									
Foreigner									
Others									
TOTAL									

Information about students with disabilities (see Example 8 below) can help the Ministry of Education to develop policies and action to improve their access, participation and attendance in school or other types of adapted learning experiences. Data about students with **disabilities** can be obtained from the student records.[31]

Example 8. Number of students by types of disability, by grade and gender

Type of Disability	Grade 1		Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Total all Grades		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	TOTAL
Visual															
Hearing															
Talking															
Walking															
Mental															
Other															
Total															

---

31 See Section 3.1 and Example 1 in Module A1.

Information about **other barriers** that prevent some children from fully participating in primary education, such as those from poor households, socio-cultural restrictions, health and nutritional problems, should be collected to enable EFA monitoring with the goal of 'reaching the unreached'. These data should only be requested in the annual school census questionnaire if the data are reliably recorded by all schools as part of their school record system.

Additional information

Always reserve some space at the end of the school census questionnaire for the respondents to provide relevant additional information, as shown in Part 6 of the example school census questionnaire on p. 47. Such information about the school may not have been asked in any of the questions and tables from Parts 1 to 5. The respondent can also use this space to specify possible limitations and problems in the data they reported. Any other relevant information that the respondent may wish to add can be included here as well.

ACTIVITY 11

For school managers and personnel: Try to fill in the tables in Part 5 about classes and students in the example school census questionnaire on p. 47, and then answer the following questions.

1. Are the data in your school records adequate for responding to Questions 20 to 24? What data are missing in your school records? Will it be useful to record this information in future? If yes, how? If no, why not?

2. How relevant and useful is the table on the number of classes by grade in your school? What kind of difficulties have you encountered in filling it in? Why?

3. How relevant and useful are the four tables in Questions 21 to 24 about students? What kind of difficulties have you encountered in filling them in? Why?

4. What other tables or questions about classes and students should be added to the school census questionnaire? Why? How would you go about adding them?

5. What kind of problems and issues should be addressed regarding the collection of data about classes and students during school censuses?

For district, provincial and central education officers: Compare the questions and tables about classes and students in your national school census questionnaire with those in Part 5 of the example school census questionnaire on p. 47. Then, answer the following questions.

1. What are the differences between the two questionnaires with regard to classes and students? What are their respective advantages and disadvantages in terms of relevance and usefulness of the data? How would you go about further improving your national school census questionnaire, taking lessons from this comparison?

2. What are the differences between the two questionnaires with regard to definitions and classification of the categories? How would you go about harmonizing them? Are there fundamental differences that cannot be harmonized? Why?

3. How would you define and categorize 'students with special needs'? How would you go about collecting data on 'students with special needs'?

Symbol

Coding

ANNUAL SCHOOL CENSUS

Information must be correct as on the 30th September this year
Please complete all required information on this form. Please use the following symbols when you find data in the situations as explained:
. . . No Data Available   * Estimation   - Magnitude nil/negligible   • Not applicable
X Data included in another category or column

PART 1: SCHOOL BACKGROUD INFORMATION
1. School code: ☐☐☐☐☐☐   2. School name:...
3. School Address (Full Address): ....
....
....
4. Phone No. .... 5. Fax No.......................... 6. Email: ....
7. Type of School: ☐   Others. Please specify: ....

Open-ended Question

Instruction: Please insert the box number corresponding to your school type from 1 to 5. For 'Others', please specify:

1. Government school: School managed and funded by Government
2. Local Community School: School managed and funded by community
3. Private government aided school: School managed and funded partial ly by private sector, partially by government.
4. Private school solely managed and funded by provate enterprise or individuals.
5. Religious school, temple school, church school, mosque school etc.

8. Head of School
Name: ....Phone No. ....
Contact Address: ....
....
....

9. Chairperson of School Management Board:
Name: ....Phone No. ....
Contact Address: ....
....
....

Precise explanation of specific categories

PART 2: SCHOOL BUILDING FURNITURE/FACILITIES/TEACHING/LEARNING MATERIALS

10. Building	No. according to condition			Total	Additional needed
	Good condition	To repair	To repair		
Building					
Classrooms					
Administration rooms					
Teacher rooms					
Library rooms					
Laboratory					
Toilets					
Others (specify)					
1					
2					
3					
...					
Total					

12. Equipment	No. according to condition			Total	Additional needed
	Good condition	To repair	To repair		
Telephone					
Photocopier					
Printer					
Computer					
TV					
Science equipment					
Others (specify)					
1					
2					
3					
...					
Total					

Good condition/order: *No need to repair/replace at least in the next two years.*
To repair: *Can still use, but need to be repaired.*
To replace: *Cannot be used. Must be replaced.*

11. Furniture	No. according to condition			Total	Additional needed
	Good condition	To repair	To repair		
Classroom desks					
Classroom chairs					
Teacher tables					
Teacher chairs					
Blackboard					
Whiteboard					
Cupboards					
Others (specify)					
1					
2					
3					
...					
Total					

Clear, easy-to-understand explanation or definition

13. Furniture	No. according to condition			Total	Additional needed
	Good condition	To repair	To repair		
Maps					
Wallcharts					
Flipcharts					
Flash cards					
Kits					
Scientific models					
Toys					
Others (specify)					
1					
2					
3					
...					
Total					

14. Number of students by grade *who do not have* text books by subject							
Learning Material	G1	G2	G3	G4	G5	G6	Total
National language							
Foreign language							
Mathematic							
Science							
Social studies							
Geography							
Physical education							
Music							
Other (specify)							
1							
2							
3							
. . .							
Total							

Instruction: Please fill in the number of students who do not have textbooks by subject and grade

To highlight special question

15. School Area

Type	Area (sq. meter)
Total area of school	
Playground and sport ground	
Total area of all classroom	

16. Basic facility (Please tick appropriate boxes)

Availability	Not available	Available	
Electricity		☐	Electricity grid
		☐	Generator
		☐	Others (specify)
Water supply		☐	Pipe water
		☐	Deep bore hole / Bore hole / Gravity
		☐	Others (specify)
Latrine		☐	Separated units male/female
		☐	Separated units teacher/student
		☐	Others (specify)

PART 3: SCHOOL INCOME AND EXPENDITURE FOR PREVIOUS BUDGET YEAR

17. Income by source

Source of income	Amount
A. Government	
a. Central Government	
b. Provincial Government	
c. District Government	
d. Local Government	
B. Non-government	
a. Local community	
b. Local business	
c. NGOs	
d. Agencies	
C. School Revenue	
a. School fees	
b. Rental of facilities	
c. Products/Services	
d. Donations	
D. Other (specify)	
a.	
b.	
c.	
Total	

Non-governmental sources should be given consideration

18. Expenditure by type

Type of Expenditure	Amount
A. Capital Expenditure	
a. Construction	
b. Major repairs	
c. Equipment	
d. Bulk purchase of books	
e. Other capital expenditure	
B. Current expenditure	
a. Teacher slaraies	
b. Staff salaries	
c. Purchase of supplies	
d. Contracted services	
e. Maintenance	
f. Transportation	
g. School feeding program	
h. Boarding	
i. Electricity	
j. Water	
K. Telephone	
C. Other (specify)	
Total	

Some special categories should be given consideration depending on the context of the region or country

45

PART 4: TEACHERS

19. Information on individual teachers and school staff

No.	Surname/First Name	Sex	DOB dd/mm/yy	Years of Service	Highest level Education	Teacher Training	Employment Status	Actual Responsibility	Grade(s) Subject(s) taught in academic year		Teaching Hours week
									Grade(s)	Subject(s)	
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

For use in summarizing statistical information on teachers and school staff

For use in teacher management

To provide for teachers who teach more than one grade or more than one subject

SEX

Please fill in M for male and F for female

YEARS OF SERVICE

Please indicate codes 1 to 7 that best corresponds to the teacher's years of service:

1 <5
2 5-9
3 10-14
4 15-19
5 20-24
6 25-29
7 >30

LEVEL OF EDUCATION

Please give the option that corresponds to the teacher's highest education:

1. Tertiary level, master degree
2. Tertiary level, university degree
3. Tertiary level, non-university
4. Upper secondary education
5. Lower secondary education
6. Primary education
7. No education

TEACHER TRAINING

Please give the option that corresponds to the teacher's qualification:

0. None
1. Teacher training college, 2-3 years
2. Teacher training college,1 year
3. In -service training
4. Others, please specify

EMPLOYMENT STATUS

Please give the option that corresponds to the teacher's employment:

1. Permanent, full-time
2. Permanent, part-time
3. Temporary agreement, full-time
4. Temporary agreement, part-time
5. Aid agreements, voluntary services
6. Trainees
7. Others, please specify

ACTUAL RESPONSIBILITY

Please give the option that corresponds to the teacher's responsibility:

1. Class teacher
2. Subject teacher
3. Administration staff
4. Teacher (Main)/Administrator on staff (Secondary)
5. Administration staff (Main)/ Teacher (Secondary)
6. Others, please specify

GRADE

Please specify all grades each teacher is teaching

1. Grade 1 **4.** Grade 4
2. Grade 2 **5.** Grade 5
3. Grade 3 **6.** Grade 6

SUBJECT

Please specify all subjects each teacher is teaching

1. National language
2. Foreign language
3. Mathematics
4. Science
5. Social studies
6. Geography
7. Physical education
8. Music
9. Arts
10. Others, please specify

To explain "Main" and "Secondary" responsibilities

PART 5: CLASSES AND STUDENTS

20. Number of classes by grade (this school year)

	Grade 1		Grade2	Grade3	Grade4			Total Grade 1-6
Classes								

Do not confuse 'class' and 'grade'

Instruction: A class is a group of pupils who normally are in the same group and occupy the same classroom. The number of classes does not necessarily equal the number of grades nor classrooms

21. Enrolment, Repeaters and In-transfers by age, grade and sex (this school year)

Age	Grade 1		Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Total Grade 1-6		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	Total
Below 6															
7 years															
8 years															
9 years															
10 years															
11 years															
12 years															
Above 12															
Total Enrolment															
Total Repeaters															
Total In-transfers															

Instruction: Enrolment: The number of students who are enrolled at the school in this school year

Instruction: Age: Pupils are classified by their age as of December 31 this year
M: Male
F: Female

Instruction: Repeaters: Pupils who enrolled in the same grade as last school year

Instruction: In-transfer: Pupils who moved to this school in this school year from another school

22. New Entrants to Grade 1

Age	New entrants to grade 1		
	M	F	Total
Below 6			
7 years			
8 years			
9 years			
10 years			
11 years			
12 years			
Above 12			
Total			
With ECCE			

Instruction:
New entrants: Pupils who attended Grade 1 for the first time.
ECCE: New entrants to Grade 1 who had previous experience in early childhood care.

23. Examination Results for the last academic year

Category	G1		G2		G3		G4		G5		G6	
	M	F	M	F	M	F	M	F	M	F	M	F
Students who successfully passed/ completed												

Instruction:
Students successfully passed: Please fill out the cells from Grade 1 to Grade 5
Students successfully completed: Please fill out the cells under Grade 6

24. Number of students according to the duration of travel from home to school by grade and number

Distance in km	G1		G2		G3		G4		G5		G6		G1-6		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	Total
<15 mins															
15-30 mins															
30-45 mins															
45-60 mins															
> 1 hour															
Total															

PART 6-25: ADDITIONAL INFORMATION *(please specify any information not covered in the tables)*

Verified by:
Full name: ....
Signature: ....
Tel: ....
E-mail: ....
Date: ....

4.3 School Census: Roles and responsibilities

Various stakeholders, from the Ministry of Education through to school staff, are involved in the processes of the school census. Each of them has specific roles and responsibilities at different stages of the census process as summarized in Table 1 and discussed in detail below.

Table 1. Roles and responsibilities during the school census

Stages	Design the questionaire	Pre-test	Revision	Distribution	Filling the questionaire	Return	Processing
Main responsible bodies	Ministry of Education (MOE)	MOE with selected schools	MOE	MOE with the help of PEOs and DEOs	School managers	School manager to MOE	MOE

4.3.1 Designing the questionnaire

The Ministry of Education is responsible for organizing the school census process and designing the questionnaire. Before designing the questionnaire, the Ministry of Education's staff review past, present and future needs for information and identify the data that should be collected to meet these needs. The following tips may help while designing the census questionnaire.

TIPS

- Guidelines, explanatory notes and definitions: Provide clear definitions and explanations of the terms, categories and data standards in the questionnaire. Always provide practical instructions on how to fill in each part of the questionnaire (see the example annual school census questionnaire on pp. 44-47)

- Clear and simple: Use simple and straight-forward language in the questionnaire that can be easily understood.

- Special explanation for changes from one year to another year: If there are any changes from the previous year, explain the changes in the questionnaire.

- Convenient size: Keep the size of the questionnaire small and handy. Its format and the number of pages should be convenient for transmission and completion. If possible, try to limit the questionnaire to not more than 4 pages.

- Design for computerized data processing: For countries which operate a computerized education management information system (EMIS), the questions and tables in the questionnaire should be designed to facilitate completion for eventual computerized data entry and processing. For example, answers to close-ended questions can be pre-coded, and data reported in the tables can be directly and efficiently entered into computer storage.

- Suitable timing for collecting available data: The census should be held at a time when the required data are available and also when it is convenient to distribute the questionnaire and collect the completed form. One month after the start of the school year, when enrolments have stabilized, is often a suitable time to conduct a school census.

To collect the data that are necessary for monitoring progress in 'reaching the unreached' under Education for All, the design of questionnaires should take into account various social, economic, cultural and linguistic contexts especially among disadvantaged population groups of different ethnicities, languages, religions, cultural traditions, attitudes towards schooling, children with various disabilities, etc.

CHECK LIST FOR GOOD DESIGN OF SCHOOL CENSUS QUESTIONNAIRES

- Is the size of the questionnaire easy to handle and complete?
- Is the layout clear and unambiguous?
- Is the text easy to read and to understand?
- Is the number of questions kept to a minimum?
- Is the sequence of the questions logical?
- Is there enough space for filling in the answers?
- Are the boxes, tables and headings well organized?
- Do the tables have a limited number of sub-categories?
- Are tables printed on one page, rather than being split across two pages?
- Are the closed-ended questions pre-coded?
- Are the closed-ended response options mutually exclusive?
- Are open-ended questions kept to a minimum?
- Is it a self-contained questionnaire (with all the essential explanations and instructions given in the questionnaire)?
- Are the instructions clear and easy-to-follow?

4.3.2 Pre-testing

Pre-testing the draft school census questionnaire with a representative sample of schools is an important step before finalization and full-scale distribution of the questionnaires to collect data from all schools. The purpose is:

1. To check if the questionnaire is easy to handle and complete, the questions and tables are clear, easy to understand and easy to respond to, and if there are any errors, ambiguities and improvements needed.

2. To gather possible answers to open-ended questions so as to identify the most common responses. These can be set as multiple choice options for close-ended questions.

The Ministry of Education is responsible for planning and organizing pre-tests of the school census questionnaire. The sample schools selected should represent different sizes and characteristics among schools in the country. If the schedule and resources for preparing the school census allow, try to pre-test the questionnaire with more schools so as to obtain more feedback. The district education offices which oversee the sample schools can be asked to help the Ministry of Education to distribute the pre-test questionnaire and gather feedback from these schools.

TIPS ON BASIC STEPS IN PRE-TESTING SCHOOL CENSUS QUESTIONNAIRE:

■ Sampling: Select for pre-tests a sample of schools which are as representative as possible of the characteristics of all the schools.

■ Questionnaire: Make sure a sufficient number of copies of the draft questionnaire are printed for use during the pre-test.

■ Gather feedback: Instruct all local interviewers and pre-test administrators to gather and report a maximum amount of feedback about the questionnaire's design, question wording, table format, functionalities, instructions, etc.

■ Conducting pre-testing: Make every effort to ensure full and timely distribution of the draft questionnaire to all the sample schools, and assist every one of them to complete the pre-test with feedback comments and suggestions.

■ Debriefing the interviewers and checking the results: Gather and review all feedback and comments from the respondents, and then check all the results to eliminate errors, ambiguities and omissions.

During the pre-test, feedback comments and suggestions are sought about the following aspects:

CHECK LIST PRE-TESTING

■ How did the interview go?
■ Did the interviewers receive valid feedback comments and suggestions?
■ Is the questionnaire too long? Or too short? Which parts? Why?
■ Is the questionnaire design clear and handy? What should be improved?
■ Is the order of the questions logical?
■ Are the questions and instructions easy to understand?
■ Are the format and space for answers to each question or table suitable for filling in the required response?
■ Which parts of the questionnaire create ambiguity or raise additional questions?
■ Which parts of the questionnaire seem repetitive or redundant?
■ Were the respondents able to understand and follow all the instructions?

4.3.3 Revision of the school census questionnaire

Following the pre-test, the **Ministry of Education** revises the questionnaire and the instructions based on the results and feedback gathered. The revisions will focus on streamlining, fine-tuning and finalizing the content and design of the questionnaire including its structure, layout, question phrasing, table format, definitions, explanations and instructions. If new information that should be collected during the school census was identified during the pre-test, it will be taken into consideration while designing the final school census questionnaire.

4.3.4 Distribution of the questionnaire

There are different ways to distribute the blank questionnaire to schools. In some countries, the **Ministry of Education** sends the printed questionnaire directly to the schools. In other countries, the Ministry of Education sends boxes of questionnaires to the provincial education office which in turn further distributes them to the district education offices. The district education offices then deliver the blank questionnaires to the schools.

In countries where the provinces have a high degree of autonomy, the central Ministry of Education may only provide the final design of the school census questionnaire to the **provincial education offices**, and allow them to add questions and tables to collect additional data they need, before they print and distribute the questionnaires to the schools.

Before distributing the blank questionnaires to the schools and collecting the completed returns, the **district and local education officers** should remember to:

• **Update the local school list** and carefully check the distribution of questionnaires to make sure that all the schools and their school managers receive the questionnaire.

• **Choose the most suitable time for distribution of the questionnaires** (within the timeline set by the Ministry of Education) and for reminding the schools about the submission deadlines to ensure they return the completed questionnaire on time.

As the use of ICT is becoming more prevalent in many countries, the Ministry of Education can collect data from the schools electronically. There are several tools and methods for achieving this including:

a) The **Ministry of Education** sends an electronic copy of the census questionnaire as an e-mail attachment or on CD-ROM. Schools that have computers with Internet access can complete and send back the file electronically. For schools that do not have computers or Internet access, the district education office can print the questionnaire and instructions on paper and give these to the school. The school may then complete the questionnaire by hand, for the district education office to enter the data into an electronic form on behalf of the school. Once the Ministry of Education has received the data in electronic files, they can be transferred directly into the Ministry's EMIS database.

b) The **Ministry of Education** creates and uploads an Internet version of the school census questionnaire online, and provides authorization to school managers to access it through the Ministry of Education's website. The school manager can directly enter their answers to the questions and data into the tables of the online questionnaire. They can also easily access the definitions and instructions by clicking the hyperlinks.

4.3.5 Completing the questionnaire
School managers are responsible for gathering the school records and summarizing the data to fill in the questionnaire. District or local education officers may provide guidance and assistance when needed. They can also guide the school managers in gathering the right data and completing the questionnaire in the right way, and ensure they return the completed questionnaire on time (see the **5-right principles** in Section 3.1).

TIPS FOR SCHOOL MANAGERS WHILE COMPLETING THE QUESTIONNAIRE:
- Carefully read all the instructions and be sure to follow them while completing the questionnaire.
- Check each page, each question and each table before returning the questionnaire to make sure they are properly filled in and that no data is missing.
- Add a footnote on the bottom of the page, or provide an explanation at the end of the questionnaire, to explain the reasons for any questions with no responses or where the data provided has caveats or limitations.
- Contact the district education officers as often as needed for assistance/guidance.

In practice, **school inspectors** can help **district and local education officers** to assist school managers to correctly complete the school census questionnaire and return it on time. As school inspectors usually have a thorough knowledge of the state of the schools in their area, they can be very effective in these tasks. School inspectors should therefore be trained in the school census process, so they can not only assist the school managers but also get and use the latest data for school improvement.

4.3.6 Return of the completed questionnaires
Three kinds of actions can be taken by the **district education officers** and **school inspectors** to help school managers to complete and return the questionnaires on time:

If schools send their completed questionnaires to the **district education officer**, the district education officer should make a preliminary check of the completed questionnaires when they are received, to make sure that all the questions and tables are completed on every page, and that most of the answers and data seem to be logical and correct (see also Section 6 on data quality control for details). If there are data omissions and obvious errors in the returned school questionnaire, the district education officer should contact the school manager to clarify and correct these data omissions and errors. Once the district education officer has verified that the questionnaire is complete and correct, they can forward it to higher levels of the education administration.

The **district education officer** should keep a copy of each school's completed questionnaire as these are useful for updating the records kept at the district education office, and also for further analysis and use in managing and supporting schools in the district.

When the questionnaires are delivered to the provincial level, the **provincial education officer** should verify that all the schools within their province have properly completed the questionnaire, and identify the schools that have missed the deadline. If any schools fail to respond by the deadline, the provincial education officer may either contact the school directly, or through the responsible district education officer, to help find solutions to any problems that have prevented the school from responding to the census questionnaire. As part of the data quality control process, the provincial education officers will select and check a sample of the completed questionnaires for more detailed data omissions and errors (see also Section 6 on data quality control for details).

When the **Ministry of Education** receives the completed questionnaires, it will monitor the response rate and help the provincial and district education offices to collect questionnaires from schools that haven't responded. The Ministry of Education is also responsible for entering data from the census into the central EMIS database, and performing additional quality control checks, before processing the data and performing analysis (see also Section 6 on data quality control for details).

ACTIVITY 12

Discuss and clarify with education officers from other levels of the education administration about respective roles and tasks during school census data collection, and answer the following questions:

1. What are the similarities and differences between the practices in your own country/province/district and the description provided in this section with regard to the roles, responsibilities and tasks of various people during the school census process?

2. Could such processes be further improved in your own country/province/district? If yes, how?

5 Data collection for 'reaching the unreached' in EFA

5.1 Who are the 'unreached'?

The 'unreached' are those children and youth who are of school age but who are not attending school. Some of these children may have never attended school, others may have attended school but dropped out. The 'unreached' are the priority target population of EFA.

There are many reasons why some children and youth do not attend school, including social, economic, cultural, political, geographical factors and lack of accessibility (especially for children and youth with disabilities) and family awareness about the value of education. In South East Asia, the following groups of 'unreached' children and youth have been identified:

- **Learners from remote and rural communities**
- **Ethno-linguistic minorities/indigenous groups**
- **Girls and women, especially from rural, ethnic minorities**
- **Boys who under-perform and are at a higher risk of dropping out**
- **Children from migrant families, refugees, stateless children**
- **Learners with disabilities and special needs**
- **Children from very poor families**
- **Child laborers**
- **Street children**
- **Children affected by HIV and AIDS**
- **Children in difficult circumstances**

5.2 What data do we need?

Getting to know about the 'unreached' is the first step to 'reaching the unreached'. For this, we need data and information that can help answer the following questions:

- **Who are the 'unreached'?** – Nationality, ethnicity, language, religion, social group/caste, poor, disability, other characteristics.
- **Where are they?** - Location, distance between home and school, means of access to school, etc.
- **How many are they?** - Population size, gender balance, age, etc.
- **Their education situation** - Past enrolment, performance, history of drop-outs, learning achievement, etc.
- **Reasons for being 'unreached'** - Family issues, social issues, health issues, school issues, etc.
- **Others -** Previous experiences in attempting to reach them, and the results and lesson learnt.

By answering these questions using the available information and data, we can develop a better understanding of the unreached population, and appropriate actions to 'reach' them.

5.3 How to collect data and information on the 'unreached'?

In most countries, education administrators find it difficult to collect reliable data about the 'unreached'. School censuses collect data about children who attend school. It can be difficult to use the same school census questionnaire to collect information about out-of-school children. **Such data are**

therefore usually derived from other sources such as population censuses, household surveys and information from local administrative records. It is important that these other sources provide data identifying the whereabouts of the 'unreached'. The data should also help to understand who these children are in terms of gender and age, and if possible also their family, household and community characteristics.

Education administrators at each level, including the schools, should use population census and household survey data to help identify the 'unreached' children and youth. Where appropriate, more detailed information can be gathered from local government or NGO offices about specific characteristics of local areas and populations that could prevent children from attending school. **District Education Officers and school inspectors may also make special visits, conduct interviews or do surveys to collect additional data and information from local areas and stakeholders.**

Due to their close proximity to 'unreached' children in the local area, school teachers and students often have a good knowledge about children in their community who are not attending school. Students, for example, may be asked to find out about other children from their neighborhood or the same ethnic/linguistic group who do not attend school and report back. Teachers may also enquire in their community about children who are not attending school.

Once local 'unreached' children have been identified, **school personnel or teachers may visit the family to understand the reasons why they do not attend school.** The information collected during these visits may be included in school records and updated regularly, so that appropriate actions may be taken to bring these children to school. The annual school census questionnaire may then include an additional question to collect data on the number of out-of-school children, by gender and age, who are within walking distance from the school.

ACTIVITY 13

Please try to collect data and information on 'unreached' out-of-school children from the sources mentioned above, and then answer the following questions:

1. In your country, which children may be considered to be 'unreached'? Please give examples.
2. What kind of data should you collect about 'unreached' children and youth? Why?
3. From your experience, which source(s) can provide the most reliable data about 'unreached' children and youth?
4 What difficulties have you encountered while collecting data about the 'unreached'?
5. For school managers, how do you propose to collect, record and report data about the 'unreached'?

6 Data quality control

To be successful and useful, a school census must collect relevant, comprehensive and reliable data about every school. To do so, **rigorous data collection methods using appropriate instruments must be adopted, accompanied by well-defined procedures and strict application of data quality norms and control practices**. Controlling data quality is essential throughout the entire data collection process. In this section, we look at the concept and practices of data quality control, and the roles and responsibilities of each level of the education administration.

6.1 Purpose of data quality control

When collecting data, it is important that the data collected are of high quality so that they can be reliably used as the basis to make sound decisions. To ensure data quality, **data control measures must be applied at every stage of the data collection process**, including when updating school records (see Section 6 in Module A1), creating data summaries from the records and completing the school census questionnaire at the school level. Additional data quality controls should be applied by district, provincial and central education officers, and when entering the data into computerized EMIS database as well as during data analysis, interpretation and use.

6.2 Sources of problems in data quality [32]

Various problems can affect data quality and subsequent data analysis and use in decision-making. Five main sources of data quality problems can be identified as follows:

- Poor school records: Non-existent, incomplete or inaccurate school records (see Module A1) can make it difficult for school managers to complete the school census questionnaire with reliable information. If a lot of schools have incomplete or inaccurate school records, it can impact the overall quality of the school census.

  For example: If a school does not keep records of students without textbook by subject, it cannot report the number of such students nor of the missing textbooks during the school census. The resulting national data will be incomplete and under-represent the real situation, thereby leading to wrong understanding and decisions regarding textbook production and distribution.

- Bad design of the school census questionnaire: Inappropriate structure and presentation of the questions and tables, and missing or unclear explanations and instructions (see Sections 4.2 and 4.3), can cause errors while completing the school census questionnaire, if not also many omissions of important data.

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32 UNESCO. 2001. Intensive Training course on Educational Management information systems, Module 2B School Census Methodological and Technical Tools: Data Building and Database Management, pp. 8-10.

UNESCO. 1996. Data Collection and Analysis: Improving the information base for literacy programmes. Basic Manual. Paris, p. 17

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Cameron, L. 2005. Methodology for Evaluating Data Quality, Working Paper WP-07-02. Washington, DC: Education Policy and Data Center. Academy for Educational Development.

For example: A complex statistical table that presents multiple layers of headings and sub-headings that try to collect data on the number of students, repeaters, in-transfers, drop-outs by gender and age all in one table will be very difficult if not impossible to complete, which may cause the respondent to provide inaccurate or incomplete data.

- **Lack of understanding of data terms, concepts and categories:** Respondents fill in the questionnaire without reading and fully understanding the data concepts, terms and categories.

  For example: Respondents don't understand they need to subtract the number of students who have repeated Grade 1 from those students who are enrolled in Grade 1 when asked to provide data about new entrants into Grade 1.

- **Incorrect completion of questionnaire:** Respondents enter either incorrect data or correct data but into the wrong cell, or have not completed all the essential cells of the questionnaire.

  For example:
  - The number of female new entrants to Grade 1 was 343, but 34 was filled in the questionnaire. This will affect information about the gender balance in this school.
  - 343 was entered, but into the cell for male new entrants to Grade 1.
  - School managers did not fill all essential cells in the questionnaire using the correct symbols given in the beginning of the questionnaire (see example on p. 40).

- **Inadequate and careless checking of the completed questionnaire:** School managers, district education officers, inspectors and other stakeholders did not thoroughly check the completed questionnaires for errors and omissions.

  For example: The school manager and the district education officer checked to see whether all the questions and tables were completed, but failed to check for obvious data errors.

Data quality problems can be caused by heavy workload and unclear definitions of roles, responsibilities and tasks among those responsible for completing and verifying the school census questionnaire. Poorly designed questionnaire, inadequate understanding of the instructions, intentional or unintentional misreporting, and many other factors can also affect data quality during school censuses. Having a thorough understanding of the factors that can affect data quality is essential.

6.3 Data quality control during data collection

Data quality control can be done:

    a. Before and during school census data collection.

    b. During data entry and processing.

    c. When analysing, interpreting and using the data.

The following part introduces some general methods and practical tips for carrying out data quality control during the processes of data collection.

6.3.1 School record management

Quality data begins at the source. Standards and procedures about records management should be clearly defined and implemented in all schools. Schools must be required to maintain school records in a systematic and rigorous manner so information is available for regular school management[33] and for use in responding to the annual school census questionnaire.

6.3.2 Design, pre-test and revision of the school census questionnaire

Data quality control mechanisms should be built into the design of the census questionnaire and refined through the pre-test and subsequent revisions.

> **TIPS**
>
> ■ Carefully investigate the socio-economic characteristics and aspects of culture that can affect school reporting and quality control practices, and consider how the questionnaire should be designed to minimize such problems.
>
> ■ Design the school census questionnaire with clear structure, presentation and explanations, and concise instructions.
>
> ■ Thoroughly revise the questionnaire based on the feedback gathered from the pre-test, before the finalized questionnaire is distributed to schools across the country.

6.3.3 Completing the questionnaire

> **TIPS**
>
> ■ Respondents must read and fully understand the instructions for completing the school census questionnaire, and should ask district education officers for help when needed.
>
> ■ School managers must carefully check and re-check the data for omissions and errors during and after completion of the questionnaire.
>
> ■ District education officers and school inspectors should train relevant school personnel and maintain frequent communication with them to monitor progress while they complete the school census questionnaire, and to offer help with data or reporting problems.

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33 See Section 6 in Module A1.

6.3.4 Data verification and quality control

TIPS

- Data quality checks and controls should be done as close to the data source as possible to make it easier for school managers and district education officers to trace data errors and omissions back to records and information at school.

- School managers should check for data omissions, errors in calculations, inconsistencies within and across tables, and for the incorrect use of special symbols (see next section for details).

- District education officers and inspectors should systematically check for late or missing responses, misunderstanding among school managers, and data omissions and errors (see next section for details).

- Training in data quality control procedures should be provided to education officers at the district and provincial levels to ensure they can check and control the quality of data from the schools.

6.3.5 Data quality control during data entry and processing

Additional data quality controls can be applied during data entry and processing.

TIPS

- Automatic data verification mechanisms can be designed and incorporated into data entry systems using computers or internet-based online systems, to indicate data omissions, errors and inconsistencies. For example, the system may automatically add up all the values in rows and columns and cross-check with the reported totals.

- Once data entry is complete, calculating derived statistics such as percentages, ratios and rates can highlight missing data and errors. For example, it may signal errors when girls account for more than 100% of total enrolment, or when there are student-teacher ratios of more than 1000.

- When school managers enter data online, built-in automatic data verification systems can immediately signal any data omissions and errors on-screen, so that corrections can be made immediately.

6.3.6 Data quality control during data analysis and interpretation

The processes of deriving indicators and analysing and interpreting the information from the school census data can help to highlight and identify other data anomalies.

TIPS

■ Calculation of education indicators and comparing them among provinces, districts and schools can reveal unlikely or illogical results that can be traced back to data or calculation errors.

■ Further data errors and inconsistencies can be detected while interpreting the analytical results to draw conclusions.

■ Having other persons to review the analytical results may help to identify data anomalies that were not obvious during the initial analysis.

■ When disseminating information products and indicators, encourage the users to query the information or make comments. Standard procedures for referring queries back to the appropriate district education officer or school manager should be defined and implemented.

6.4 The role of stakeholders in data quality control for school census

Without serious data quality control, the data collection process can be like cooking food without tasting it. Stakeholders at different levels of the education administration can play specific roles in data quality control. These are described in more detail below.

6.4.1 Schools and school administrators

School, as the main source of school census data, can be considered the most important level for data quality control. At this level, attention may focus on two aspects:

School records

School records must be created and updated in a systematic, complete and accurate manner. School records can be subject to frequent review by the responsible school personnel to ensure the data in the records are always accurate and up-to-date.

When preparing to respond to the school census, school managers and staff including teachers should retrieve the relevant school records, extract the correct information, and carefully tally the data in order to answer the questions and properly fill in the tables. During such preparations, school managers should ensure the data in the school records match the definitions of data in the school census (see Section 3 in Module A1 for details). When needed, the school manager should refer any errors or omissions to the school staff who are responsible for gathering and recording the data in the school records, so they can explain the omissions and rectify the errors.

Completing the school census questionnaire

Errors may occur when data are being entered into the school census questionnaire. This may occur for a number of reasons.

- **There is a mismatch between the data requested and the data in the school records** - This can occur if the school manager misunderstood the meaning of specific data categories in the school census questionnaire which are different in the school records, and used the wrong school data. School managers should always read the instructions and data definitions carefully before entering data, and consult district or local education officers if they need clarification or help.

- **Mis-coding of data in the questionnaire** - School managers should be careful in ensuring they use the correct codes defined by the Ministry of Education when entering data.

- **Not checking responses** - School managers should carefully check and re-check the completed questionnaire to identify any remaining data errors or omissions before submitting it.

CHECK LIST FOR SCHOOL MANAGERS TO ENSURE DATA QUALITY:

- ◼ Check the school code
- ◼ Check the name of the school, full address, telephone number, etc.
- ◼ Ensure all pages and questions have been properly completed
- ◼ Calculate and re-calculate the vertical, horizontal and grand totals in tables to ensure the data are consistent
- ◼ Cross-check the totals between two related tables to verify consistency
- ◼ Check the balance between school income and expenditure
- ◼ Check any fields marked 'data not available' to confirm that the data are really unavailable and that reasons for the data being unavailable have been specified
- ◼ Check that any special symbols used in the questionnaire are consistent with the special symbols the Ministry of Education has specified

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ACTIVITY 14

For school managers, please compare the data quality control practices described above with the practices in your school, and answer the following questions:

1. What role do you play in your school regarding data quality control?
2. How do you ensure your school consistently reports high quality data during school censuses?
3. What difficulties have you encountered with data quality control at your school? What caused these difficulties?
4. Referring to the checklist above, what else should you check before you submit your completed questionnaire to a higher level?

6.4.2 District Education Officer (DEO)

The District Education Officer is responsible for ensuring that all the schools in the district receive the school census questionnaire (or can access it online) and respond by the deadline. When requested, district education officers should be ready to provide assistance to schools to help them accurately complete the questionnaire.

After the schools, district education officers are the second most important level for data quality control. District education officers are normally familiar with the schools in their district so they are well-placed to make initial checks of the completed questionnaires submitted by the schools. Any data omissions, inconsistencies or errors identified at this level can be corrected easily by calling or visiting the school. Monitoring school records and helping schools to improve their school records management practices are also the responsibility of the district education officer. These tasks directly contribute to maintaining the quality of census data at the source.

While checking the completed school census questionnaire, the district education officers may apply the methods below:

TIPS

- **Coverage check**
  - Check the school list to ensure that all schools have returned the completed questionnaire
  - Contact and remind the schools that have not responded
  - Offer assistance to schools that have problems with completing the school census questionnaire

- **Data check**
  - Are all the pages, questions and tables properly completed? Are the answers legible? Contact the school to complete any missing data.
  - Have the special symbols been properly used to explain data limitations?
  - Do the vertical and horizontal totals correspond to the sum of the detailed data?
  - Are the same data consistent in different tables of the questionnaire?
  - Are there illogical data (e.g. the number of female students is larger than the total of male+ female student population)?
  - Use other innovative data checks.

- **Feedback on questionnaire design**
  - Provide useful feedback to the Ministry of Education about difficulties encountered during school census so as to further improve the design of the questionnaire, instructions and the organization of the school census.

6.4.3 Provincial Education Office (PEO)

Data quality control accompanies the process of data collection and is repeated at every stage and level of the process, so as to eliminate in a step-by-step manner the remaining data errors and gaps. Depending on the number of schools within the province and the capacity of staff at the provincial education office, the PEO may choose to perform the same kind of data quality control described for district education officers above, either for all the schools in the province or for a representative sample of them. Another way to control data quality is for the provincial education office to cross-check either a random sample or representative sample of the completed and quality-controlled school census questionnaires forwarded by the DEO.

TIPS

■ Sample check: The PEO may select at random 10 per cent of the questionnaires delivered by the district education offices to verify if data checks and corrections have been properly carried out at the district level, and identify if any other data errors may be present. Any problem discovered will be referred back to the relevant district education office and schools for clarification and correction.

■ The provincial education office can provide useful feedback information and suggestions to the Ministry of Education about the situation and issues in specific districts and schools with regard to school census data collection, in order to help to improve future school censuses.

6.4.4 Ministry of Education (MOE)

The Ministry of Education is responsible for designing, pre-testing and producing the school census questionnaire to collect data from the schools. Good design, layout and usability of this questionnaire has a large impact upon the quality of data that are collected during the school census. As described in Sections 3.3, 4.2 and 4.3, the following tips can help the MOE to minimize data problems and improve data quality:

TIPS

■ **Design of the questionnaire**
- Relevant objectives, contents and structure
- Clear, attractive and efficient design
- Thorough and easy-to-understand explanations and instructions
- Pre-testing of the questionnaire
- Gather maximum comments and suggestions from the field; seriously review them to identify errors, gaps, inefficiencies and operation problems
- Use other innovative data checks.

■ **Revision of the questionnaire**
- ncorporate appropriate improvements in finalizing the questionnaire
- Update the questionnaire periodically in accordance with changes in the education system and information needs.

■ **Access to the questionnaire**
- Make sure all the schools can access the questionnaire and instructions, either in paper form or electronically (e.g. in electronic file or online).

For national ministries of education that operate computerized EMIS, automated data quality control mechanisms can be incorporated during:

- Data entry: by building data checking routines into computerized data entry programmes, missing data and errors in horizontal, vertical and grand totals, data inconsistencies across tables and data that exceed pre-determined norms can be flagged by the system.

- Data processing: data cleaning and calculating various percentages, rates, ratios, ranges and other statistics can help to identify anomalies in the data.

- Data analysis: observing and discovering irrationalities in the analytical processes and results, which can be traced back to problems with the quality of data.

- Data use: encourage decision-makers and stakeholders to actively use the data and information produced, and to provide comments and queries regarding the quality of specific data.

In addition, it is the role of the Ministry of Education to promote the systematic practice of school records management in all schools, which will decisively contribute to data quality in the school census.

ACTIVITY 17

For Ministry of Education officers, please compare the data quality control practices described above with those in your Ministry, and then answer the following questions:

1. To what degree does your Ministry apply the tips above while designing, testing and revising the school census questionnaire? Please give examples.

2. How does your Ministry carry out data quality control during data entry, processing and analysis? Please describe.

3. What problems have you encountered with school census data quality control in your country? What causes these problems? How can these problems be solved?

4. How can the Ministry of Education improve data quality control in future school censuses?

7 Quiz [34]

Q1. The use of data in education systems can be divided into three main levels. Please fill the blanks in the diagram with the choices A to C for levels and D to F for purposes.

Level:

Purpose:

Level:

Purpose:

Level:

Purpose:

Level:
A. District/School Level
B. Provincial/Regional Level
C. National Level

Purpose:
D. Management and Control
E. Policy, Planning and Strategy
F. Operations and Transactions
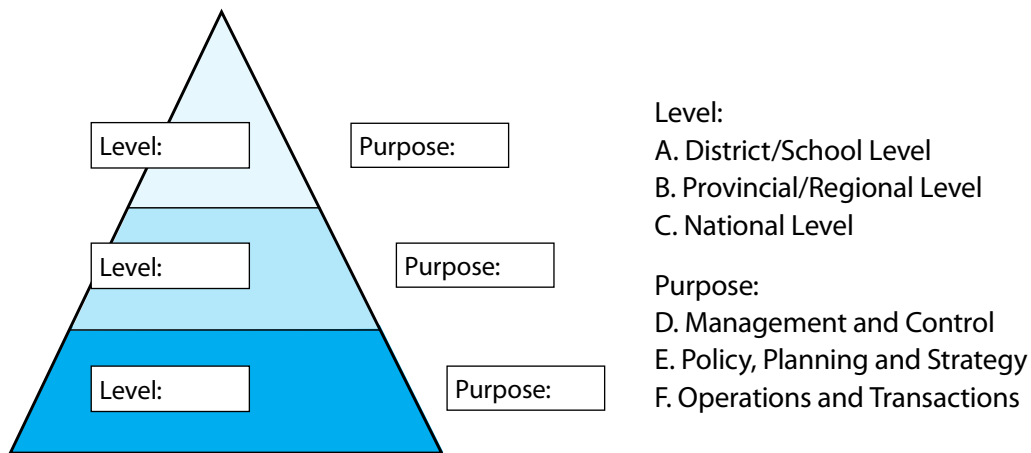
Q2. Data quality control identifies the actions needed to correct faulty data collection practices:
(Please tick one box)

❑ but fails to address future occurrences

❑ but is unrelated to future occurrences

❑ in order to maximizes future occurrences

❑ in order to minimizes future occurrences

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34 Statistics Canada. 14 February 2011. http://www.statcan.gc.ca/edu/power-pouvoir/ch2/exer/5214909-eng.htm (Accessed 23 May, 2011)

Q3. Match the process of data collection on the left hand with the steps listed on the right hand.
(Please insert the letters A to G into the appropriate boxes)
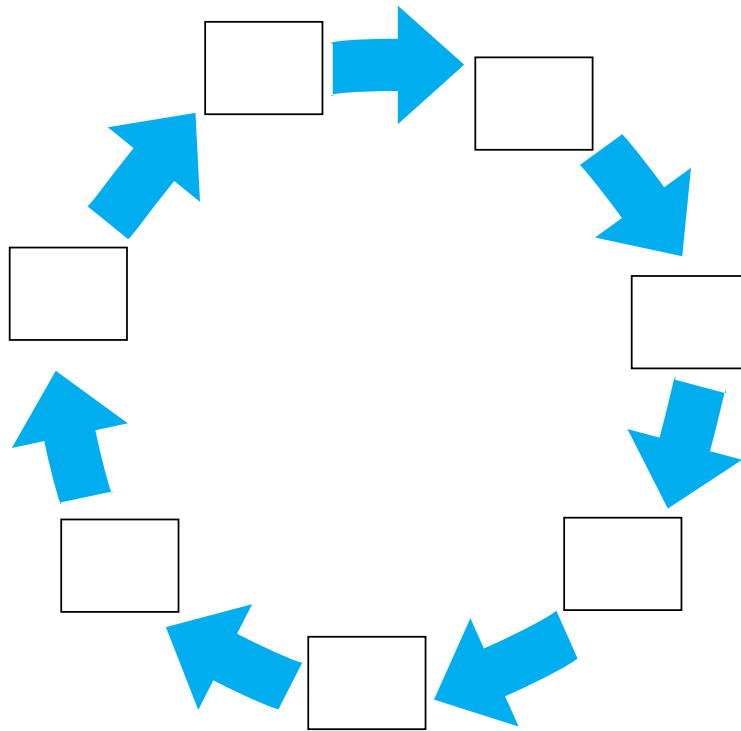
A. Actual data collection

B. Processing and storage

C. Data verification and rectification

D. Translation of needs into data categories

E. Design and testing of forms/questionnaires

F. Identification of information needs

G. Follow-up reminders

Q4. The following strategies enhance the design of questionnaires, EXCEPT:
(Please tick one box)

❏ In designing questionnaires, specific questions related to each data type and category should be listed.

❏ Before distributing the questionnaire to the target group, there must be a pre-test to try out the questionnaire.

❏ The questionnaire should be respondent-friendly, which means that it is clear and easy for the respondents and motivates them to complete it from beginning to the end.

❏ The questions are written in simple, clear language.

❏ The pre-test can be done by a small number of respondents selected randomly without any requirement.

❏ It will greatly help the respondents if at the beginning of each question there is a concise explanation of the questions and how to fill them.

❏ Questions in the pre-test should be open-ended, in order to collect more information which is not included in the choices for the respondents.

❏ The questionnaire should not be long, and the questions should be in logical order.

❏ The small number of respondents selected for the pre-test should have similar characteristics with the target group.

❏ There should always be enough space and options for the respondents to answer each question.

Q5. Which of the following is the main source of educational data:
(Please tick one box)

❏ Local administration

❏ Household surveys

❏ School volunteers

❏ Police stations

❏ Population census

❏ Local business entrepreneurs

❏ School records

❏ Local restaurants

❏ Local hospitals

❏ Ministry of Education

Q6. Normally, a school census does NOT include the following components:
(Please tick all inappropriate answers)

❏ School building/furniture/facilities/teaching and learning materials

❏ Classes and students

❏ Socio-economic information of parents

❏ Number of teachers

❏ Number of students

❏ School income and expenditure for previous budget year

❏ Socio-economic Information of community in which school is located

❏ School background information

❏ Teachers' salaries

❏ Guidelines and basic instructions

Q7. Which of the following are NOT principles to observe when designing school census questionnaires
(Please tick all incorrect answers)

❏ The questions in the questionnaire should be simple.

❏ Clear definitions and explanations should be given of the terms, categories and data standards in the questionnaire.

❏ Any changes in the questionnaire from previous year should be explained.

❏ There should be precise explanations of each question to help respondent to understand and answer.

❏ The questionnaire must be kept to a small and convenient size.

❏ In order to save time for respondents, only close-ended questions should be included.

❏ Distribution of the questionnaire and collection of the returns should be fixed at suitable dates.

❏ The questionnaire should not be too long and should be in logical order.

❏ To be exhaustive, all if not most questions should be open-ended.

❏ The questionnaire should provide practical instructions on how to fill in each part of the questionnaire.

Q8. Assume that the following question is one of the questions in the annual school census. Please select the given explanation of the errors in the following question:
(Please tick one or more boxes)

Type of school: _____

(a) Government school   (b) Private School   (c) Community School   (d) Church School

❏ There is no explanation for each category.

❏ If there is no 'Church School' in the country, this choice should not be present in the questionnaire.

❏ An open-ended choice like "others" should be given in order to help those respondents who cannot find a suitable choice to fill in.

❏ Since there may be other religions in the country, other religious schools should be given consideration in the options.

Q9. Please check this school record, and find and indicate the number of errors:
(Please tick one box)

❏ 1 error   ❏ 2 errors   ❏ 3 errors   ❏ 4 errors   ❏ 5 errors

Enrolment, repeaters and in-transfers by age, grade and sex

Age	Grade 1		Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grades 1-6		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	TOTAL
Below 6	3	0	1	0	0	0	0	0	0	0	0	0	4	0	4
6 years	66	46	89	76	71	3	2	0	0	0	0	0	164	125	289
7 years	32	45	123	99	12	4	22	12	13	2	0	0	202	150	352
8 years	22	32	48	44	86	69	13	9	3	4	0	0	172	158	330
9 years	12	28	32	21	65	34	103	87	23	34	0	0	235	204	439
10 years	8	1	12	8	15	3	87	65	124	99	0	0	246	176	422
11 years	0	0	2	2	11	15	22	43	22	56	2	0	46	116	162
12 years	0	0	1	3	2	0	12	4	11	6	64	23	88	36	88
Above 12	0	0	0	0	1	0	0	1	1	4	45	37	47	42	89
Total enrolment	143	152	308	253	198	128	261	221	175	205	111	60	1196	1019	2215

Q10. Regarding the completion of school census questionnaires
(please tick all correct answers)

❏ District or local education officers are not responsible for completing the questionnaire.

❏ School managers can conduct training for relevant school personnel.

❏ It is important to maintain frequent communication with target schools to monitor their progress in completing the school census questionnaire.

❏ Before returning the completed questionnaire, what the school managers needs to do is only to make sure no data is missing.

❏ School manager can offer help in tackling problems in responding to the school census.

❏ District education officers and school inspectors have to know the school census questionnaire well.

❏ School managers only need to fill in the information which they have in their school records.

❏ School managers can ask district education officers for help when needed.

❏ Since school inspectors are familiar with the state, strengths and weaknesses of the schools under their inspection, it is recommended to involve them to assist school managers to complete school censuses.

❏ District education officers and school inspectors must carefully check the data for omissions and errors during and after completion of the questionnaire.

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Module A3   Education Indicators and Data Analysis

EFA

SYSTEMATIC MONITORING OF EDUCATION FOR ALL

TRAINING MODULES FOR ASIA-PACIFIC

EFA

CONTENTS Module A3 : Education Indicators and Data Analysis

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1 Purpose and expected learning outcomes

1.1 Overview

In modules A1 and A2, we learnt about two methods of collecting data: through school records and by using an annual school census. In this module, we will learn **how to transform raw data into meaningful information using indicators.** Indicators are usually numbers we can use to compare performance especially related to a benchmark figure or target. They tell us how we are progressing towards a goal, and performing as compared to others.

When you have completed this module you will **understand what an indicator is, and how to select and derive various indicators** that are used in the education system and for measuring progress to achieve EFA goals.

1.2 Getting started

"There is a lot of talk about EFA indicators. What exactly are they? What do they have to do with us?" one district education officer asked another district education officer before the start of a provincial EFA review meeting.

"At each school management board meeting, you always prepare and provide us with all kind of data tables and analysis about the school. What do all these data really tell us?" an eminent member of the school management board at a community school asked the school principle, "can you make them easier for us to understand?"

At a newsstand, a lady who is accompanied by her daughter in school uniform is glancing at the newspaper headlines. "These newspapers often talk about how good our schools and students are," she mumbles, "I don't see these at all in my daughter. How can we know the truth about our education system?"

The above questions have been asked time and again by all kinds of people who are concerned with education. This Module aims to respond to these concerns.

1.3 Learning objectives

Through this training module:

Education officers at all levels of the education administration, from school mangers to the central Ministry of Education will learn about:

- **what education indicators are.**
- the importance of **using education indicators to monitor progress toward EFA goals**.
- **how to select and produce** education indicators.
- use of education indicators during **data analysis** and for informed decision-making.

District education officers, school managers and local community stakeholders will understand:

- **why it is necessary** to produce and use education indicators.
- **how to obtain relevant and useful education indicators**, especially for monitoring EFA.
- **what to do with** education indicators once they become available.
- how to continue to **produce, improve and use** education indicators.

Education policy-makers and administrators at the central and provincial level will update their knowledge about:

- **how to make good use of education indicators** in policy formulation and decision-making processes.
- **how to promote the systematic production, dissemination and widespread use** of the latest education indicators.
- **how to help district and local education officers, school managers and local community stakeholders** to understand and use education indicators at their respective levels.

The education indicators described in the following sections closely relate to the data in the school records (presented in Module A1), and those collected through the annual school censuses (described in Module A2). In order to improve the monitoring and evaluation of progress toward achieving Education for All (EFA) goals, **it is especially crucial for education officers at district and local levels, as well as school managers, to understand the purpose of indicators and how best to produce and use them**. Improved knowledge and practice in using education indicators can lead to significant improvements in the management of education and EFA at the local and grass-root level, which will decisively contribute to enhancing the efficiency and effectiveness of EFA actions for the nation as a whole.

2 The concept of indicators

2.1 What is an indicator?

An indicator can be a number, an observation or a signal that gives us a reliable and unbiased understanding about an object, a situation, a phenomenon, a happening, a motion, a development process, etc. It can be a simple number, a percentage, a ratio or rate, a 'yes' or 'no' answer, a piece of data, or a score.

Broadly speaking, **indicators indicate. Indicators enhance our understanding of situations and issues by transforming raw data into meaningful information. Indicators can help us to identify problems and issues, and to define targets and strategies, policies and plans to reach those targets. When used to set benchmarks, indicators can serve as a guide to monitor progress toward achieving a goal.** Indicators can help us to make rational and informed decisions about how to reach the targets on time, to decide how to solve problems, and to evaluate progress and outcomes. Indicators can, therefore, act as "measuring rods" for comparing situations over time and between different localities, population groups, levels of education or sexes. Indicators can provide a more objective basis for measuring progress towards targets, and are essential for any monitoring system.

The concept of using indicators in the education system was clearly articulated by Oakes (1986)[1] who said, *"An education indicator tells something about the performance or health of the education system."* This concept applies equally well to a school or the management of education in a local area.

Example 1. Enrolment and net enrolment ratios 2003 - 2007

	2003	**2004**	**2005**	**2006**	**2007**
School-age children enrolled	325,781	336,043	346,024	356,508	367,061
% change year-on-year		3.15%	2.97%	3.03%	2.96%
School-age population	458,201	468,679	478,594	490,383	501,449
Net enrolment ratio (%)	71.1	71.7	72.3	72.7	73.2

Understanding the health of an education system requires more than just a simple count of the number of schools, students and teachers. This is illustrated in Example 1 above. This table shows that the number of enrolments in a country increased from 325,781 to 367,061 between 2003 and 2007. This was a total increase of 41,280 students over a period of four years. Year-on-year, this represents an average annual increase of about 10,000 students, or around 3 per cent. These figures indicate steady, positive growth in enrolment - this is good.

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1 Oakes, J. October, 1986. *Educational Indicators: A Guide for Policymakers.* Rutgers University, Centre for Policy Research in Education. http://www.rand.org/pubs/occasional_papers-education/OPE01/ (Accessed 27 May, 2011)

Shavelson, R.J. and McDonnell, L.M. and Oakes, J. 1991. What Are Educational Indicators and Indicator Systems? Practical Assessment, Research & Evaluation. http://pareonline.net/getvn.asp?v=2&n=11 (Accessed 27 May, 2011)

If however we look at the net enrolment ratios (NER) over the same five-year period (on the bottom line of the table in Example 1), we can see the trend is less positive. There is only a very slight improvement in the enrolment ratio from 71 per cent to 73 per cent. If this trend continues, the net enrolment ratio will probably only reach about 77 per cent by 2015 (the target year for achieving EFA goals). With an enrolment ratio below 80 per cent, this would mean the country may fail to achieve the goal of universal primary education, unless major efforts are made to expand school capacities and enrolment.

This comparison shows that one set of figures, such as the 3 per cent annual growth in enrolment, may only tell one side of a story. An indicator such as the net enrolment ratio gives a more balanced picture of the state of primary education and about the prospects for achieving the EFA goal.

There are six EFA goals. These goals cover different priority areas in education: early childhood care and education; universal primary education; lifelong learning; adult literacy; gender equality in education; and quality of education. For a comprehensive picture of progress, achievement and shortfalls in all six EFA goals, we need a wide range of education indicators (see Sections 4 and 5 below and Annex 1 on EFA indicators).

Figure 1. How indicators are used to measure against a benchmark

GPI for NER **+** GPI for survival rate to Grade 5 **+** **→** Gender Equality
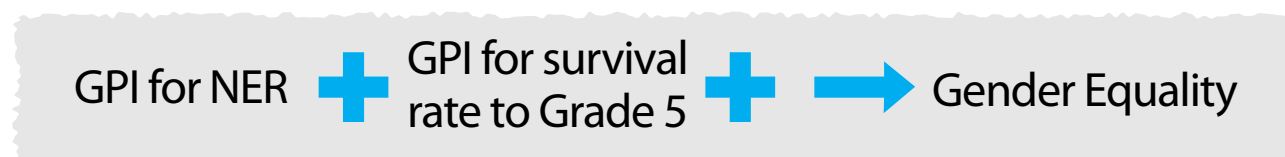
In Figure 1, we can see another example of why it is important to use multiple indicators to measure progress towards EFA goals. In this example, the EFA indicator of Gender Parity Index (GPI) has been used to measure gender equality in primary education (see Section 5 and Annex 1 for explanations of GPI). The GPI for the net enrolment ratio in a primary school is approaching the value of 1, which indicates near gender parity in enrolment for girls and boys. But the GPI for survival rate to Grade 5 may show that more boys than girls continue to Grade 5. Either of the two GPIs when used alone may thus provide a different picture of gender equality in this school, but together they provide a fuller and more balanced understanding of the situation.

Like a jigsaw puzzle, or like the famous Indian fable of several blind men feeling an elephant, using different indicators to look at an object or a phenomenon from different angles can help us to develop a better understanding of the whole object or phenomenon. This is a fundamental principle in practicing informed decision-making using indicators.[3] At the same time, one must also be wary of the danger of using the wrong indicator to assess a specific aspect or issue. These are discussed in Section 6.

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2 Association for the Development of Education in Africa (ADEA) "Meaning and Use of Indicators," Guidelines on preparing an indicators report.
  Association for the Development of Education in Africa (ADEA) "Part 1 Concepts and Nature of Education Indicators
  " The Midland Reports.

TIPS

■ **Do's**
- Always try to use different indicators to view an object or a phenomenon from different angles.
- Select indicators that can reliably describe the phenomenon in a factual and unbiased manner.
- Piece together the different views to constitute a fuller understanding of the object or phenomenon in order to inform decisions.

■ **Don'ts**
- Try not to base your understanding and decisions on a single indicator.
- Do not select indicators that are conceptually irrelevant to the phenomenon, difficult to produce for lack of or incomplete data, or are difficult to interpret.
- Avoid selecting and using overlapping indicators that illustrate the same thing, in the same way, and with the same results.

ACTIVITY 1

Based on each indicator and figure below, describe the performance of a school by summarizing your interpretation results in the space on the right. If you cannot provide a meaningful interpretation, please write down other information you might need in order to understand the performance or health of the school.

Indicator and figure	Interpretation (or additional indicators and data needed)
Number of students = 300	
Share of female students in total = 30%	
Net enrolment ratio = 78%	
Number of class room = 8	
Average score in examinations on mathematics = 80	
Overall summary understanding of the health or performance of this school:	

ACTIVITY 2

Reflect on your own experiences and talk to other people about the kind of data, information and/or indicators that may be used to understand the health or performance of the education system. Then, answer the following questions:

1. Which indicator(s) can reliably tell us about the health of the education system? Why?

2. For each indicator identified in Question 1, please specify which aspect(s) of education the indicator describes? How reliable and effective is the indicator in describing this aspect of education?

3. What other aspects of education need appropriate indicators? Please give examples.

4. Which indicators can be used to describe these other aspects of education?

3 Types of indicators

Various indicators may be used to monitor different aspects of the education system, especially when monitoring progress toward achieving the six EFA goals (see also Section 2 of Module A2). In fact, different indicators may be appropriate for measuring different phenomena for different purposes at different levels of the education administration. Having a better understanding of the types of education indicators and their characteristics can help to determine and select the most appropriate indicators to use. In this section, we introduce **four approaches to classifying education indicators** including:

- **quantitative and qualitative measurement**
- **monitoring and evaluation of education as a system**
- **aspects of education**
- **measurement scale**

3.1 Quantitative and qualitative indicators

Quantitative indicators describe objects and phenomena using only numbers. Qualitative indicators can use symbols, verbal, visual, textual as well as numerical information to depict a state, or an observation. Quantitative and qualitative indicators may complement each other to help develop a more complete understanding of the object or phenomena we are studying.

Many qualitative observations can also be expressed in quantitative terms. For example, student performance may be measured by the scores they obtained in a test or examination. Evaluative statements like 'Very satisfactory', 'Satisfactory' and 'Not satisfactory at all' can be scored respectively 3, 2 and 1 in surveys or evaluations (see Example 6 on teacher performance evaluation in Module A1). These numerical scores describe a qualitative observation, but may also be used to quantitatively compare performance and calculate summary indicators such as average scores.

But **not all objects or phenomena can be expressed using numbers**, like feelings, sentiments or nuances. Sometimes it can be difficult, if not impossible, to use indicators to clearly tell the difference from one quality to another. Also, quality is often judged based on an individual's subjective perception and personal preferences. For example, one person may prefer geography to mathematics, but he/she could not put a numeric value to describe precisely how much, in numeric terms, it is more important to put more efforts in geography classes than in mathematics classes.

Some qualitative indicators can be derived by identifying the component characteristics of quality. When assessing the EFA goal of 'quality of education', a combination of indicators will have to be used. For example, education quality is often evaluated by looking at the number or percentage of qualified teachers a school has, because it is believed that the more there are qualified teachers at school, the better the quality of teaching/learning will be. The percentage of qualified teachers can therefore be taken as a qualitative indicator of education quality, but expressed in quantitative form. Because quality of education is a highly complex issue, using only one indicator, such as the percentage of qualified teachers, can give only a partial if not also biased understanding. Additional indica-

tors on the availability, conditions and use of school facilities and teaching/learning materials, and on other school and home factors affecting children's learning outcome may be needed. **Critical analysis of education quality using indicators will therefore have to be conducted using quite a wide range of both quantitative and qualitative indicators**.

3.2 Monitoring and evaluation of education as a system

For purposes of monitoring education and EFA, education indicators can be broadly classified into:

- **input indicators**
- **process indicators**
- **output/outcome indicators** [3]
- **impact indicators**

Input and process indicators are used for monitoring whether appropriate education policies have been issued, and adequate resource inputs have been allocated and implemented. **Output, outcome and impact** indicators are used to evaluate the results, effectiveness and impact of education policies and their implementation.

In an education system, **input indicators focus on the human, financial and material resources that have been assembled and channeled into educational activities**. Such resource inputs are used to organize the provision of educational services in order to create intermediate outputs such as classes and learning activities. Examples of education input indicators include the percentage of government budget allocated to education, pupil-teacher ratios, pupil-classroom ratios, percentage of pupils without textbooks, etc.[4]

In an education system, **process indicators show how the resource inputs discussed above have been utilized to deliver educational services.** These indicators show what actually happened in the classroom and during teaching/learning processes. Students' attendance rate at school, average number of class hours they participated in as a percentage of official class hours, and the frequency of use of teaching/learning materials are some examples of process indicators. Other process indicators may include repetition rates and dropout rates.[5]

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3 UNESCO Bangkok. *EFA Mid-Decade Assessment and Mid-Term Policy Review. References and Resources.*
  http://www.unescobkk.org/en/education/efa/mda/efa-mda-reference-materials/ (Accessed 27 May, 2011)
4 See also Section 5.3 below.
5 See also Section 5.4 in Module A4.

Outcome indicators are used to evaluate the end results of all the educational inputs and processes. Outcome indicators measure how effectively education policies and strategies were implemented by measuring actual progress against the goals and targets that were set in education plans. Outcome indicators may also be used to evaluate the degree of access to educational services and the degree of satisfaction with the services received. Examples of outcome indicators include intake rates, enrolment ratios, completion rates and the GPI.[6] At the end of the school year, the percentages of students who successfully completed their studies, and of those who have acquired defined knowledge and competencies, indicate the main output of education.

Impact indicators show the effects of education on the well being of individuals, families, communities, the nation and society as a whole.[7] Literacy rate is an example of an impact indicator because it shows the proportion of the population who have learnt to read, write and comprehend written text and who can continue to learn using written words. Other impact indicators include those that measure the effect of increased knowledge and skills, emotional development, and the impact of changes in students' values, attitude and behaviour on their family, community, society and nation.

3.3 Indicators by aspects of education

A third way to organize education indicators is by re-grouping them according to the key aspects of education, such as:

- **School characteristics, environment and facilities**
- **Access and participation**
- **Retention and progress within the education system**
- **Teaching and learning resources**
- **Teaching-learning processes**
- **Quality of education**
- **Equity**
- **Learning achievement and outcomes**
- **Impact of Education**

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6 See also Section 5 in Module A4.

7 See also Section 11 of Module A4.

This is the approach presented in Sections 4 - 11 of Module A4 regarding the use of education data and indicators. In this approach, the key concern is to monitor the efficiency and effectiveness of the delivery of education services. As shown in Figure 2 below, some of the key questions can include:

- **Do all children have access to education?**
- **Are all students able to actively participate in education?**
- **Do all students benefit from good quality education?**
- **Are all students treated with equality?**
- **Is the management of education efficient and effective?**
- **Are the outcomes of education relevant and satisfactory?**

Figure 2. Aspects of Education
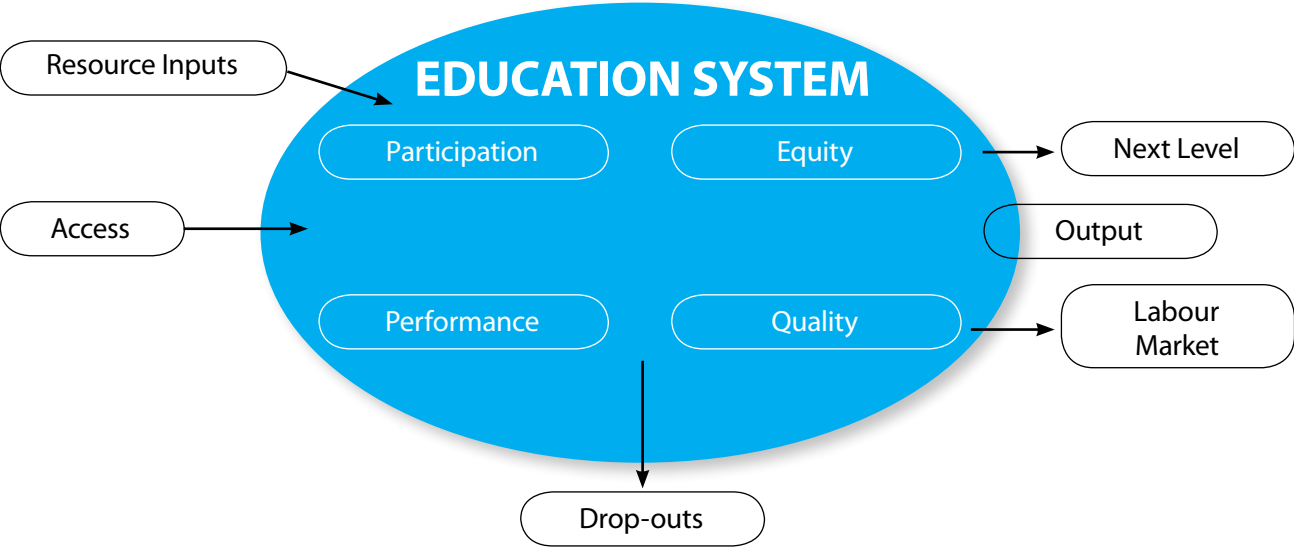
3.4 Measurement scales

Several types of measurement scales can be used to classify indicators. There are typically four scales of measurement:

- **Nominal scale**
- **Ordinal scale**
- **Interval scale**
- **Ratio**

The **nominal scale distinguishes objects and phenomena by naming each one.** A typical example is to distinguish the gender of students by 'male' or 'female', or the type of school ownership with the options of 'government school', 'private school' or 'community school'.

Ordinal scales are used for ranking and comparisons. However, an ordinal scale only shows the order of items but does not display the degree of difference between them. If, for example, you are asked to rank your preference for apples, oranges and pears, you may put these fruits in an order of preference, but cannot clearly indicate the degree to which you prefer one fruit to another.

An **interval scale can help to visualize the degree of difference between items**. The interval scale indicator includes intervals of measurement so that finer comparisons can be made. A test score is, for example, an interval scale indicator. While using the interval scale, there is an underlying assumption that intervals are equally divided. If student A receives a test score of 10 out of 100, and student B receives that of 50, can it be said that student B understands the subject five times better than student A? The answer is 'Not really.' because the measurement of students' understanding of one topic depends on the structure, contents and design of the test, and the students' conditions when taking tests. Care must therefore be taken when analysing interval scale indicators.

A **ratio scale indicator can help to solve this comparison problem.** With ratio scale indicators, the degree of different between different items can be shown. For example, if the height of student A is 100 cm and the height of student B is 150 cm, then we can say that student A's height is 66 per cent of student B's height. In this example, the ratio scale offers a clearer understanding about the degree of difference between one item and another. Other typical ratio scale indicators include pupil-teacher ratios, intake rates and enrolment ratios.

Although indicators may be classified in other ways, the above outline provides a good basis for better understanding the ways indicators are organized and used for monitoring EFA.

ACTIVITY 3

Review the data, information and indicators you have been using to monitor the performance of your school or education in your district/province/country, and answer the following questions:

1. Name two quantitative and two qualitative education indicators, and two qualitative indicators expressed in quantitative terms (i.e. in numbers). Why do you choose them?

2. How would you classify these indicators according to the other classifications above? Please explain why you classify them in the way you propose.

3. What other classifications of indicators are needed in order to better produce and use education indicators?

4 The importance of using indicators

4.1 Purpose of education indicators

Different stakeholders in a national education system can use education indicators for different purposes. Understanding these purposes helps us to better select and use the right indicators. There are six main purposes for using indicators in the education system: [8]

1. **To describe the conditions and performance of schools and of the education system.**
2. **To set targets, benchmarks and standards for measuring or assessing progress towards achievement of education goals;**
3. **To monitor and compare progress in implementing education plans among geographical areas and target populations, and to signal shortfalls, gaps, imbalances and disparities;**
4. **To identify and highlight issues, problems and possible solutions for better management of the education system;**
5. **To provide information about causes and factors affecting achievement of the desired educational outcomes, and to enable decision-makers to realistically plan and manage changes;**
6. **To inform stakeholders about the school and the education system in order to generate greater understanding and support for education.**

4.2 Understanding complex situations [9]

In most countries, the education system is complex with hundreds of schools, thousands of teachers and hundreds of thousands of students across the country's territory. The education system also has intricate and far-reaching linkages to the development of human beings, society and the nation. **Monitoring education is therefore complex, and indicators can help to make sense of the complexities.**

Many indicators are required to monitor progress toward achieving the six EFA goals. For example, to monitor progress toward achieving 'quality of education', several indicators are used including the percentage of qualified teachers, pupil-teacher ratio (PTR), pupil-class ratio (PCR), textbook-pupil ratio (TPR) and public expenditure on education as a percentage of total government expenditure.

Take the example of the pupil-teacher ratio (PTR). How can this indicator help to assess the effect of increasing the number of teachers at a school on the quality of education? Based on an understanding that a lower PTR, such as 1 teacher for every 20 pupils (1:20), would allow the teacher to devote more time to each student than if the PTR is 1:30, does this mean that the quality of education improves if more teachers are employed?

The true utility of PTR only becomes apparent when data are obtained for the other component indicators, which is the number of pupils in each class. In Figure 3, there are 10 teachers and 200 students in both School A and School B. Each school hired 10 additional teachers to improve the quality of education. However in the following year, there is also an increase in the number of student in school A to

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8 ADEA-NESIS. 2007. *Education Development Indicators Guidebook.* http://nesis.intoweb.co.za/en/index.php?module=documents&JAS_DocumentManager_op=viewDocument&JAS_Document_id=1 (Accessed 27 May, 2011)

9 Asian Development Bank. 2005. *Indicators for Policy Management: A Guide for Enhancing the Statistical Capacity of Policy-makers for Effective Monitoring of the MDGs at the Country Level.* United Nations Development Group.

a total of 400. The PTR in School A then remains at one teacher for every 20 students (20/400=1/20), which is the same as the ratio before the expansion. If School B continues to have 200 students, on average each of its 20 teachers will teach 10 students (20/200=1/10), so we would expect the quality of education to be better in School B. Because the PTR indicator includes the number of teachers and students, it provides a more realistic information about the quality of education in School A and School B than information only about the number of teachers.

Figure 3. Pupil-teacher ratio (PTR)

School A	School B
Teachers: 10 + 10 --> 20	Teachers: 10 + 10 --> 20
Students: 200 + 200 --> 400	Students: 200
Pupil/teacher ratio = 1 : 20	Pupil/teacher ratio = 1 : 10
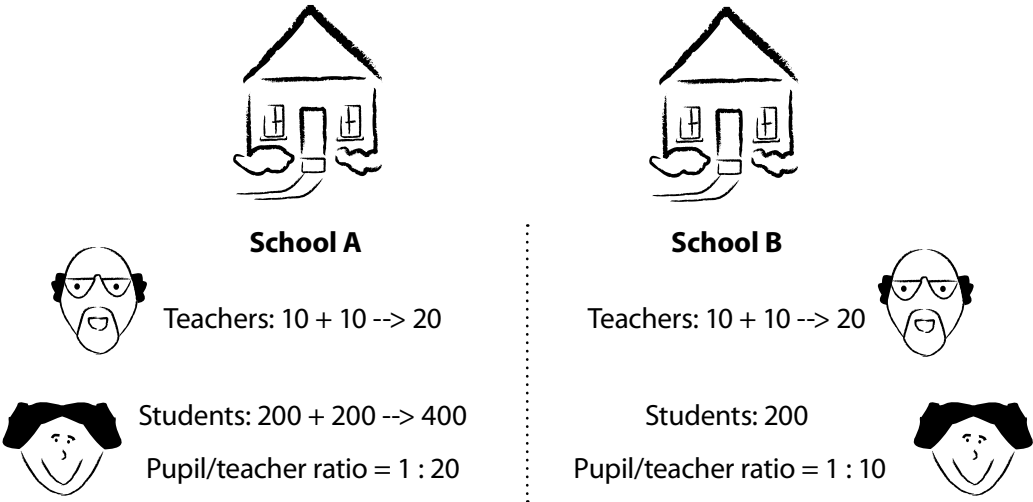
4.3 Tracking changes over time and making comparisons across regions, districts and schools[10]

Sound policy-making, planning, management, monitoring and evaluation of the education system require data and information that are relevant and reliable. Many education indicators can help to track changes over time, and can be used to make meaningful comparisons between different schools and different regions. They can also help to identify gaps, shortfalls, imbalances, problems and issues, if not also the causes of the problems. Systematic use of such indicators in tracking and comparisons are important for monitoring progress and achievements in education, and for making good plans and management decisions. It is therefore crucial that decisions are not made subjectively, but based on evidence such as indicators and information that can be verified.

Just as the Gross Domestic Product (GDP) indicator is used to measure the growth in a nation's economy, indicators such as the annual growth rates of the number of schools, students and teachers, and increases in government budget allocations, can be used to track changes in the education system over time. If reliable data are available, growth rates may be calculated for individual schools, districts, provinces and even groups of these, so as to compare the changes between them. The differences in growth rates may be analysed in order to identify problems and issues (see Example 2).

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10 Ibid.

Example 2. Comparison of growth rates

	Rate of growth 2006-2007 (%)		
	Students	**Teachers**	**Budget**
School A	+3%	+1%	+0%
School B	-10%	-5%	-7%
School C	+15%	+0%	+30%
School D	-5%	+0%	+0%
School E	+8%	-10%	-20%

In Example 2, the number of students increased between 2006 and 2007 in 3 schools (Schools A, C, E), and decreased in 2 schools (Schools B, D). The number of teachers remained roughly the same in Schools A, C, D, but decreased by 5-10 per cent in Schools B and E. Government budget allocation increased by 30 per cent in School C, but dropped by 20 per cent for School E and 7 per cent for School B, with no change in government budget allocations for Schools A and D.

Analysing the situation school by school, one may notice that the increase in students in School A was accompanied by a slight increase in the number of teachers, but no increase in budget. There were proportionally matching decreases in the number of students, teachers and the amount of the budget in School B. The big increase in the number of students in School C was matched by a large increase in budget, but there was no increase in the number of teachers, probably due to difficulties in recruiting new teachers for this rural school. One can see that School E is facing serious difficulties with an increase in students, but large decreases in both its budget and the number of teachers.

ACTIVITY 4

Talk to key stakeholders in your school, district, province or country about what you understand about the importance of education indicators, and answer the following questions:

1. What do you think about the importance of education indicators?
2. For which function(s) will you use education indicators: Policy-making? Planning? Budgeting? Coordination? Management? Monitoring and evaluation? Reporting? Informing stakeholders? Resource mobilization? Comparing performance?
3. In what other functions do you think education indicators can be used? Why?

5 EFA Indicators

Now that you are familiar with the concept of indicators, including their purpose and their use, let us now focus on how indicators are used for monitoring EFA.

5.1 The EFA indicators

Within the Dakar Framework of Action, the six global EFA goals are:

1. Expanding and improving comprehensive **early childhood care and education**, especially for the most vulnerable and disadvantaged children.
2. Ensuring that by 2015 all children, particularly girls, children in difficult circumstances and those belonging to ethnic minorities, have access to and complete free and compulsory **primary education** of good quality.
3. Ensuring that the learning needs of all young people and adults are met through equitable access to appropriate **learning and life skills** programs.
4. Achieving a 50 per cent improvement in levels of **adult literacy** by 2015, especially for women, and equitable access to basic and continuing education for all adults.
5. Eliminating **gender disparities** in primary and secondary education by 2005, and achieving gender equality in education by 2015, with a focus on ensuring girls' full and equal access to and achievement in basic education of good quality.
6. Improving all aspects of the **quality of education** and ensuring excellence of all so that recognized and measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills.

The six EFA goals are about ensuring all persons have full access and opportunity to participate in basic education of good quality, so they can acquire the literacy and life skills they need for a decent living and learning throughout life. The EFA goals place special emphasis on helping disadvantaged population groups such as girls and children of poor families, ethnic, linguistic and cultural minorities, those who live in remote areas, with disabilities, and people from other vulnerable population groups to fully participate in and benefit from education. This is called 'Reaching the Unreached'.

This Module: Module A3, mainly covers those EFA indicators that are of particular relevance to school managers and education officers in districts and local areas, and indicators that can be used at provincial and central levels. The main purpose is to help all of them to effectively monitor EFA and manage education at all levels of the education administration, by making maximum use of the data and information available in the school records and school census questionnaire as described in Modules A1 and A2. Such use will also contribute to informing key education stakeholders in the local areas and strengthening informed decision-making and accountability.

5.2 Key EFA indicators

As can be seen in the list of key EFA indicators[11] in Annex I, and in the UNESCO Institute for Statistics website,[12] there are many internationally recommended EFA indicators. A summary of key EFA indicators for monitoring each of the six EFA goals is provided in Table 1. Those indicators marked with an '*' relate to data which are available in school records and data reported in the school census questionnaire. These are described in Modules A1 and A2.

Table 1. List of key EFA indicators

Goal 1: ECCE (Early Childhood Care and Education)	*	1. Gross Enrolment Ratio (GER) in ECCE programmes 2. Percentage of new entrants to primary Grade 1 who have attended some form of organized ECCE programme 3. Enrolment in private ECCE centres as a percentage of total enrolment in ECCE 4. Percentage of trained teachers in ECCE programmes 5. Public expenditure on ECCE programmes as a percentage of total public expenditure on education 6. Net Enrolment Ratio (NER) in ECCE programmes including pre-primary education 7. Pupil/Teacher Ratio (PTR) (children-caregiver ratio)
Goal 2: UPE (Universal Primary Education)	* * * * * * * * * * * * * * * * *	8. Gross Intake Rate (GIR) 9. Net Intake Rate (NIR) 10. Gross Enrolment Ratio (GER) 11. Net Enrolment Ratio (NER) 12. Percentage of repeaters 13. Repetition Rate (RR) by grade 14. Promotion Rate (PR) by grade 15. Dropout Rate (DR) by grade 16. Survival Rate to Grade 5 17. Primary Cohort Completion Rate 18. Transition Rate (TR) from primary to secondary education 19. Percentage of trained teachers in primary education 20. Pupil/Teacher Ratio (PTR) in primary education 21. Public expenditure on primary education as a percentage of total public expenditure on education 22. Percentage of schools offering complete primary education 23. Percentage of primary schools offering instruction in the mother tongue 24. Percentage distribution of primary school students by duration of travel between home and school

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11 UNESCO: *Guidelines for EFA Monitoring, Evaluation and Assessment: Identifying and Reaching the Unreached.* UNESCO Bangkok. (Forthcoming).

12 UNESCO Institute for Statistics (UIS). November, 2009. *Education Indicators Technical Guidelines.* Montreal.
   http://www.uis.unesco.org/template/pdf/EducGeneral/Indicator_Technical_guidelines_EN.pdf (Accessed 27 May, 2011)

Goal 3: **Lifelong learning and life skills**		25. Gross Enrolment Ratio (GER) in technical and vocational education and training 26. Number and percentage distribution of lifelong learning/continuing education (LLL/CE) centres and programmes for young people and adults 27. Number and percentage distribution of young people and adults enrolled in lifelong learning/continuing education programmes 28. Number and percentage distribution of young people and adults completing lifelong learning/continuing education programmes 29. Number and percentage distribution of teachers/facilitators in LLL/CE
Goal 4: **Adult literacy and continuing basic education**		30. Public expenditure on adult literacy and continuing education as a percentage of total public expenditure on education 31. Number and percentage distribution of adult literacy and basic continuing education programmes 32. Number and percentage distribution of facilitators of adult literacy and basic continuing education programmes 33. Number and percentage distribution of learners participating in adult literacy and basic continuing education programmes 34. Completion rate in adult literacy and basic continuing education programmes 35. Number and percentage of persons who passed the basic literacy test 36. Ratio of private (non-governmental) to public expenditure on adult literacy and basic continuing education programmes

Goal 5:
Gender equality
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		37. Female enrolled as percentage of total enrolment
		38. Female teachers as percentage of total number of teachers
		39. Percentage of female school managers/district education officers
		40. Gender Parity Index for:
		    a) GER in ECCE
		    b) GIR in primary education
		    c) NIR in primary education
		    d) GER in primary education
		    e) NER in primary education
		    f) Survival rate to Grade 5
		    g) Transition Rate from primary to secondary education
		    h) GER in secondary education
		    i) NER in secondary education
		    j) Percentage of teachers with pre-service teacher training
		    k) Percentage of teachers with in-service teacher training

Goal 6: Quality of Education	*	41. Percentage of primary school teachers having the required academic qualifications
	*	42. Percentage of school teachers who are certified to teach according to national standards
	*	43. Pupil/Teacher Ratio (PTR)
	*	44. Pupil/Class Ratio (PCR)
	*	45. Textbook/Pupil Ratio (TPR)
	*	46. Public expenditure on education as a percentage of total government expenditure
	*	47. Percentage of schools with improved water sources
	*	48. Percentage of schools with improved sanitation facilities
	*	49. Percentage of pupils who have mastered nationally defined basic learning competencies
	*	50. School life expectancy
	*	51. Instructional hour

Example 3 presents a typical methodological description of EFA indicators. This helps the reader to understand, correctly calculate and interpret each indicator. More complete methodological descriptions of each of these indicators can be found on the UIS website (See http://www.uis.unesco.org) and the *'Guidelines for EFA Monitoring, Evaluation and Assessment: Identifying and Reaching the Unreached'*.

As shown in Example 3, these descriptions provide essential information about each indicator's:

- **Definition**
- **Purpose**
- **Method and formula of calculation**
- **Required data**
- **Possible data sources**
- **Disaggregation for analysis of disparities**
- **Interpretation**
- **Quality standards**
- **Limitations and constraints**

The reader may notice that besides primary education, the six EFA goals also cover other levels and forms of education, plus gender equality and quality of education. Many of the concepts and monitoring approaches presented in this series of training modules, may be applied to other types of educational institutions and programmes. For example, a number of the indicators listed above for each of the six EFA goals, such as PTR, dropout rate, and completion rate can also be applied to early childhood care and education centres, secondary schools, technical/vocational training, and adult literacy/continuing education/lifelong learning centres and programmes.

Note that most of the EFA listed indicators marked with an '*' in Table 1 can be used for comparisons between schools, local areas, districts, provinces and regions within a country, besides international comparisons for global monitoring of EFA. Appropriate adjustments and modifications may be needed to adapt some of these indicators to different country or local context, while maintaining the concepts and classifications of education indicators above and drawing on the UNESCO methodological descriptions.

Example 3. An example of methodological descriptions of EFA indicators [13]

PUBLIC EXPENDITURE ON EDUCATION AS % OF TOTAL GOVERNMENT EXPENDITURE

Definition: Total public expenditure on education (current and capital) expressed as a percentage of total government expenditure in a given financial year.

Purpose: To assess a government's policy emphasis on education relative to the perceived value of investments. It reflects also the commitment of a government to invest in human capital development.

Calculation method: Divide public expenditure on education incurred by all government agencies/departments in a given financial year by the total government expenditure for the same financial year and multiply by 100.

Formula:

$$\% \, PXE_t = \frac{PXE_t}{TPX_t} * 100$$

Where:

% PXE$_t$ Public expenditure on education as a percentage of total government expenditure in financial year t.

PXE$_t$:   Total public expenditure on education in financial year t.

TPX$_t$:   Total government expenditure in financial year t.

Data required: Total public expenditure on education and total government expenditure.

Data sources: Annual financial reports prepared by the minsitry of finance national accounts reports by the central statistical office and financial reports from the various government departments engaged in education activities, especially the ministry of education.

Data disaggregation: By level of administration, geographical location (region, urban/rural) and by purpose of expenditure (emoluments, teaching materials etc).

Interpretation: A higher percentage of government expenditure on education show a high government priority for education relative to the preceived value of other public investments, including defence and security, health care, social security for unemployment and elderly, and other social or economic sectors.

Quality Standards: Total public expenditure on education should include those incurred by all concerned ministries and levels of administration. This indicator can never be 100% since the latter includes expenditure on many economc and social sectors besides education. The fact that the fiscal year and educational year budget periods may be different should also be taken into consideration.

Limitations: In some instances data on public expenditure on education refers only to the ministry of education excluding other ministries that spend a part of their budget on educational activities.

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13 UNESCO Institute for Statistics (UIS), November, 2009. http://www.uis.unesco.org/template/pdf/EducGeneral/Indicator_Technical_ guidelines_EN.pdf (Accessed 27 May, 2011)

Besides the indicators listed in Table 1, the data and information that are contained in the example **school records** described in Module A1 and gathered through the example **school census questionnaire** given in Module A2, can be used to produce many other indicators for monitoring EFA and informing decision-making at the local and school level. For example, average student attendance rate can be calculated based on completed monthly class attendance sheets to compare the regularity of student participation in class.[14] Student performance records[15] can be analysed by class and by grade to compare learning achievement. Teacher performance evaluation reports can complement teacher qualification in appraising the quality of education by school.[16]

In practice, the school manager or district education officer must first review the data they have available, and then review the list of EFA indicators in Table 1, to **identify relevant education indicators that can be reliably calculated, interpreted and used, before proceeding to produce and use such indicators.** The UNESCO methodological descriptions should be studied carefully, and accompanied by actual calculation and interpretation of the indicators so as to determine if the selected indicator can reliably and meaningfully help to monitor EFA and inform decision making at the school and local level.

ACTIVITY 5

Review the key EFA indicators listed above in Table 1, compare them with the indicators you normally use to monitor education in your school, district, province, or country, and talk to some key stakeholders about their experiences. Then, answer the following questions:

1. How closely do the EFA indicators listed in Table 1 correspond to the education indicators you use? Which indicator(s) are in common? Which indicator(s) are different? Why?

2. Which other education indicators do you think should be included in the list? Why?

3. Is the format of the methodological description of indicators clear and easy to understand? What other information should be given in this format? In what way can they be improved?

5.2.1 Identifying EFA indicators based on school records and census questionnaire

The example school records and school census questionnaire presented in respectively Modules A1 and A2 offer a wide range of data that can be used either directly as indicators, or to derive other education indicators including the EFA indicators for primary education and quality of education marked with an '*' in Table 1 in Section 5.2.

The structure of data in the example school records (Module A1) and school census questionnaire (Module A2) cover essentially the following four aspects of schools:

- **School characteristics, school facilities and environment**
- **Finance**
- **Teachers**
- **Students**

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14 See Example 2 in Module A1.

15 See Example 4 in Module A1.

16 See Example 6 in Module A1.

School records and the school census questionnaire can be used as data sources from which we can derive a number of education indicators as described below. Indicators can also be derived by combining data from the four aspects above. For example, we can review the organization of teaching-learning in school in terms of student-class ratios and percentage of students without textbooks, or the sharing of school resources among the students and teachers such as education expenditure per student, pupil-teacher ratio, classroom area per student, student-latrine ratio, etc.

5.2.2 School characteristics, school facilities and environment

In the first part of a school census, the questionnaire usually collects information about the characteristics of the school such as its ownership, school facilities, and the kind of services offered.

The data about school ownership[17] can be used to calculate the percentage distribution of different types of schools such as government, private, community or religious schools. This information can be used to produce a table like in Example 4 below, which shows the percentage distribution of schools, students and teachers by type of school.

Example 4. Percentage distribution of schools, students and teachers by type of school

	Government Schools	Government aided private schools	Private schools	Community schools	Religious schools	TOTAL
Schools	71.1%	5.5%	4.1%	12.7%	6.6%	100.0%
Students	78.3%	9.0%	3.1%	7.7%	1.9%	100.0%
Teachers	75.8%	9.7%	4.2%	7.1%	3.2%	100.0%

In Example 4, more than 70 per cent of schools, students and teachers belong to the category of 'Government schools'. 'Government-aided private schools' are relatively smaller in proportion (i.e. 5.5 per cent of schools) but account for almost 10 per cent of the student and teacher population, and hence are bigger schools. 'Community schools' and 'Religious schools' together represent about one-fifth (i.e. 19.3 per cent) of the total number of schools, but only about 10 per cent of students and teachers, so are relatively smaller in size. These summaries give an overview of the relative sizes of different types of school, and can highlight policy issues and measures to rationalize the size of different types of schools.

Additional indicators about schools that operate shifts, multigrade classes, teaching/learning in mother-tongue, school meal programmes, boarding, school transportation and other affirmative actions in favour of disadvantaged or disabled children can help to understand the level and adequacy of special efforts to 'reach the unreached'.

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17 See Question 7 in the example school census questionnaire in Module A2.

Example 5 below tabulates the percentage of schools that offer these services. As highlighted in the table, a higher percentage of schools offer school shifts, multi-grade classes and transportation in Regions 3 and 4. Relatively more schools in Region 4 can be seen to also provide teaching/learning in mother-tongue and boarding facilities, whereas a higher proportion of schools in Regions 1 and 5 offer school meals. Such findings may lead to further enquiries about the local demographic, geographic, economic and cultural conditions to see to what extent the children have difficulties accessing the schools, and whether the services provided are sufficient to improve their access to education. The prevalence of school meal programmes in Regions 1 and 5, for example, deserve in-depth investigation to evaluate their impact on student participation and quality of learning in school.

Example 5. Percentage of schools with services that aim to 'reach the unreached'

	Shifts	Multi-grade grade classes	Teaching /learning in mother tongue	School meal	Boarding	Transportation
Region 1	15.2%	2.7%	4.5%	68.8%	8.0%	4.5%
Region 2	18.5%	11.8%	1.7%	47.2%	2.2%	3.9%
Region 3	64.0%	41.3%	17.3%	42.7%	18.7%3	36.0%
Region 4	86.0%	58.1%	41.9%	44.2%	53.5%	44.2%
Region 5	23.3%	9.1%	5.0%	80.4%	7.3%	9.1%
…						
…						

Data about school facilities[18] may include information about their condition, for use to plan and organize repair work, new construction or new acquisitions at school. This information has two purposes: (a) to determine the operational capacity of the school to accommodate students and teachers; and (b) to examine if these facilities are in a condition to support present and future educational activities. In Section 7 of Module A4, there are additional concrete examples of how data about school facilities in the school records and school census questionnaire can be used to derive meaningful indicators and analysis.

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18 See Examples 7, 8 and 9 in Module A1 and Questions 10-16 in Module A2.

Example 6. Indicators of the condition and use of school facilities

Type of structure	Quantity in use			Quantity not used	% in good condition	% to repair	% to replace	% not used
	Total	To repair	To replace					
Buildings	4	1	1	1	50%	25%	25%	25%
Classrooms	9	3	2	2	44%	33%	22%	22%
Teacher rooms	3	2	1	1	0%	67%	33%	33%
Admin. rooms	1	0	1	1	0%	0%	100%	100%
Library	1	0	0	0	100%	0%	0%	0%
Laboratory	1	0	0	0	100%	0%	0%	0%
Storage rooms	2	1	1	1	0%	50%	50%	50%
Toilets	3	1	0	0	67%	33%	0%	0%

Example 6 provides an overview of the state-of-repair of a school's buildings, rooms and amenities, and the number of these facilities that are not being utilized. Similar tables can be produced at the district and higher levels by aggregating data from the schools within the area covered. Such tables can inform decisions at these higher levels to allocate budget and support the improvement of various school facilities and capacities so as to accommodate all eligible children in the local areas.

In Example 6, the circled per centage distributions of facilities such as '% in good condition','% to repair', '% to replace', and '% not used' highlight problems with specific school's facilities. They can inform decisions to prioritize and plan repair and replacement work, as well as actions the school's managers can take to improve the utilization of school facilities. In addition, Graphs 5 and 7 in Module A4 show how such indicators can be presented in graphic form to make it easier to understand them and to make decisions.

5.2.3 Finance

Data about school income by source, and expenditure by type, are used to gauge the financial health of a school.[19] Such financial data can indicate firstly the **financial balance** and secondly the detailed patterns of **income by source** and **expenditure by type** when calculating and analyzing their respective percentage distributions (see Example 7 below).

Example 7. School income and expenditure

School income			School expenditure		
Source of funds	**Amount**	**%**	**Type of expenditure**	**Amount**	**%**
1. Government	3,615,437	93.0	**1.** Capital expenditure	934,013	21.4%
a. Central government	348,855	9.0%	a. Construction	820,604	18.8%
b. Provincial government	2,983,107	76.7%	b. Major repairs	66,348	1.5%
c. District government	88,733	2.3%	c. Equipment	36,975	0.8%
d. Local government	194,742	5.0%	d. Bulk purchase of books	3,775	0.1%
2. Non-governmental	102,281	2.6%	e. Other capital exp.	6,311	0.1%
a. Local community	1,305	0.0%	**2.** Current expenditure	3,435,017	78.6%
b. Local business	5,843	0.2%	a. Teacher salaries	2,872,155	65.7%
c. NGOs	71,335	1.8%	b. Staff salaries	451,876	10.3%
d. Agencies/associations	23,798	0.6%	c. Purchase of supplies	23,510	0.5%
3. School revenue	63,481	1.6%	d. Contracted services	37,780	0.9%
a. School fees	62,630	1.6%	e. Maintenance	3,435	0.1%
b. Rental of facilities	0	0.0%	f. Transportation	35,578	0.8%
c. Products/services	468	0.0%	g. Electricity	4,327	0.1%
d. Donations	383	0.0%	h. Water	1,328	0.0%
4. Other revenue	108,450	2.8%	i. Telephone	4,155	0.1%
a. Interest earned	108,450	2.8%	**3.** Other expenditure	873	0.0%
TOTAL	**3,889,649**	**100.0%**	**TOTAL =**	**4,369,903**	**100.0%**
		Balance = -480,254			

Such analysis can point out existing gaps between school income and expenditure. The encircled percentages in Example 7 highlight predominantly government funding (93 per cent of income) and 0 per cent local community contributions. Appropriate measures will also have to be taken to control major school expenditure such as construction costs and staff salaries. The overall financial deficit may help the school management board to realize the need to raise funds from the local community in order to cover the school's funding gap.

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19 See Example 10 in Module A1 and Questions 17-18 in the example school census questionnaire in Module A2.

The indicator: *'Education expenditure per student'* is often used in education finance. It is obtained by **dividing the total (or current) school expenditure by the total number of students enrolled** during the same fiscal year. This indicator can be used to verify if a school has adequate finances for the number of students enrolled. By comparing education expenditure per student between schools, districts and regions, we can understand the situation and prospects with regard to education finance and existing funding gaps and anomalies. It can also be used to compare costing levels among different regions and local areas, and to highlight changes in expenditure patterns over time. Governments can use comparisons based on this indicator to take actions to ensure all schools have adequate financing to achieve local EFA goals.

Example 8. Education expenditure per student

School name	2000 (rupees)	2009 (rupees)	Average annual growth rate (%)
Hojai Primary School	365	580	5.3%
Savar Community School	330	610	7.1%
Charati Primary School	255	385	4.7%
Ramdia Primary School	280	335	2.0%
Patgaon Community School	415	450	0.9%
Average:	**329**	**472**	**4.1%**

Example 8 demonstrates how the indicator 'Education expenditure per student' can be used to compare education expenditure in five primary schools for a period of nine years between 2000 and 2009. The figures for the year 2000 range from a low of 255 rupees in Charati School to a high of 415 rupees in Patgaon School, with an average of 329 rupees. This average rose by an average of 4.1 per cent per year to 472 rupees in 2009, and the education expenditure per student changed to a low of 335 rupees in Ramdia School and a high of 610 rupees in Savar School. During the same period from the year 2000 to 2009, we can see the education expenditure per student increased by only 0.9 per cent per year in Patgaon School, whereas the Savar School almost doubled its per student expenditure to 610, with an average increase of 7.1 per cent per year.

When financial data from the schools are combined with those from the central, provincial, district and local education administrations, as well as from other educational institutions and programmes, the resulting information about national public expenditure on education can allow us to derive the EFA indicators No. 5, 21 and 46 listed in Section 4.1 above.

5.2.4 Teachers

The quality and number of teachers influence how children participate in school and affect their learning outcomes. The data about teachers and students in school records and those given in response to the school census questionnaire can in the first place be used to calculate pupil-teacher ratios (PTR), not only for the school as a whole but also by class and by grade so as to identify classes with disproportionate PTR. These PTRs can then be compared with national norms so as to identify schools, grades and classes that need more teachers to serve the existing student population.[20]

Indicators about teachers' academic qualifications and teacher training can be derived from information in individual teacher records.[21] Indicators about the quality of teachers can include: the percentage distribution of teachers by highest academic qualification; and percentage of teachers who have received pre-service and/or in-service teacher training.[22] When compared against existing national norms which define the minimum qualification required of teachers, these indicators can inform about the share of under-qualified and untrained teachers so that measures can be taken to upgrade their competencies and to train and recruit more qualified teachers.

Example 9. Male and female teachers by type of contract in Banpong District

		Total	Permanent	Contractual	Probationary	Temporary	Other
Number of teachers	**Male**	55	27	18	3	5	2
	Female	64	39	11	6	7	1
% by type of contract	**Male**	100.0%	49.1%	32.7%	5.5%	9.1%	3.6%
	Female	100.0%	60.9%	17.2%	9.4%	10.9%	1.6%

Employment status of teachers by type of contract (e.g. permanent, contractual or temporary) may affect the motivation of teachers and the quality of teaching they provide. By calculating the percentage distribution of teachers by contract type, we can study their likely impact upon quality of education. Of the 119 teachers in Banpong district in Example 9, 60.9 per cent of female teachers are permanent teaching staff compared to only 49.1 per cent of male teachers. Example 9 also shows high proportions of teachers are employed on contractual, probationary or temporary contracts, with noticeable gender differences. These indicate a number of issues in school personnel management in this district which need to be addressed by means of appropriate policies and actions such as increasing the share of permanent teachers and improving the gender balance.

Additional indicators of teacher quality can be derived from their performance evaluation results.[23] This indicator can be produced if such performance evaluation is organized systematically for each teacher in the schools. Example 21 in Module A5 shows how the scores obtained for individual teacher performance attributes can be used in practice to indicate teacher quality.

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20 See Example 1 and Graph 1 in Module A4.

21 See Example 5 in Module A1 and Question 19 in the example school census questionnaire in Module A2.

22 See also Example 20 in Module A4.

23 See Example 6 in Module A1.

5.2.5 Students

Students are the direct beneficiaries of education. Data about students in school records or gathered through the school census questionnaire can be used to calculate many key indicators relating to students' access, participation, completion, learning achievement and gender equality in education.[24]

Percentage of students by gender, age and grade

A first step in producing indicators about students is getting to know the characteristics of the student population in school. Information about students' age, grade and sex, which is collected in the school census questionnaire, can be used to calculate the percentage distributions of students by gender, age (or age-group) and grade.[25] Similar to Example 14 in Module A1, the age distribution of enrolment for a specific grade can be calculated by sex as shown in Example 10 below.

Example 10. Enrolment by age and sex in Grade 4 at Baan Yai Primary School

	Age									
	<6	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**>12**	**TOTAL**
Number of boys	0	0	0	1	9	4	3	1	0	18
Number of girls	0	0	0	3	14	3	1	0	0	21
% of girls	-	-	-	75.0%	60.9%	42.9%	25.0%	0.0%	-	53.8%
% distribution by age (boys)	0.0%	0.0%	0.0%	5.6%	50.0%	22.2%	16.7%	5.6%	0.0%	100.0%
% distribution by age (girls)	0.0%	0.0%	0.0%	14.3%	66.7%	14.3%	4.8%	0.0%	0.0%	100.0%

The above example illustrates how we can use simple data about enrolment by age in a specific grade in school to calculate percentages which help us to understand the situation in new ways. In Example 10, if the official age for students in Grade 4 is nine years old (see shaded column in the middle), we can see that 53.8 per cent of the students in Grade 4 at Baan Yai Primary School are girls and hence by deduction 46.2 per cent are boys. Out of the girls, two thirds (66.7%) are of the official age for Grade 4, while only half of the boys (50%) are of the official age. Of the 21 girls in Grade 4, 3 girls (14.3% among girls) are under-aged at eight years old, as compared to 1 boy (5.6% among boys). Out of 18 boys in Grade 4, eight boys (44.4%) were older than nine years of age, compared to four girls out of a total of 21 girls (19.1%).

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24 See Examples 1-4 in Module A1 and Questions 20-24 in the example school census questionnaire in Module A2.

25 See Question 21 in the example school census questionnaire in Module A2 and Example 2 in Module A4.

In a similar way, we can analyse student enrolments by ethnic, linguistic and religious groupings to reveal patterns of participation and to identify factors that may limit some children's access to education. By calculating percentage distributions of students by type of disability or by family income, we can identify the proportion of such disadvantaged students to study the extent to which they are included in the school as compared to the proportions they represent in the local population. We can use this information to examine how best to include them in education.

Enrolment ratios

In addition to percentage distributions, we can use the data about students by gender, age and grade to calculate key indicators about access to education and participation in primary school such as:

- **Gross enrolment ratio (GER)**
- **Net enrolment ratio (NER)**
- **Age-specific enrolment ratios (ASER)**

As explained in the UNESCO methodological descriptions and Annex 2 of this Module, we can obtain various enrolment ratios by dividing the number of students who exhibit a certain characteristic by the corresponding school-age population so as to indicate the percentage of the eligible population who have access to and participate in school. The number of school-age children who are not enrolled in school can either be determined by subtracting those enrolled from the corresponding school age population, or estimated from net enrolment ratios or age-specific enrolment ratios. Such numbers can be further verified in the local area through information from students and teachers followed by home visits to find out about the causes of non-enrolment.[26]

The percentage distribution of students in terms of the amount of time required to travel from home to school[27] can indicate the degree of difficulty for children to attend school. Example 17 in Section 5.2 of module A4 demonstrates how to present and analyse such data. We can use the findings to rationalize the location of schools in order to ensure there are schools within easy reach of school-age children, and to organize transportation and/or boarding facilities for those students who live far away.

Repeaters and drop-outs

In each grade, there may be students who have been promoted from a lower grade to their present, higher grade, who have dropped out of school, or who are repeating the same grade as the previous year.[28] It is important to know the numbers of each so that the following indicators of **internal efficiency** can be calculated:

- **Percentage of repeaters by grade**
- **Percentage of drop-outs by grade**
- **Promotion rate**
- **Repetition rate**
- **Dropout rate**

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26 See Section 7.3 in Module A1 and Section 5 in Module A2.

27 See also Example 1 in Module A1 and Question 24 in the example school census questionnaire in Module A2.

28 See Example 1 in Module A1 and Question 21 in the example school census questionnaire in Module A2.

The concept behind these indicators, and the method to calculate them are presented in Section 5.4 in Module A4 and Annex 3. We can calculate similar indicators about the percentage of in-transfers from other schools, and students who dropped out the previous year but who have re-entered the school this year. These indicators describe what happened to the children during their studies as they progressed through the grades in school, and the internal efficiency of the school.

We can calculate **gross intake rate (GIR)** and **net intake rate (NIR)** indicators about first-time entrants to Grade 1 by gender and age.[29] To calculate these ratios, we use the same method as for the gross enrolment ratios (GER) and net enrolment ratios (NER), but this time for new entrants and school-entrance age population. Before calculating these rates, one must make sure that repeaters in Grade 1 and in-transfers into Grade 1 from other schools are not included in the number of new entrants. The net intake rate (NIR) can be used to estimate the number of children who are of the official school entrance age but who are not enrolled, so that the school can reach them through special enrolment drives.

A useful EFA indicator is the number and percentage of new entrants to Grade 1 who have previously received some kind of organized early childhood care and education (ECCE). We can calculate this indicator by extracting data from the student records about new entrants' previous experiences in childcare programmes, kindergarten or pre-school, then tallying and summarizing their numbers. This indicator can help to assess the level of ECCE new students received to prepare them for entering primary school. The percentage of those who have not previously attended ECCE can inform decisions to provide special assistance to them after they enter primary school, as well as to expand ECCE provisions for future new entrants.

Examination pass rates and completion rates
Based on data about the number of students who successfully passed the final examination in the previous school year,[30] we can calculate the indicator of pass rates by grade and gender by dividing the number of students who passed by the number of students enrolled in the corresponding grade last year. We can use this indicator to gauge the performance of the students by school, grade and class. For the final grade in primary school, the 'completion rate' indicator can be calculated in a similar way.

The score obtained by individual students in different subjects can be presented in a summary list like the one shown in Example 12 in Module A1, to rank and compares students' learning achievement. We can apply the same methods to scores obtained during special learning achievement tests.[31]

Using the data in Questions 20 and 21 of the example school census questionnaire in Module A2, average student-class ratios by grade can be calculated to indirectly assess the quality of teaching/learning and to better manage class-size in the school.

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29 See Question 22 in the example school census questionnaire in Module A2.
30 See Question 23 in the example school census questionnaire in Module A2.
31 See also Section 6.2 in Module A4.

ACTIVITY 6

Based on the discussions in Section 5.3, review the data available to you in the school records or in the school census questionnaire, and then answer the following questions:

1. Which education indicators do you think can be produced using the data available to you? How do they correspond to the EFA indicators in Table 1?

2. What kind of difficulties can occur when trying to produce these indicators?

3. What do you think can be done in order to address these difficulties?

4. Which do you think are the remaining gaps in indicators for monitoring education in particular EFA?

6 Additional education indicators

A wide range of indicators are needed to monitor the six EFA goals. In local areas, school managers and local education officers may also confront problems and issues that are specific to their environment. The kind of indicators they use in problem-solving and decision-making may go beyond the list given in Table 1 in Section 5.2.

When deciding on which additional indicators to produce and use, education administrators should first review what kind of data are available at school and in the local area, and how complete and reliable are these data, so as to determine which indicators can be produced and meaningfully used. In doing so, one must also consider how the additional indicators complement the core EFA indicators by indicating more detailed and specific issues relating to 'reaching the unreached' and quality of education in the local context.

It is important that these additional indicators reflect the EFA indicator concepts and methodology, and can also be used to contribute to EFA monitoring at the national and global levels. In this way, policy-makers and education managers at all levels, as well as other stakeholders in local communities, can obtain a more consistent and comprehensive picture of the state of EFA implementation.

6.1 Additional education indicators based on school data

As shown in the preceding sections and examples, the data and information available at school and in the local area can be used to derive many additional education indictors. Standardizing school records across the whole education system[32] and using the data collected through the annual school census questionnaire[33] can ensure the indicators are comparable across the whole country, and thus useful for all schools and local communities.

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32 See Section 8 in Module A1.
33 See Section 4.2 of Module A2.

Table 2. Additional education indicators

Type of school data	EFA indicators No.	Examples of additional indicators
• School characteristics • School facilities • Students (including new entrants, enrolment, repeaters, drop-outs, completers, etc.) • Teachers • Income and expenditure	• 22, 46, 47, 50 • 8-18, 36, 39(b-g), 43 • 19, 20, 37	• Percentage distribution of schools by type • Percentage of school facilities to repair • Percentage of school facilities to replace • Percentage of unused school facilities • Percentage of school without electricity • Classroom area per student • Playground area per student • Percentage of teachers by employment status • Percentage of teachers by teaching hours per week • Percentage distribution of school income by source • Percentage distribution of school expenditure by type
• Textbooks • Duration of travel • Student performance • Teachers qualification	• 44 • 24 • 48 • 39 (j-k), 40, 41	• Percentage of students without textbooks • Percentage of students scoring below average by subject
• New entrants to Grade 1 with previous ECCE experience • Schools offering instruction in the mother tongue • Number of female school managers/ district education officers	• 2 • 23 • 38	• Percentage distribution of students by language spoken at home • Percentage distribution of students by type of disabilities • Percentage distribution of students by level of education of parent/guardian • Percentage distribution of students by days of absence per month • Percentage distribution of students by scores in behavior • Percentage distribution of teachers by language abilities • Percentage distribution of teachers by years of teaching • Percentage distribution of teachers by grade and subject taught • Percentage distribution of teachers by special skills • Percentage distribution of teachers by total evaluation scores • Percentage distribution of teachers by score according to individual attributes • Percentage distribution of teaching materials by frequency of use

Among the EFA indicators marked with an '*' in the list in Section 4.1 (see the corresponding numbers in the middle column of Table 2 below), available data in school about students, teachers and classes (listed on the left-hand side in the upper part of Table 2) can be used to derive the recommended EFA indicators of enrolment ratios, intake rates, pupil-teacher ratios, percentage of qualified/trained teachers, pupil-class ratios, repetition rates, promotion rates, dropout rates, survival rates, completion rates, and gender parity indices. These school data can also allow additional indicators to be derived such as the percentages of schools offering complete primary education, improved water sources, and improved sanitation facilities (see right-hand column in Table 2).

Other additional EFA indicators can be calculated from a second group of school data which relate to textbooks, duration of travel from home to school, student performance results, teacher training and qualifications (see the middle part on the left-hand side of Table 2). These indicators include the percentage of students who do not have the required textbooks, textbook-pupil ratio, percentage distribution of primary school students by duration of travel between home and school, the proportion of students who have mastered nationally-defined basic learning competencies, and the percentages of teachers with pre-service or in-service teacher training, who have the minimum academic qualifications, and who are certified to teach (see right-hand column in Table 2).

The third group, in the middle column in the lower part of Table 2, refers to recommended EFA indicators that will require specific data to be recorded at school, or to be collected from school or district education offices. Such data are specified in the corresponding left-hand column of the table.

Additional indicators that can be derived using the data in school records, or collected using the school census questionnaire are shown in the right-hand column of Table 2.

ACTIVITY 7

Taking into account the data available to you, review the examples of additional education indicators listed above in Table 2 in relation to what you use to monitor education in your school, district, province or country, and answer the following questions:

1. Which of the example additional education indicators suggested in Table 2 can be relevant and useful to you? Why?
2. How should one go about producing and using these additional education indicators?
3. What other additional education indicators do you think can be produced using the data available to you? Why?

6.2 Other EFA indicators and data sources

The other EFA indicators without '*' in Table 1 in Section 5.2 are those that will require data from sources other than school records and school census questionnaire. Table 3 below presents alternative sources of data for deriving these other EFA indicators, and for creating additional indicators.

Table 3. Sources of data for other EFA indicators

Alternative data sources	Type of data collected
A. Population censuses	Population by gender, age-group and geographical location; Illiterates; Population by educational attainment; School attendance; Fields of study
B. Household (or other) sample surveys	Additional data on population, illiteracy and educational attainment; School attendance this and previous year; Household educational expenditures; Other specific qualitative details (reasons for dropping out, opinions or expectations of parents, teachers, community members, etc.)
C. Special surveys of schools, ECCE centres, adult literacy and continuing education centres and programmes	Students/learners by gender, by age, by grade, by type of programme, by field of study; Repeaters, drop-outs, transfers, completers; Condition of schools and centres, equipment, facilities, etc.; learning achievement and outcomes
D. Administrative records of relevant ministries, departments and local government	Various types of educational institutions, centres and programmes; Population profile; Educational expenditures; Teachers' salaries; Teaching and other staff by age, qualification, status, etc.; Examination results

In relation to EFA monitoring, population censuses and household surveys (see data sources A and B in Table 3 above) are especially important for collecting data about:

- **Population, especially data on school-age and school-entrance age population**
- **Literate and illiterate population**
- **Education attainment of the population**
- **Access to school and school attendance**
- **Ethnic, linguistic and religious profile of the population**
- **Disabled persons**
- **Employment and occupation**

Data on school age and school-entrance age population are necessary for calculating enrolment ratios and intake rates. Data about the adult population can be used to derive literacy rates and percentage distribution of the population by highest level of education attained. Data collected about school attendance during household surveys, like the MICS (Multiple Indicators Cluster Surveys), the LSMS (Living Standard Measurement Surveys) and DHS (Demographic and Health Surveys), can be used to calculate school attendance rates and other education indicators that complement the enrolment ratio, repetition rate and dropout rate.[34]

For reaching the unreached under EFA, the most useful data from population censuses and household surveys are data about the **numbers, characteristics and location of disadvantaged population groups, such as those from ethnic, linguistic and religious minorities, the disabled, and the poor.** When these data are reviewed together with data about literate and illiterate people in the population, their highest level of educational attainment and school attendance, these can help to identify who and where are those persons who have missed out on opportunities for education. This information can be used as a basis for planning targeted EFA campaigns to reach the unreached.

In order to derive some of the other EFA indicators (those that are not marked with an '*' in the list in Section 4.1), special surveys of other data sources (C in Table 3) can be conducted to collect data about the other levels and types of educational institutions and programmes covered by the EFA goals, such as the ECCE centres, secondary schools, technical/vocational training centres, adult and continuing education centres and programmes.[35] In a way similar to the census of primary schools, these surveys can collect information about the institutions, their programme(s), physical facilities, finance, students/learners and teachers/trainers. If these institutions, schools and centres also practice systematic records management, this can help to ensure that useful and reliable data are readily available.

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34 See Training Modules B1-B5.

35 Connal, C. 2005. *NFE-MIS Handbook: Developing a Sub-national Non-formal Education Management Information System.* UNESCO, Paris. http://unesdoc.unesco.org/images/0014/001457/145791e.pdf (Accessed 27 May, 2011)

UNESCO. 2009. *Developing Management Information Systems for Community Learning Centres – A Guidebook.* UNESCO, Bangkok. http://www2.unescobkk.org/elib/publications/257_258appeal/CLC-MIS.pdf (Accessed 27 May, 2011).

Various administrative records, which are kept by government departments from the central to local levels, may contain data that can be used to derive education indicators. Such data sources (D in Table 3) may contain relevant information concerning various types of educational and training institutions, centres and programmes under different ministries, agencies and bodies. Data from these sources about finance, teachers, salaries, examination results, and disadvantaged population may be used to calculate EFA indicators.

6.3 Gathering data from other sources

Population censuses usually take place once every ten years. Household surveys may be organized every 2-5 years depending on the type of household survey and the need to update certain data. The timeliness of data from these two sources may not correspond exactly to the EFA monitoring schedule. **Estimations and projections can normally be made to obtain more timely data**. Such estimates can be requested from the National Statistics Bureau or relevant government departments.

Most countries make such population estimates and projections for the national and provincial aggregates, though not for district or local areas.[36] Unlike the population census which collects data from each and every household in the country, household surveys like the MICS, DHS and LSMS only cover a sample of the households, hence the resulting data are less representative of all the local areas and characteristics. One should therefore use them with caution especially to avoid wrong assertions and over-generalizing during interpretation.

Data about other levels and types of educational institutions, centres and programmes may be collected either systematically on an annual basis like for a primary school census, or through special ad hoc surveys. It will be necessary to contact the relevant government department or body responsible for collecting such data, in order to request the data needed to derive the indicators.

Administrative records which are kept in relevant ministries, departments and local government offices may contain data and information that can be used for calculating education indicators. Take advantage of the proximity of local government offices to the population and the schools in the local area, in regularly obtaining and updating data and indicators.

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36 See the Modules B1-B5 for information about how to analyse and use education data from household surveys.

Different data sources and types of data and indicators will have to be used in monitoring all the six goals of EFA. When using data from sources other than the schools such as population censuses, household surveys and administrative records, attention must be paid to ensure the consistency of the data obtained. Some of the data quality control methods presented in Section 6 of Module A2 may be adapted for use. One should not hesitate to resort to other ways to verify and improve data quality for example by checking if the definitions and data collection or recording methods differ from one source to another, or when the indicators derived from these data sources contradict each other.

One other limitation is that **sometimes definitions of data differ from one household survey to another.** As a result, the additional indicators obtained cannot be meaningfully compared. It is recommended to follow all the procedures listed in the next Section 7, so that one can ensure the validity of indicators created. To add indicators for capturing a more precise picture of education, keep in mind that there can be hidden problems with adding indicators due to the unavailability or doubtful quality of data. Strict application of the indicator concepts and methodology in the previous sections for creating and using indicators to monitor EFA progress is required.

ACTIVITY 8

Enquire about past and upcoming population censuses and household surveys in your district, province or country and the availability of education data thus collected, and the same about other surveys of education, and then answer the following questions:

1. Which population censuses, household surveys and other surveys of education have been conducted in your district, province or country? When?
2. What kinds of education data have been collected? How can you access them?
3. What other relevant education data can be accessed? How?
4. How would you go about using all these data in monitoring education and EFA?

7 Selection and use of education indicators

The previous sections show that many indicators can be used to monitor the six EFA goals and other aspects of the education system. This section explains how to select the most appropriate indicators for a given purpose, and how to ensure that the indicators are used to reliably explain the situation, issues and implications, as well as to guide decisions and actions.

7.1 Indicator selection criteria and practices

We can use indicators to monitor the overall situation, to examine specific aspects and issues, and to consider the implications in making decisions. Often, more than one indicator are required to explain a certain phenomenon or issue. For example, we monitor participation in school through the use of a number of ratios including gross, net and age-specific enrolment ratios. Sometimes one indicator can also be used to depict several phenomena or issues. For example, we use the pupil-teacher ratio to check if there are enough teachers for the number of students, but this indicator can also be used as a proxy for quality of education.

The art of using indicators is not about calculating each time the full range of education indicators to monitor EFA, but to judiciously **select the ones which can most clearly and effectively indicate the situation and highlight the issues.** To be efficient, avoid selecting, calculating, analysing and interpreting too many indicators in order to obtain the same finding and conclusion as can a few well-selected indicators for the same phenomenon or issue.

Knowing how to select the most appropriate indicator for a specific purpose is important, because if the wrong indicators are chosen, they can lead us to confusing, misleading or even contradictory findings and conclusions. When we choose indicators, we need to ensure they are based on the right concept, definition, analytical objective, data type, data source and angle of interpretation. The following criteria can help us **select more appropriate indicators.**

- **Relevant in concept to the aspect or issue to be examined**
- **Clear in defining the purpose and limitations**
- **Data are available and reliable**
- **Can be easily and rigorously calculated**
- **Can be easily presented and interpreted**
- **Can be easily understood and used to aid in planning and decision-making**

In summary, good indicators are clear, reliable and **SMART (Specific, Measurable, Achievable or Attainable, Result-oriented and Time-bound).**

In practice, the steps to be taken to select education indicators include the following:

1. **Precisely identify what we want to monitor or examine;**
2. **List down the questions that need answers;**
3. **Identify the kind of indicators that can be used;**
4. **Review the methodological basis and robustness of these indicators;**
5. **Find out what data will be needed to derive each indicator, and where and how to get this data;**
6. **Gather sample data and examine their quality and reliability;**
7. **Perform a test calculation to produce a draft indicator to see if there are any difficulties or biases in the results;**
8. **Analyse the indicator's efficacy for explaining the phenomenon; and**
9. **Select the indicator or indicators that are most feasible and appropriate for the purpose.**

In this way, we can more efficiently select different indicators to monitor progress in achieving the six EFA goals and other aspects of education. Like a jigsaw puzzle, these indicators complement each other to constitute a more comprehensive picture. Using the criteria and practices outlined above, we may identify and produce other additional indicators to fill the remaining gaps in the picture.

While we are using each selected indicator for monitoring EFA, we can **continue to check its relevance, feasibility, reliability and usefulness.** For the purpose of 'reaching the unreached', we may identify additional gaps, problems and issues in some disadvantaged areas or population. More detailed disaggregation and in-depth analysis of the selected indicators can help to better pinpoint the gaps and address the problems and issues. Often, new issues and questions can emerge during such detailed analysis, which may call for additional indicators to be calculated and analysed.

7.2 Incorrect selection and misuse of education indicators

Errors in selecting and producing education indicators can lead to serious misunderstanding or even wrong decisions which could have serious consequences for the school or the education sector. Such errors can occur at any time during the indicator selection and production process, by:

- **choosing the wrong issue or aspect**
- **asking the wrong questions**
- **using the wrong indicator concept, definition and methodology**
- **using the wrong data or wrong data source**
- **incorrect calculation and analysis**
- **poor presentation and interpretation of the results**
- **incorrect use of the indicator**

A mistake at any one of these steps can lead to misunderstanding and poor decisions. For example, we may have identified correctly the issue and asked the right questions, but if either the methodology of the indicator was poorly defined, or the data we used were unreliable, or errors were made during calculation, analysis or interpretation, the resulting indicator will be incorrect and likely to cause misunderstandings and lead to poor if not wrong decisions.

Sometimes indicators may be misused. Misuse can occur by selecting indicators that are irrelevant to the issue under review, such as when the pupil-teacher ratio is used to assess the conditions of facilities in the school. Or in some cases the value of an indicator does not actually explain or highlight any issue, but is taken as being significant. Another form of misuse is to over-generalize by taking two indicators which have similar values for a district, and assuming they have the same values for all other districts as well.

Another example of misuse of education indicators occurs when comparing indicators created with different scales. When assessing students' performance at a school, if the average score of a mathematics examination conducted for class A was 58 out of 100, and the results of another mathematics examination conducted for class B was also 58 per cent. Can we conclude that both class A and B achieved the same outcomes by demonstrating that the students' performance are the same in the two classes? If we do not know whether these two examinations asked the same questions, or whether the same teacher marked the papers, it will be impossible to give a clear-cut answer 'YES' to the above question. **For indicators to be comparable we must use the same scale, the same definition and the same way of measuring the indicators.** In addition, all the other conditions and steps for deriving the indicator values must be same.

ACTIVITY 9

Review your own criteria and practices in selecting and using education indicators, and discuss with other colleagues and stakeholders in your school, district, province or country about what they know and do. Then, answer the following questions:

1. What was agreed should be the criteria to be used in selecting education indicators? Which other specific criteria have also been used? Why?

2 How should one go about selecting education indicators? What other steps can be added? Why?

3. What other lessons have you and your colleagues learned when selecting and using education indicators?

8 Data analysis using education indicators

8.1 Purpose of data analysis

Analysis is the detailed examination of the elements or structure of an object or a process, in order to identify patterns, trends, issues, causes, key factors and possible consequences. Data analysis for monitoring EFA is carried out using available data, indicators and other relevant information.

This part of Module A3 focuses on data analysis using education indicators to monitor, evaluate and assess progress towards the EFA goals. Table 4 below shows how indicators can support various monitoring, evaluation and assessment functions. Essentially:

■ **Monitoring** can take place regularly during policy implementation to check progress and to identify issues and lessons to adjust the implementation processes;

■ **Evaluation** is carried out after the completion of specific stages of implementation, to reflect on what has and has not been accomplished, and the factors and constraints

■ **Assessment** occurs when we review the outcomes and impacts of curriculum design and various teaching/learning processes and materials.

Indicators of inputs, process, output and outcomes are frequently used to monitor progress in EFA. The type of education indicators that can be applied and analysed are outlined in the bottom row of Table 4.

All stakeholders who support education, including school managers, teachers, school management board members and education officers at different levels of the education administration, must know about and be involved in monitoring, evaluation and assessment, and about how best to use indicators in these functions.

Table 4. Monitoring, evaluation and assessment using education indicators

Functions and Indicators			
	Monitoring	**Evaluation**	**Assessment**
Purpose:	During implementation. Formative - continuously drawing lessons and insights to adjust implementation.	After implementation. Summative - evaluating how policies/ programmes have been implemented.	During and after implementation. Can be both formative and summative to review outcome/impact.
Aimed at:	Operations and management	Policy-making and leadership	Curriculum designers, teachers, course providers
Focus on:	Account of what and how things have been done and immediate results and lessons	Effectiveness of policies and strategies vis-à-vis goals and targets	Learning objectives, teaching-learning methods and m aterials, outcomes and impact.
Information regarding:	Inputs and process	Outcomes and impact	Learning achievements per objectives, teaching-learning processes
Indicators on:	Resource inputs, access and participation, efficiency, quality of delivery	School capacities; graduates; learning achievement, socio-economic changes	Learning results according to teaching-learning methods and materials

8.2 Procedures for data analysis

According to the EFA Technical Guidelines,[37] the **basic steps for monitoring EFA** are as follows:

1. **Assess progress and gaps in the achievement of the national and global targets of EFA.**
2. **Identify and locate the remaining gaps in terms of access, quality and equity at the sub-national level, with a focus on the disadvantaged and underserved populations.**
3. **Review, identify and locate problems, issues, policies, strategies, actions and success stories.**
4. **Use the results of the assessment to formulate better policies and strategies for achieving the EFA goals and the MDGs by 2015.**

Each of these steps requires the analysis and use of EFA indicators. In essence, the EFA and additional education indicators for schools, classes, students, teachers, resource inputs and educational processes which are presented in Sections 5.2 to 6.1, can be analysed according to their:

- **characteristics, distribution and patterns**
- **differences, disparities and imbalances**
- **changes over time**
- **progress and shortfalls against targets and plans**

Such analysis can help to identify issues, causes and actions to address them. Data analysis for monitoring EFA must, therefore, cover both the spatial and temporal dimensions in that:

- **Spatial** refers to geographical sub-divisions such as provinces, districts and local areas, whilst differentiating between urban and rural zones and remote areas.
- **Temporal** refers to changes over time.

Very often, monitoring of EFA from year to year requires that EFA indicators be calculated and analysed to combine both the spatial and temporal dimensions. In order to locate the 'unreached' population and understand their characteristics and needs, disaggregated EFA indicators are analysed not only by province and by district, but also by local areas, schools and households. The next section discusses how best to disaggregate EFA indicators.

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37 International Consultative Forum on Education for All. 1998. *Education for All The Year 2000 Assessment: Technical Guidelines* http://unesdoc.unesco.org/images/0011/001137/113746eo.pdf (Accessed 27 May, 2011)

ACTIVITY 10

Review your own criteria and practices in selecting and using education indicators, and discuss with other colleagues and stakeholders in your school, district, province or country about what they know and do. Then, answer the following questions:

1. What kind of methods and practices have been in use among you and your colleagues in analysing data and indicators on education?

2. What do you think are the pros and cons of different approaches, methods and practices, compared to what has been discussed in this section?

3. How best should one go about analysing data and indicators in monitoring, evaluating and assessing achievement of EFA goals?

9 Disaggregation of education indicators

9.1 The importance of disaggregating data

'Disaggregation' is the process of breaking down and analysing an indicator by detailed sub-categories. Disaggregation of data can reveal differences and disparities that may not be fully reflected in broad aggregate figures. Disaggregation **by level of education, geographical areas and population sub-groups** can allow us to understand the nature of disparities within the national education system, and where to target priority efforts to reduce disparities.

Data in the school records and school census questionnaire in Modules A1 and A2 are often recorded and collected with more detailed breakdown such as enrolment by gender, age and grade; number of teachers by qualification and training; school income by source and expenditure by type; etc. Analysing and comparing data and indicators according to these breakdown classifications can help us to better understand the characteristics, patterns, differences and disparities among individual schools, classes, students and teachers.

When we compare such findings at the school, district, provincial and country level (and also over time), we can obtain very useful information regarding progress, shortfalls, gaps and issues, for developing and implementing new policies and actions. It is good practice to **always look at more detailed breakdowns, rather than just the aggregate totals, to see the situation changes over time.**

For analytical purposes we can organize data into two types: cross-sectional data and time-series data. Cross-sectional data are like snapshots that capture a situation at a particular time; for example, the number of schools, students and teachers by district at the start of the 2010 school year. Time series data consist of a series of snapshots showing the changes over a period of time; for example, the number of students who attended school each year between 1999 and 2006. Data are often analysed using both cross-sectional and time-series methods.

By disaggregating data, district education officers can make comparisons between schools, students and teachers in the local area, and with schools, students and teachers in other districts as well as against the national average. Provincial education administrators can compare districts and schools in their province and with those in other provinces. The central Ministry of Education can monitor and identify disparities within the education system for the country as a whole, and compare their country with other national education systems.

9.2 Dimensions of disaggregation

Disaggregation of data and indicators is especially important in monitoring EFA. To 'reach the unreached', and to ensure equality of access and quality of education, detailed and disaggregated information by school, by location and for disadvantaged population groups are required down to the local, if not the community and household levels. Such disaggregated data **can help to identify specific localities, households and individuals for priority EFA actions**, which may be taken to address the kind of issues and difficulties that face them.

It is, therefore, important to produce and use education indicators that can be further analysed by relevant disaggregated classifications in order to identify specific concerns. For example, enrolment ratios can be calculated separately for boys and girls to gauge gender disparities in participation; pupil-teacher ratios calculated for different classes and grades to improve teacher assignment, and the percentage of qualified teachers by school or by district to compare education quality.

Sometimes, different types of disaggregation may be simultaneously possible for an indicator, such as enrolment ratios by gender, and also by age and grade. Selection of the right type of disaggregation will depend on what one wants to know. For example, if there are concerns about low participation in education among children of a specific age, an age-specific enrolment ratio will need to be calculated. As another example, the percentage of untrained teachers may be more relevant than the percentage distributions of teachers by academic qualification if one is planning in-service teacher training.

A particular type of disaggregation may be very effective in highlighting differences and disparities among entities at different levels; for example comparing a pupil-teacher ratio of 1:48 in School A against 1:25 in School B, and then further comparing PTRs among classes in School A to identify even more serious cases. But beware that some disaggregations may not be as sharp and effective in comparing different schools, districts, classes, students or teachers. **The effectiveness of different indicators by different disaggregations can change with location and time.** The choice will depend on the status or issue under review at a specific location at the time of use of the indicator.

For the purpose of monitoring disparities and inequities in EFA, and according to specific national or sub-national conditions and needs, the following **types of disaggregation** can be systematically included in school records management, data collection and indicators production:[38]

- **Gender:** girls and boys.
- **Geographical and administrative units:** provinces, districts, localities and other sub-national units, urban/rural, less developed/more developed areas.
- **Social:** caste system, occupation, socio-economic status or legal status (eg. birth registration, citizenship).
- **Ethnocultural:** ethnicity, religious affiliations or language minorities.
- **Vulnerable:** orphans, children of poor families, migrants, working children, children affected by HIV/AIDS or children affected by conflict (IDPs) and disasters**.**
- **Disabilities:** physical or mental.
- **Education source:** private/public/faith-based, formal/non-formal/community-based.

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38 UNESCO-UNICEF. 2006. *Guidelines for the Asia and Pacific Education for All Mid-Decade Assessment: Identifying and Reaching the Unreached.* http://www.unescobkk.org/fileadmin/user_upload/efa/EFA_MDA/TechGuide_Draft_15Sept.pdf (Accessed 27 May, 2011)

Additional types of disaggregation may be added to school records, school census questionnaire and indicators as deemed appropriate and useful to the school or district education office.

An additional advantage of disaggregated data and indicators is their use in analysing and assessing the differentiated impact of broad policies and measures on different local areas, population groups, and in addressing specific problems and issues. For example, disaggregation of the indicator 'education expenditure per student' by province, district and school can tell us about local cost levels and also about how the schools spend the government allocated education budget and the financial contributions from the local communities, businesses and families. Without such disaggregation, evaluation of the true impact of governmental policies cannot be made, nor can future policies be based on reliable evaluation results.

Data collection, storage format and processing need to be designed to allow for flexible compilation of data and the appropriate level of disaggregation in terms of administrative levels, geographic areas and population groups. When applying the disparity measures to indicators for the six EFA goals that have been calculated for each administrative level, area and population group, we can gauge the degree of disparities between various groups regarding the different dimensions and facets of EFA and also identify and locate the target disadvantaged population groups and areas, and to plan and deliver appropriate responses to the respective target groups addressing their specific educational needs and difficulties.

To formulate targeted action for reaching the unreached and the under-served, we need to analyse disparities in terms of the distribution of educational opportunities, resources, access, quality and outcomes across administrative levels, geographic areas and population groups. There are statistical methods for measuring the magnitude and frequency of various types of disparities. The measurement of disparities and inequities for the six EFA goals, and for any additional indicators we use, can be analysed using basic charts and graphs to make visual comparisons of different sub-populations. In addition, the following measurements can be used to analyse disparities between different target groups:

- **Absolute and relative percentage difference**
- **Ratio (male-female, urban-rural, majority-minority)**
- **Range (maximum-minimum)**
- **Mean and median**
- **Percentile and quartile**
- **Gender Parity Index (GPI)**
- **Representation Index (RI)**

Recent studies on progress towards the six EFA goals use four additional measures of disparities:

- **Range ratio (maximum/minimum)**
- **Coefficient of variation (deviation from the mean)**
- **Gini coefficient of inequality (deviation from equal distribution)**
- **McLoone Index/Adjusted McLoone Index (deviation from the median)**

As specific methodological characteristics of each EFA indicator and disparity measure may depict gaps and disparities in a different manner, these should be interpreted with care (for more details, see Annex 4).

ACTIVITY 11

Review the data and indicators available to you to see how disaggregated are they, and discuss with other school managers and education officers in your district, province or c ountry about their experiences in identifying disparities and inequalities. Then, answer the following questions:

1. How disaggregated are the data on education in your school, district, province, or country? What kind of disaggregated education indicators can be derived?

2. What are the difficulties in producing, analysing and interpreting disaggregated education indicators?

3. How should one go about using disaggregated education indicators in analysing disparities and reaching the unreached?

10 Quiz

Q1. What is an indicator?
(Please tick all correct answers)

❏ a number
❏ a landscape
❏ a sound
❏ a story
❏ a signal
❏ a song
❏ a percentage
❏ a development process
❏ a ratio
❏ a sample

Q2. Why do we need indicators?
(Please tick all correct answers)

❏ to tell us what is happening in the world
❏ to identify gaps and issues
❏ to compose a song
❏ to set targets and define plans
❏ to continue to work in our usual way
❏ to monitor progress and shortfalls
❏ to tell stories
❏ to compare with other schools, districts or countries
❏ to guide decision-making
❏ to stop trying to find out more about an object or a phenomenon

Q3. Education indicators usually indicate:
(Please tick all correct answers)

❏ when it will rain
❏ whether there are enough resource inputs into education
❏ internal efficiency of schools
❏ whether children are playing
❏ how young children access Grade 1 for the first time
❏ whether all teachers are qualified to teach
❏ what children talk to each other about

❏ how children are participating in school
❏ how to teach children at home
❏ what children have learned

Q4. Cite one EFA indicator for each EFA goal below:

Goal 1: ECCE ....

Goal2: UPE ....

Goal 3: Lifelong Learning...

Goal 4: Adult Literacy ....

Goal 5: Gender Equality ....

Goal 6: Quality of Education ....

Q5. Education indicators can be derived using the data in school records and school census questionnaire on:
(Please fill in the blanks marked by dotted lines)

• School characteristics

• ....

• School environment

• ....

• ....

• Students

Q6. Please give 5 examples of additional useful education indicators:

a) ....

b) ....

c) ....

d) ....

e) ....

Q7. Please match the four alternative data sources with the correct descriptions on the right:

Population censuses	Students/learners by gender, by age, by grade, by type of programme, by field of study; Repeaters, drop-outs, transfers, completers; Condition of schools and centres, equipment, facilities, etc.; learning achievement and outcomes
Household (or other) sample surveys	Various types of educational institutions, centres and programmes; Population profile; Educational expenditures; Teachers' salaries; Teaching and other staff by age, qualification, status, etc.; Examination results
Special surveys of schools, ECCE centres, adult literacy and continuing education centres and programmes	Additional data on population, illiteracy and educational attainment; School attendance this and previous year; Household educational expenditures; Other specific qualitative details (reasons for dropping out, opinions or expectations of parents, teachers, community members, etc.)
Administrative records of relevant ministries, departments and local government	Population by gender, age-group and geographical location; Illiterates; Population by educational attainment; School attendance; Fields of study

Answer:
(Please draw lines)

A   a
B   b
C   c
D   d

Q8. What are the criteria for selecting education indicators?
(Please fill in the blanks marked by dotted lines)

- Relevant in concept to the aspect or issue to be examined
- Clear in defining the purpose and limitations
- ....
- ....
- Can be easily interpreted
- Can be easily presented
- ....

Q9. How should one go about selecting education indicators?
(Please put the given letter of the steps listed on the next page into the sequence of boxes below in the correct order)

Step 1   2   3   4   5   6   7   8   9

☐→☐→☐→☐→☐→☐→☐→☐→☐
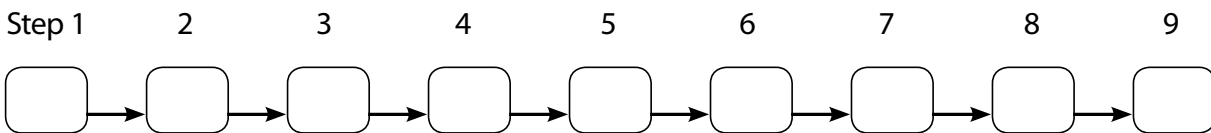
A. Analyze the indicator's appropriateness and sharpness for explaining the phenomenon
B. Test calculate the indicator to see if there are any difficulties or biases in the results
C. Gather sample data and examine their quality and reliability
D. Know what data will be needed to derive the indicator, and where and how to get the data
E. Select the ones which are most feasible and appropriate for the purpose
F. Identify the kind of indicators that can be used
G. List down the questions needing answers
H. Clarify what exactly we want to monitor or examine
I. Review the methodological basis and robustness of these indicators

Q10. Which are the key dimensions for analysing disparities in education?
(Please tick all correct answers)

❑ Gender: male/female

❑ Geographical and administrative units: provinces, districts, localities and other sub-national units, urban/rural, less developed/more developed areas

❑ Social: caste system, occupation, socio-economic status, legal status (birth registration, citizenship)

❑ Employed/unemployed: between persons who are employed and unemployed

❑ Ethnocultural: ethnicity, religious affiliations, language minorities

❑ Vulnerable: orphans, children of poor families; migrants; working children, children affected by HIV/AIDS, children affected by conflict (IDPs)

❑ Disabilities: physical or mental

❑ Education source: private/public/faith based; formal/non-formal/community based

❑ Time: from month to month; from year to year

11 Further studies

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ANNEX 1: EFA MONITORING, EVALUATION AND ASSESSMENT INDICATORS

EFA Policy and Structure Indicators

Presence of national development plans (including the EFA National Action Plan) demonstrating integration of human rights and gender equality principles
Presence of institutionalized mechanisms for sustained engagement of children and young people in policy development
Presence of regular monitoring and evaluation of the education system (particularly against current plans), with special attention given to marginalized groups, including women, ethnic and linguistic minorities, castes, people with disabilities, the rural and extreme poor, migrants and non-citizens

Core EFA Coordination Indicators

Existence of a functioning National EFA Forum with a dedicated secretariat or staff Identify all sub-committees or thematic/technical working groups, existence of terms of reference and functions
Presence of an EFA National Coordinator Identify his/her position within the Ministry of Education
Publication of an EFA National Action Plan Year of publication/ministerial endorsement
Integration of EFA National Action Plan in National Education Development Strategy and national development planning framework and process
Budget allocation for implementation of EFA National Action Plan
External funding support for EFA programmes
Strategy in place for the monitoring and evaluation of EFA programmes

Goal 1: Early Childhood Care and Education

	Policy/System Indicators
1.1.1	Existence of national, multi-sectoral early childhood policy
1.1.2	Adopted national standards for monitoring developmental readiness in early childhood and learning programmes
1.1.3	Presence of early screening programmes with referral system
1.1.4	Health links in ECCE established, with visits by health professionals, diagnostics or referral
1.1.5	Careers of ECCE care providers professionalized, including pre-service and in-service training, pay parity with primary schools, university and higher education degree programmes
1.1.6	National ECCE or education policy includes provision of ECCE for vulnerable and disadvantaged children

	Core EFA MEA Indicators	**Suggested Disaggregation for Analysis of Disparities**	**Data Source**
1.2.1	Gross Enrolment Ratio (GER) in ECCE programmes	• Sex • Geographic region • Urban/rural • Public, private, faith-based, community-based • Other social and economic disaggregation such as: ○ Ethnicity, caste ○ Language ○ Disabilities ○ Wealth quintile ○ Mother's education	• Annual pre-school census • Household surveys
1.2.2	Percentage of new entrants to primary Grade 1 who have attended some form of organized ECCE programme	• Sex • Geographic region • Urban/rural • Public, private, faith-based, community-based • Other social and economic disaggregation such as: ○ Ethnicity, caste ○ Language ○ Disabilities ○ Wealth quintile ○ Mother's education	• Annual pre-school census • Household surveys

1.2.3	Enrolment in private ECCE centres as a percentage of total enrolment in ECCE programmes	• Sex
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• Annual pre-school census
			• Household surveys

1.2.4	Percentage of children under age 5 suffering from stunting	• Sex • Age group • Geographic region • Urban/rural	• Household surveys
1.2.5	Percentage of households consuming iodized salt	• Geographic region • Urban/rural • Wealth quintile	• Household surveys

1.2.6	Percentage of trained teachers in ECCE programmes	• Sex
		• Age group
		• Qualification
		• Years of experience
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
		• Public, private, faith-based, community-based
		• Trained to teach:
		  ○ In local language(s)
		  ○ Disabled persons
			• Annual pre-school census
			• Household surveys

1.2.7	Public expenditure on ECCE programmes as a percentage of total public expenditure on education	• National level indicator	• Government budget reports

	Additional Indicators	Disaggregation for analysis of disparities	Data Source

1.3.1	Net Enrolment Ratio (NER) in ECCE programmes including pre-primary education	• Sex
		• Geographic region
		• Urban/rural
		• Public, private, faith-based, community-based
		• Other social and economic disaggregation such as:
		  ◦ Ethnicity, caste
		  ◦ Language
		  ◦ Disabilities
		  ◦ Wealth quintile
		  ◦ Mother's education
			• Annual pre-school census
			• Household surveys

1.3.2	Pupil/Teacher Ratio (PTR) (child-caregiver ratio)	• Age group • Geographic region • Urban/rural • Public, private, faith-based, community-based	• Annual pre-school census • Household surveys
1.3.3	Public current expenditure on ECCE per child as a percentage of GNP per capita	• National level indicator	• Government budget reports

1.3.4	Under-5 mortality rate	• Sex
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ◦ Ethnicity, caste
		  ◦ Language
		  ◦ Disabilities
		  ◦ Wealth quintile
		  ◦ Mother's education
			• National census
			• Household surveys

1.3.5	Percentage of infants with low birth weight	• Sex
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• Routine health system reporting (though this only covers deliveries in facilities)
			
			• National health surveys that either ask the mother (recall) or check the health record (assuming birth weight has been taken and recorded)

1.3.6	Vitamin A supplementation coverage rate	• Sex
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• Routine health system reports
			
			• National surveys e.g. DHS that ask mothers if their child received a vitamin A supplement within the last six months

1.3.7	Percentage of 1-year-old children immunized against DPT3, polio, measles, and hepatitis; and receiving other vaccines	• Sex
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• Routine health system reports
			• National surveys e.g. DHS that review the child's immunization record
			• EPI coverage surveys

1.3.8	Percentage of population or households with sustainable access to safe drinking water	• Geographic region • Urban/rural	• MICS • DHS • National census • Household surveys

1.3.9	Percentage of population with sustainable access to basic sanitation	• Geographic region • Urban/rural	• MICS • DHS • National census • Household surveys

1.3.10	Percentage of young children whose parents participate in parenting education programmes	• Sex
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• Household surveys

1.3.11	Exclusive breastfeeding rate	• Sex
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• MICS
			• DHS
			• Household surveys
			• Survey of street children
			• Survey of children in institutions, etc.

1.3.12	Percentage of children under 5 with anemia	• Sex
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• MICS
			• DHS
			• Household surveys
			• Survey of street children
			• Survey of children in institutions, etc.

1.3.13	Birth registration rate	• Sex • Geographic region • Urban/rural	• MICS, DHS, Household surveys, Survey of street children, Survey of children in institutions, etc.

1.3.14	Rate of support at home for early learning	• Sex
		• Age
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• MICS
			• Household surveys

Goal 2. Achieving Universal Primary / Basic Education

	Policy/System Indicators
2.1.1	Legislative, policy and institutional reform in conformity with the country's commitment to achieve the EFA Dakar goal of the universalization of primary education in accordance with the Convention on the Rights of the Child
2.1.2	Presence of national policies and plans for the universalization of "free and compulsory" primary education. Describe how these are being implemented
2.1.3	Information available on the number, characteristics, and geographic location of children in difficult circumstances and children belonging to ethnic minorities
2.1.4	Incentives and/or special support programmes put in place to promote access to and completion of primary education for children in difficult circumstances and ethnic minority children
2.1.5	Presence of legislation and regulations governing teachers' codes of conduct, working conditions, etc.
2.1.6	Existence of an operational Education Management Information System (EMIS) that collects and produces reliable disaggregated information and indicators that are accessible to the public
2.1.7	Existence of school/community mapping and a child-seeking strategy for "unreached" school-age children

	Core EFA MEA Indicators	**Disaggregation for Analysis of Disparities**	**Data Source**

2.2.1	Gross Intake Rate (GIR) in primary education	• Sex
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• Annual school census
			• Household surveys

2.2.2	Net Intake Rate (NIR) in primary education	• Sex
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• Annual school census
			• Household surveys

2.2.3	Gross Enrolment Ratio (GER) in:
	primary education
	secondary education
		• Sex
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• Annual school census
			• Household surveys

2.2.4	Net Enrolment Ratio (NER) in:
	primary education
	secondary education
		• Sex
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• Annual school census
			• Household surveys

2.2.5	Repetition Rate (RR) by grade in primary education	• Sex
		• Geographic region
		• Urban/rural
		• Public, private,
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• Annual school census

2.2.6	Survival Rate to Grade 5	• Sex
		• Geographic region
		• Urban/rural
		• Public, private
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
		• For the survivors: either with or without grade repetition
			• Annual school census

2.2.7	Primary Cohort Completion Rate Transition Rate (TR) from primary to secondary education	• Sex
		• Geographic region
		• Urban/rural
		• Public, private,
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
		• For the survivors: either with or without grade repetition
		• Sex
			• Annual school census
			• School registers
			• Household surveys

2.2.8	Transition Rate (TR) from primary to secondary education	• Geographic region
		• Urban/rural
		• Public, private,
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			Annual school census
			Household surveys

2.2.9	Percentage of trained teachers in primary education	• Sex
		• Age group
		• Qualification
		• Years of experience
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		• Public/private
		• Trained to teach:
		  ○ In local language(s)
		  ○ Disabled persons
			• Annual school census

2.2.10	Pupil/Teacher Ratio (PTR) in primary education	• Geographic region • Urban/rural • Public/private	• Annual school census • Household surveys
2.2.11	Public expenditure on primary education as a percentage of total public expenditure on education	• National level indicator	• Government budget reports

	Additional EFA MEA Indicators	Disaggregation for Analysis of Disparities	Data Source
2.3.1	Age-Specific Enrolment Rate (ASER)	• Sex • Geographic region • Urban/rural • Level of education	• Annual school census • National population census (specific age estimates derived from Sprague Multipliers)

2.3.2	Promotion Rate (PR)	• Sex
		• Geographic region
		• Urban/rural
		• Public, private
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• Annual school census
			• Household surveys

2.3.3	Drop-out Rate (DR)	• Sex
		• Geographic region
		• Urban/rural
		• Public, private
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• Annual school census
			• Household surveys

2.3.4	Survival rate by grade	• Sex
		• Geographic region
		• Urban/rural
		• Public/private
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• Annual school census

2.3.5	Percentage of repeaters	• Grade
		• Sex
		• Geographic region
		• Urban/rural
		• Public/private
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• Annual school census
			• School registers
			• School surveys

2.3.6	Percentage of schools offering complete primary education	• Geographic region • Urban/rural • Public/private	• Annual school census • School registers • School surveys
2.3.7	Percentage of primary schools offering instruction in the mother tongue	• Geographic region • Urban/rural • Public/private	• Annual school census • School registers • School surveys

2.3.8	Percentage distribution of primary school students by duration of travel between home and school	• Sex
		• Age
		• Grade
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• Annual school census
			• School registers
			• School surveys
			• Household surveys

Goal 3. Life Skills and Lifelong Learning

	Policy/System Indicators
3.1.1	Presence of policies, legislation and/or plan to develop lifelong learning that responds to the learning needs of young people and adults in the country
3.1.2	The existence of a national, multi-sectoral technical and vocational education and training policy
3.1.3	Existence of mechanisms to identify the learning needs of young people and adults, and to systematically undertake research on curriculum development as well as on the design of appropriate learning programmes and materials for them
3.1.4	The existence of national standards and benchmarks on life skills, and the incorporation of life skills content into the curriculum and teaching/learning processes in both formal and non-formal education, including technical and vocational education and training (TVET)
3.1.5	Lifelong learning/continuing education programmes with embedded life skills content organized to respond to the learning needs of young people and adults
3.1.6	Curriculum development and teacher training sub-systems established to support the development of life skills-focused training programmes in lifelong learning/continuing education

3.1.7	The existence of skills based approaches and tools within pre-service teacher training programmes
3.1.8	Student participation in school affairs elaborated within national education policy frameworks
3.1.9	National educational standards explicitly include psycho-social, emotional and behavioural skills as part of learning objectives of the respective levels of education
3.1.10	Availability of counseling services for secondary school students
3.1.11	Regular nationwide information system established to monitor progress in the development of lifelong learning/continuing education

	Core EFA MEA Indicators	Suggested Disaggregation for Analysis of Disparities	Data Source

3.2.1	Number and percentage distribution of the adult population by educational attainment	• Sex
		• Age group
		• Grade
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• Population censuses
			• Household surveys
			• Demographic projections

3.2.2	Number and percentage distribution of young people aged 15-24 years by educational attainment	• Sex
		• Age group
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ◦ Ethnicity, caste
		  ◦ Language
		  ◦ Disabilities
		  ◦ Wealth quintile
		  ◦ Occupation
		  ◦ Mother's education
			• Population censuses
			• Household surveys
			• Demographic projections

3.2.3	Youth Literacy Rate (age 15 to 24)	• Sex
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ◦ Ethnicity, caste
		  ◦ Language
		  ◦ Disabilities
		  ◦ Wealth quintile
		  ◦ Mother's education
			• Population censuses
			• Household surveys
			• Literacy surveys

3.2.4	Gross Enrolment Ratio (GER) for technical and vocational education and training	• Sex
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ◦ Ethnicity, caste
		  ◦ Language
		  ◦ Disabilities
		  ◦ Wealth quintile
		  ◦ Mother's education
			• Annual school census
			• School registers
			• School surveys

3.2.5	Number and percentage distribution of lifelong education centres and learning/continuing programmes for young people and adults	• Geographic region • Urban/rural • Type of programme • Target population • Type of organizer/sponsor • Type of life skills imparted	• Ministry of Education Statistics • Department/ National Council of Adult Education • Department of NFE Accreditation and Equivalency • District NFE data • Community records

3.2.6	Number and percentage distribution of young people and adults enrolled in lifelong learning/ continuing education programmes	• Sex
		• Age group
		• Educational attainment
		• Geographic region
		• Urban/rural
		• Type of programme
		• Target population
		• Type of organizer/sponsor
		• Type of life skills imparted
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Occupation
		  ○ Mother's education
			• Ministry of Education Statistics
			• District NFE data
			• Community records
			• Child Labour Force Survey

3.2.7	Number and percentage distribution of teachers/ facilitators in lifelong learning/continuing education programmes for young people and adults	• Sex
		• Age group
		• Qualification
		• Years of experience
		• Geographic region
		• Urban/rural
		• Type of programme
		• Type of life skills imparted
		• Trained to teach life skills
		• Trained to teach:
		  ○ In local language(s)
		  ○ Disabled persons
			• Ministry of Education
			• District NFE data
			• Community records
			• Labour force surveys
			• Living standard survey

	Additional Indicators	**Disaggregation for Analysis of Disparities**	**Data Source**
3.3.1	Transition rates from primary to econdary education and from secondary to higher education	• Sex • Geographic region • Urban/rural • Public/private • Other social and economic disaggregation such as: ○ Ethnicity, caste ○ Language ○ Disabilities ○ Wealth quintile ○ Mother's education	• Annual school census • Household surveys
3.3.2	Unemployment rate	• Sex • Age groups: youth and adults • Geographic region • Urban/rural • Other social and economic disaggregation such as: ○ Ethnicity, caste ○ Language ○ Disabilities ○ Wealth quintile ○ Mother's education	• Population censuses • Labour force surveys
3.3.3	Number of incidents of reported violence in schools	• Education level • Geographic region • Urban/rural • Nature of violence, i.e., bullying, theft, physical assaults	• School safety survey • Police records • Ministry of Justice • Ministry of Education
3.3.4	Incidence of substance abuse among young people	• Sex • Age group • Geographic region • Urban/rural	• Ministry of Health

3.3.5	Curriculum time in formal and non-formal education includes life skills on health and HIV prevention	• Sex
		• Age group
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
			• Curriculum Department recommended syllabus timetable
			• School survey
			• Activity reports of organisations engaged in health education

3.3.6	Knowledge of HIV prevention practice among young people and adults	• Sex
		• Age group (10-14; 15-24 and over 25)
		• Geographical region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• Behavioural Surveillance Survey
			• DHS
			• MICS

3.3.7	Proportion of young people and adults living with HIV/AIDS	• Sex
		• Age group (15-24 and 25-49)
		• Geographical region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
			• UN General Assembly Special Session Country Report

Goal 4. Literacy

	Policy/System Indicators
4.1.1	Existence of a nationally recognized definition of "literate" and "numerate" persons. What is the definition? How is it applied in measuring literacy attainment?
4.1.2	Existence of policies, laws, and decrees stipulating literacy as a basic human right
4.1.3	Existence of systematic national monitoring and evaluation system for monitoring and evaluating literacy and basic continuing education programmes for out-of-school youths and adults
4.1.4	Presence of literacy and basic continuing education programmes for adults conducted in local languages; and existence of literacy and post-literacy learning materials in local languages

	Core EFA MEA Indicators	Disaggregation for Analysis of Disparities	Data Source

4.2.1	Adult literacy rate (age 15+)	• Sex
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ◦ Ethnicity, caste
		  ◦ Language
		  ◦ Disabilities
		  ◦ Wealth quintile
		  ◦ Mother's education
			• Population censuses
			• Household surveys
			• Literacy surveys

4.2.2	Youth literacy rate (age 15 to 24)	• Sex
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ◦ Ethnicity, caste
		  ◦ Language
		  ◦ Disabilities
		  ◦ Wealth quintile
		  ◦ Mother's education
			• Population censuses
			• Household surveys
			• Literacy surveys

| 4.2.3 | Gender Parity Index for Adult Literacy | • Geographic region
• Urban/rural
• Other social and economic disaggregation such as:
  ○ Ethnicity, caste
  ○ Language
  ○ Disabilities
  ○ Wealth quintile
  ○ Mother's education | • Population censuses
• Household surveys
• Literacy surveys |
| 4.2.4 | Public expenditure on adult literacy and continuing education as a percentage of total public expenditure on education | • National-level indicator | • Government budget reports |

	Additional EFA MEA Indicators	Disaggregation for Analysis of Disparities	Data Source
4.3.1	Number and percentage distribution of adult literacy and basic continuing education programmes	• Geographic region • Urban/rural • Type of programme • Types of sponsors/organizers • Target group(s)	• NFEMIS • District NFE data • Community records

4.3.2	Number and percentage distribution of facilitators of adult literacy and basic continuing education programmes	• Sex
		• Age group
		• Geographic region
		• Urban/rural
		• Type of programme
		• Qualified/trained to facilitate literacy and basic continuing education programmes
		• Specialization
		• Trained to teach:
		  ○ In local language(s)
		  ○ Disabled persons
			• NFEMIS
			• District NFE data
			• Community records

4.3.3	Number and percentage distribution of learners participating in adult literacy and basic continuing education programmes	• Sex
		• Age group
		• Geographic region
		• Urban/rural
		• Type of programme
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• NFEMIS
			• District NFE data
			• Community records

4.3.4	Completion rate in adult literacy and basic continuing education programmes	• Sex
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• NFEMIS
			• District NFE data
			• Community records

4.3.5	Number and percentage of persons who passed the basic literacy test	• Sex
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• NFEMIS
			• District NFE data
			• Community records

4.3.6	Ratio of private (non-governmental) to public expenditure on adult literacy and basic continuing education programmes	• Geographic region • Urban/rural	• NFEMIS • District NFE data • Community records

Goal 5. Gender Parity and Equality

	Policy/System Indicators
5.1.1	Legislative, policy and institutional reform in conformity with the Convention on the Elimination of All Forms of Discrimination against Women
5.1.2	Government decision(s)/decree(s)/regulation(s) issued to mainstream gender within the education and training system, and specific budgets allocated to gender programming within relevant Ministries
5.1.3	Existence of policies and incentives to encourage the participation of girls in school (stipends, scholarships, etc.)
5.1.4	Government policies and regulations adopted to ensure equal status, remuneration, conditions of employment, professional development, recruitment and deployment, etc. between male and female teachers
5.1.5	Gender review of the education sector plan and EFA plan, including review of the targets of access and participation, repetition and drop-outs, teacher training, recruitment and deployment, curriculum, textbooks, education facilities, etc.

	Core EFA MEA Indicators	Disaggregation for Analysis of Disparities	Data Source

5.2.1	Gender Parity Index for: adult literacy	• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		   ◦ Ethnicity, caste
		   ◦ Language
		   ◦ Disabilities
		   ◦ Wealth quintile
		   ◦ Mother's education
			• Annual school census
			• Population censuses
			• Household and specialized surveys

5.2.2	Gender Parity Index for: GER in ECCE	• See Indicator 5.2.1	• See Indicator 5.2.1

5.2.3	Gender Parity Index for: GIR in primary education	• See Indicator 5.2.1	• See Indicator 5.2.1
5.2.4	Gender Parity Index for: NIR in primary education	• See Indicator 5.2.1	• See Indicator 5.2.1
5.2.5	Gender Parity Index for: GER in primary education GER in secondary education	• See Indicator 5.2.1	• See Indicator 5.2.1
5.2.6	Gender Parity Index for: NER in primary education NER in secondary education	• See Indicator 5.2.1	• See Indicator 5.2.1
5.2.7	Gender Parity Index for: Survival Rate to Grade 5	• See Indicator 5.2.1	• See Indicator 5.2.1
5.2.8	Gender Parity Index for: Transition Rate from primary to secondary education	• See Indicator 5.2.1	• See Indicator 5.2.1
5.2.9	Percentage of female enrolment in: ECCE Primary education Secondary education Technical and vocational education and training Literacy and continuing education Higher education	• Geographic region • Urban/rural • Public/private • Other social and economic disaggregation such as: 　○ Ethnicity, caste 　○ Language 　○ Disabilities 　○ Wealth quintile 　○ Mother's education	• Annual school census • Various institutional data collections
5.2.10	Percentage of female teachers in: ECCE Primary education Secondary education Technical and vocational education and training Literacy and continuing education Higher education	• Geographic region • Urban/rural • Public/private • Age group • Qualifications • Other social and economic disaggregation such as: 　○ Ethnicity, caste 　○ Language 　○ Disabilities 　○ Wealth quintile 　○ Mother's education	• Annual school census • Various institutional data collections

	Additional Indicators	Disaggregation for Analysis of Disparities	Data Source
5.3.1	Percentage of female school principals/administrators	• Geographic region • Urban/rural • Public/private	• School records • Annual school census • EMIS • Databases of education personnel
5.3.2	Percentage of female staff holding senior positions within the Ministry of Education	• Level of post held	• Databases of education personnel at the Ministry of Education
5.3.3	Gender Parity Index of teachers who have participated in pre-service teacher training programmes	• Geographic region • Urban/rural • Level and type of education • Public/private	• School records • Annual school census • EMIS • Databases of education personnel
5.3.4	Gender Parity Index of teachers who have participated in in-service teacher training programmes	• Geographic region • Urban/rural • Level and type of education • Public/private	• School records • Annual school census • EMIS • Databases of education personnel
5.3.5	Gender Development Index (GDI)	• Geographic region • Urban/rural	• UNDP Human Development Report
5.3.6	Percentage of schools with separate toilet facilities for girls and boys	• Geographic region • Urban/rural • Public/private	• Annual school census • EMIS

5.3.7	Percentage of working children	• Sex
		• Full-time or part-time
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ◦ Ethnicity, caste
		  ◦ Language
		  ◦ Disabilities
		  ◦ Wealth quintile
		  ◦ Mother's education
			• Labour force survey

Goal 6. Quality Education

	Policy/System Indicators
6.1.1	Revision of the country's education goals, objectives and quality standards conducted in line with EFA
6.1.2	Presence of standard tests for measuring learning achievement linked to national curriculum
6.1.3	Does the country participate in international learning achievement tests such as TIMSS, PISA, EALAS, LAMP or other multi-country initiatives – and what were the results or trends in terms of student performance?
6.1.4	Presence of a system to give schools information on school and student performance on national exams
6.1.5	Presence of a national CFS policy or framework, or examples where holistic approaches to improving school quality across the five dimensions have been implemented
6.1.6	School self-assessment tools and processes initiated and linked to school planning, with active student, parent and community participation
6.1.7	Presence of a high-level commission or public office for national standards and quality assessment, using standardized quality assessment criteria, with authority to publish its results
6.1.8	What specific provision has been issued to set and enforce quality standards for school environments? Are they child-friendly?
6.1.9	What policies are in place regarding corporal punishment and what is the current practice in classrooms? What is the situation in terms of violence in schools?

	Core EFA MEA Indicators	Disaggregation for Analysis of Disparities	Data Source

6.2.1	Survival Rate to Grade 5	• Sex
		• Geographic region
		• Urban/rural
		• Public/private
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• Annual school census
			• Household surveys

6.2.2	Primary Cohort Completion Rate	• Sex
		• Geographic region
		• Urban/rural
		• Public, private
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
		• For the completers: either with or without those who repeated grades
			• Annual school census
			• School registers
			• Household surveys

6.2.3	Percentage of primary school teachers having the required academic qualifications	• Sex
		• Age group
		• Geographic region
		• Urban/rural
		• Public/private
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
			• Annual school census
			• Ministry of Education personnel database

6.2.4	Percentage of school teachers who are certified to teach according to national standards for: ECCE Primary education Secondary education Literacy and continuing education	• Sex
		• Age group
		• Qualification
		• Geographic region
		• Urban/rural
		• Public/private
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
			• Annual school census
			• Ministry of Education personnel database

6.2.5	Pupil/Teacher Ratio (PTR) for: Primary education Secondary education	• Geographic region • Urban/rural • Public/private	• Annual school census • Household surveys
6.2.6	Pupil/Class Ratio (PCR) for: Primary education Secondary education	• Geographic region • Urban/rural • Public/private	• Annual school census
6.2.7	Pupil/Textbook Ratio (PBR) for: Primary education Secondary education	• Geographic region • Urban/rural • Public/private • Subject	• Annual school census

6.2.8	Public expenditure on education as a percentage of total government expenditure	• National level indicator	• Government budget reports
6.2.9	Public expenditure on education as a percentage of Gross National Product (GNP)	• National level indicator	• Government budget reports
6.2.10	Public expenditure on primary/secondary education per pupil as a percentage of GNP per capita	• Level of education	• Government budget reports • Annual school census • Population census
6.2.11	Percentage of schools with improved water sources	• Geographic region • Urban/rural • Public/private • Level of education	• Annual school census • Project surveys and reports
6.2.12	Percentage of schools with improved sanitation facilities	• Geographic region	• Annual school census • Project surveys and reports

	Additional Indicators	Disaggregation for Analysis of Disparities	Data Source

6.3.1	Percentage of pupils who have mastered nationally defined basic learning competencies	• Sex
		• Geographic region
		• Urban/rural
		• Public/private
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• School records
			• Standard test results
			• Annual school census

6.3.2	School life expectancy	• Sex
		• Geographic region
		• Urban/rural
		• Public/private
		• Other social and economic disaggregation such as:
		  ○ Ethnicity, caste
		  ○ Language
		  ○ Disabilities
		  ○ Wealth quintile
		  ○ Mother's education
			• Annual school census or household surveys

6.3.3	Instructional hours	• Geographic region • Urban/rural • Level and type of education • Public/private	• School records • Annual school census • EMIS
6.3.4	Percentage distribution of teachers who attended in-service training programmes by type and duration	• Sex • Geographic region • Urban/rural • Level and type of education • Public/private	• School records • Annual school census • EMIS • Databases of education personnel

6.3.5	Percentage of primary teachers who are trained in multi-grade teaching	• Sex • Geographic region • Urban/rural • Level and type of education • Public/private	• Databases of education personnel
6.3.6	Percentage of primary schools with libraries or reading centres	• Geographic region • Urban/rural • Public/private	• Annual school census • EMIS

6.3.7	Percentage of primary school age children who have intestinal worm infection	• Sex
		• Geographic region
		• Urban/rural
		• Other social and economic disaggregation such as:
		  ◦ Ethnicity, caste
		  ◦ Language
		  ◦ Disabilities
		  ◦ Wealth quintile
		  ◦ Mother's education
			• Health surveys

6.3.8	Number of incidents of violence reported in schools	• Education level • Geographic region • Urban/rural • Public/private • Nature of violence i.e., bullying, theft, physical assaults	• School safety survey • Police records • Ministry of Justice • Ministry of Education

6.3.9	Average score on TIMSS, PISA, LAMP or National Secondary School Leaving Certificate Examination or its equivalent	• Sex
		• Age group
		• Geographic region
		• Urban/rural
		• Type of programme
		• Type of life skills imparted
		• Other social and economic disaggregation:
		  ◦ Ethnicity, caste
		  ◦ Language
		  ◦ Disabilities
		  ◦ Wealth quintile
		  ◦ Mother's education
			• TIMSS: IEA
			• PISA: OECD
			• LAMP: UIS
			• National Examination: National Examination Board or its equivalent

EFA indicators regarding disabilities (D)

D 2.2	Additional MEA Indicators	Suggested disaggregation	Data source
D 2.2.1	New entrants with disabilities as a proportion of new entrants in primary education	• Sex • Disability category • Geographic region • Urban/rural • Other social and economic disaggregation	• Annual school census
D 2.2.2	GER of children with disabilities in: primary education secondary education	• Sex • Disability category • Geographic region • Urban/rural • Other social and economic disaggregation	• Annual school census
D 2.2.3	NER of children with disabilities in: primary education secondary education	• Sex • Disability category • Geographic region • Urban/rural • Other social and economic disaggregation	• Annual school census
D 2.2.4	Repetition rate of children with disabilities by grade in primary education	• Sex • Disability category • Geographic region • Urban/rural • Other social and economic disaggregation	• Annual school census
D 2.2.5	Survival rate of children with disabilities to Grade 5	• Sex • Disability category • Geographic region • Urban/rural • Other social and economic disaggregation	• Annual school census

D 2.2.6	Transition rate to secondary education for children with disabilities	• Sex • Disability category • Geographic region • Urban/rural • Other social and economic disaggregation	• Annual school census
D 2.2.7	Percentage of trained teachers in primary education who have received some training on teaching children with diverse abilities	• Sex • Geographic region • Urban/rural • Public/private • Regular school/special school • Other social and economic disaggregation	• Special surveys, reports and inclusion of items on disabilities in standard surveys
D 2.2.8	Designated expenditure on the education of children with disabilities in primary education as a percentage of total public expenditure in primary education		• Budget reports
D 2.2.9	Drop-out rate for children with disabilities	• Sex • Disability category • Geographic region • Urban/rural • Other social and economic disaggregation	• Annual school census
D 2.2.10	Percentage of inclusive education schools which enroll children with disabilities as a percentage of all primary schools	• Geographic region • Urban/rural • Public/private	• Annual school census
D 2.2.11	Existence of a child-seeking strategy which includes or focuses specifically on finding children with disabilities	• Geographic region • Urban/rural • Public/private	• Special surveys, reports and inclusion of items on disabilities in standard surveys

D 2.2.12	Percentage of children with disabilities who receive education in public schools compared with private and NGO sector	• Sex • Disability category • Geographic region • Urban/rural • Other social and economic disaggregation	• Special surveys, reports and inclusion of items on disabilities in standard surveys
D 2.2.13	Percentage of schools which are fully accessible for children with disabilities	• Geographic region • Urban/rural • Public/private	• Special surveys, reports and inclusion of items on disabilities in standard surveys
D 2.2.14	Number of primary schools where teachers use: flexible curriculum flexible teaching and assessment strategies child-centred and individualized teaching strategies	• Geographic region • Urban/rural • Public/private	• Special surveys, reports and inclusion of items on disabilities in standard surveys
D 2.2.15	Number of primary schools where regular teachers receive some form of support to help them teach children with diverse abilities. Support may take the form of: special education centre resource centre specialist support teacher peer support	• Geographic region • Urban/rural • Public/private	• Special surveys, reports and inclusion of items on disabilities in standard surveys
D 2.2.16	Number of primary schools which are equipped to provide appropriate and accessible teaching materials, equipment and devices for children with disabilities	• Geographic region • Urban/rural • Public/private	• Special surveys, reports and inclusion of items on disabilities in standard surveys

D 3.1	**Policy/System Indicators**
D 3.1.1	A coordinated multi-sectoral TVET policy which specifically includes the needs of youth and adults with disabilities
D 3.1.2	A transition programme to assist children and youth with disabilities in their transitions from pre-school to school, primary school to secondary school, secondary school to vocational training programmes, employment or to tertiary education
D 3.1.3	A programme of pre-vocational training which specifically includes the needs of children and youth with disabilities, starting in late primary school and continuing in secondary school
D 3.1.4	Teachers trained in teaching methodology which focuses on competency based teaching and outcomes-based learning
D 3.1.5	NFE system does not act as substitute education system for school-aged children with disabilities who have the right to attend formal school

D 3.2	**Additional EFA MEA Indicators**	**Suggested disaggregation**	**Data sources**
D 3.2.1	Literacy rate for youth with disabilities (age 15-24)	• Sex • Disability category • Geographic region • Urban/rural • Other social and economic disaggregation	• Special surveys, reports and inclusion of items on disabilities in standard surveys
D 3.2.2	Enrolment rate of youth with disabilities in TVET	• Sex • Disability category • Geographic region • Urban/rural • Other social and economic disaggregation	• Special surveys, reports and inclusion of items on disabilities in standard surveys
D 3.3.3	Transition rate between primary, secondary systems and secondary to higher education systems for children with disabilities	• Sex • Disability category • Geographic region • Urban/rural • Other social and economic disaggregation	• Special surveys, reports and inclusion of items on disabilities in standard surveys

D 3.3.4	Youth unemployment rate for youth and adults with disabilities	• Sex • Disability category • Geographic region • Urban/rural • Other social and economic disaggregation	Special surveys, reports and inclusion of items on disabilities in standard surveys
D 3.3.5	Participation rate of young people and adults with disabilities in accredited NFE programmes	• Sex • Disability category • Geographic region • Urban/rural • Other social and economic disaggregation	Special surveys, reports and inclusion of items on disabilities in standard surveys
D 3.3.6	Knowledge of HIV prevention practice among young people and adults with disabilities	• Sex • Disability category • Geographic region • Urban/rural • Other social and economic disaggregation	• Special surveys, reports and inclusion of items on disabilities in standard surveys
D 3.3.7	Percentage of trainers involved in vocational training programmes who have been trained to work with persons with disabilities	• Sex • Geographic region • Urban/rural • Other social and economic disaggregation	• Special surveys, reports and inclusion of items on disabilities in standard surveys
D 3.3.8	Participation of staff providing training and providing employment services for young people, including people with disabilities, who have received appropriate training to increase their competency to work with people with disabilities	• Sex • Geographic region • Urban/rural • Other social and economic disaggregation • Geographic region • Urban/rural	• Special surveys, reports and inclusion of items on disabilities in standard surveys
D 3.3.9	Support services available to help persons with disabilities participate in mainstream vocational training and employment	• Geographic region • Urban/rural	• Special surveys, reports and inclusion of items on disabilities in standard surveys

D 3.3.10	Funding available to ensure that vocational training and facilities are accessible to persons with disabilities		• Special surveys, reports and inclusion of items on disabilities in standard surveys
D 3.3.11	Pre-vocational training programmes available in primary and secondary schools, taught by teachers competent to teach children and youth with diverse abilities	• Geographic region • Urban/rural	• Special surveys, reports and inclusion of items on disabilities in standard surveys

D 4.1	**Policy/System Indicators**
D 4.1.1	Persons with disabilities included in legislation/policy on the right to literacy
D 4.1.2	Special policy promoting the inclusion of persons with disabilities in non-formal literacy programmes and courses, with appropriately trained teachers and accessible materials
D 4.1.3	Teacher training policy to ensure that teachers in the school system are competent to teach literacy skills to children with disabilities in accessible formats, e.g., Braille for visually impaired, sign language for hearing impaired, simple language for children with intellectual impairment
D 4.1.4	Literacy policy monitoring system requires that data be collected on the literacy rates of children, youth and adults with disabilities

D 4.2	Additional EFA MEA Indicators	Suggested disaggregation	Data sources
D 4.2.1	Adult literacy rate of persons with disabilities (age 15+)	• Sex • Disability category • Geographic region • Urban/rural • Other social and economic disaggregation	• Special surveys, reports and inclusion of items on disabilities in standard surveys
D 4.2.2	Youth literacy rate for persons with disabilities (age 15 to 24)	• Sex • Disability category • Geographic region • Urban/rural • Other social and economic disaggregation	• Special surveys, reports and inclusion of items on disabilities in standard surveys
D 4.2.3	Gender Parity Index for adult literacy with reference to persons with disabilities	• Sex • Disability category • Geographic region • Urban/rural • Other social and economic disaggregation	• Special surveys, reports and inclusion of items on disabilities in standard surveys
D 4.2.4	Number of teachers trained in appropriate methodology to teach children with disabilities in primary school	• Sex • Geographic region • Urban/rural • Public/private • Other social and economic disaggregation	• Special surveys, reports and inclusion of items on disabilities in standard surveys
D 4.2.5	Number of teachers trained to teach persons with disabilities in NFE literacy programmes	• Sex • Geographic region • Urban/rural • Other social and economic disaggregation	• Special surveys, reports and inclusion of items on disabilities in standard surveys
D 4.2.6	Number of persons with disabilities participating in literacy programmes	• Sex • Disability category • Geographic region • Urban/rural • Other social and economic disaggregation	• Special surveys, reports and inclusion of items on disabilities in standard surveys

D 4.2.7	Number of completers with disabilities out of the total learners with disabilities in literacy programmes	• Sex • Disability category • Geographic region • Urban/rural • Other social and economic disaggregation	• Special surveys, reports and inclusion of items on disabilities in standard surveys
D 4.2.8	Existence of a strategy to find and encourage persons with disabilities to attend literacy programmes		• Special surveys, reports and inclusion of items on disabilities in standard surveys
D 4.2.9	Existence of a mechanism for consultation with organizations of persons with disabilities in order to find and encourage persons with disabilities to participate in literacy programmes		• Special surveys, reports and inclusion of items on disabilities in standard surveys
D 4.2.10	Data collected on literacy rate of young people and adults with disabilities		• Special surveys, reports and inclusion of items on disabilities in standard surveys

ANNEX 2 – MATHEMATICAL CALCULATIONS OF EFA INDICATORS

Gross Enrolment Ratio (GER) in Early Childhood Care and Education Programmes (Indicator 1.2.1)

- **Method of calculation**

Divide the number of children enrolled in ECCE programmes, regardless of age, by the population in the relevant official age group (otherwise the age group 3 to 5) in a given school-year, and multiply by 100.

$$GER_{EC}^{t} = \frac{E_{EC}^{t}}{P_{EC}^{t}} \times 100 \qquad GER_{EC}^{t} = \frac{E_{EC}^{t}}{P_{3\text{-}5}^{t}} \times 100$$

Where:

GER_{EC}^{t} = Gross enrolment ratio in ECCE programmes in school-year *t*

E_{EC}^{t} = Number of children enrolled in ECCE programmes in school-year *t*

P_{EC}^{t} = Population in relevant official age-group concerned with ECCE in school-year *t*

Percentage of New Entrants to Primary Grade 1 who have Attended Some Form of Organized ECCE Programme (Indicator 1.2.2)

- **Method of calculation**

Divide the number of new entrants to Grade 1 of primary education who have attended some form of organized ECCE programme by the total number of new entrants to primary Grade 1 in a given school year, and multiply by 100.

$$\%NE_{I,EC}^{t} = \frac{NE_{I,EC}^{t}}{NE_{I}^{t}} \times 100$$

Where:

$\%NE_{I,EC}^{t}$ = Percentage of new entrants to Grade 1 of primary education in school-year *t* who have attended some form of organized ECCE programme

$NE_{I,EC}^{t}$ = Number of new entrants to Grade 1 of primary education in school-year *t* who have attended some form of organized ECCE programme

NE_{I}^{t} = Total number of new entrants to primary Grade 1 in school-year *t*.

Public current expenditure on ECCE as (a) a percentage of GNP, and (b) per child as a percentage of GNP per capita (Indicator 1.3.3)

- **Method of calculation**

(a) Divide public current expenditure on ECCE in a given year by the GNP for the same year, and multiply by 100.

$$\%PCXE_{GNP} = \frac{PCXE}{GNP} \times 100$$

(b) Divide per pupil public current expenditure on ECCE in a given year by the GNP per capita for the same year and multiply by 100.

$$\%PCXE_{GNP_c} = \frac{PCXE}{E} / \frac{GNP}{P} \times 100$$

Where:

$\%PCXE_{GNP}$ = Public current expenditure on ECCE as a percentage of GNP

$\%PCXE_{GNP_c}$ = Public current expenditure per child of ECCE as percentage of GNP per capita in financial year t

$PCXE$ = Public current expenditure on ECCE in financial year t

GNP = Gross National Product

E = Total enrolment in ECCE in school-year t

P = Total national population in year t

Percentage of Late and Early Starters (referred to in Indicator 2.2.2)

- **Method of calculation**

Divide the number of new overage/underage entrants by the number of new entrants in a given school year, and multiply by 100.

$$Percentage \text{ of late starters} = \frac{\text{New entrants to the first grade of primary education with ages over the official school admission age in school year } t}{Number \text{ of new entrants to the first grade of primary education (all ages in school year } t}$$

Percentage of late starters =
$$\frac{\text{New entrants to the first grade of primary education with ages over the official school admission age in school-year } t}{\text{Number of new entrants to the first grade of primary education (all ages) in school-year } t} \times 100$$

Percentage of early starters =
$$\frac{\text{New entrants to the first grade of primary education with ages under the official school admission age in school-year } t}{\text{Number of new entrants to the first grade of primary education (all ages) in school-year}} \times 100$$

ANNEX 3 – TECHNICAL NOTE ON INTERNAL EFFICIENCY AND STUDENT FLOW MODEL

To assess the internal efficiency and wastage in the education system we use techniques that are similar to those used in 'cohort analysis' in demography. A cohort is a group of persons who jointly experience a series of specific events over a period of time. Accordingly, we may define a 'school cohort' as 'a group of pupils (or students) who join the first grade of a given cycle in the same school year, and subsequently experience the events of promotion, repetition, drop out or successful completion of the final grade, each in his/her own way'.

There are three ways to analyse educational internal efficiency by means of the cohort student flow method, depending on the type of data collected. These methods are as follows: true cohort, apparent cohort, and reconstructed cohort.

True cohort analysis
The ideal way to obtain a precise assessment of wastage is through the use of the true cohort method, which involves longitudinal study to monitor the progress of a specific cohort of students through the educational cycle. This can also be done through retrospective study of school records to retrace the flows of students through the grades in the past years. This method, however, is costly and time-consuming and requires a school records system that reliably records the flow of individual students in the school.

In the absence of information about individual students, internal efficiency in education can be assessed based on data about students who repeat grades, combined with data about enrolments by grade for at least two consecutive years using either the apparent or reconstructed cohort method.

Apparent cohort method
The apparent cohort method is applied when there is no information about students who repeat grades. In this case, enrolments for Grade 1 in a particular year are compared with enrolments in successive grades in the following years.

We assume that any decrease in enrolment numbers from one grade to the next corresponds to wastage. This method is currently the most common approach to measuring wastage, but only produces approximate estimates of the true dropout rate. This method assumes that students are either promoted, or they drop out of the school system. Some students may repeat grades, but this important factor is overlooked. This method is, nevertheless, appropriate for countries that apply automatic promotion.

Reconstructed cohort method

The reconstructed cohort method, is another method that is commonly used to estimate wastage in the education system. This method can be used when there is less detailed data over time. To apply this method, data about enrolment for each grade for two consecutive years, and data about students who repeat each grade from the first to second year is sufficient to estimate the three main flow rates: promotion, repetition and drop-out. Once obtained, these rates may be analysed for each grade to study the patterns of repetition and drop-out. The student flow rates are used to create a reconstructed pupil-cohort flow and to derive other indicators of internal efficiency.

The term 'efficiency' is borrowed from economists. It is defined as the optimal relationship between inputs and outputs. An efficient activity is one in which an optimum level of output is obtained for a given input. Educational planners have adapted the term and applied it to an education system.

The concept of the 'pupil year' is a convenient, non-monetary way of measuring inputs. One pupil year stands for all the resources spent to keep one pupil in school for one year. It represents one year's worth of education and accompanying expenditure. Two pupil years, for example, represent the resources needed to keep one pupil in school for two years. If a pupil repeats a grade, the pupil is getting only one year's worth of education, but consuming two years' worth of expenditure. If it takes six years to qualify for a certain diploma, a pupil who has dropped out of school after only three years has used three years' worth of expenditure but failed to obtain the qualifying diploma. In the analysis of efficiency, repeaters and drop-outs represent wastage.

As pupils flow through the educational cycle, inputs are defined and measured in terms of pupil years. By dividing total expenditure on education by total pupil years, we can obtain an estimate of unit cost (cost per pupil). Inversely, by multiplying pupil years by unit cost (cost per pupil), we can estimate the total cost.

Pupil flow through the education system

Since the principle is the same for all levels, it is possible to use the same analysis we applied at the primary level to trace the flow of students through secondary, and higher, grades of the education system. The objectives set for each level are compared with the results of the cohort analysis to see whether or not objectives have been met.

Three key rates are used to analyse the flow of pupils through the system: promotion, repetition and dropout rates.

Calculation of flow rates

What has happened to pupils enrolled in a particular grade the previous year? Three possible and mutually exclusive events might have occurred:

    1. A pupil may have been promoted to the next higher grade.
    2. A pupil may have repeated the same grade he/she was attending the previous year.
    3. A pupil may have abandoned schooling (left school for some reason).

Successful pupils might have completed the cycle and graduated from the final year of school. This is illustrated below:
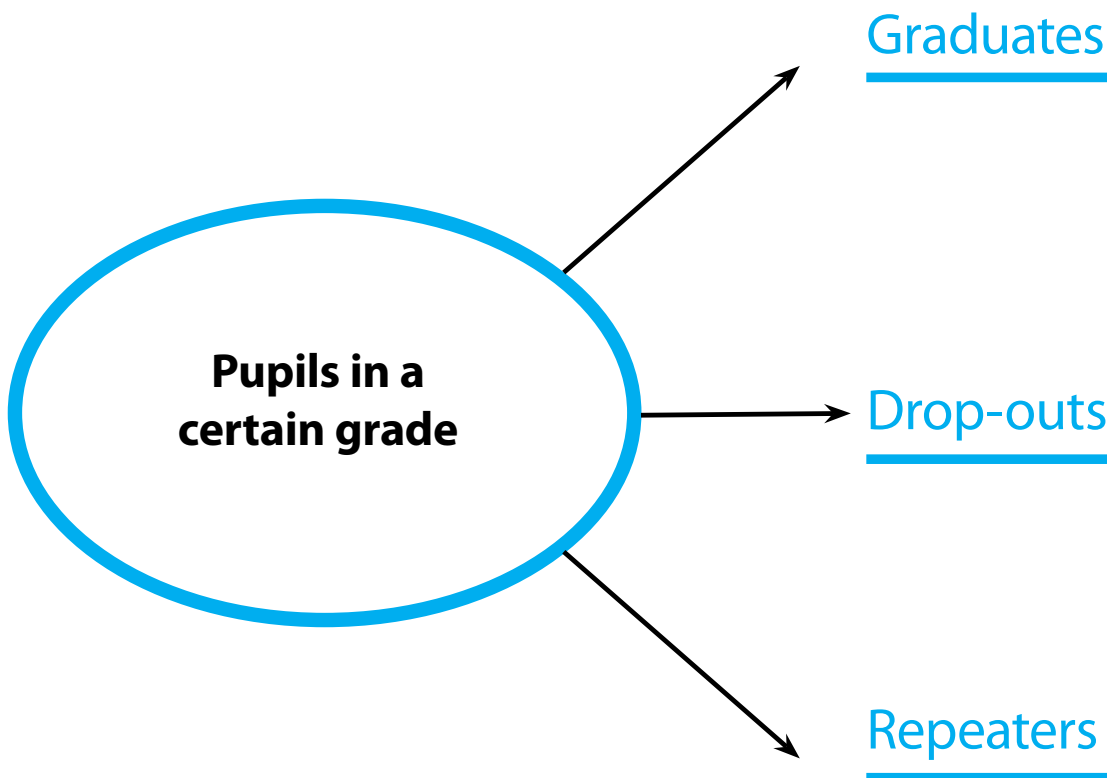
ANNEX 4 – METHODS FOR MEASURING DISPARITIES IN EDUCATION

Under EFA, 'Reaching the unreached and the under-served' requires a clear knowledge of the disparities in educational opportunities, resources, access, quality, and outcomes that exist between geographic areas and population groups. Based on the degree and type of disparities, which may be revealed through quantitative measurement using scientific methods, we can investigate further to identify the people who are deprived of opportunities or face disadvantages, so that we can take appropriate action to respond to their specific educational needs and difficulties.

To measure disparities in education, we need to obtain detailed disaggregated data about different geographical areas or segments of the population. When we apply the disparity measures for different areas and groups in the population, we can gauge the degree of disparities between the groups for the various dimensions and facets of the six EFA goals, and also identify the target disadvantaged populations and areas.

We can use charts and graphs to allow for visual comparisons of disaggregated data about various subgroups in the population for each of the six EFA goals and other indicators we use in the education sector. We can use the following measurements to analyse disparities between different sub-groups:

1. Absolute and relative percentage difference: In the case of literacy data, the absolute gap is the difference between the absolute number of male and female illiterates. The relative gap is the proportion of illiterate women that need to become literate to achieve parity with men

2. Ratio: See A3-page 9 and the table below. This is an example of absolute gap and ratio in the case of literacy.

	Estimated number of adult illiterates			Absolute gap (F-M)	(%) of Female	Gender Ratio M/F	(F-M)/F (%)
	Both sexes	Male	Female				
	(Millions)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
World Total	884.7	320.0	564.7	244.7	63.8	0.57	43.3

Source: UNESCO: Compendium of Statistics on Illiteracy, SRS n°35, 1995

3. Range (maximum-minimum): The difference between the highest (max) and lowest (min) value.

4. Mean: Mean is used to compute the average of all the values of a data set and other statistical measures such as variance. There are three kinds of mean: arithmetic, geometric and harmonic. Arithmetic mean is the sum of all the values in a data set divided by the number of items in the list. Geometric mean is defined as the nth root of the products of all the members of a data set, where n is the number of members. The harmonic mean is useful in finding the average of percentages, ratios, indexes, or growth rates.

5. Median: This means a halfway point in a data set where half of the data values are greater than the point whilst the other half of the data values are smaller than the point.

The following graph shows the maximum, minimum, and median of the pupil-teacher ratio for primary schools in dipupilfferent regions of the world.

Pupil/teacher ratio in primary education, by region (1990 and 2000): median values and variation with in the regions in parentheses, the number of countries included in each region)
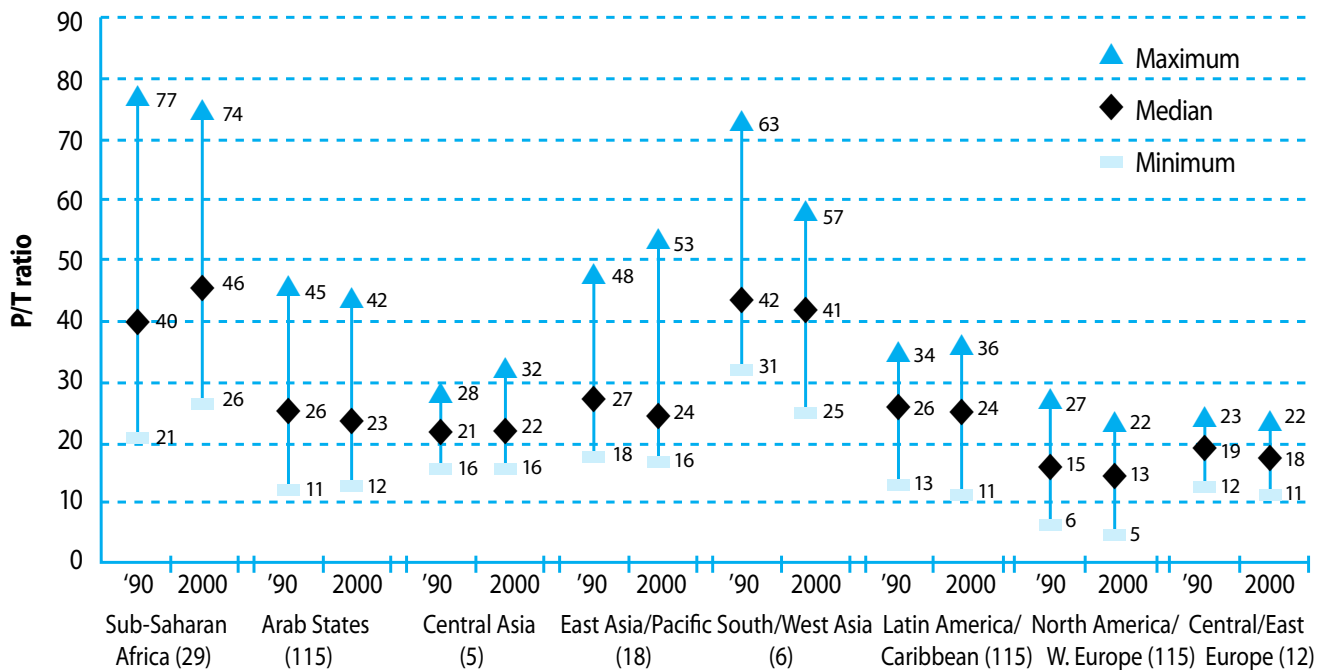
Source: UNESCO: EFA Global Monitoring Report 2003/4

6. Mode: Mode is the value that occurs most often in a data set. It is the only measure of central tendency that can be used in finding cases when the data are nominal or categorical. The mode is used when the most typical case is desired and when the data are nominal. It is the easiest of the central tendency statistics to compute.

7. Percentile: Percentile is used to measure the position of an individual in a group. To illustrate, the 90th percentile means a value for which 90 per cent of the observations are less than this value and 10 per cent are greater. If, for example, the size of a class is said to be in the 90th percentile for class size in a country, it means that 90 per cent of the classes in the country have less students than the reference class, and 10 per cent of classes have more students. The mark at the 80th percentile is the minimum mark to select the top 20 per cent of students in English.

8. Quartile: Quartile is a value of the variable where one quarter (lower quartile is the 25th percentile) or three quarters (upper quartile is the 75th percentile) of a distribution lies. In education, an example of the use of quartile is finding the score from a maths test for which 75 per cent of students in grade five scored lower.

 The following is a simple example to show percentile and quartile in Excel.

1	A	B	C	D	E
2	**Data**		**Formula**		
3	1		=percentile(A1: A5, 0.75)		
4	2		**Syntax**		
5	3		**PERCENTILE (array, k)**		
6	4				
7			=quartile(A2: A5, 3)		
8			**Syntax**		
9			**QUARTILE (array, quart)**		
10					
11			0 Minimum value		
12			1 First quartile (25th percentile)		
13			2 Median value (50th percentile)		
14			3 Third quartile (75th percentile)		
15			4 Maximum value		
16			**Description (Result)**		
17			**3.25**		
18			75th percentile (third quartile)		
19			75 per cent of the variables are below the result		

The following graph shows the distance from the median to the 10th, 25th, 75th and 90th percentiles.

Distribution of countries by GIR, Medians, quartiles and highest and lowest deciles, by region, 2001
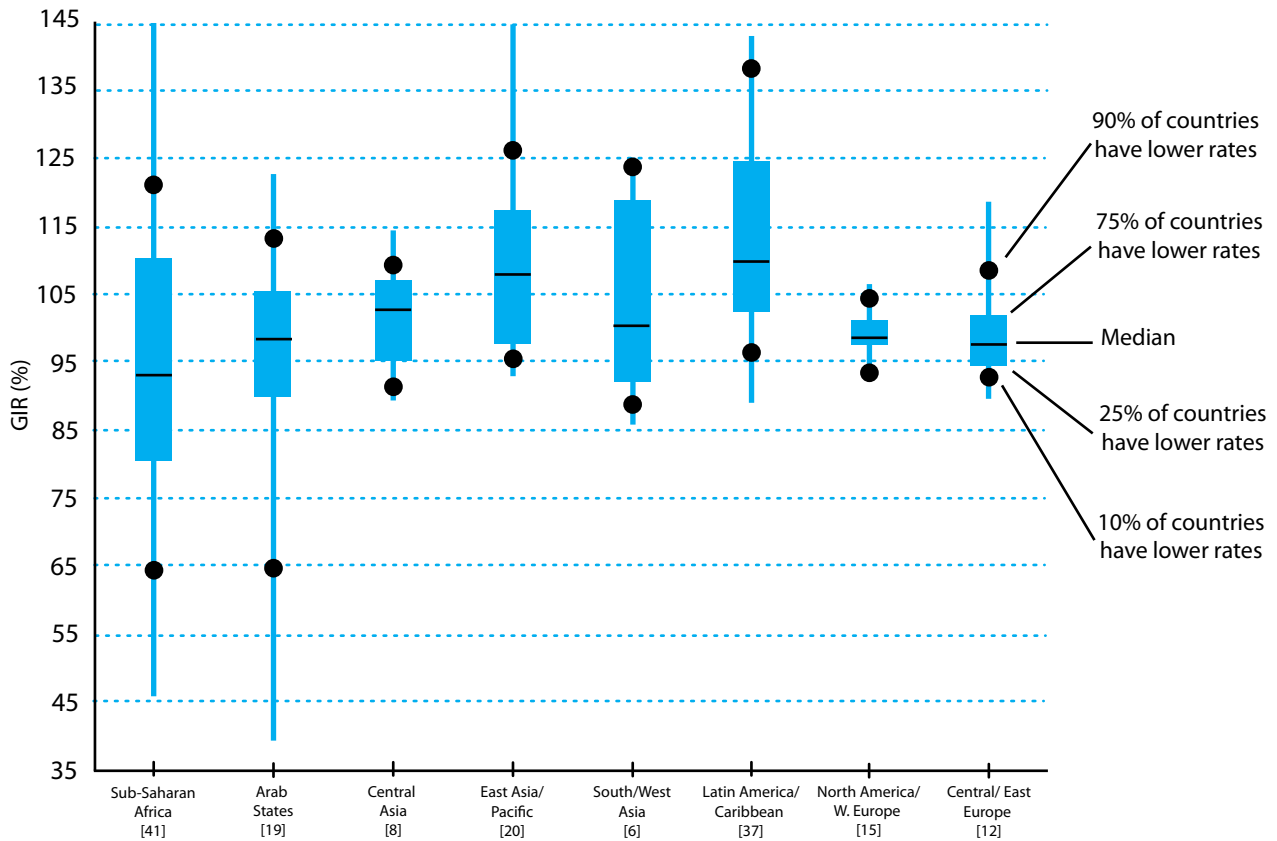
Note: The boxes represent the range in which the middle 50% of countries are found. The number of countries of data is given in parentheses for each region.

Source: UNESCO. 2005. EFA Global Monitoring Report 2005

9. Variance: Variance is a measure of the amount of variation between the values of a variable. The variance of a random variable or distribution is the expectation, or mean, of the squared deviation of that variable from its expected value or mean.

10. Standard deviation: Standard deviation is the square root of the variance. Standard deviation is a widely used measure of the variability or dispersion. It shows how much variation there is from the "average" (mean, or expected/budgeted value). A low standard deviation indicates that the data points are very close to the mean. A high standard deviation indicates that the data is spread out over a large range of values.

The following table shows how to calculate the above key statistical measures in Excel.

Data	Measures	Formula	Results
9	**Mean**	=AVERAGE(A2:A11)	6.1
8	**Median**	=MEDIAN(A2:A11)	6.5
7	**Mode**	=MODE(A2:A11)	7
7	**Maximum**	=MAX(A2:A11)	9
7	**Minimum**	=MIN(A2:A11)	3
6	**Range**	=Maximum - Minimum	6
5	**Variance**	=VAR(A2:A11)	3.4
5	**Std Dev**	=STDEV(A2:A11)	1.9
4	**Coe Variation**	=Std Dev/mean	30%
3			

Gender Parity Index (GPI):[39] is the most widely used index for assessing gender differences. The GPI is calculated as the ratio of the selected indicator's value for girls divided by that for boys.

$$GPI = \frac{\text{Value of Indicator for Girls (Female)}}{\text{Value of Indicator for Boys (Male)}}$$

A value of less than one indicates a difference in favour of boys, whereas a value of more than one signals a difference in favour of girls. A value of GPI close to one indicates that parity has been achieved. Gender parity is sometimes considered to have been attained when the GPI lies between 0.97 and 1.03 (see EFA Global Monitoring Report 2003/4). For example, if we want to know the GPI for literacy, the calculation is as below:

$$GPI_{Literacy} = \frac{\text{Adult female literacy rate (86.9\%)}}{\text{Adult male literacy rate (93.9\%)}}$$

$$GPI_{Literacy} = 0.93$$

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39 See Johnstone, J.N. 1981. Indicators of education systems. UNESCO, London.

Representation Index (RI): RI is one of the indicators that is commonly used for measuring disparities, especially in access to education (e.g. intake, enrolment, etc.) for different areas, population groups and between boys and girls. It is the proportion of characteristics (the variable we use to measure enrolment in primary level or grade/intake) divided by the proportion of criterion (the variable against which we compare the characteristics to measure primary school-going age population or population of 6-year-olds). The RI is designed to show whether any given group of children is receiving more, or less, schooling opportunities compared to what they would normally have. If a given group of children receives the same schooling opportunities as the entire country, the index will be 100 per cent. When the schooling facilities are not evenly distributed among the areas, or to some groups of children, the index will be less than 100 per cent.

$$RI = \frac{\text{\% share or some group (or region) of children in total school age population}}{\text{\% share or some group (or region) of children in total school enrolment}}$$

In the formula above, for example, if the percentage share of children in total school age population is 3.9 per cent, and the per cent share of children in the total enrolment is 4.1 per cent, RI is 95.1 per cent.

A recent study[40] used four measures to compare Educational Equity and Public Policy in 16 countries. These measures are explained below. Please note that specific methodological characteristics of each EFA indicator and different measures of disparity can depict gaps and disparities in education in different manners and should, therefore, be interpreted with care.

Range ratio

The range ratio is a simple way to illustrate disparities. It is calculated by dividing the highest value of an EFA indicator by the lowest value among the geographic areas, population groups or even between schools or classes within a country. When there is no disparity – that is, when the highest value equals the lowest value – the range ratio will be 1. Range ratios that are greater than 1 indicate the existence of disparity, and the higher the range ratio, the greater the degree of disparity. One should nonetheless keep in mind that range ratios do not take into account how the EFA indicator values are distributed between the highest and the lowest values, and that the possible occurrence of exceptionally abnormal extreme values can distort the disparity picture.

Coefficient of variation

The coefficient of variation measures variability of an indicator around its mean value. It is calculated by dividing the standard deviation of a data set by the mean of the same data set. Perfect equity would result in a coefficient of variation of 0.00, whereas higher values would signify greater disparities or inequities.

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40 See Sherman, J.D. and Poirier, J.M. 2007. UNESCO Institute for Statistics: Educational Equity and Public Policy: Comparing Results from 16 Countries (UIS Working Paper No. 6). UNESCO, Montreal.

McLoone Index/Adjusted McLoone Index

The McLoone Index is used to examine the distribution of expenditure per pupil. We calculate the index by taking the sum of expenditure per pupil that is below the median (for different areas and population sub-groups) and divide this by the sum of money that would have been spent on the same group of students if the expenditure was equal to the median value. The McLoone Index can produce values ranging from 0 to 1, with the value of 1 indicating perfect equality in expenditure. TheMcLoone Index increases as expenditure per pupil in areas below the 50th percentile approaches the median expenditure; it decreases as expenditure per pupil in these areas falls further below the median.

In the case of pupil/teacher ratios, the areas of interest are those above the median. The Adjusted McLoone Index takes the sum of pupil/teacher ratios for each area above the median and divides it by the sum that would exist if each area above the median had pupil/teacher ratios equal to the mean. An index value of 1 indicates perfect equality while higher values suggest increasing inequalities.

Gini coefficient of education inequality[41]

The Gini coefficient is commonly used to measure inequality of income distribution or inequality of wealth distribution. In the context of education, however, we use the Gini coefficient to measure inequality in distribution of the number of years of school education attained by individuals.

This method first constructs the education Lorenz curve, with the cumulative percentage of income (in the case of the education sector, the schooling years) on the vertical axis, and the cumulative percentage of the population on the horizontal axis. The diagonal forty-five-degree line is the egalitarian line, which represents a perfect equality of schooling. The Gini coefficient is defined as the ratio of the area between the Lorenz curve of distribution and the egalitarian line, to the entire area under the egalitarian line (see Figure A).

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41 For a pragmatic approach to calculating the Gini coefficient of education inequality, see Thomas, V., Wang, Y. and Fan, X. 2001. Measuring Education Inequality: Gini Coefficients of Education (Policy Research Working Paper No. 2525). The World Bank, Washington DC.

Figure A

GINI = $\dfrac{\text{Area of A (between the egalitarian line and Lorenz)}}{\text{Area of OWQ (the entire triangle below the egalitarian line)}}$
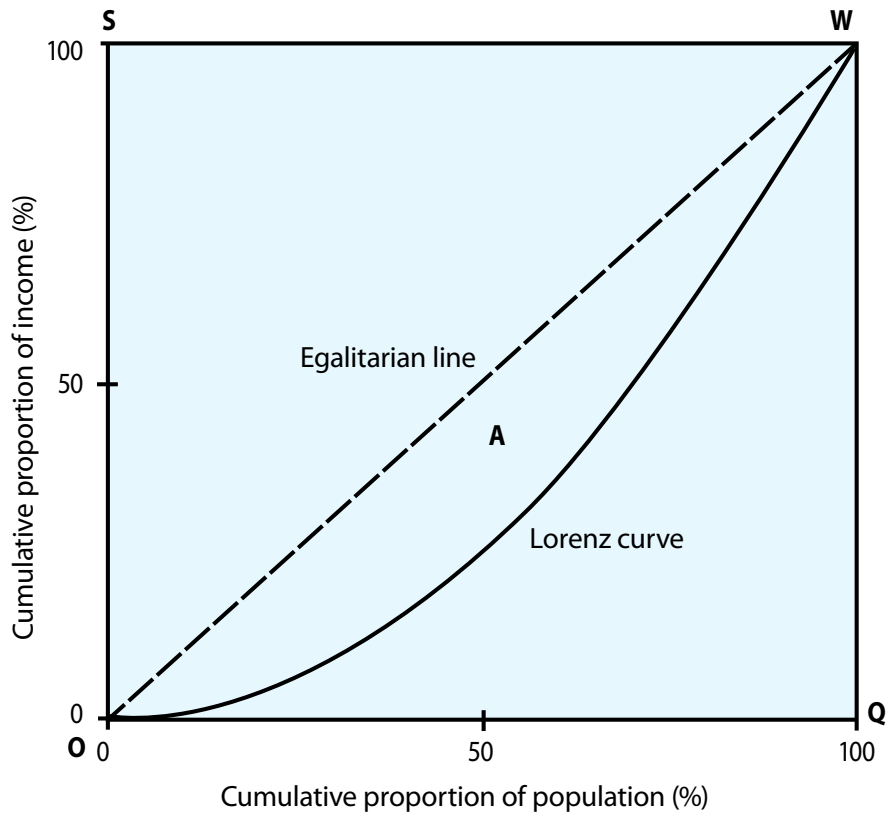
The Gini coefficient ranges between 0, where there is perfect equality, and 1 where there is perfect inequality. Thus, a low Gini coefficient indicates more equal distribution of values for an EFA indicator between different areas or population groups, whereas a high Gini coefficient indicates more unequal distribution. These can also be visually observed using the Lorenz curve chart, where a derived Lorenz curve that is close to the diagonal egalitarian line denotes higher equality than one that is further from the egalitarian line.

For an explanation on how to calculate the Gini coefficient, you may wish to consult the lecture notes provided by the Department of Economics, School of Oriental and African Studies, University of London.[42]

For an illustration of how to calculate the Gini coefficient using a calculation template (MS Excel software) and data about school education attainment of individuals (e.g., population census and household surveys, such as living standards survey, labour force survey), see the UIS-AIMS website at www.unescobkk.org/education/planning-and-managing-education/aims/.

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42 See http://mercury.soas.ac.uk/users/sm97/teaching_intro_qm_notes_gini_coefficient.htm

Module A4

Use of Information in Monitoring, Planning and Management

EFA

SYSTEMATIC MONITORING OF EDUCATION FOR ALL

TRAINING MODULES FOR ASIA-PACIFIC

EFA

CONTENTS

Module A4 : Use of Information in Monitoring, Planning and Management

Module A4	# Use of Information in Monitoring, Planning and Management

1 Purpose and expected learning outcomes of this module

1.1 Overview

Information and indicators are of no use unless they help us to better understand the situation and make sound decisions. In modules A1-A3, we learnt how to collect data, analyse them and derive indicators that show how our school, and the whole education system, perform. When you have completed this module, you will understand **how to further analyse, present and use data and indicators** which will enable you and other stakeholders to know about what is happening in our schools, and to make better decisions that will increase access, improve the quality of education, boost performance, and achieve the goals of Education for All.

1.2 Getting started

"Last year our school collected and reported a lot of data to the Ministry of Education," complained a school manager, "But we do not see any immediate benefit from all these efforts. What happened to all the data we reported? How can we make good use of these data for our purposes?"

"The Ministry of Education has frequently asked me to make sure all the schools in my area respond to the annual school census on time," said a district education officer, "But I am also interested in using these data to develop education in my district. How can I do this?"

"I understand we collected data from all the schools this year. What happened afterwards? What have we done with all these data? I want to know what the data can tell us. Why am I not informed of the findings?" said the Minister of Education to the department directors.

These questions have been frequently asked by school managers, education administrators and various other stakeholders, such as members of school management boards, members of parliament, media and the general public. These questions typically highlight the need to make good use of the data and information that have been so laboriously recorded in schools and collected through the annual school censuses.

1.3 Learning Objectives

This training module aims at:

Helping school managers and personnel to know:

- the importance of **active use of data and information to improve school management and dialogue with stakeholders** for achieving EFA.

- **how to transform different types of data into EFA indicators, tables and charts** that can be used for presentations, analysis and interpretation by different people for different functions and purposes.

- **how to use the detailed and summary data from school records, as well as the analytical EFA indicators provided by the Ministry of Education and district education office,** to compare performance and to improve planning, coordination, implementation, monitoring and management of EFA at school.

- **how to help local stakeholders to make use of data, indicators and information** from the school to support EFA in the local area.

Sensitizing local and district education officers to:

- the **nature of different types of EFA data, indicators and information** from the schools, the Ministry of Education and other relevant bodies.

- **how to use these EFA data, indicators and information** for monitoring, planning, coordination and management of EFA at the district and local levels.

- **how to guide and assist the schools and local stakeholders to make better use of EFA data, indicators and information.**

Advising education policy-makers and administrators at the central and provincial level about:

- **how school-level EFA data, indicators and information can be used at different levels.**

- **making better use of school data and information to improve understanding of EFA progress and achievements,** gaps and shortcomings, diversities and disparities, problems and issues, causes and factors, possible solutions and directions, strategies and plans, targets and goals, monitoring, management and evaluation.

- **how to support capacity building of people at all levels in making good use of EFA data, indicators and information.**

2 Use of data and information at school and district level

"School managers and personnel who frequently use data and information as the basis for decision-making run more effective schools." [1]

Data available in school records can be very detailed, such as those recorded in individual student and teacher records, inventories of physical facilities, and financial ledgers.[2] By **systematically recording and using school data**, school personnel can become more aware of the importance of having timely and reliable information available to support problem-solving, planning, monitoring and management of school activities involving individual students, teachers, material resources and finance.

There has been **increasing public call for accountability and transparency in education**, especially from local communities. This has alerted school managers and teachers to the need to demonstrate that they actively document and use hard evidences from school records as the basis for their decisions and actions in school.

More and more schools are paying attention to collecting and recording relevant and reliable data, so they have information they can use to accurately monitor the participation and performance of students and teachers in order to effectively manage the school's resources and activities. The data in the school records may be used for:[3]

- **Planning the new school year and organizing classes, curriculum and delivery**
- **Preparing physical facilities and material resources for school activities**
- **Recruiting, assigning and training teachers**
- **Budgeting and mobilizing financial resources**
- **Programming and class scheduling**
- **Assigning students to classes**
- **Managing teaching-learning materials**
- **Monitoring student and teacher attendance**
- **Assessing student and teacher performance**
- **School personnel management**
- **Financial management**
- **Managing material resources**
- **Organizing co-curricular and extra-curricular activities**
- **Supporting school and community interactions**

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1 Luo, M. and Childress, M. 2009. Data-Driven Decision Making: The Development and Validation of an Instrument to Measure Principals' Practices. http://www.academicleadership.org/emprical_research/566.shtml (Accessed 26 May, 2011)

2 See also Section 3 in Module A1.

3 See also Section 7 in Module A1.

The more these school activities are based on relevant and reliable data and information support, the more efficiently and effectively will they be implemented.

3 Data transformation and presentation [4]

As described in Module A3, the first step to use EFA data is to transform them into EFA indicators, summary tables and charts that school managers, education administrators and stakeholders can easily understand, interpret and use as a basis for increasing understanding and making decisions. In this section, we will learn about four common ways to present data. These are: **summary lists; tables; charts; and text.**

Once data and information are recorded and available at school, descriptive statistics can be produced to summarize the data, to describe the situation, and to identify issues and factors. We can produce descriptive statistics by:

- **sorting and re-grouping data**
- **transforming raw data into indicators such as percentages, rates and ratios.**
- **presenting the data and indicators in tables, charts and texts which enable easy analysis, interpretation and use.**

Descriptive statistics also include summary statistics such as averages, range, median, mode, and standard deviation. These summary statistics can help people to understand the nature and characteristics of the data set and the phenomenon, which is important when they are analysing and interpreting data and indicators in order to understand the situation and to make decisions. More and more, charts and other graphical presentations are produced to present education data and indicators, using statistical and data presentation tools.[5]

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4 United Nations. 2006. Indicators for policy management: A Guide for Enhancing the Statistical Capacity of Policy-makers for Effective Monitoring of the MDGs at the Country Level. United Nations, New York.

5 USAID. Statistical/Data Presentation Tools. http://www.hciproject.org/improvement_tools/improvement_methods/analytical_tools/statistical_data_presentation (Accessed 26 May, 2011)

3.1 Basic Principles

When preparing a presentation of data and indicators, we should ask ourselves the following questions:

- **What am I trying to communicate?**
- **Who are my audience?**
- **What kind of presentation will be most effective?**
- **What might prevent my audience from understanding the data in the presentation?**

Decisions about the kind of presentation and the tools to use depend on the main objective of the presentation and the target audience. Each presentation tool has its own characteristics, advantages and disadvantages, but the choice will depend upon the context within which the presentation is being delivered, and the message to be conveyed. For example, a chart may highlight key patterns but fail to show the details. It should be presented together with a table that contains the detailed data. Descriptive text accompanying the chart and table can draw attention to salient findings and possible causes and implications. **Consistency of style and logical flow of ideas are vital to a good presentation.**

The goal of a presentation is to make the reader want to see it, analyse it, and understand the key messages with minimum effort. A good presentation is therefore:
- **informative**
- **self-explanatory**
- **pleasant in appearance**
- **easy to understand, interpret and use**

Always try to communicate with your audience in the most simple, direct and efficient manner possible. Do not overload presentations with too many tables, charts and text. Identify the key findings and ideas, and then present them in the simplest possible way.

3.2 How to use summary lists to present data

In school, summary lists of students by class can be used to manage the classes throughout the school year.[6] Sometimes, however, the default way of presenting student lists by alphabetical order or by seating order may be less efficient to use for specific purposes.[7]

For example, it may be helpful to **sort or rank the students in a summary list** using criteria such as by the number of days absent or their scores in subject tests. The sort order can range from high to low (descending order), or from low to high (ascending order). **By sorting and ranking, we can easily identify at the two extremes of the sorted list, those students who are most and least frequently absent from class, or the students who achieved the highest or the lowest scores in a specific subject.** The values at the two extremes will also give us the maximum range of difference between them. Sorting and ranking are therefore useful data transformations that can facilitate analysis and interpretation of summary lists.

TIPS FOR SORTING AND RANKING A SUMMARY LIST:

- ■ Clarify what you want to know (e.g. the highest and/or the lowest; grouping people/objects with common characteristics; ranking within sub-groups, etc.)
- ■ Identify the data series to be sorted/ranked
- ■ Decide on the sorting/ranking criteria and order (i.e. ascending or descending)
- ■ Repeat steps 2 and 3 if you want to further sort/rank within sub-groups
- ■ Perform the sort and verify the results. Change the sorting data series and/or criteria to analyse other aspects.

Other summary lists at school may include lists of classes, teachers, equipment and textbooks which can be sorted to compare performance and to identify management issues. District and provincial education offices, and the Ministry of Education can maintain updated lists of schools which list the name of school, number of grades, classes, students, and teachers, together with indicators such as pupil-teacher ratio, intake rate, enrolment ratio, repetition rate, dropout rate, percentage of under-qualified or untrained teachers, and other essential management information and reference data. These data can be used to sort and rank the schools in order to identify those which perform well and others which under-perform or have problems with specific aspects.

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6 See Section 7 of Module A1.

7 See Examples 4 and 12 in Module A1.

3.3 Using tables to present data

As discussed in Section 7 of Module A1, summary tables can present:

- **counted numbers**
- **totals and sub-totals**
- **percentages**
- **ratios**
- **averages**
- **rate of change**

We can also use tables to present other types of derived statistics and indicators so we can compare the relative sizes, range, means, and spread. Presenting data in tables can help to analyse the underlying patterns and differences, which can lead to better understanding and interpretation of the data.

Summary tables are different from summary lists. They are mainly used to present counts of objects, items or phenomena, such as the number of teachers by qualification or the number of students by sex, age and grade.[8] Summary tables can be simple one-dimensional tables with one line (or one column) of data, like in Example 1a below that shows the number of teachers by qualification in a primary school. In this example country, all primary school teachers are expected to have at least a post-secondary diploma.

---

8 See also Section 7 in Module A1.

Example 1a. Number of teachers by highest academic qualification

Teacher academic qualification	Number of teachers
Below completion of lower secondary education (<LSE)	0
Completed lower secondary education (LSE)	1
Completed upper secondary education (USE)	3
Obtained post-secondary diploma (Diploma)	17
Obtained university degree (Degree)	2
TOTAL	23

It can be seen that seventeen teachers in this school are qualified; four are under-qualified; and two have qualifications above the requirement. Sometimes it may not be easy to interpret and understand these absolute numbers, especially if we are comparing several schools of different sizes. If this is the case, we can add a second column (shaded) to the table to show the percentage distributions of the values, as in Example 1b below.

Example 1b. Number and percentage of teachers by highest academic qualification

Teacher academic qualification	Number of teachers	Percentage distribution (%)
Below completion of lower secondary education (<LSE)	0	0%
Completed lower secondary education (LSE)	1	4%
Completed upper secondary education (USE)	3	13%
Obtained post-secondary diploma (Diploma)	17	74%
Obtained university degree (Degree)	2	9%
TOTAL	23	100%

We can see that this new column of percentage distributions enhances our ability to interpret this table. For example, the following key messages can be highlighted: (a) 74% + 9% = 83% of the teachers possess post-secondary diploma or university degree; (b) 0% + 4% + 13% = 17% of the teachers are under-qualified; (c) actions have to be taken to upgrade the qualifications of 1 + 3 = 4 teachers.

When needed, the tables above can be further expanded to become two-dimensional (or even multi-dimensional tables) to allow for even more detailed and in-depth analysis of teacher qualifications. In Example 1c below, we can see additional columns of data and percentages have been added to the same table, separately for male and female teachers to show how qualifications vary by gender (shaded).

Example 1c. Number and percentage of teachers by highest academic qualification and by gender

Teacher academic qualification	Number of teachers			% of female teachers	% distribution by qualification		
	Both sexes	Male	Female		Both sexes	Male	Female
(<LSE)	0	0	0	0%	0%	0%	0%
(LSE)	1	1	0	0%	4%	13%	0%
(USE)	3	1	2	67%	13%	13%	13%
(Diploma)	17	5	12	71%	74%	61%	80%
(Degree)	2	1	1	50%	9%	13%	7%
TOTAL	**23**	**8**	**15**	**65%**	**100%**	**100%**	**100%**

Multi-dimensional tables can enable more dynamic and detailed analysis of data and indicators, both horizontally (by rows) as well as vertically (by columns). This provides a more detailed picture and understanding of the situation we are studying.

In the '% of female teachers' column in the middle of Example 1c, we can see that almost two-thirds (65%) of the teachers in this school are female, and the proportion of female teachers with post-secondary diplomas is even higher: 71 per cent. This is further confirmed in the last columns, which show that overall, female teachers are more qualified than their male counterparts, with 80 per cent having post-secondary diplomas as compared to 61 per cent for male teachers.

Quite a few computer software packages offer flexible and easy-to-use functions for constructing, handling and analysing numerical tables, especially multi-dimensional tables such as the PivotTable[9] function in Microsoft Excel. Some national statistical websites[10] offer even more dynamic data retrieval and tabulation functions online.

Based on past practices and current needs for information, school managers and education officers at higher levels can each create a set of standard summary lists and tables that are frequently used, and update them on a periodic basis to support planning and management functions.

---

9 Pivot table is a data summarization tool to flexibly create different output table formats. Pivot-table tools can automatically sort, count, and total the data stored in one table or spreadsheet and format the table in various presentations to facilitate analysis and interpretation of a data set from different angles. (For further details, refer to Section 2.3.2: Pivot tables in Module B5.)

10 Australian Bureau of Statistics. 5 May, 2010. CensusAtSchool Australia. http://www.cas.abs.gov.au/cgi-local/cassampler.pl (Accessed 26 May, 2011)

U.S. Department of Education. National Center for Education Statistics: Quickstats. (see http://nces.ed.gov/datalab/quickstats/createtable.aspx)

The design of some of these summary lists and tables may correspond to the tables and lists in the annual school census questionnaire. In this way, the data can be directly copied into the corresponding school census tables. The same applies to producing standard tables and lists for the annual school report, if such reports are required.[11]

TIPS FOR PREPARING AND INTERPRETING MULTI-DIMENSIONAL TABLES:

- Large, complex multi-dimensional tables can be difficult to interpret and use. Avoid cramming too much data into a single table. Split it into several simpler tables.
- Avoid using more than two layers of headings in the horizontal and vertical headings.
- Group rows or columns together where data are related and can be directly compared and interpreted, to simplify analysis and interpretation.
- Place derived percentages, rates or ratios next to (or under) the original data so that they can be analysed together. If there are too many derived indicators, re-group them into a separate part of the table using the same group headings, or into separate tables.
- Start analysis and interpretation along each single dimension, and then combine and synthesize the findings to develop a more thorough understanding of the situation.

3.3.1 Types of tables

There are two main types of tables: **reference tables** and **investigative tables.** In this section, we examine both types of tables.

Reference tables

Reference tables allow users to make the best possible use of detailed raw data. They often appear in the annex of technical reports, and can also be made available in electronic format. Example 2 is a reference table that presents the number of students enrolled in a school by gender, age and grade.[12]

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11 See also Section 7.2 in Module A1.

12 See also Question 21 in the example school census questionnaire in Module A2.

Example 2. Sample of reference table

Enrolment by age, grade and sex

Age	Grade 1		Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Grade 1-6		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	Total
Below 6	3	0	1	0	0	0	0	0	0	0	0	0	4	0	4
6 Years	66	46	89	76	7	3	2	0	0	0	0	0	164	125	289
7 Years	32	45	123	99	12	4	22	12	13	2	0	0	202	162	364
8 Years	22	32	48	44	86	69	13	9	3	4	0	0	172	158	330
9 Years	12	28	32	21	65	34	103	87	23	34	0	0	235	204	439
10 Years	8	1	12	8	15	3	87	65	124	99	0	0	246	176	422
11 Years	0	0	2	2	11	15	22	43	22	56	2	0	48	116	164
12 Years	0	0	1	3	2	0	12	4	11	6	64	23	88	36	124
Above 12	0	0	0	0	1	0	0	1	1	4	45	37	47	42	89
Total Enrolment	143	152	308	253	199	128	261	221	402	205	111	60	1424	1019	2443

In Example 2, we can see that the reference table shows in most cells, absolute numbers of students detailed by single years of age, grade-by-grade and separately by sex (female [F] and male [M]).

This is an important reference table in primary education because it enables in-depth analysis of the patterns of participation by presenting data about the distribution of students by age and by grade, and the age-grade correspondence of students by gender. The absolute numbers presented in the table can be used to make additional calculations to derive indicators such as the age-specific and grade-specific enrolment ratios, and the percentage of over-aged and under-aged students in each grade which are crucial parameters in managing the universalisation of primary education.

By summarizing the calculated indicators and the results of further analysis of detailed data in the reference tables, we can create investigative tables which present the key findings for use by non-technical audiences.

Investigative Tables

Investigative tables like Example 3 below present only the key data and indicators that can be understood and interpreted by lay persons. They are often accompanied by descriptions and explanations which highlight the findings, explain the terms used, and ways to interpret the data. Numbers, for example, are often rounded to whole figures and supporting information and indicators such as percentages and averages are provided to help people make sense of the data. Besides highlighting and presenting key facts, figures and issues, investigative tables also lend themselves to further analysis.

Example 3. Sample of an investigative table

Rates of transition to, and participation in, secondary education, 1999 and 2006, worldwide and by region

	Transition rates from primary to secondary education (median)			Secondary education			
				Gross enrolment ratios		Net enrolment ratios	
	School year ending in 2005			School year ending in 1999	2006	School year ending in 1999	2006
	Total (%)	Male (%)	Female (%)	(%)	(%)	(%)	(%)
World	93	92	94	60	66	52	58
Developing countries	88	93	83	52	60	45	53
Developed countries	99	...	...	100	101	88	91
Countries in transition	100	100	99	90	89	83	82
Sub-Saharan Africa	62	66	57	24	32	18	25
Arab States	92	90	93	60	68	52	59
Central Asia	99	99	99	83	91	78	83
East Asia and the Pacific	...	...	...	65	75	61	69
East Asia	91	...	...	64	75	61	69
Pacific	...	...	...	111	107	70	66
South and West Africa	87	90	83	45	51	39	45
Latin America and the Caribbean	93	...	...	53	57	44	40
Caribbean	94	...	...	53	57	44	40
Latin America	92	92	92	81	91	59	71
N. America/W.Europe	99	99	99	100	101	88	91
Central/Eastern Europe	98	98	99	87	88	80	81

Source: UNESCO (2009) EFA Monitoring Report 2009. Paris: UNESCO.

Type of table to use

Tables offer a structured way to organize and present detailed data for further analysis, synthesis and interpretation. The main disadvantage of using tables is that the readers only see numbers, which require specific aptitude and skills to correctly understand and use them.

Clarifying beforehand the objective of the presentation and the profile and needs of the target audience can help us to select the right type of table to use. To illustrate, investigative tables are probably the best choice to accompany a newspaper article for the general public, whereas a reference table would be more appropriate for a technical presentation given to a group of analysts and statisticians.

3.3.2 Basic components of a table

A properly presented table should include a title, headings, rows and columns of data, units of measurement, degree of accuracy, and footnotes indicating the source of data and specific data characteristics.

Title

The title is the main description of the table. It should be concise and, for the sake of interpretation and record keeping, be informative and meaningful. The title should include a date or year of reference regarding the data, the place such as a country, regions, provinces, districts, villages or schools, and any other attribute that is common to all the data entities in the table (see 'Title' in Example 4 below).

Headings for rows and columns

Each row and column needs a heading that describes the data in that row or column, using labels such as 'Number of female students' or '% of female students'. Headings usually vary from row to row and from column to column so as to distinguish between them. They may be re-grouped under a major common heading (see Example 4).

Unit of measurement

A unit of measurement should be specified for every entry in the table. The unit of measurement is usually given in the title (if the same unit of measurement applies to the whole table), or in the column or row heading (if rows and headings use different units of measurement). Precise use of measurement units is essential for the correct interpretation of data. Different units of measurement can have different interpretations. To facilitate understanding and interpretation, it is advised to follow the convention used within the country. Each EFA indicator also has a specific unit of measurement such as percentages, ratios or rates (see Example 4).

Title

Common heading

Unit of measurement

Example 4. The use of title, headings and units of measurement

Pre-primary enrolment and gross enrolment ratios by region, 1999 and 2006

Heading

	Total enrolment			Gross enrolment ratios		
	School year ending in		Change between 1999 and 2006	School year ending in		Change between 1999 and 2006
	1999	2006		1999	2006	
	(millions)	(millions)	(%)	(%)	(%)	(%)
World	112	139	24	33	41	26
Developing countries	80	106	32	27	36	32
Developed countries	25	26	3	73	79	9
Countries in transition	7	7	2	46	62	36
Sub-Saharan Africa	5	9	73	9	14	49
Arab States	2	3	26	15	18	22
Central Asia	1	1	8	21	28	38
East Asia and the Pacific	37	37	-1	40	45	12
East Asia	37	36	-1	40	44	11
Pacific	0.4	1	24	61	74	22
South and West Africa	21	39	81	21	39	84
Latin America and the Caribbean	16	24	24	56	65	16
Caribbean	1	1	18	65	79	21
Latin America	16	20	24	55	64	16
N. America/W.Europe	19	20	24	75	81	7
Central/Eastern Europe	9	10	1	49	62	26

Note: Change is computed using non-rounded figures.

Source: Annex, Statistical Table 3B.

Footnote

Source: UNESCO (2009) EFA Monitoring Report 2009. Paris: UNESCO.

Degree of accuracy

Numbers may be rounded to a nearby value using a degree of accuracy that is appropriate to achieve the goal of the presentation. When rounding numbers, unnecessary trailing zeros should be removed and the units of measure altered accordingly. Rounding can be done either:

- To a certain number of digits, such as to the nearest thousand (so 45,647 becomes 46,000) or to the second decimal place (so 45.647 becomes 45.65).

- To a certain number of significant, non-zero, digits. For example, to the 2nd significant digit (so 343,833 becomes 340,000 and 4,564 becomes 4,600).

- In some cases, we may want to write 46,000 as 46 and note the recording convention ('numbers in millions', or 'numbers in thousands' or '000') in the title or appropriate row or column heading (see the unit of measure in the first column of Example 4). The same principle applies to decimal points for percentages, rates and ratios.

Footnote

Footnotes provide important information that helps us understand the data in the table. The following information is often provided in footnotes:

- **source of the data which enables interested readers to pursue extra information and estimate the quality of the data**
- **conventions used and further explanations of terms found in the table**
- **complete notation of row or column headings or the title if the labels are too long to print in full in the main body of the table**
- **differences in status of some entries in the table**
- **data limitations; and/or**
- **any other exception/deviation from the stated norm (see 'Footnote' in Example 4).**

Layout

A clear, well-structured layout makes it easier for the reader to interpret and understand the information in the table. One popular style is the two-way layout like the earlier Example 1c. Normally, the table includes Factor A and Factor B. In Example 5 below, Factor A is a list of regions. Factor B is about the number of out-of-school children in 1999 and 2006.

Example 5. Sample layout of a table

Factor B

Estimated number of out-of-school children by region, 1999 and 2006.

Factor A

	1999			2006		
	Total (000)	% by region	% Female	Total (000)	% by region	% Female
World	103 223	100	58	75 177	100	55
Developing countries	99 877	97	58	71 911	96	55
Developed countries	1 791	2	50	2 368	3	43
Countries in transition	1 555	2	51	899	1	49
Sub-Saharan Africa	45 021	44	54	35 156	47	54
Arab States	7 980	8	59	5 708	8	61
Central Asia	548	1	51	352	0.5	53
Esat Asia and the Pacific	6 079	6	51	9 535	13	49
East Asia	5 760	6	51	8 988	12	49
Pacific	318	0.3	54	546	1	52
South and West Africa	36 618	35	64	18 203	24	59
Latin America and the Caribbean	3 522	3	54	2 631	3	47
Caibbean	493	0.5	50	617	1	51
Latin America	3 029	3	55	2 014	3	46
N. America/W.Europe	1 420	1	50	1 981	3	43
Central/Eastern Europe	2 036	2	59	1 611	2	52

Note: The UIS has revised out-of-school numbers using new United Nations Population Division estimates. The revisions increased of the number of out-of-school children, so figures for 1999 reported here are higher than those in the 2008 Report (UNESCO, 2007a).

Source: Annex, Statistical Table 5.

Source: UNESCO (2009) EFA Monitoring Report 2009. Paris: UNESCO.

3.4 Using charts to present data

Charts can be easier to understand than tables, and are often more effective for highlighting important information within large data sets for readers who are less apt with numbers. **Charts are especially useful for showing patterns and comparing trends,** and since charts are more visual and attractive than tables, they can help in presentations. On the other hand, **charts are not suitable for communicating more detailed and precise data, and can be time-consuming and expensive to design.**

Charts and graphs have the following advantages. They:

- **are more attractive and easy to understand than tables**
- **enable the reader to 'see' patterns in the data**
- **are easy to use for comparisons and analysis**
- **allow information to be presented in various ways using different types of charts allow for special designs like demographic pyramids and thematic maps**

The main purpose of charts or graphs is to visually impart information that cannot be easily read and interpreted from a table of data. It can be sometimes difficult to 'see' patterns, trends and contrasts in a table that has many data points. Using charts can be a good method of showing trends and changes in statistical data. Charts can also be used to make predictions and forecasts, and to compare two or more data sets.

3.4.1 Basic components of a chart

Similar to tables, charts should have a title, axis labels (including the units of measurement), tick marks on the axes (with labels for some tick marks and subgroups), and footnotes and references to the source data.

When designing a chart, one should take into consideration the order in which the reader looks at the elements of a graph. By virtue of reading habit, our eyes tend to first look at the title, then move to the graph itself, and finally to the explanatory labels and footnotes, before coming back to study the overall pattern and details in order to understand the key messages.

The explanatory title, labels and footnotes are therefore essential for understanding and interpreting the chart. One must nevertheless bear in mind that too many text details and labels can distract the reader from the main message.

An effective chart also has the following characteristics:

- **Clear objective and key messages to be presented**
- **Good choice of graph type for the information that is to be presented**
- **Appropriate level of simplicity or complexity, depending on the readers' abilities to analyse, interpret and understand**

Example 6. Features of a chart

Distribution of global public expenditure by region, 2004

Note: Distribution is calculated using PPP US$.

Source: UIS (2007, Figure 1, p. 11).
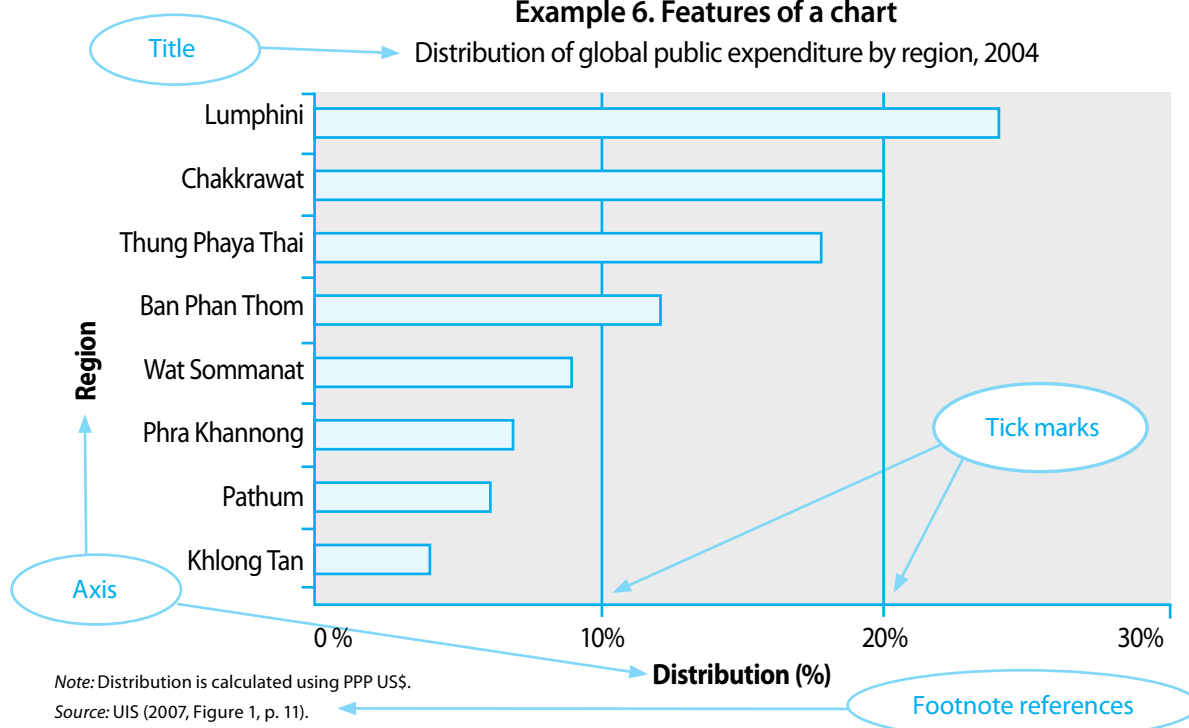
3.4.2 Types of chart [13]

There are many different types of charts, including:

- **Pie chart**
- **Line chart**
- **Bar chart**
- **Area chart**
- **Scatter plot**

Each of these is described below.

Pie chart

Pie charts are useful for illustrating percentage distributions of components within a total and are therefore suitable for presenting overviews of data. The breakdown of the annual education budget by types of expenditure is a good example of information that can be presented clearly using a pie chart (see Example 7). The area of each slice of the pie is proportional to the relative share, or frequency, of each item that makes up the total.

Example 7. Pie chart:

Education Spending, Viet Nam 2002

School Maintenance, 750, 29%

Utilities, 350, 13%

Maintenance, 200, 8%

Misc, 50, 2%

Teacher & Other Staff Salaries, 1,250, 48%
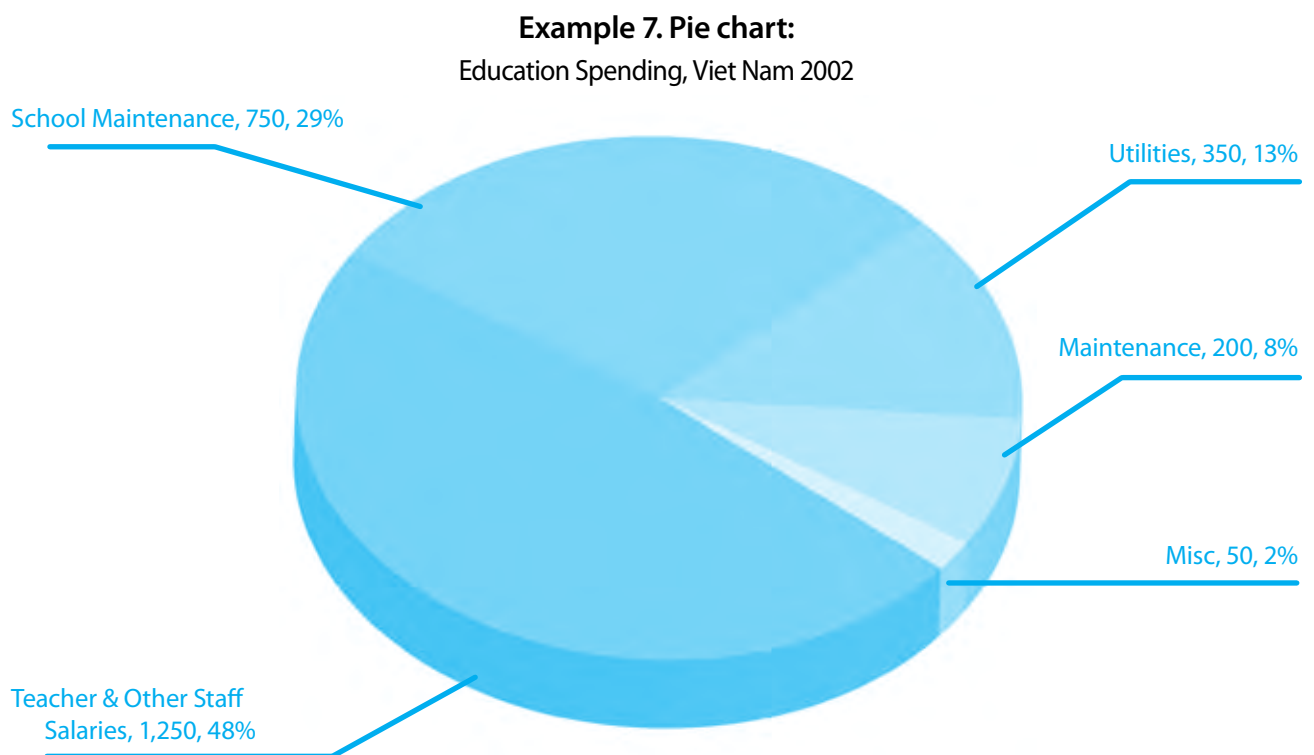
Source: Simulated data for demonstration.

The pie chart however is not suitable for displaying data with a high degree of accuracy. This is especially true when an item represents a very small share of the total, in which case its slice may be very thin and difficult to measure. It can also be difficult to see the difference between two items with similar but slightly different shares of the total. It is usually necessary to clearly label the value of each slice of the pie in order to overcome this limitation.

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13 See http://commons.wikimedia.org/wiki/Category:Charts_by_type

Do not include too many data items on the same pie chart. Too many slices, especially thin slices or slices of a similar size, may make a pie chart difficult to interpret. A maximum of 5 or 6 slices is optimal.

One pie chart can only show the distribution of data items at one point in time. If, for example, we want to show how the distribution of the education budget changed over two or more years, we need to create a separate pie chart for each year and place them next to each other to allow comparisons to be made. The 100% stacked bar chart (described later in this section) is a more appropriate chart for displaying this type of proportional data from a time-series.

Line graph

A line graph is a simple way to show time-series or trends. A single graph can display multiple lines, with one line for each data series or sub-population, such as the number of students by sex, or gross and net enrolment ratios for boys and girls over time (see Example 8). **Horizontal gridlines** make it easier for the eye to follow the plotted lines, to identify the data values along the data series, and to get a clearer picture of the trend and changes in the values for different data series. It is **generally not advisable to label every data point** in a line chart, unless it is important to show precise values that are quoted in the accompanying text.

Example 8: Line chart

Trends in enrolment ratios (Viet Nam 1990-2000)
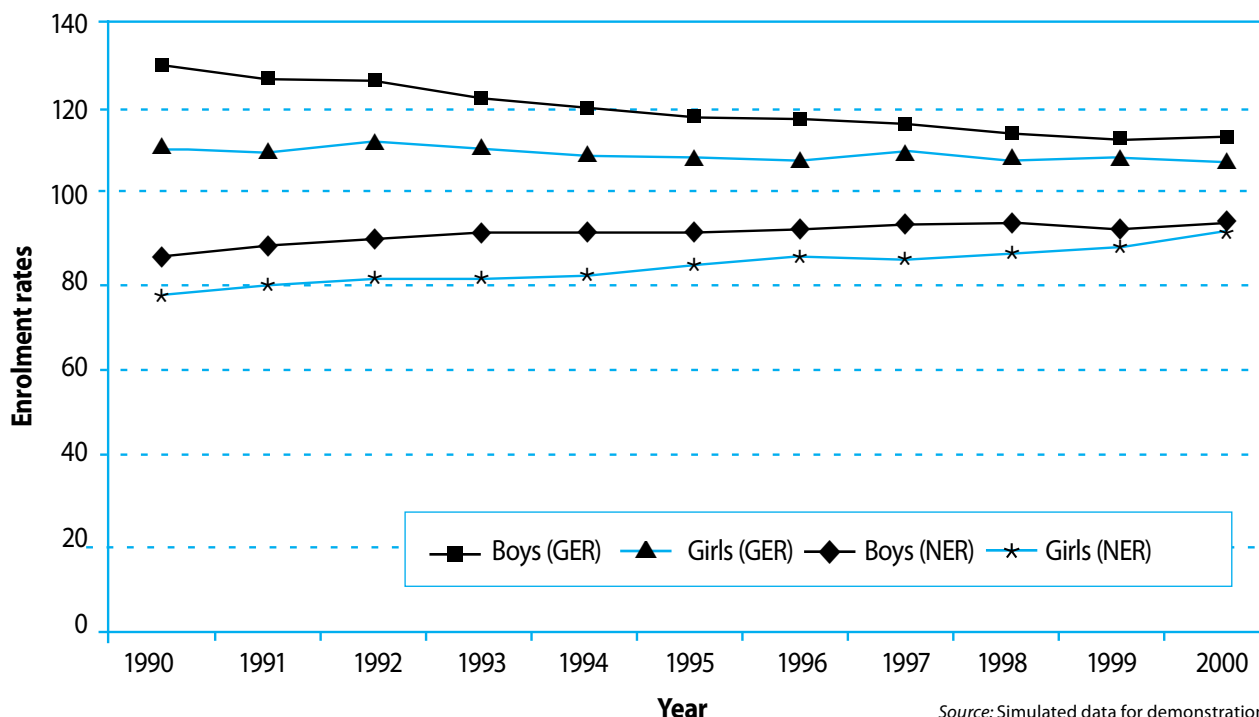
Source: Simulated data for demonstration.

Bar chart [14]

A bar chart displays data as rectangular bars with lengths proportional to the values that they represent. **Bar charts are useful for comparing two or more values,** such as the gross enrolment ratios by sex and by region in Viet Nam (see Example 9). The bars can be vertically or horizontally oriented (see Example 10). Horizontal bar charts are often used when there are many bars and each bar requires a long label, which would overlap or be truncated in vertical bar charts.

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14 See http://commons.wikimedia.org/wiki/Bar_chart

Example 9. Vertical bar chart

Gross Enrolment Ratio by Region: Viet Nam 1990-1991

Source: MOET, Vietnam.
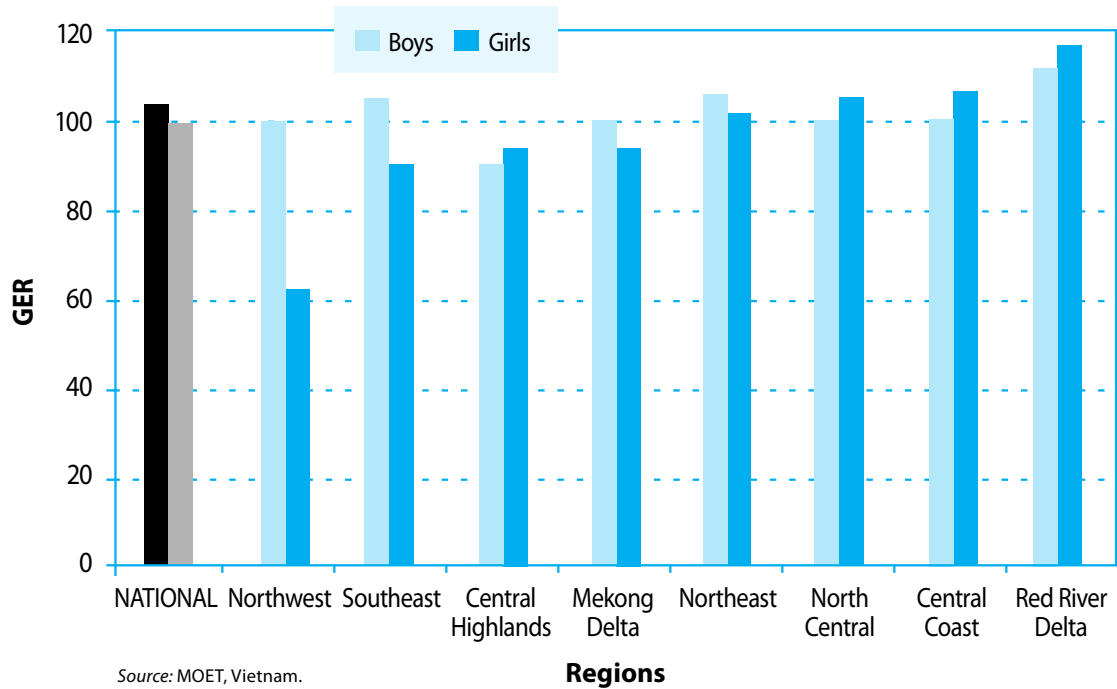
Example 10. Horizontal bar chart

Gross Enrolment Ratio by Region: Viet Nam 1990-1991

Source: MOET, Vietnam.
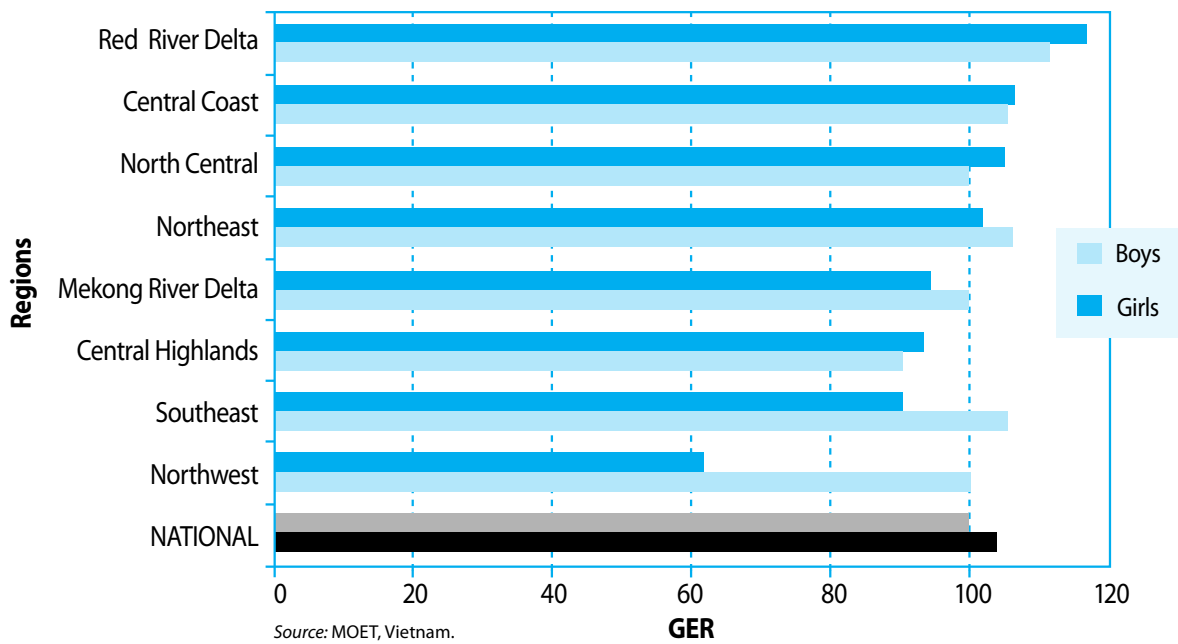
Stacked bar charts are used to present values that have components. Example 11 presents the official primary school age population by region in Viet Nam in 1990-1991, by stacking the population size of boys for each region on top of that of girls. The entire length of each bar indicates the total

primary school age population in each region. The lengths of separate component bars for boys and girls (within each bar) show both their absolute sizes as well as comparison with each other.

Example 11. Stack bar chart

Official school age population (Primary) by region: Viet Nam 1990-1991

Source: MOET, Vietnam.
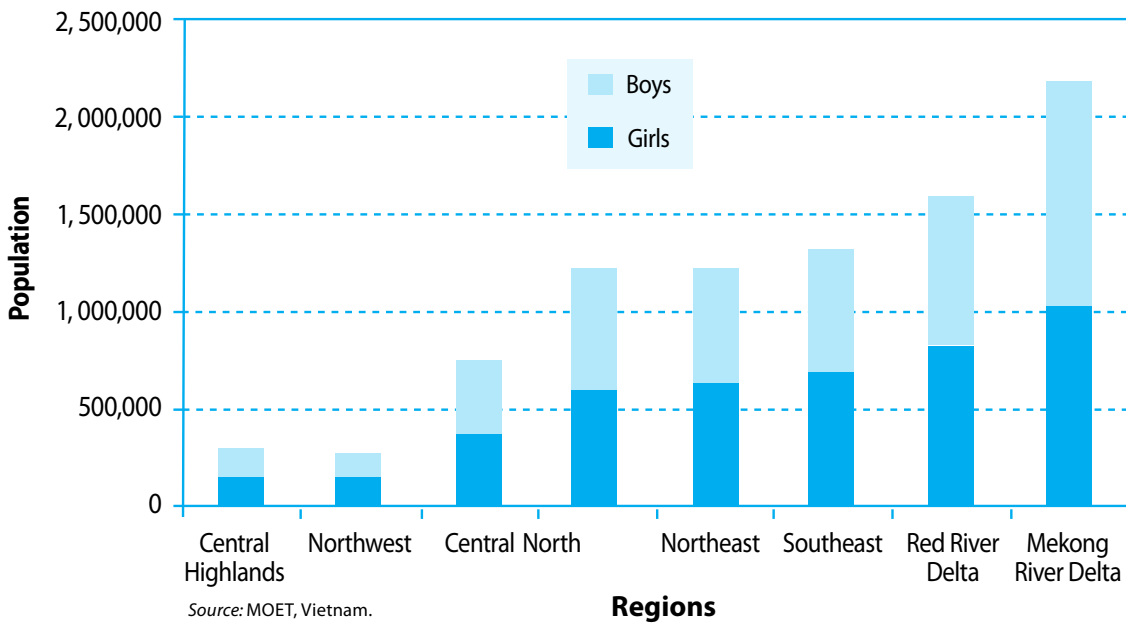
The 100% stacked bar chart is especially useful for comparing percentage distributions, each of which adds up to 100%. Such percentage distributions can refer to different regions or schools within a district, or show changes over time. Example 12 shows the gradual shift in the shares of education expenditure from 1990 to 2000.

Example 12. 100% Stack bar chart

Evolution of Education Expenditure: Viet Nam 1990-2000

Source: Simulated data for demonstration.
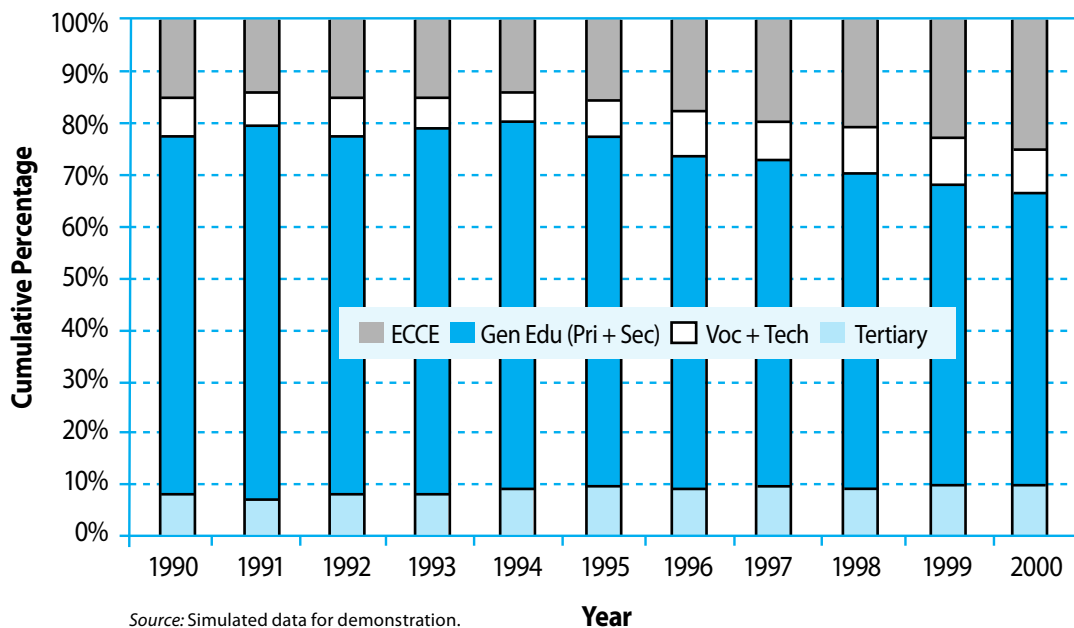
Area graph

Area graphs are an alternative to the stacked bar chart (see Example 13). We create an area graph by drawing lines to connect the values of component data series, and then stack them one on top of another. **Area graphs are particularly effective for showing changes in total (and component) values over time.** In Example 13 we can see consistent increases in the estimated number of male and female literates in the world. At the same time, the graph shows that the estimated number of illiterates decreased only slightly over the period from 1980 to 2015. When designing an area graph, we must make sure that the time scale is drawn correctly, using a linear scale for the time points.

Example 13. Area graph
Literates and illiterates worldwide by gender (1980-2015)

Millions
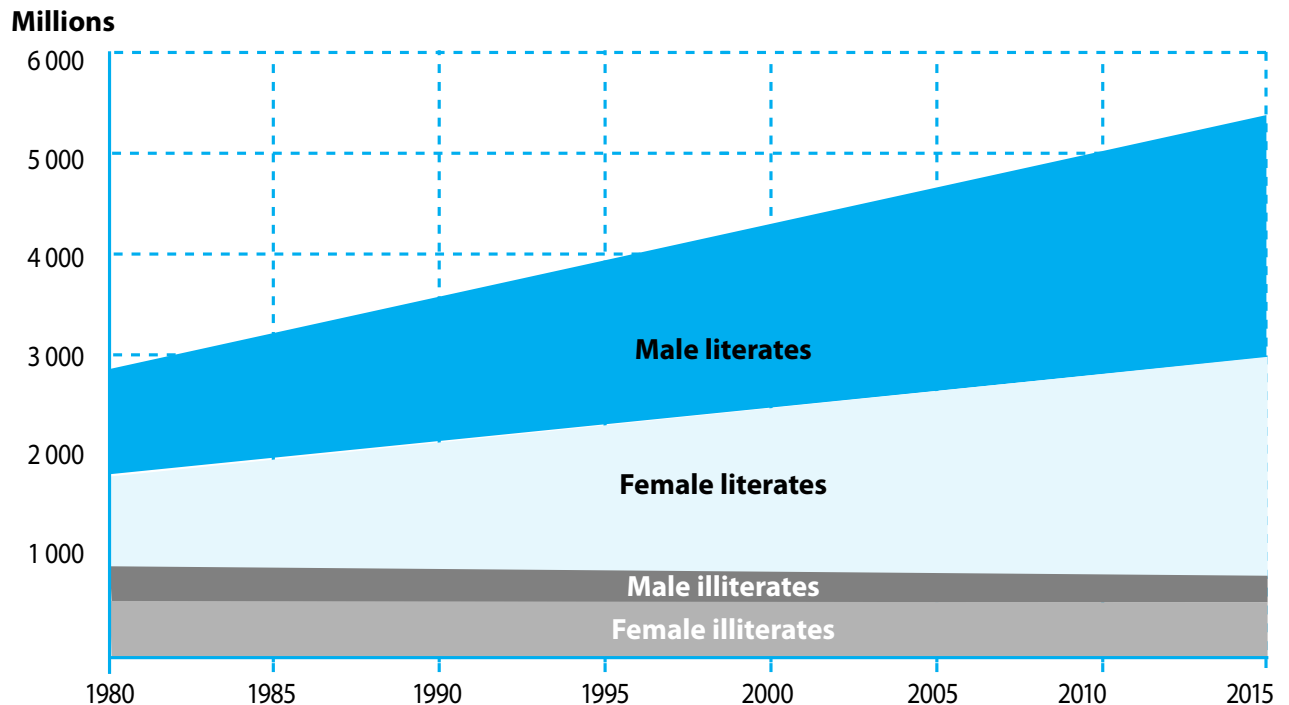
Source: Annex, Table 2 .

Source: EFA Global Monitoring Report 2002.

Scatter-plot

Scatter plots are used for showing the relationship between two variables, or data series, by plotting pairs of values. In Example 14, the apparent intake rate for boys is plotted against the intake rate for girls for each region of Viet Nam in 1999. On this graph, we observe that almost all of the plotted points fall below the diagonal line. This shows that boys generally have less access to primary education than girls in Viet Nam.

Example 14. XY Scatter-plot chart

Apparent intake rates in Viet Nam (1999)

Source: Simulated data for demonstration.
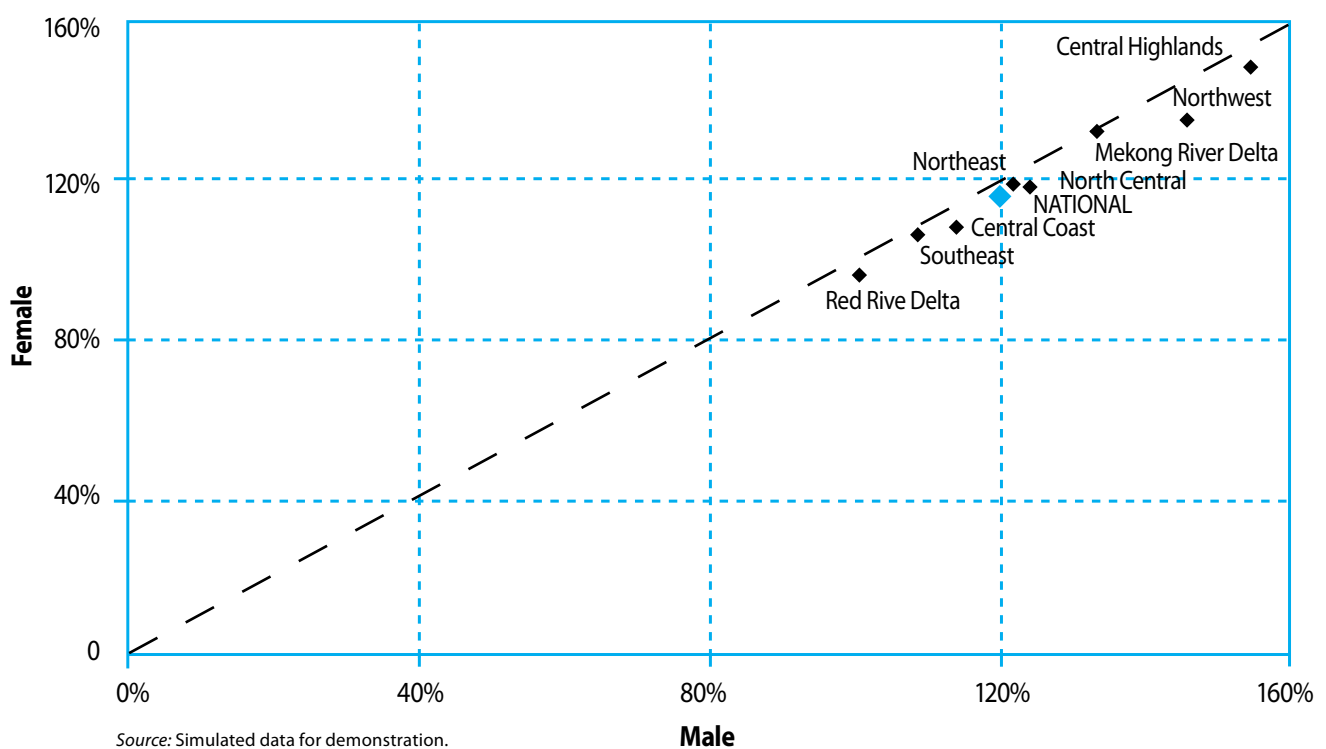
With recent improvements in computerized graphic technologies, it has become very easy to produce **3-dimensional (3D) graphs** (see Example 15). Compared with flat 2D graphs, 3D graphs can show additional data series in the same graph, thereby allowing for more sophisticated comparisons and analysis. 3D graphs with many data series can however become overly complex and difficult to interpret, especially when they are not well conceived and designed.

Example 15. 3D graphs

Per-student education expenditure by district, City W 1989-2000

- C District
- B District
- A District

1989 1987 2000

Per-student education expenditure by district, City W 1989-2000

1989 1987 2000

- B District
- A District
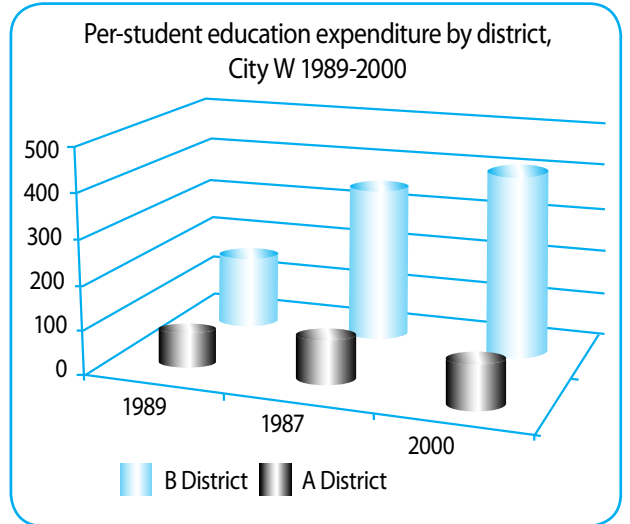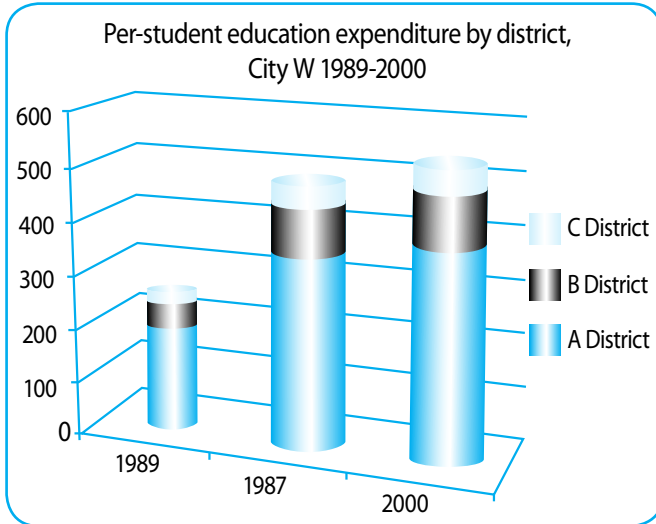
Graph types can be combined to present information more effectively (see Example 16).

Example 16: Combining graphs to present information more effectively

Pupil/teacher ratio in prmary education, by region (1990 and 2000): Median values and variation within regions (in parentheses, the number of countries included in each region)

P/T ratio

- ▲ Maximum
- ◆ Median
- ▬ Minimum

Region	'90	2000
Sub-Saharan Africa (29)	77 / 40 / 21	74 / 46 / 26
Arab States (115)	45 / 26 / 11	42 / 23 / 12
Central Asia (5)	28 / 21 / 16	32 / 22 / 16
East Asia/Pacific (18)	48 / 27 / 18	53 / 24 / 16
South/West Asia (6)	63 / 42 / 31	57 / 41 / 25
Latin America/ Caribbean (115)	34 / 26 / 13	36 / 24 / 11
North America/ W.Europe (115)	27 / 15 / 6	22 / 13 / 5
Central/East Europe (12)	23 / 19 / 12	22 / 18 / 11

Per-student education expenditure in district, City W 1989-2000

Per-student education expenditure in China (US$)

- C District
- B District
- A District

ACTIVITY 4

Review and discuss this section about charts with education officers, school managers and personnel. Find out about their practices in creating and using graphs, and then answer the following questions:

1. Does your office/school frequently produce graphs? If yes, what kinds of graphs are produced? How useful are these graphs?

2. Do you use a computer to produce graphs? Which computer software and functions were used in producing tables and graphs?

3.5 Selection of data presentation

How do we decide whether to present data as a table or as a chart?

In this section, we look at the main differences between tables and charts and suggest some criteria for choosing between them:

- **Tables, with their columns and rows of information, interact primarily with our verbal system. We process information in a sequential fashion, reading down columns or across rows of numbers, comparing this number to that number, one pair at a time.**

- **Charts are perceived by our visual system. They give shape and form to numbers. To see patterns and relationships is a natural function of visual perception. A single chart can convey important features of the data more vividly and memorably than columns of data.**

TIPS

- **Tables work best when the data presentation:**
  - contains many data series for cross-analysis
  - is used to look up or compare individual values
  - requires precise values
  - contains values that involve multiple units of measurement

TIPS

- **Graphs work best when the data presentation:**
  - is used to identify patterns and trends
  - is used to communicate a message that can be highlighted in the shape of the graph
  - is used to visually reveal relationships among several values

As explained in Sections 3.3 and 3.3.1 above, always start by organizing and presenting data in table form to study the basic structure and inter-relationships among the data series. Next, calculate percentages, ratios and other indicators that can help to identify patterns, differences or changes, and show these next to the absolute numbers. Graphs may then be used to visually illustrate the data, or to draw attention to significant patterns and changes in order to facilitate understanding of their significance.

By selecting the most appropriate type of chart to present one or several data series, graphs can be used to visually analyse and identify patterns and significant highlights which are not obvious when looking at a table. If needed, graphs may be shown together with tables so as to allow the reader to see the detailed data and indicators.

ACTIVITY 5

Review and discuss with education officers, school managers and personnel about their practices in creating and using tables and graphs, and answer the following questions:

1. Do you create and use tables and graphs to present information about your school/district/province/ministry? When and for what purposes?
2. What difficulties have you encountered in selecting what tables and graphs to produce and use?
3. How do you determine when to use tables or graphs to present data and information?
4. What have you learned about using tables and charts to present data?

3.6 Time-series data

Sometimes, we need to present information about changes over time. To present time-series data, we use summary tables and charts that effectively show changes in values from one time period to the next in chronological order. We can, for example, show how the number of students and teachers change over a number of years (see Example 17). As long as the definition of the data and the collection methods were consistent over time, we can use tables and charts to study past trends and estimate future values.

Example 17 shows two time-series lines in the same graph – one for students and one for teachers. The two time-series have been combined, with different scales on the left and the right side of the graph. It is interesting to see that the two trends generally overlap but the lines criss-cross over each other. This can be interpreted as overall correspondence in the availability of teachers in relation to the number of students over the years, although there have been noticeable fluctuations, or instability, in the teaching force. Additional analysis using the calculated indicator of pupil-teacher ratios (PTRs) in the right-hand column of the table can help to further explain the situation and trends.

Example 17. Sample of time-series

Number of students enrolled and teachers 2000-2009

Year	Students	Teachers	P-T ratio
2000	217	6	36
2001	233	7	33
2002	251	6	42
2003	243	7	35
2004	236	6	39
2005	258	7	37
2006	282	9	31
2007	311	8	39
2008	345	11	31
2009	421	10	42
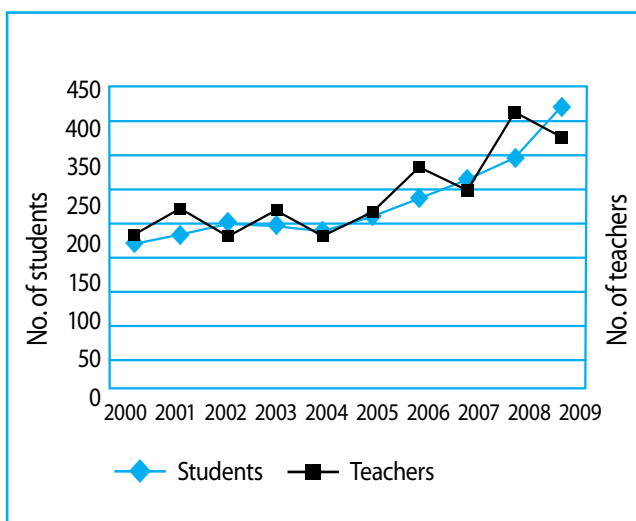
If we look closely at the student and teacher trends in the table above, the PTRs calculated for each year indicated that such ratios varied from a low of 33 to a high of 42 over the years. To begin our analysis of this situation, we should first check the norms for PTR specified by the Ministry of Education. If the national norm is 35 pupils to one teacher in primary school, we can observe that the school under review was only within the national norms in the years 2001, 2003, 2006 and 2008. For the other years, the PTR is higher than 35, which indicates that fewer teachers than the national norm were employed to serve the student population in the school. This calls for measures to be taken to ensure that enough teachers are hired or assigned to the school to keep within the national norm for PTRs.

Within a school, PTRs may be calculated for each class so as to identify disparities between classes and also identify the classes in which teachers have an exceptionally heavy workload. Appropriate remedial measures can be adopted to solve such imbalances in teacher workload, or to compensate teachers who have a heavier workload. In doing so, we must take care to ensure that classes with students who have special needs and subjects that require more intensive student-teacher interaction maintain a PTR which is appropriate to the needs of the class, but which may be below the national norm.

ACTIVITY 6

Review and discuss practices for analysing and interpreting time-series data with education officers, school managers and personnel, and then answer the following questions:

1. Why are time-series data important?

2. How regularly are time-series produced, analysed and interpreted in your school, district, province or ministry? What type of time-series data are produced? How?

Tables and charts are often accompanied by descriptive text that highlights the findings, patterns, issues and implications of the data. Textual descriptions and discussions play a crucial role in almost every kind of data presentation, especially for people who are not familiar with data tables and charts. Many people even prefer plain textual descriptions to tables and charts, or at least need some clear and simple explanations to help them understand the data and important points presented in the tables and charts.

Basic rules

One of the important functions of text is to provide a verbal description of the data in tables and charts. We should remember **five basic rules** when drafting a text to describe a table or chart:

1. **Try to capture the readers' interest** – While staying within the confines of scientific rigour, the writer should strive to enliven the text by highlighting key findings and meanings.

2. **Take time to write clearly and succinctly** – Draft and re-draft to clearly and unambiguously describe the data.

3. **Ensure consistency of language and style throughout the report or presentation** – Often sections of a single piece are written separately for each table or chart, so a final check to ensure consistency is advisable.

4. **Avoid unnecessary repetition** – If parts of the report or presentation are written separately, contents get repeated. Review the written text to eliminate unnecessary repetitions and to harmonize the texts.

5. **Focus on the main points and minimize unnecessary details** – Present the most important information first, and add details only if absolutely necessary.

A verbal summary should simply accompany the table or chart to explain what the data reveal. It should not dwell on issues that are too specific or too detailed. Nor should it repeat what is obvious in a table or chart unless there is a need to emphasize the importance of a certain aspect or limitations of the data. Sometimes, a verbal summary is all that is included in a presentation, particularly when the findings are so simple that any other summarized display like tables and charts are not justified. Or, when numerical or graphical presentations are too complex, it is better to include them separately in the appendices. The following are some additional basic rules:

- **Keep the summary short** - Never allow the verbal summary to expand into an itemized account of each entry in the table or chart. Position the summary in the text close to the table or chart to which it refers. Quoting directly the key reference numbers is the best way. For example:

  "From Table 2 we can see that 46 per cent of girls (6-15) were out of school in 2001."

- **Use 'emotional' descriptions and wording sparingly** - Sensational messages can be effective with a non-technical audience, but they can communicate biases or lead to biased interpretations. For example:

  *"Education expenditure per student in China **rose** by 10 per cent" may be better than: "Education expenditure per student in China **shot up** by 10 per cent!".*

- Unless writing specifically for expert readers, **avoid using unnecessary technical terms.**

- **Be cautious when attributing causality to a factor** – For example, some erratic movements in a data series may be due to changes in definitions or measurement unit, rather than actual changes in the underlying event. Do not jump to conclusions that '*this caused that*', unless there is ample evidences to justify it.

TIPS

■ Avoid long sentences. Short, sharp sentences are more effective.

■ Paragraph breaks provide the reader with a short rest, and are necessary to maintain the reader's interest. On the other hand, having too many short paragraphs may ruin the flow of the text and make it confusing and uninteresting.

■ Commas provide pauses within a sentence, but, if over-used, may be bothersome and misleading. Minimize the use of brackets. When several pairs of brackets are used in the same sentence or section, the reader may become confused and lose track of the central theme.

■ Avoid repeating the same wording in close proximity. It looks careless and may be distracting. To avoid this problem, try to search for and use synonyms.

■ Avoid unnecessary words and phrases. These give the reader extra work and may distract them from the central theme or main findings.

■ Keep the language simple. Readers are usually more impressed by clear language than by words that they do not fully understand.

■ Be logical. Ensure that the structure is sequential and that the conclusions reflect the body of the text. This reduces the chances of the readers becoming confused.

■ Ensure that the use of articles is clear. Whenever words such as 'it' or 'that' are used, be sure that the reader has no doubt about what these pronouns refer to.

■ Adopt conventions and keep to them throughout. Conventions can include headings, numbering, use of abbreviations and acronyms, or other matters of style such as the use of digits and written numbers. If necessary, these should be spelled out by the writer or writing team. If conventions are maintained throughout, a report will be clearer and better received.

3.8 Other tools to present data

Maps

A map is an abstract, simplified representation of a geographical area that is drawn to scale to highlight relationships between objects and indicators within the drawn space. Maps are usually two-dimensional representations that use short texts, signs, symbols, colour-codes and many other graphical conventions. **Maps are an excellent medium for displaying the distribution of data and indicators across geographical areas.** Within the context of EFA monitoring, maps can be used to show the location of schools in different regions and localities. Each school may be labelled with education indicators, such as the school's enrolment ratio, PTR and education expenditure per student. Maps can also be used to show the location and areas of concentration of adult illiterates and

school-age children who are not in school. Softwares like DevInfo[15] and other GIS (Geographical Information System) have automatic data handling, plotting functions and extensive map portfolios.

Photos, video and other media

Some data and indicators may be presented visually using photos and/or videos of schools, classes, students, teachers and educational activities. Other media, such as audio commentaries about progress, issues and future plans may also be used to enhance a presentation. We should, however, use multimedia elements judiciously and only when it fits with the occasion, or with the right target audience.

Webpage

The Internet is often used these days to present and disseminate data and indicators about education. Some national ministries of education have included education statistics and indicators in the form of summary tables, charts and texts on the Ministry's website. The quantity and variety of such presentations are increasing with time, and becoming more and more attractive and easy to understand through the use of vivid colours, 3D graphics and other new technologies.

Some websites allow users to generate customized tables of data and indicators for various geographical regions and time periods. Users enter specifications about the type of data they require into a form to query the database, which in turn will generate the table and chart with the results.

Some schools have set up their own website to publish information about the school. They use tables, charts and texts to present data and indicators about the school.[16]

ACTIVITY 7

Based on the following table, please present the data by Pie chart, Line graph, Bar chart, Scatter-plot together with verbal summaries (text). Show these presentations to other colleagues and discuss how you can improve these charts.

Table: No. of Drop-out in Grade 2 by Gender in city M, 2000-2008																	
Region	2000		2001		2002		2003		2004		2005		2006		2007		2008	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
A District	34	67	23	78	30	56	14	34	16	44	19	32	21	24	12	15	9	17
B District	78	90	78	98	65	88	56	78	45	66	34	87	43	45	23	44	19	33
C District	12	23	10	15	23	34	13	54	29	38	12	19	12	16	7	21	3	12
D District	123	99	128	134	99	145	108	111	78	98	56	77	45	60	55	82	34	93
E District	45	34	56	66	34	98	54	23	56	103	31	43	21	66	15	76	10	45
F District	99	234	78	123	89	222	67	98	54	88	45	74	23	55	45	67	23	56
G District	100	134	156	177	99	123	89	120	79	100	89	156	104	157	107	222	105	230
Total	491	681	529	691	439	766	401	518	357	545	286	488	269	423	264	527	203	486

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15 For details, please refer to the website of DevInfo. (See http://www.devinfo.org).
16 See Section 4.4 in Module A5.

4 Using EFA indicators

This section complements Section 5.3 in Module A3 by **highlighting ways and means to use school data and indicators to make decisions, plan, monitor and manage progress towards EFA especially at school and decentralized levels of the education administration.**

There are many ways to use EFA indicators in school and local areas. With a functional school records management system (SRMS),[17] many additional indicators other than those described in Module A3 can be effectively used to improve school management and to support decision-making processes in local areas with respect to the EFA aspects of:

- **Universal access, participation and completion in basic education**
- **Quality of education**
- **Learning achievements and outcomes**
- **Gender equality**
- **Impact of education**

The following sections describe how to use school data and indicators to track progress in these EFA aspects at the school and local level. School managers and personnel, and also education officers at all levels of the education system, can draw ideas from these sections about effective and innovative ways of using school data and indicators to improve EFA monitoring and decision-making.

ACTIVITY 8

Review Module A3 and compare the practices it described with the practices you use in your school/district/province, and then answer the following questions:

1. Which EFA indicators are most relevant and frequently used in your school, local area, district, or province?
2. What difficulties have you encountered while producing and interpreting these indicators?
3. Which other education indicators are also especially important for your school, local area, district, or province?

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17 See Module A1.

5 Access and participation

We can measure access and participation in basic education by analysing various aspects such as first-time new entrants to Grade 1, enrolment in different grades, class attendance, students repeating grades, students dropping out of school, students completing their studies, or students having achieved various learning outcomes.

5.1 New entrants and enrolment

In areas where there are many school-age children who do not attend school, bringing these children into school should be our top priority. Once most or all the children in a local area are attending school, we may turn our attention to further improving the quality, outcomes and impact of education. The kind of indicators we use to monitor and make decisions can therefore differ from school to school and from one local area to another.

To 'reach the unreached', we use indicators such as the **gross and net intake rates and enrolment ratios**[18] to calculate the proportion of school-entrance age and school-age children who are enrolled in school. We can then use the figures obtained **to estimate the proportion and number of children who are not enrolled in school or in Grade 1 so we can target these 'unreached' children** (see Example 18).

Example 18. GIR, NIR, GER, NER and estimated percentage of children who are not enrolled

Sub-district	GIR	NIR	Estimated % not in Grade 1	GER	NER	Estimated % not enrolled
Kaneti	86	81	19	85	83	17
SardarKhel	78	73	27	75	69	31
Kabo	72	66	34	70	61	39
Dirao	63	58	42	60	55	45
Darag	58	51	49	55	48	52

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18 See Module A3.

To calculate such indicators for the local area, the local or district education officer can first **contact appropriate local government offices to obtain data about the school-age and school-entrance age children in the area served by the school.** Such data may have been collected during population censuses or estimated based on household surveys results. They may also be derived from civil registration or birth registration records.

In collaboration with the school manager, the local or district education officer may **assign teachers to visit households to verify if there have been changes to the numbers recorded** due to migration or mortality, and to precisely identify the characteristics of children who are not in school. The district or local education offices may then send out inspectors to cross-check a sample of households in order to ensure data accuracy, and to obtain a clearer picture of who are the 'unreached' children, and where they are in the local area.

Once the data have been verified, access expressed **as apparent intake** rate can be calculated by dividing the number of new entrants to Grade 1 at the school by the number of local children who are of school-entrance age and the **net intake rate** is calculated by dividing the number of new entrants who are of school-entrance age by the local school-entrance age population. **The closer the intake rate is to 100 per cent, the more young children have access to Grade 1. Conversely, low intake rates signal that many school-entrance age children do not have access to primary school.**

Participation in primary education is measured in terms of the **gross and net enrolment ratios.** These ratios can be calculated in a similar way to the intake rate, by dividing respectively the total number of students enrolled in all grades at the school, and those of the official primary school-age, by the school-age population in the local area. **Enrolment ratios close to 100 percent indicate a high degree of participation, whereas a low net enrolment ratio of for example 75 per cent indicates that the remaining 25 per cent of the primary school-age population are still 'unreached'.** The sorted and circled data in Example 18 clearly highlighted the sub-districts with the most and the least proportions of 'unreached' children.

In some cases, **there may be more than one school covering the school-age population in a given local area.** Lower values for the intake rates and enrolment ratios may be calculated for each individual school because they share the same school-age population. In such cases, **it will be more meaningful for the local or district education officer to calculate intake rates and enrolment ratios for the local area** as a whole by summing up the numbers of new entrants and students enrolled in all the local schools, and dividing these by the local school-entrance age or school-age population in order to find the percentage and number of children who are not enrolled in school. When combined with detailed information - which may be obtained by school teachers and inspectors during home-visits to identify who, where and how are the 'unreached' children - more appropriate measures can be taken to bring them back to school.

5.2 Duration of travel from home to school

A main factor affecting children's access to school is the distance or time needed to travel from home to school. This factor is especially important for children of younger age, for example those who are of the age to attend Grade 1 and Grade 2 of primary school. Example 19 presents the number of students by gender and by grade according to the time required for them to travel from home to school (see also Part 5 of the example Annual School Census form in Module A2).

The percentage distributions calculated for students according to time of travel from home to school on the right-hand side of the table indicate that about half of them (48.9 per cent of boys and 50.5 per cent of girls) can reach school within 15 minutes. Among those who live farther away from school, 40.2 per cent of boys and 25.8 per cent of girls take more than 30 minutes to come to school, while 4.3 per cent of boys and 2.1 per cent of girls spend over an hour travelling to and from school.

ACTIVITY 9

Review and discuss with other school managers, district and local education officers about your experiences of trying to 'reach the unreached', and then answer the following questions

1. Are intake rates and enrolment ratios systematically calculated in your school or for the local area? If yes, how useful are they? If no, why not?
2. What methods should we use to identify the 'unreached' children?
3. How would you use the intake rates and enrolment ratios to 'reach the unreached'?

Example 19. Number of students according to time of travel from home to school

Distance	Grade 1		Grade 2		Grade 3		Grade 4		Grade 5		Grade 6		Total		Vertical (%)	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
< 15 minutes	11	13	8	8	10	4	7	8	5	11	4	5	45	49	48.9%	50.5%
15 to 30 min	1	2	1	6	5	5	1	4	1	1	1	5	10	23	10.9%	23.7%
30 to 45 min	2	3	4	2	2	4	3	6	4	1	3	2	18	18	19.6%	18.6%
45 to 60 min	1	0	3	0	0	1	2	1	3	2	6	1	15	5	16.3%	5.2%
> 1 hour	0	0	0	0	1	0	0	0	1	1	2	1	4	2	4.3%	2.1%
TOTAL	15	18	16	16	18	14	13	19	14	16	16	14	92	97	100.0%	100.0%
> 15 minutes	4	5	8	8	8	10	6	11	9	5	12	9	47	48	51.1%	49.5%
> 30 minutes	3	3	7	2	3	5	5	7	8	4	11	4	37	25	40.2%	25.8%
> 1 hour	0	0	0	0	1	0	0	0	1	1	2	1	4	2	4.3%	2.1%

In principle, **young children attending Grades 1 and 2 should not have to travel more than 15 minutes between home and school.** The light grey-coloured cells in the lower left side of the table in Example 19 show that 15 students in Grade 1 and 25 students in Grade 2 take more than 15 minutes to reach school. This accounts for respectively 45 and 78 per cent of the total number of students in these two grades. The school management and their class teachers must talk to the parents or guardian of these young children in order to ensure these children have access to safe forms of transport and can travel to and from school in a timely manner.

In Example 19, we can see there are a number of students in Grades 3 and 4 who travel more than 30 minutes to reach school (see the highlighted cells in blue) and some students in Grades 5 and 6 who travel more than an hour to reach school (see the highlighted cells in dark grey). In the same way as for the younger students, the school management and class teachers must take into account the terrain, conditions of roads, footpaths and/or waterways, and the modes of transport that are available, in order to organize with the children's parents appropriate means of transport to and from school.

ACTIVITY 10

Review and discuss with other school managers, district and local education officers about experiences in monitoring and using the data about students' distance or duration of travel from home to school. Then answer the following questions:

1. Does your school or the schools in your district, province or country keep records of the time students require to travel from home to school? If yes, how do you record this information? If no, why not?

2. How are such data used?

3. What are the difficulties in monitoring, analysing and interpreting such data?

4. How best can such data be used?

5.3 Attendance

Having brought children to school, the next step is to make sure that they regularly attend classes and participate in school activities. By systematically using monthly class attendance sheets[19] to record student attendance in class, school managers can calculate and compare average attendance rates by student and by class over the past month or school year (see Example 20). An individual student's average attendance rate can also be used as one of the indicators of student performance.[20]

Average attendance rates are calculated by dividing the number of days a student attended school by the total number of school days. Such averages can be calculated for each month, each semester and each school year, for all or each student, and all classes in a school. By doing so, we can compare student attendance between classes and individuals over time, in order to **identify peak periods and patterns of student absenteeism.**

Example 20. Average class attendance rates

School Year 2009   **Class: 4B**

Student name	Attendance rate (%)										
	JAN	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**School year**
Budi KASUR	93	95	94	91	90	89	93	95	94	95	93
Arti DELAPAN	90	91	90	88	87	89	90	91	92	90	89
Dian KOTORAN	73	75	74	69	67	69	72	73	75	74	72
Kade WAJAH	88	89	90	88	85	82	83	83	84	85	85
Lastri PELURU	84	81	80	78	77	79	83	84	90	90	81
Lintang TEMBOK	95	96	95	92	90	91	94	96	96	95	94
Merpati DADA	100	95	96	96	96	95	100	96	96	100	97
Setiawan PINTU	86	87	85	83	82	80	81	83	85	89	83
Tuti TIRAM	93	91	92	90	88	87	90	91	93	93	90
…	…	…	…	…	…	…	…	…	…	…	…

Besides showing the situation in terms of class attendance at school, this indicator can be used to **identify students who have been frequently present or absent from class** (see highlights in Example 20). Teachers can use this information to investigate further the reasons for the absences and to see what kind of remedial measures may be taken. Some schools have regulations to expel students when their average attendance rate falls below a specific norm or limit, but it is advised that every possible remedial measure is applied before a decision is made to expel a student from school. Attendance rate can also be applied to teachers as part of their performance evaluation.

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19 See Section 3.2 and Example 2 in Module A1.

20 See the last column in Example 2 of Module A1.

5.4 Grade repetition and drop out

Children may repeat a grade in school for different reasons. Often it is caused by scholastic performance below the requirements for promotion to the next higher grade, but parents may decide to have their children repeat a grade for other reasons. From the management point of view, when a child repeats a grade it reduces the efficiency of the school and/or the state education system because they have to invest resources for one more school year for each repeater. From a learning perspective, some people believe grade repetition is positive because it gives each repeater a second chance to learn better. Others however worry about the negative psychological effects repetition may have on children, especially if it instills a sense of failure which may increase the tendency for them to drop out of school.

Information on repetition and drop-outs can be extracted from individual student records in school[21] and summarized into a table (see Example 21 below).

Example 21. Repetition and drop out by grade during school year 2009

Grade	No. of students	No. of repeaters	No. of drop-outs	% of repeaters	% of drop-outs
1	133	8	15	6.0%	11.3%
2	127	3	4	2.4%	3.1%
3	119	5	8	4.2%	6.7%
4	101	8	13	7.9%	12.9%
5	95	3	7	3.2%	7.4%
TOTAL	575	27	47	4.7%	8.2%

On the bottom row of Example 21 we note that an average of 4.7 per cent of the students repeated the same grade and 8.2 per cent of the students dropped out before the end of the school year for all grades in this school. Repetition was high in Grade 1 (6.0%) perhaps due to difficulties young children have in adapting to school life. Repetition was highest in Grade 4 (7.9%), probably because children are at the age when their families require them to stay home to help with household chores. The same pattern can be observed for dropout rates where 12.9 per cent of students in Grade 4 dropped out, and 11.3 per

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21 See Section 3.1 and Example 1 in Module A1.

cent in Grade 1. **It will be useful to create similar tables separately for boys and girls** in order to assess the differences by gender, or by other student characteristics, so as to adopt appropriate solutions to respond to the problems of repetition and drop out of students with specific profiles.

The moment a child drops out of school, he/she rejoins the ranks of the 'unreached'. Minimizing dropout by preventing children from leaving school may require a number of measures to improve the school environment and teaching/learning processes, and to provide assistance to the child or the family. **By knowing how many children repeat and drop out of each grade every year, and by understanding the underlying reasons, right decisions can be made to adopt appropriate preventive measures to reduce such phenomena.** For those children who have dropped out of school but have not entered another school, remedial measures may be taken to bring them back to school.

Similar tables can be produced at the district and higher levels by aggregating the school-level tables. By doing this we can examine and compare the patterns of repetition and drop out by grade between schools and districts.

The student cohort flow model, which is described in Annex 3 of Module A3, can be applied to derive the promotion, repetition and dropout rates by grade, for further analysis and interpretation in the same way as in Example 21 above.

ACTIVITY 12

Review and discuss with other school managers, district and local education officers about their experiences in dealing with the problems of students repeating grades and dropping out of school. Then answer the following questions:

1. How serious is the problem of grade repetition and dropping out in your school or the schools in your district, province or country? How can you know about the scale of this problem? What are the main reasons for children repeating grades or dropping out of school?

2. How can information about repetition and drop outs by grade help you take preventive and/or remedial measures?

6 Quality of education

Many factors influence the quality of education. These factors relate to the **quality of teachers, school facilities, teaching/learning materials, management, examination, and the teaching/ learning processes used in the classroom.**

6.1 Teacher qualifications and training

We can judge the quality of teachers using two indicators:

> **1. The percentage of qualified or under-qualified teachers.**

> **2. The percentage of trained or untrained teachers.**

The former refers to the highest level of education attained or highest academic certification received; the latter focuses on the kind of pedagogical training, either pre-service or in-service, that the teacher went through. Ideally, all teachers must be qualified and have received pedagogical training.

Most countries have defined standard requirements and norms for the minimum qualification allowed for teachers at different levels of the education system and for different subjects. In practice, however, some schools may employ persons who do not meet such minimum requirements to teach, usually on a temporary or contractual basis. In some cases, schools may employ under-qualified or untrained teachers for a long period of time, without taking appropriate measures to upgrade their qualification or pedagogical training.

To achieve the EFA goal of quality basic education for all, one of the priorities is to assess the magnitude and characteristics of under-qualified and untrained teachers so that appropriate solutions can be adopted to raise the overall quality of all teachers to meet the minimum national standard and norms.

Information about teachers' academic qualifications and training can be found in the teacher records at school,[22] and in the central or provincial teachers database if that exists. The first step is to identify those teachers whose academic qualification falls below the national norms, and those teachers who have not participated in any pedagogical training. Their numbers are then tallied in order to calculate the percentages by dividing the respective numbers by the total number of teachers as shown in Example 22.

Example 22. Summary list of schools ranked by percentages of under-qualified and untrained teachers

Province: Pokhara		District: Dumjala			
School name	**Total number of teachers**	**No. of under-qualified teachers**	**No. of untrained teachers**	**% of under-qualified teachers**	**% of untrained teachers**
Dali Primary School	33	11	17	33%	52%
Lunh Community School	6	2	3	33%	50%
Kahdi Primary School	17	4	6	24%	35%
Para Community School	9	2	3	22%	33%
Gurja Community School	26	4	5	15%	19%
Padmi Primary School	7	1	1	14%	14%

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22 See Section 3.5 in Module A1

We can see in Example 22 that between14 per cent and 33 per cent of the teachers are under-qualified in the six schools in the Dumjala district; between 14 per cent and 52 per cent are untrained. The Dali Primary School has the most teachers (33), but it also has the highest percentage of under-qualified and untrained teachers. Priority should be given to upgrading this school's teacher qualifications and training. When organizing in-service teacher training in this district, the under-qualified and untrained teachers from other schools can be invited to join.

At higher provincial and central levels of the education administration, similar summary tables can be made to list the percentage of under-qualified and untrained teachers for all schools under their respective jurisdictions (see Example 22). By sorting the list of schools from the highest to the lowest in terms of percentage under-qualified and untrained, education administrators at each level can **easily identify the schools that have the greatest need for improving the quality of teachers, and the scale of such need in terms of number of teachers to be targeted.** This information can help administrators to plan and organize coordinated in-service pedagogical training and to upgrade the academic qualifications of teachers who perform well and have the potential for pursuing a career in teaching. This information can also **help to identify priority areas for the improvement of pre-service teacher training, help plan new recruitment drives and redeploy qualified teachers to fill the gaps.**

ACTIVITY 13

Review and discuss with other school managers, district and local education officers about their experiences in managing the quality of teachers, and then answer the following questions:

1. How do you monitor and identify issues regarding the academic qualification and pedagogical training of teachers?

2. How does your experience compare with that of other school managers?

3. What is the best method for monitoring the qualification of teachers?

6.2 Teaching methods, skills and performance

Besides qualification and pedagogical training, the quality of a teacher can be determined by his/her **attitude, diligence, methods and skills in organising and conducting teaching in the classroom as well as in supporting learning in various school activities.**

The main source of such information about teacher performance is contained in the teacher evaluation report. Example 6 in Section 3.5 of Module A1 shows an example of a teacher evaluation report in which each teacher scores from 1 to 3 points for 20 performance attributes. In this example, a score of 1 indicates 'UNSATISFACTORY', 2 indicates 'SATISFACTORY MOST OF THE TIME' and 3 indicates 'SATISFACTORY ALL OF THE TIME'. The data used to construct the table in Example 23 was extracted from individual teacher evaluation reports. This table is a summary list of teachers with their scores for each of the 20 teacher performance attributes (see headings from Aa to Eg), and their total scores.

Example 23. Summary list of teachers' performance according to 20 attributes Aa to Eg

NAME	Aa	Ab	Ac	Ba	Bb	Bc	Bd	Be	Ca	Cb	Da	Db	Dc	Ea	Eb	Ec	Ed	Ee	Ef	Eg	Total
Barali Kund	1	1	1	1	3	2	2	3	3	3	2	2	2	3	3	3	1	3	3	3	45
Birali Mando	1	3	1	3	2	3	1	1	3	1	2	3	2	3	3	3	3	1	2	2	43
Bhirat Shanti	3	2	1	2	3	3	3	3	1	2	1	2	1	1	1	3	1	3	3	3	42
Ramesh Shrestha	3	3	2	3	1	2	2	1	2	1	3	2	1	1	2	3	1	2	1	3	39
Binod Roka	1	2	3	1	1	2	1	2	1	2	1	2	3	3	1	2	3	1	2	3	37
Durga Bhurtel	2	3	1	2	1	2	1	1	1	3	1	2	2	1	2	1	1	2	2	3	34

Example 23 sorts and ranks the teachers by their total scores in descending order, which are shown in the right-hand column. It shows that total scores range from a high of 45 to a low of 34. If the norm for satisfactory performance is 2, which means obtaining a total score of 40 for the 20 attributes, then Example 23 shows that the first three teachers in the list performed above the norm, whereas the last three teachers performed below the norm.

The same approach may be applied to compare teacher performance by individual attribute. This summary list of teachers can also be sorted and ranked according to the teachers' scores for each attribute, or for different combinations of attributes. If we assume that all the attributes have the same weight, average scores may be calculated for each attribute and used to compare teacher performance across all attributes. In practice, however, various attributes may also be assigned different weights when calculating the average score.

In comparing teachers' performance, we must take into consideration the number of class hours each teacher works and other factors that might affect their performance. Then we can adopt appropriate measures to help the teachers improve their performance.

ACTIVITY 14

Review and discuss with other school managers, district and local education officers about their experience with evaluating teacher performance. Then, answer the following questions:

1. How do you evaluate teacher performance in your school? How do you find the quality and reliability of the evaluation results?

2. How does your experience compare with that of other school managers?

3. What is the best way to manage teachers' performance? How do you use the evaluation results?

7 School environment and facilities

The quality of a school's environment and its facilities has a strong influence on students' learning. Besides regular use in organizing and managing a school's activities, records of a school's physical facilities and material resources such as furniture and equipment can provide data to derive many indicators for assessing the quality of education in a school.

7.1 Basic school facilities

Schools record and report data in the annual school census[23] about the availability of basic facilities, such as clean water, separate toilets, electricity, kitchen/canteen, telephone and various other facilities and services in school. Administrators at various levels of the education system can use this information to **evaluate the environment and physical facilities of schools they oversee and then prioritize and plan the upgrade or improvement of facilities.**

In Example 24, the summary table displays data reported by schools in Medan district about the availability of basic facilities at school. It is interesting to see how the detailed data reported by the schools about 'have' and 'do not have', are used here to calculate indicators of '% of schools without' each kind of facilities. This is useful for **assessing the gaps in the provision of basic facilities, and helps to identify schools that need priority assistance.**

Example 24. Basic facilities at school in Medan district
(1 = have; 0 = do not have)

School name	Piped water	Separate toilets	Electricity	Kitchen/ canteen	Dormitory	Health kit	Tele- phone	Radio or TV	Computer
Juli Primary School	1	1	1	1	0	1	1	1	0
Bintang County School	0	1	0	0	0	1	0	0	0
Perlak Primary School	1	1	1	0	0	1	0	1	0
Sakti Community School	0	0	0	0	0	0	0	0	0
Kamal Primary School	0	1	1	0	0	1	1	0	0
Bubon Community School	1	1	1	1	1	1	1	1	1
Woyla County School	1	1	1	0	0	1	1	1	0
Julok Community School	0	0	0	0	0	0	0	0	0
Mane Primary School	1	1	1	1	1	1	1	1	1
Ketol County School	0	1	0	0	0	0	0	0	0
No. of schools without:	5	2	4	7	8	3	5	5	8
% of schools without:	50%	20%	40%	70%	80%	30%	50%	50%	80%

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23 See also Section 4 in Module A2.

In Example 24, one can see that half of the ten schools in this district operate without piped water, telephone, radio or TV. Forty per cent of the schools do not have electricity, one-fifth do not have separate toilets for boys and girls, 70 per cent do not offer a school meal programme and 80 per cent do not have a dormitory or computers.

Looking at the data for each school horizontally across the rows in the table in Example 24, we can see that neither the Sakti Community School nor the Julok Community School have any of the basic facilities. Ketol County School has separate toilets, but none of the other facilities. These three schools should be given priority in terms of special support to improve their school facilities.

Once such indicators are clearly calculated, presented and interpreted, the district education office can use these findings to identify and design targeted actions to improve basic facilities among the schools in this district. The analysis and proposed actions can be submitted to the provincial and central education administration to organize appropriate support to the districts and schools.

As many of these issues regarding the lack of basic facilities in school are closely related to the local environment, it will be equally important for the school managers and district education officers to inform the relevant local government departments and stakeholders in the school management board so as to mobilize their support. To do so, the indicators which were calculated to construct the table in Example 24 can be presented in more attractive graphic form like in Example 25.

Example 25. Percentage of schools without specific facilities/equipment
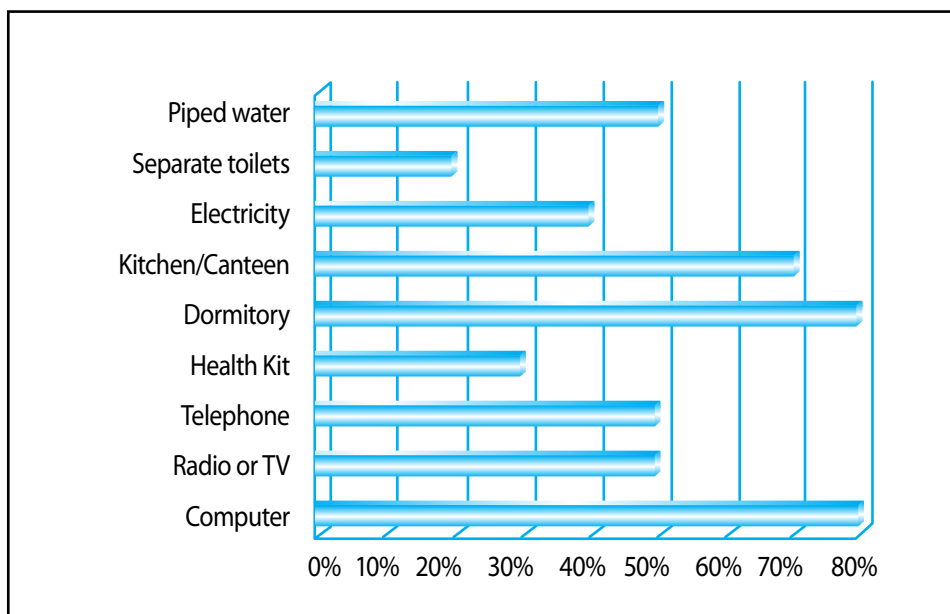
ACTIVITY 15

Review and discuss with other school managers, district and local education officers about monitoring basic facilities in school, and answer the following questions:

1. What are the difficulties involved in monitoring basic facilities in school?

2. What is the best method for monitoring basic facilities in school?

3. What principles should we remember while analysing, interpreting and using these data and indicators?

7.2 Conditions and use of school facilities

School records of physical facilities, furniture and equipment,[24] also known as inventories, can be used to calculate various indicators such as percentage distributions of classrooms, furniture and equipment by condition and use, and to produce graphs that highlight problems with the facilities (see Examples 26, 27, 28 and 29).

Example 26. Classroom conditions
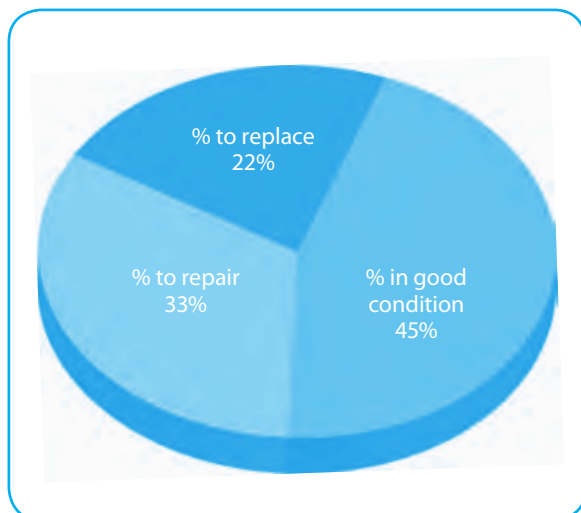
Example 27. Condition of school furniture
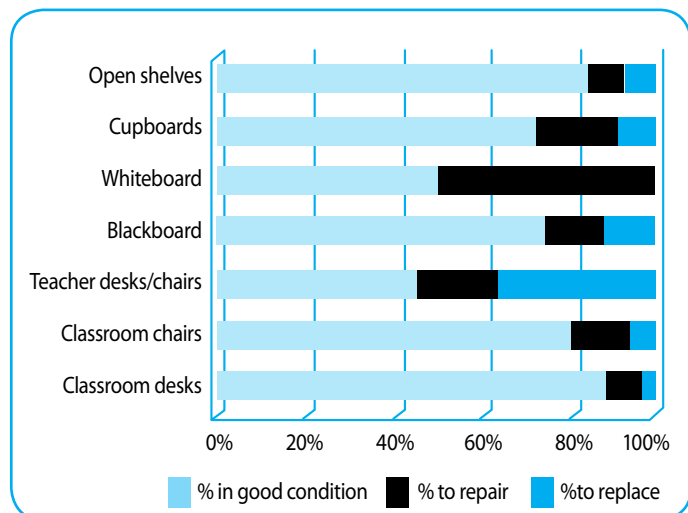
Example 28. Percentage of unused buildings/rooms
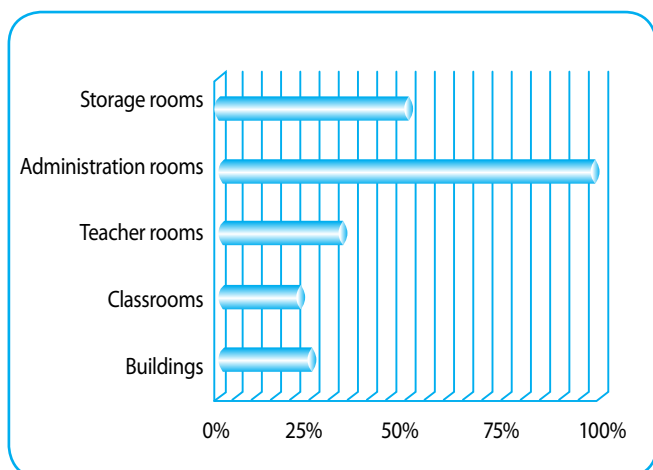
Example 29. Percentage of unused equipment

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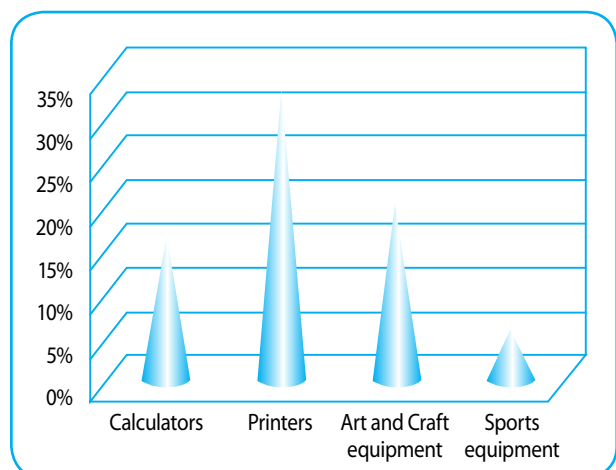
24 See Section 3.7 of Module A1.

Example 26 uses a pie chart to illustrate that 45 per cent of the classrooms are in good working condition, but 33 per cent require repair work. The remaining 22 per cent are in such bad condition that they can no longer be further repaired, but rather have to be replaced by new classrooms.

Example 27 uses stacked horizontal bars to show the condition of seven different types of school furniture. These stacked bars show that more than 80 per cent of the desks, chairs and open shelves in the classrooms are in good condition, but less than half of the teachers' desks and chairs are in good condition. More than one-third of the teachers' furniture needs to be replaced, and almost one-fifth of them need to be repaired. Further analysis of the condition of other furniture may reveal additional findings.

Example 28 uses simple horizontal bars to indicate that one-half of the administration rooms, one-third of the storage rooms and one-quarter of teachers' rooms are unused. Further investigation concluded that as these rooms share the same roof which was damaged and started leaking during the rainy season. The roof must be repaired before these rooms can be used again.

The equipment graph in Example 29 indicates that among the equipment available, 33 per cent of the computer printers were not used. The same applies to 20 per cent of arts and craft equipment, 17 per cent of calculators, and 6 per cent of sports equipment.

The graphs for these examples demonstrate how data and indicators can be presented in clear and interesting ways to facilitate analysis and interpretation. Much more can be done to develop other innovative and dynamic presentations of EFA data, indicators and information.

ACTIVITY 16

Review and discuss with other school managers, district and local education officers about monitoring the condition and use of physical facilities in school. Then, answer the following questions:

1. What difficulties are involved in monitoring the condition and use of physical facilities in school?
2. How do you think we should monitor the condition and use of physical facilities in school?
3. What principles should one keep in mind while analysing, interpreting and using these data and indicators?

7.3 Other school environment indicators

Based on the school records and/or annual school census returns, additional indicators of quality of education which are related to school environment and facilities may include:

- **Student-classroom ratio**
- **Classroom area per student**
- **Playground area per student**
- **Student-toilet ratio**
- **Student-computer ratio**

These can be calculated and compared to national standards and norms (if they exist), and presented in table and chart forms similar to those presented above.

ACTIVITY 17

Review and discuss with other school managers, district and local education officers about the school environment indicators listed above. Then, answer the following questions:

1. Which of the indicators listed above are most relevant and useful in your context?

2. How would you go about calculating, interpreting and using these indicators?

3. What other school environment indicators may also be useful?

8 Learning materials

Besides teacher qualifications and school facilities, another important determinant of quality of education is the teaching and learning materials. **It is essential for quality materials to be made available to the teachers and students in adequate quantities to support the teaching and learning processes.**

8.1 Textbooks

Ideally, every student in every class should possess his/her own copy of the textbooks required by the school for each grade and each subject. The textbooks may be new or previously used by other students. Textbooks may be provided by the school, their parents, friends or other bodies such as NGOs. **The percentage of students who do not have the textbooks they need for their classes is an important indicator that may be calculated from data in the school records.**[25]

Example 30. Number and percentages of students without textbook by subject and by grade

Subject / Grade	National language	Foreign language	Maths	Science	Social studies	History	Geography	Total number of students by grade
Grade 1	3	17	6	11	15	7	8	43
Grade 2	2	14	7	6	12	4	5	40
Grade 3	1	10	3	9	8	3	5	39
Grade 4	1	7	2	4	6	5	4	41
Grade 5	0	2	3	1	4	1	2	37
% No textbook in Grade 1	7.0%	39.5%	14.0%	25.6%	34.9%	16.3%	18.6%	
% No textbook in Grade 2	5.0%	35.0%	17.5%	15.0%	30.0%	10.0%	12.5%	
% No textbook in Grade 3	2.6%	25.6%	7.7%	23.1%	20.5%	7.7%	12.8%	
% No textbook in Grade 4	2.4%	17.1%	4.9%	9.8%	14.6%	12.2%	9.8%	
% No textbook in Grade 5	0.0%	5.4%	8.1%	2.7%	10.8%	2.7%	5.4%	

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25 See Section 3.3 and Example 3 in Module A1.

This table was constructed by using figures from the textbook record sheets to tally the number of students with a '0' for each subject. These tallies were then totalled for each grade and subject to show how many students in the whole school do not have the required textbooks (see the top rows in Example 30). Each of these numbers was divided by the total number of students (see the right-hand column) to give the percentage of students who do not have the required textbooks for their classes (see the bottom rows in Example 30).

A closer analysis of Example 30 shows that more than 30 per cent of the students in Grades 1 and 2 do not have textbooks for their foreign language and social studies classes. There is also a short-age of science textbooks among students in Grade 1 and 3. With the exception of the national lan-guage subject in Grade 5 for which no students were missing their textbook, additional textbooks are required for all the other grades and subjects. The numbers in the upper rows in Example 30 indi-cate the quantity of each textbook that should be acquired.

Such summary tables from schools can be aggregated into similar tables at the district, provincial and country levels, to **use for evaluating textbook availability and to implement measures to ensure that all students possess all the necessary learning materials.**

ACTIVITY 18

Review and discuss with other school managers, district and local education officers about the monitoring of availability of textbooks. Then, answer the following questions:

1. How do you monitor the availability of textbooks?

2. What were the difficulties you encountered in monitoring the availability of textbooks and other learning materials?

3. How best should one go about monitoring the availability and adequacy of learning materials including textbooks?

8.2 Teaching aids

Teachers use teaching aids such as **maps, wall charts, flip charts, flash cards, scientific models, kits and toys** to support teaching and learning activities at school.[26]

Schools produce or purchase teaching aids for either shared use among the teachers or provide them to individual teachers. **Every school should keep an inventory of available teaching aids by quantity and conditions of use.** The teaching aid inventory should be able to track how frequently each resource is used on a weekly or monthly basis.

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26 See Section 3.8 and Example 9 in Module A1.

The following three indicators tell us what we need to know about the school's teaching aids and how they are used for different subjects and in different grades (see Example 31).

1. **Percentages of teaching aids to be repaired or replaced** are derived by separately dividing the quantity of each teaching aid needing repair or replacement by the total quantity of the same teaching aid.

2. **Teachers to Teaching aid ratio are** calculated by dividing the number of teachers who are eligible to use each type of teaching aid, by the quantity of each teaching aid that are in good working condition (=Total – quantity to repair – quantity to replace).

3. **Frequency of use** counts the number of times each teaching aid was used by teachers during each week or month, and take the simple averages over a semester or a school year.

Example 31. Utilization and conditions of teaching aids

Type of teaching aid	Quantity in use			Number of eligible teachers	Teacher-teaching aid ratio	% to repair	% to replace	Frequency of use per week
	Total	To repair	To replace					
Maps	5	0	1	11	2.8	0%	20%	15
Wall charts	9	1	1	16	2.3	11%	11%	22
Flip charts	11	1	0	16	1.6	9%	0%	17
Flash cards	30	3	5	14	0.6	10%	17%	8
Kits	12	1	2	15	1.7	8%	17%	6
Scientific models	18	2	1	8	0.5	11%	6%	13

As can be seen in Example 31, these indicators tell us whether there is sufficient quantity of each type of teaching aid that are in good condition, and how many need to be repaired or replaced. The frequency of use can also tell us about the pattern of teachers' use of various teaching aids, which can help the school decide whether to acquire new teaching aids, or to repair existing ones.

ACTIVITY 19

Review and discuss with other school managers, district and local education officers about the monitoring of teaching aids. Then, answer the following questions:

1 How do you make use of data and information on teaching aids in your school?

2. What were the difficulties you encountered in monitoring and using the data on teaching aids?

3. How best should one go about monitoring and using the data on teaching aids?

8.3 Supplementary learning materials

The school may have acquired a variety of supplementary learning materials that students can use to reinforce their learning. The most common among these materials are books, newspapers, magazines and other reading materials that supplement the textbooks. Students can borrow various charts, kits, models and equipment or instruments for science, sports, music and arts. For schools that are equipped with audio-video equipment and computers, the range of supplementary learning materials can also include audiotapes and videotapes, CD-ROMs and DVDs, access to computers and access to the Internet: [27]

A set of indicators, which are similar to those we use for teaching aids, may be calculated and used, as follows:

1. Percentages of supplementary learning materials to be repaired or replaced are derived by dividing the number of each supplementary learning material that are in need of repair or replacement by the total number of the same supplementary learning materials.

2. Students to supplementary learning materials ratio is calculated by dividing the number of students who are eligible to use each type of supplementary learning material, by the number of each supplementary learning material that are in good working condition (see Example 32).

3. Frequency of use counts the number of times students borrowed and used each supplementary learning material each week or month and averages the usage over a semester or a whole year.

Example 32. Ratios of students to supplementary learning materials

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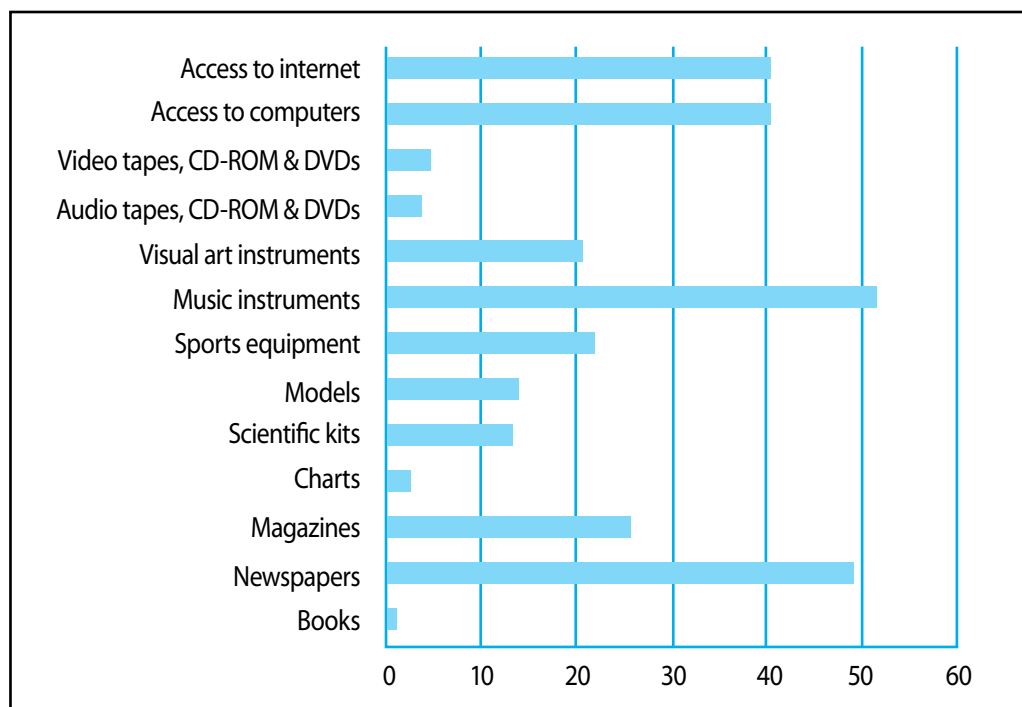
By indicating the number of students who share the supplementary learning materials in a school (see Example 32), the school management as well as local and district education offices can assess whether there are adequate amounts of each type of learning material for the student population. This can be done by identifying those learning materials that have a high frequency of use ratio, such as musical instruments, newspapers, and access to computer and the Internet in Example 32. Taking into account the average frequency of use per week and per month, decisions can be made to acquire appropriate quantities of these supplementary learning materials to reduce the gaps in access to resources.

Based on these indicators, the Ministry of Education can establish standards for the minimum number (per student) of teaching aids and supplementary materials that are in good working condition.

ACTIVITY 20

Review and discuss with other school managers, district and local education officers about the monitoring of supplementary learning materials in school. Then, answer the following questions:

1. How do you make use of data and information on supplementary learning materials in your school?
2. What were the difficulties you encountered in monitoring and using the data on supplementary learning materials?
3. How best should one go about monitoring and using the data on supplementary learning materials?

9 Teaching-learning processes

Teaching-learning processes in the classroom are equally important determinants of the quality of education under EFA. Apart from the indicators above, the following indicators can be used to monitor the quality of teaching-learning processes in school:

- **Number of class hours per week, per month, per school year**
- **Ratio of actual class-hours/planned class-hours by subject and by class**
- **Frequency of use of teaching aids**
- **Frequency of use of new teaching-learning methods**
- **Frequency of practice in class of critical thinking/problem-solving/creative skills**

Example 33. Indicators of teaching-learning processes

Name of Teacher	Average number of class-hours per week	Frequency of use of teaching aids per week	Frequency of use of teaching-learning per month	Frequency of counselling students per month	Frequency of vists to students' home per month
Nguyen Thi Thu Chi	18	4	2	6	3
Le Huu Hung	27	8	5	2	1
Pham Minh Lanh	15	2	1	5	5
Tran Hong Hanh	22	3	2	1	1
Du Kim Lan	19	4	5	4	3
Bui Phuoc Quang	23	6	4	1	2

The frequencies of teacher-student counselling, teacher visits to family, and other teacher-student group activities per month or per semester can also help to monitor teacher-student interactions that promote and facilitate learning. These indicators serve the additional purpose of monitoring teacher performance.

ACTIVITY 21

Review and discuss with other school managers, district and local education officers about the monitoring of teaching-learning processes in school. Then, answer the following questions:

1. How do you monitor the teaching-learning processes in your school?

2. What were the difficulties you encountered in monitoring the teaching-learning processes?

3. How best should one go about monitoring teaching-learning processes in school?

10 Learning achievements and outcomes

The learning achievement of students can be measured through examinations results. Nowadays, specially calibrated test assessments are administered to samples of schools and students to test learning achievement. In this section, we focus on the use of examination results and outcomes. Readers who are interested in understanding more about test assessments may refer to the PISA (Programme for International Student Assessment) which is organized by the OECD (Organisation for Economic Cooperation and Development),[28] TIMSS (Trends in International Mathematics and Science Study),[29] or PIRLS (Progress in International Reading Literacy Study), etc.

10.1 Examination results

Most schools organize tests and examinations at the end of each school term to assess individual student's learning achievements. The results of these examinations are usually recorded in student performance summaries for each class and each term.[30] **Teachers and school managers use the summaries to review the overall performance of students in each class and to identify any problems or issues.**

Besides copying the examination results into individual student record cards,[31] the student performance summary[32] is typically used to rank students according to the score they achieved for each subject in order to identify the high-performing students and students who did not perform well in some subjects or who have behavioural problems. Teachers and school managers **can adopt special remedial actions** to help students who need to improve their performance.

Average scores by subject may be calculated for each class, and each grade, so as to compare the performance of groups of students.

ACTIVITY 22

Review and discuss with other school managers, district and local education officers about how they use examination results to monitor learning achievements in school. Then, answer the following questions:

1. How do you use examination results to monitor learning achievements in your school?
2. What difficulties did you encounter while using examination results to monitor learning achievements in your school?
3. What is the best way to use examination results to monitor learning achievement in school?

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28 OECD: Programme for International Student Assessment (PISA).
    (See http://www.pisa.oecd.org/pages/0,2987,en_32252351_32235731_1_1_1_1_1,00.html).
29 TIMSS and PIRLS International Study Center: Trends in International Mathematics and Science Study(TIMSS) and Progress in International Reading Literacy Study(PIRLS). (See http://timss.bc.edu/).
30 See Section 3.4 and Example 4 in Module A1.
31 See Section 3.1 and Example 1 in Module A1.
32 See Examples 4 and 12 in Module A1.

10.2 Examination outcomes

Towards the end of the school year, after the results of the examinations have been summarized, teachers and school managers can evaluate the performance of students to determine whether they can be promoted to the next grade, or should repeat their current grade.

The expected repetition rate and promotion rate are indicators of the outcomes of examinations and students' performance throughout the year. They are calculated by dividing respectively the number of students who will repeat the same grade or the number of students who will be promoted by the total number of students in the grade.[33]

Example 34. Examination outcomes by class

Class	No. enrolled beginning of school year	No. promoted to next grade next year	No. repeating the same grade next year	Expected promotion rate (%)	Expected repetition rate (%)
1A	38	31	5	86.1%	13.2%
1B	33	27	48	1.8%	12.1%
2A	35	29	3	82.9%	8.6%
2B	30	24	5	80.0%	16.7%
3	37	33	2	89.2%	5.4%
4	39	34	2	87.2%	5.1%
5	40	31*	7	77.5%	17.5%

Completion rates are calculated by dividing the number of students who have performed satisfactorily in their final examinations, and are eligible to graduate from school, by the total number of students in the final grade(see figures marked with '*' in Example 34). The completion rate can be used as an indicator to compare the performance between different classes in the top grade and between different schools, using data reported in school records and in response to the annual school census.[34]

ACTIVITY 23

Review and discuss with other school managers, district and local education officers about the use of data from examination in school. Then, answer the following questions:

1. How do you use examination outcomes to monitor the performance of classes, students and teachers in your school?
2. What difficulties did you encounter while using examination outcomes to monitor the performance of classes, students and teachers in your school?
3. How should one go about using examination results to monitor the performance of classes, students and teachers and education outcomes in school?

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33 See Example 34, Example 21 in Section 5.3 and Annex 3 of Module A3.
34 See Section 4 of the example school census form in Module A2.

10.3 Student behaviour

Student performance summaries[35] may contain scores to rate the behaviour of individual students. By sorting and ranking these students based on their behaviour scores, school managers can **identify students who behave well and those who have behavioural problems, and calculate average scores by class and by grade to compare overall behaviour of students between classes.**

By identifying students with the best behaviour, the school can **highlight good behavioural traits and encourage other students to follow them.** The school can also adopt guidance and disciplinary measures to help students who misbehave to correct their behaviour.

School managers may use school records to note outstanding positive student behaviour as well as incidences of student misconduct. They can use the records to **calculate the frequency of incidences of student misbehaviour in order to monitor the pattern of occurrences.** Records of measures taken to recognize contributions from outstanding students and disciplinary actions for misdemeanours can also help the school to identify and adopt appropriate preventive and corrective actions.

Example 35. Student behaviour by class

Class	Percentage of students with behaviour score:				Mis-conducts per week	No. of actions taken
	A	B	C	D		
1A	12	76	9	3	3	2
1B	8	71	16	5	6	2
2A	7	78	14	1	4	3
2B	4	67	21	8	7	5
3A	9	76	13	2	5	4
3B	13	69	15	3	4	3
4	11	72	10	7	3	1
5	13	83	3	1	4	2

It should be noted that the occurrence of outstanding positive behaviour among students often indicate successful learning outcomes in terms of critical thinking, problem solving, hands-on skills and creativity. Demonstration of creativity as a learning outcome can also be gauged by the quantity and quality of writings, drawings, oral expressions, artistic expressions, and communications produced by the students.

ACTIVITY 24

Review and discuss with other school managers, district and local education officers about how they use data about student behaviour in school. Then, answer the following questions:

1. How do you use data on student behaviour in your school?
2. What were the difficulties you encountered while using data about student behaviour in your school?
3. How should one go about using data about student behaviour in school?

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35 See Section 3.4 and Example 4 in Module A1.

11 Impact

The ultimate impact of Education for All is to ensure that all people, young and old, can access quality basic education and acquire the literacy skills they need to learn throughout life, and the life skills they need to apply their knowledge in daily life and society. Schools' impact on former students can be monitored and assessed by gathering feedback information from the following persons:

- **Former students**
- **Family members of former students**
- **Friends and neighbours of former students**
- **Former teachers of the students**
- **Employers of former students**

These people can share their observations of perceived changes that occurred after the former student completed his/her studies at the school (see Section 11.1 below).

Local government officials, community leaders, business people, and a sample of the general public an be requested to offer additional insights about the broader impact of education on the local community (see Section 11.2).

11.1 Monitoring of former students

Schools are well placed to monitor these impacts by maintaining periodic contact with former students who have either graduated, transferred to other schools or dropped out of school, to find out what happened to them after they left the school. By comparing the information gathered from a representative sample of former students, school managers can develop a clearer picture of how the school contributed to the lives of former students. There may be important lessons that can be learnt from such perceived impact (or lack of impact). These lessons **can be used to help the school improve its programmes, organization and delivery.** They can also feed into ongoing national education policy reviews.

To gauge the impact of their educational experience, the school may ask a sample of former students to periodically respond to questions regarding their:

- **Personal life –** confidence; use of acquired knowledge, skills and attitude; continuing to learn; communication with others; feelings of satisfaction/frustration; happiness.
- **Family life –** relationship with family members; contributions to family life; feelings of satisfaction/ frustration.
- **Friendship –** variety of friendships; ease/difficulties in starting and maintaining friendships; benefits obtained and contributions made through friendship; etc**.**
- **Working life –** adaptation to working life; ability to use the acquired knowledge and skills; contributions to workplace and society.
- **Social life –** getting along with different people in society; the kind of interactions with society and other people; voluntary contributions to society; etc.

A variety of methods may be used to gather information from former students.

- **Tracking survey of former students** – the school asking a sample of former students to periodically respond to key questions related to the kinds of impact above.
- **Reunion event/party –** of former students to share the latest information including their family life and career path after graduation and in the future.
- **Homecoming day –** invite former students to visit the school and receive feedback on classes and school activities which have influenced them later in their further studies and careers.
- **Alumni association –** establish networks to share information and exchange ideas.

How have you been doing after graduating secondary school?

I entered university to study mathematics. I want to be a mathematics teacher in the future.

That is great! How did you like the classes and activities back in those school days?

Former student

Former teacher
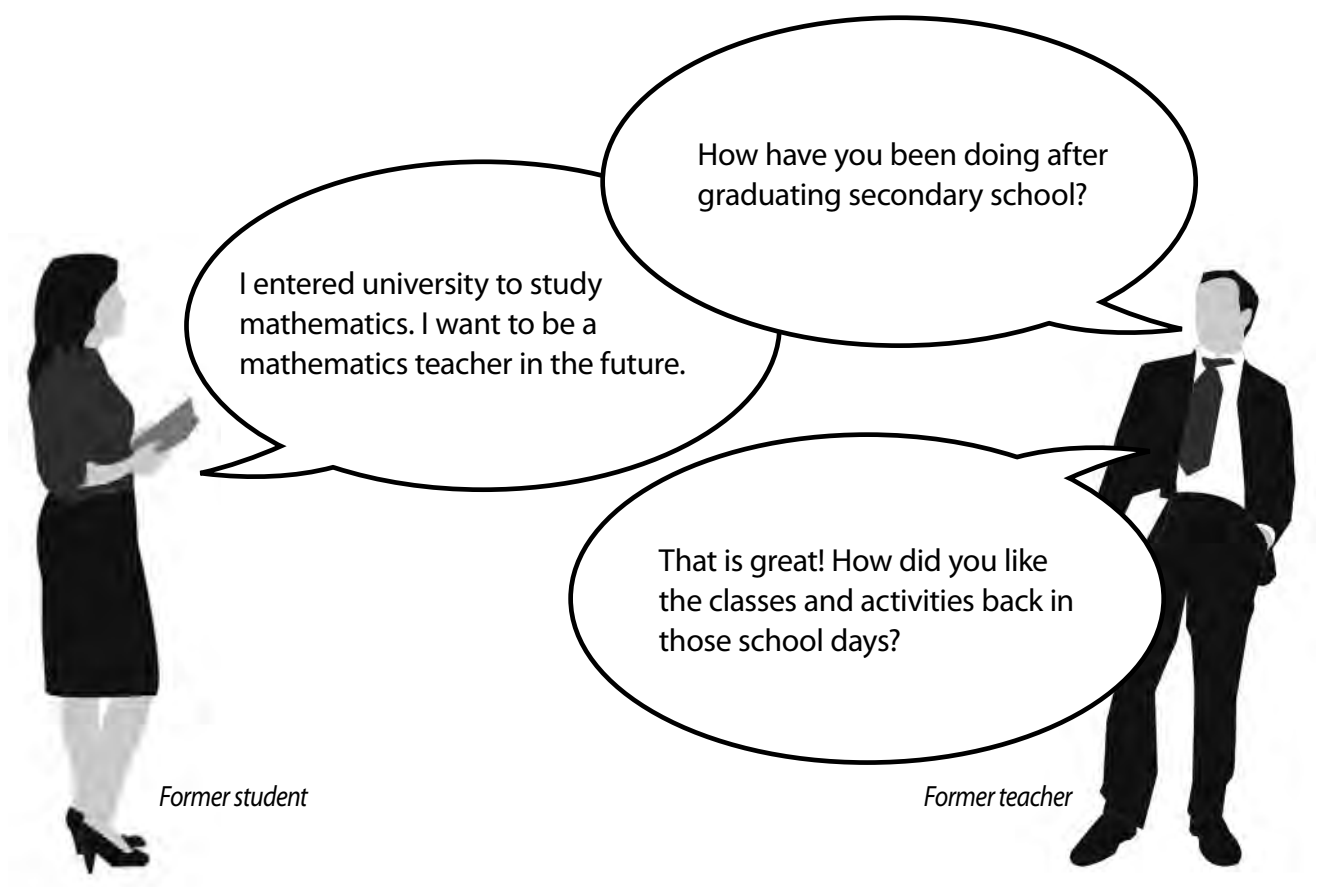
Source: www.canstockphoto.com

ACTIVITY 25

Review and discuss with other school managers, district and local education officers about how to monitor impact. Then, answer the following questions

1. How important do you think it is to monitor the school's impact on students?
2. Will it be possible for your school to set up and manage a system to track former students? What resources will be required to operate such a system?
3. How would you make use of the feedback and information gathered?

11.2 Monitoring impact on the community and society

To monitor the school's impact on the local community and society, the school manager can use both formal and informal methods to collect feedback information from local community bodies, stakeholders, parents and members of the public.

Formal meetings of the school management board and the parents-teachers association are good occasions for collecting such feedback from the key stakeholders. Information can be gathered by asking questions of individual members, or through open discussions of issues or topics. The information gathered can be analysed to gauge the schools impact (or lack of impact) on the local community, and **to identify emerging issues, needs and priorities** to which the school needs to respond.

The school manager and teachers may also periodically contact local government officials, community leaders, parents and members of the public to separately gather their feedback. During school activities, events and visits of parents and community members, the school manager and teachers can informally gather opinions, views and feedback ideas for improving the school.

ACTIVITY 26

Review and discuss with other school managers, district and local education officers about monitoring of impact of the school on community and society. Then, answer the following questions:

1. How important do you think it is to monitor the impact of the school on former students and the local community?

2. Which of the approaches to monitoring impact suggested above can be appropriate and effective for monitoring impact in your community? What other ways would you suggest to monitor impact?

3. How would you make use of the feedback information gathered?

12 Quiz

Q1. Data and information are used at school for the following purposes:
(Please fill the blanks marked by the dotted lines)

- Planning the new school year and organizing classes, curriculum and delivery
- Recruiting, assigning and training teachers
- Budgeting and mobilizing financial resources
- Class scheduling
- Assigning students to classes
- ....
- ....
- Assessing student and teacher performance
- ....
- ....
- Material resources management
- Organizing co-curricular and extra-curricular activities
- Supporting school and community interactions

Q2. Which among the following choices can be presented in summary tables:
(Please tick all correct answers)

- ❑ counted numbers
- ❑ percentages
- ❑ text sections
- ❑ graphs
- ❑ ratios
- ❑ maps
- ❑ averages
- ❑ feelings
- ❑ videos
- ❑ rates

Q3. Do's and don'ts in preparing and interpreting multi-dimensional tables:
(Please tick all correct answers)

- ❑ Build big multi-dimensional tables.
- ❑ Split big tables into smaller simpler ones.
- ❑ It is not important to arrange or regroup related rows and columns of data.
- ❑ Avoid having more than two layers of headings in the horizontal and vertical headings.
- ❑ Facilitate analysis and interpretation by grouping together rows or columns of data which can be compared.

❑ Absolute numbers and derived percentages and ratios are usually unrelated to each other.

❑ Place the derived percentages, rates or ratios next to or under the original data so that they can be analysed together.

❑ Analyse and interpret multi-dimensional tables in one go with a panoramic vision.

❑ Have as many layers of headings as is needed.

❑ Analyse multi-dimensional tables dimension by dimension and then synthesize the observations.

Q4. Presenting and analysing data and indicators in time-series are especially useful for:
(Please tick all correct answers)

❑ Studying past trends and patterns

❑ Evaluating the effectiveness of education indicators

❑ Identifying differences and disparities among local areas

❑ Comparing the performance between schools

❑ Learning from the past in order to plan for the future

❑ Studying past changes and factors affecting them

❑ Evaluating teachers' performance in the present school year

❑ Identifying students flow

❑ Setting future targets and scenarios

❑ Increasing accountability of schools

Q5. One can know about the number or proportion of 'unreached' children by:
(Please tick all correct answers)

❑ Subtracting GER from 100 per cent (i.e. = 100 – GER)

❑ Getting the exact number from population census data

❑ Looking at the pupil-teacher ratio

❑ Visiting the households in the local area

❑ Checking repetition rate

❑ Subtracting NIR from 100 per cent (i.e. = 100 – NIR)

❑ Using dropout rate

❑ Subtracting GIR from 100 per cent (i.e. = 100 – GIR)

❑ Estimating the data from household survey results

❑ Subtracting NER from 100 per cent (i.e. = 100 – NER)

Q6. Attendance rates in class can be calculated:
(Please tick all correct answers)

❏ For each movie

❏ For each school year

❏ From household surveys

❏ For individual students

❏ By month

❏ By minute

❏ By class

❏ For all parents

❏ By the students themselves

❏ For the country as a whole

Q7. Which of the following indicators can be used to measure the quality of education:
(Please tick all correct answers)

❏ Percentage of qualified teachers

❏ Father's education

❏ Pupil-teacher ratio

❏ Percentage of schools with telephones

❏ Student scores at physical education

❏ Percentage of students without textbooks

❏ Duration of travel of students from home to school

❏ Dropout rate

❏ Percentage of schools with separate latrines for boys and girls

❏ Percentage of students with mobile phones

Q8. Students' learning achievement and outcomes can be measured by:
(Please tick all correct answers)

❏ Examinations

❏ Teachers' opinion

❏ Attendance rate

❏ Calibrated sample test assessments of learning achievement

❏ Promotion and repetition rates

❏ Students' opinion

❏ Parents' feeling

❏ Completion rate

❏ Teachers' skill

❏ Students' behaviour score

Q9. Above all, data and information are used for the purposes of:
(Please tick all correct answers)

❑ Monitoring the situation and changes

❑ Accountability of schools

❑ Identifying problems, issues and causes

❑ Influencing the opinions of parents and community leaders

❑ Informing decisions on policies and actions

❑ Confirming what the school manager wants to do

❑ Planning, targeting and management of plan implementation

❑ Evaluating the results and outcomes

❑ Comparing with other schools, districts or countries

❑ Covering up mistakes and improper activities

Q10. The impact of school on former students can be assessed by contacting:
(Please fill the blanks marked by the dotted lines)

❑ The former students

❑ ....

❑ Friends and neighbours of former students

❑ ....

❑ ....

13 Further studies

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Module A5 Data Flow and Information Dissemination

EFA

SYSTEMATIC MONITORING OF EDUCATION FOR ALL

TRAINING MODULES FOR ASIA-PACIFIC

EFA

CONTENTS Module A5 : Data Flow and Information Dissemination

Module A5 | Data Flow and Information Dissemination

1 Purpose and expected learning outcomes of this module

1.1 Overview

In modules A1 to A4, we learnt how to keep school records, collect and analyse data to produce indicators, and use the information to make management decisions. In this module, we will learn about the **importance of communicating and sharing this information in order to spread understanding and mobilize support**. We will also learn **how to promote effective communication between schools and with education administrators, local stakeholders and the general public.**

1.2 Getting started

Information is a precious resource. Unlike natural resources such as petroleum, coal or iron ore which are finite, information has more value and grows when it is shared and used by more people. The more people who have access to and use information, the more information and knowledge will be further generated, shared and used. This is especially true in education. Education for All (EFA), for example, aims to spread information and knowledge to everyone, young and old, in order to improve their abilities to learn, to apply their knowledge throughout life, and to create new ideas and generate new knowledge.[1]

The same applies to the vast networks of people working for education including school managers, teachers, education officers, curriculum developers and teacher trainers. Education professionals can always benefit from more information about what is happening in the schools such as information about how the students are learning, about the latest teaching-learning experiences and innovations, why some schools perform well, and what outcomes and impacts parents and local communities want the school to deliver. This will help them to be aware of and understand the issues, and to learn from each other's experiences and lessons in order to better plan and manage education.

The education system generates a lot of information every day, especially in the schools, district and provincial education offices, and in the Ministry of Education. In the past, access to such information has been confined to those persons and institutions that generated them. Imagine what would happen if school managers, teachers and education officers were able to access information about the latest developments in education, and share the experiences and knowhow of other schools, districts or countries. The impact on how schools are managed, and how teaching/learning processes take place in the classrooms, would be tremendous.

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1 UNESCO. EFA Global Monitoring Reports (annual editions 2002-2011). (can be accessed at: http://www.unesco.org/en/efareport/)

New Information and Communication Technologies (ICT) have created many new possibilities for improving data and information flow within the education system, and for disseminating information to the stakeholders. Awareness is growing among the general public, who are asking for more and better information about what is happening in education. Making information about the education system available to all those who work in the education system, and to people from all segments of society including politicians, local community leaders, parents and students, will promote All for Education – the prerequisite for Education for All.

1.3 Learning Objectives

This training module aims at:

Helping school managers and staff to understand:

- the **importance of data flow and information dissemination.**
- how **sharing data and information within the school** can improve planning, coordination, implementation, monitoring and management of school activities.
- how to share information derived from school records with **local stakeholders.**
- how to actively participate in **data and information flow with other schools, and with higher levels of the education administration.**

Sensitizing local and district education officers to the need for them to:

- **facilitate the two-way flow of data and information** between the schools and central/provincial education authorities.
- assist in **improving the quality of data** reported by the schools.
- **help the schools improve their skills** in analysis, communication and use of data and information.
- **make good use of the data** from the schools to support decentralized education planning and management.
- **promote flow of data and information** between schools and to the local stakeholders.

Advising education policy-makers and administrators at the central and provincial level on how to:

- **provide feedback summaries of information, analysis and indicators to the schools and the district and local education offices** for their use in improving education planning and management in schools and throughout the districts and provinces.
- **improve the flow of data between schools** in terms of volume, frequency, ease and data quality.
- **regularly disseminate information about what is happening in the education system** to relevant stakeholders and the general public throughout the country/province, in order to keep them informed and to mobilize their support.

2 Need for education data and information flow

As information technologies improve and broadcast media becomes more prevalent, the general public have more and more access to information about the functioning of the education system in their country. **Major media channels these days regularly provide coverage about education, and people discuss it in daily conversations.** The general public are keenly interested to know what is happening in the education sector. The public want to know how present and future generations of children and youth can benefit from educational opportunities. They also want to know how people of all ages, and from all walks of life, can continue to learn.

Processes of democratization, including those within the education administration, call for greater **transparency and accountability.** Education professionals are becoming more and more aware of their need to improve the collection and dissemination[2] of information. The traditional predominantly vertical flow of data from the schools to the upper levels of the education administration is changing into **two-way information flows** up and down the education administrative hierarchy[3] and horizontally with the general public.

In this environment, education professionals from the Minister of Education through to school managers need to spend more time **communicating with stakeholders**[4] in order to gain their understanding, participation and support.

One of the key aims of Education for All is to develop new ideas and innovations that will allow learning to become part of everybody's everyday lives, and throughout their lives. To achieve this, the education sector is communicating more and more with the global society to seek inspiration and knowhow. **Networking among schools and educational institutions** is expanding to allow education professionals to exchange experience and expertise, to support mutual learning, and to cooperate with each other.

With growing demand for more information of better quality, people are turning their attention to finding ways and means of **improving and increasing the flow and dissemination of data, indicators and information about education.** At the same time, as can be seen in Modules A1 to A4, new data are also being recorded, collected and analysed. This trend is expected to continue into the future. Education professionals at all levels must therefore upgrade their knowledge, skills and attitude in the dissemination and use of information as this will improve cooperation and collaboration. In this module, we will discuss how such data flow and information dissemination can be strengthened and implemented throughout the education system.

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2 Disseminate means to spread or distribute information widely (Oxford Dictionary Online http://oxforddictionaries.com).

3 See also Section 2 in Module A2.

4 Stakeholder refers to a person with an interest or concern in something (Oxford Dictionary Online http://oxforddictionaries.com). Stakeholders in education include government officials at all levels, politicians, students, teachers, parents, the media, community members and all persons who are concerned with education.

ACTIVITY 1

Review and discuss the above statements with school managers, district and provincial education officers and Ministry of Education staff. Then, answer the following questions:

1. Have the stakeholders and general public become more interested in knowing about what is happening in education? If yes, to what extent has their interest increased? If no, why not?

2. Do you think the national education system has become more transparent and accountable? If yes, what makes you say that? If no, what can be done to make it more transparent and accountable?

3. How can an education professional improve dialogues with stakeholders?

4. What do you think should be done to further improve networking among schools and education institutions?

3 Data and information flow within the education system

All the efforts to record, collect, analyse and produce data, indicators and information about education[5] will finally bear fruit when such data and information are regularly shared and used throughout the education system, by the media, and among the stakeholders.

3.1 Data flow throughout the education administration

As can be seen in Diagram 1, most education data and information flow vertically through various levels of the education administration.

Diagram 1. Data and information flow within an education system

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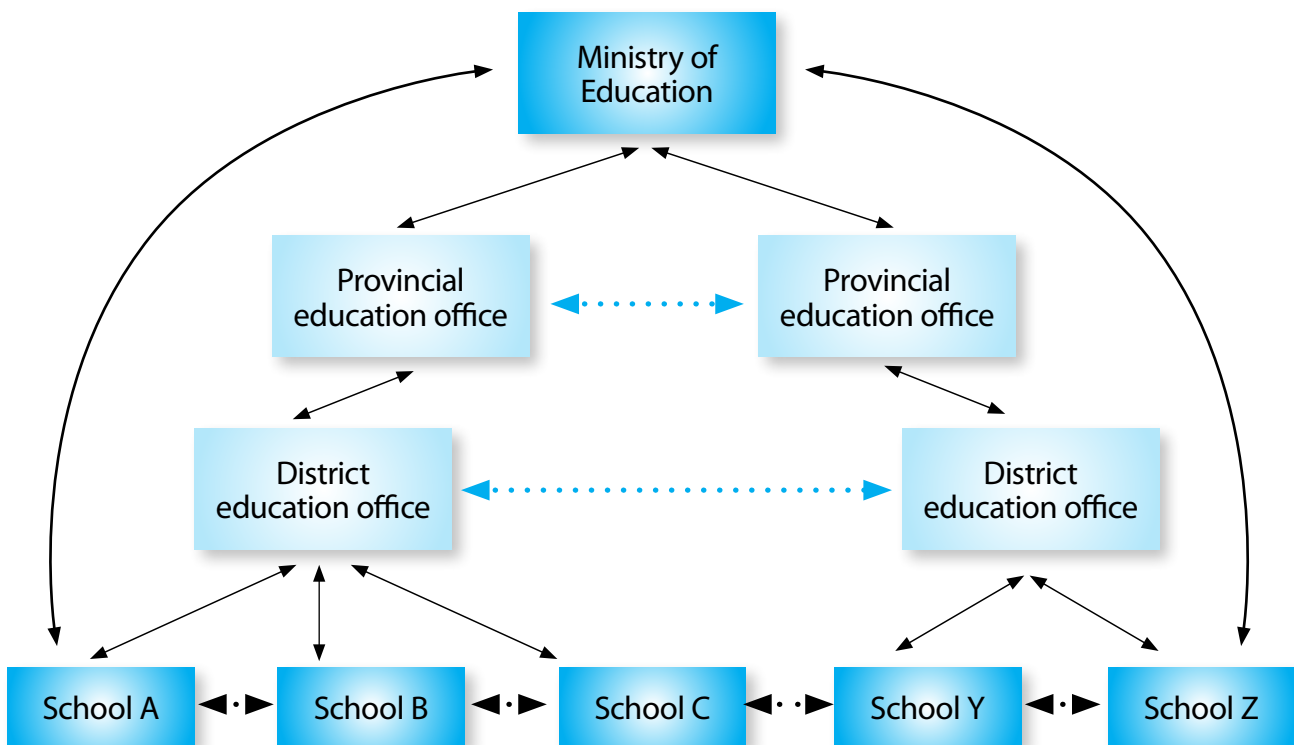
Data and information flow within the education administration can take place as follows:

a. Ministry of Education informs decentralized education offices at provincial, district and local levels and schools about the latest policies, regulations and instructions **(downward information flow ↓)**;

b. Schools complete the annual school census forms and then return them to the Ministry of Education **(upward data flow ↑)**

c. Periodic school reports (required in some countries) that contain both statistical data and narrative-style qualitative information are submitted to the Ministry of Education **(upward data flow ↑)**;

d. Ministry of Education contacts schools to verify and correct errors and omissions in the data reported by the schools **(2-way information and data flow ↓↑)**;

e. Ministry of Education feeds back processed and analysed information and indicators to the decentralized education offices and schools for reference in planning and management **(downward information flow ↓)**.

All the levels within an education administration from the schools to local and district education offices, and to central/provincial education authorities share responsibility for promoting the flow of data and information throughout the education system. In principle, they transfer and exchange data and information in a two-way manner according to both regular and ad hoc schedules. For example, school censuses are organized in many countries to collect data from schools right after the beginning of the school year when enrolment numbers have stabilized. Schools may respond to a second school census or submit school reports towards the end of the school year. The Ministry of Education may also release various kinds of information on policies, decrees, regulations, and reports during the year.[6]

The chief concern with the flow of data and information throughout the education system is the **quantity and quality** of information that is shared, the **frequency of sharing,** and the **speed of communicating data** through various parts of the education system. These issues apply equally well to the flows (a) to (e) described above.

Take the example of a school manager who regularly receives information about policies, plans, regulations and instructions from the central, provincial and district education authorities. This helps the school to stay up-to-date and comply with the latest policies and priorities in the internal management of the school.

6　See the school, district and state report cards in the District Information System for Education (DISE) of India (http://dise.in/index.htm and http://www.schoolreportcards.in/)

The quantity and quality of data the schools provide in the school census and school reports can have a strong influence on policies and decisions that high-level education administrators make. It is crucial therefore to facilitate access to such data especially for persons who can derive or generate value by further analysing the data, presenting, interpreting and disseminating the salient findings. The analytical information and indicators produced and disseminated by researchers at the central Ministry of Education using data collected from schools can **in return help school managers to compare performance and identify strengths and weaknesses, if not also to decide on measures to be taken to improve the school.**

ACTIVITY 2

Carefully examine Diagram 1 and compare it with what you know about the flow of data and information within the education system in your country. Then, answer the following questions:

1. What are the differences between the data and information flow in Diagram 1 and the realities in your country?
2. Why are there such differences?
3. What do you think needs to be done in order to further improve the data and information flow in the education system in your country?

3.2 Principles and pitfalls

Regarding data flow from the school to the Ministry of Education, schools that do not implement a standard school records management system[7] often find it difficult to respond to the annual school census and to other requests for information from both higher levels of the education administration as well as local stakeholders. Such situations may arise when:

- **the school is not able to answer all the questions and to complete all the tables and details required in the school census form; and/or**
- **some data are incomplete for example data missing for some classes, students and teachers, and can vary from year to year, which affect the consistency, reliability and comparability of data over time; and/or**
- **the absence of school records or incomplete school records makes it difficult to verify and identify omissions or data errors, and to correct them.**

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7 See Training Module A1.

Similar difficulties may arise when schools disseminate information to stakeholders. For example, if the school management board meets at the end of each school year to consider the re-employment (or discontinuation) of individual teachers, but the school records do not contain documented evidence of each teacher's actual performance through the school year. In this case, the management board may find it difficult to justify their decisions about which teachers to promote, transfer or lay off.

To avoid these pitfalls, all parties involved in data flow and information dissemination must ensure that the data and information are transferred and exchanged based on the following principles:

- reliable – authentic, accurate, and trustworthy; based on facts, records, documents, and reliable sources.
- consistent – measured and collected using rigorous standard definitions and methodology.
- timely – made available on time and refer to current (and not obsolete) situations.
- clear – presented in an easy- to-understand way, without distortion or ambiguity.
- complete – have all the required data, information and details.

Systematic school records management and careful management of responses to the annual school census questionnaire can play a decisive role in helping to minimize the pitfalls and ensure adherence to the principles above.[8]

The Ministry of Education may encounter the following pitfalls when communicating to decentralized education offices and schools the analysed data and indicators it has produced:

- insufficient information – not enough for understanding the situation nor for making sound decisions.
- information that is too general – not specific or detailed enough to highlight gaps, problems, issues and directions.
- irrelevant information – there may be a lot of information but little is of relevance.
- too much information – difficult for the user to find the key message and to interpret it.
- available only after a long span of time – the information has become out-of-date.
- no clear explanation of indicator concepts and limitations, and analytical methods used – users cannot understand what the indicator means and how they can use the key information that is conveyed by the indicator.

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8 See also Training Module A1.

Before producing, presenting and disseminating a piece of information, we must carefully consider **who will be interested in the information, for what purpose it may be used, and when, where and how it may be used.** This will help us determine the kind of information we need to produce, and how best to present and disseminate it so as to achieve maximum impact.

For example, school managers and district education officers want to compare their school or district with other schools and districts, but the tables and charts provided by the Ministry only present the national totals and by province. It will help if the Ministry computes comparable education indicators for each district and school and shares these, so school managers and district education officers can use the information to compare and improve their own performance.

When the Ministry of Education uses its computerized databases to generate a variety of indicators, tables and charts – and then distributes them to the provinces, districts, schools and the media – the quantity of information provided by the Ministry may overwhelm the users' capacity to understand and use the data. Much of the data may be of little interest or even irrelevant to many people, depending on their role or interest in the education system. Furthermore, it takes a lot of time and effort to sort through masses of data and indicators in order to find the key information. **Care must therefore be taken to avoid the problem of 'information overload' during information dissemination.**

In some countries, the Ministry of Education has solved the dilemma of trying to strike a balance between 'over-informing' and 'under-informing' stakeholders by **allowing direct access to public data through the Ministry of Education's website using flexible tools that make it easy for the visitor to search for and retrieve the information they need.** These systems may either provide pre-formatted tables,[9] or allow the visitor to flexibly generate tables and charts of the needed information.[10]

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9 See http://www.dise.in/

10 National Center for Education Statistics: Quickstats. (See http://nces.ed.gov/datalab/quickstats/createtable.aspx)
   Australian Bureau of Statistics: Australian CensusAtSchool. (See http://www.cas.abs.gov.au/cgi-local/cassampler.pl)

ACTIVITY 3

Review your experiences of managing the flow of data and dissemination of information, and then answer the following questions:

For school managers and personnel:

1. What difficulties have you faced while responding to the annual school censuses and responding to stakeholders' requests for information?

2. How would you rate the data and information reported and disseminated by your school in the table below, in terms of estimated percentage of data fulfilling the principles given above? Please add observations if any.

Principles	Percentage	Observations
Reliable		
Consistent		
Timely		
Clear		
Complete		

3. What can be done in order to improve the quantity and quality of the data and information reported and disseminated by your school?

4. What kind of feedback information would you like to receive from the Ministry of Education and local stakeholders?

For district and local education officers, school inspectors:

1. What difficulties have schools in your area encountered while responding to the annual school censuses and responding to stakeholders' requests for information?

2. How would you rate the data and information reported and disseminated by the schools in your area, in terms of estimated percentage of data fulfilling the principles given above? Add observations if any.

Principles	Percentage	Observations
Reliable		
Consistent		
Timely		
Clear		
Complete		

3. What can be done to improve the quantity and quality of the data and information reported and disseminated by the schools in your country/province?

4. What kind of feedback information would you like to receive from the Ministry of Education and the stakeholders in the local area?

ACTIVITY 3 CONTINUED

For central and provincial education administrators:

1. From the quality of data reported by the schools in response to the annual school censuses, what are the main difficulties schools in your country/province encounter?

2. How would you rate the data and information reported and disseminated by the schools in your country/province, in terms of estimated percentage of data fulfilling the principles given above? Please add observations if any.

Principles	Percentage	Observations
Reliable		
Consistent		
Timely		
Clear		
Complete		

3. What can be done to improve the quantity and quality of the data and information reported and disseminated by the schools in your country/province?

4. How should the Ministry of Education communicate analysed data, indicators and information to the districts and schools?

ACTIVITY 4

Compare and discuss the ratings given in the table in question 2 above in order to sum up the views on the quality of data and information that have been reported and/or disseminated within the education system in your country.

ACTIVITY 5

List, review and discuss the actions proposed in answers to question 3 above in order to identify the most frequently suggested actions, together with observations regarding when, who and how to implement each action.

ACTIVITY 6

Review the answers to question 4 above, compare the needs for feedback information which were expressed by the district education officers and school managers with what is suggested for the Ministry of Education in this section, and highlight the differences as well as possible solutions.

3.3 Channels for data and information flow

There are various channels through which data and information can flow, including:

a. **sending paper copies of the school census questionnaire form, school reports, indicator tables, analytical reports, brochures, information sheets and administrative circulars;**

b. **electronic transmission of questionnaire and data files on CD-ROMs, USB sticks or by email;**

c. **schools reporting data directly online using the Internet;**

d. **dissemination of feedback information using CD-ROMs/DVDs, USB sticks, emails, the web or mobile phone SMS.**

Depending on the availability of computer facilities, Internet connections and mobile phones, as well as staff capabilities, such vertical data and information flows may utilise a combination of the channels (a) to (d) above for different types of data and information.

3.3.1 Pros and cons

In many countries, information is usually shared using paper documents as described in (a) above, especially between schools and offices in local areas. The advantage of using paper-based documents is that most people are familiar with paper, whereas they may be uncomfortable with other methods of sharing data. **The main disadvantage is the intensive physical handling required for transferring paper documents and the need to take account of distance, mode of transportation and the time required to send the documents.** Furthermore, it involves the acquisition of quantities of paper, and additional costs of printing, distributing and collecting the completed school questionnaires and reports. Dissemination of processed and analysed information in paper form requires similar considerations of space, time and material resources needed.

In many countries, the Ministry of Education and some schools are equipped with computers and Internet access. More and more, school personnel are using computers and the Internet to exchange data and information with other schools and offices within the education system.

Items (b) to (d) above show that **electronic media such as emails and the Internet can multiply the quantity of data and information transmitted and received, and drastically reduce the time and physical effort required to transmit them.** For administrative and pedagogical purposes, policies and measures can be implemented to help schools to use computers and the Internet for transferring data and disseminating information. Recent experiences have shown that even if some schools do not possess computer equipment or Internet access, they can use the facilities in other nearby schools, local government offices, private homes, or Internet cafes. For those schools that do not have any such access, paper documents may continue to be used.

ACTIVITY 4

Find out about the availability and current pattern of use of different channels for data flow and information dissemination in your school, local area, district, province, or country. Then, answer the following questions:

For school managers and personnel:

1. Which channels can your school use to share information and data?

2. What kind of difficulties do you experience in your school while using the different channels?

3. What proportion of the staff in your school know how to use a computer and access the Internet?

4. How do you propose to improve the use of the different channels for data flow and information dissemination?

For district and local education officers, school inspectors:

1. Which channels can schools in your area use to share information and data? In what proportion?

2. What kind of difficulties do the schools in your area face while using the different channels?

3. What proportion of the staff in the schools in your area knows how to use a computer and access the Internet?

4. How do you propose to help the schools in your area to improve their use of the different channels for data flow and information dissemination?

For central and provincial education administrators:

1. What is the overall situation with regard to the use of different channels for data flow and information dissemination in the schools in your country/province?

2. What difficulties do the schools in your country/province face while using the different channels?

3. Overall, what proportion of the staff in schools in your country or province have the skills needed to operate a computer and access the Internet?

4. How do you propose to help the schools in your country/province to improve their use of different channels for data flow and information dissemination?

3.4 Communications for data quality assurance

Section 3.1 (d) above refers to a very important but often neglected vertical data flow. This occurs when the Ministry of Education takes **action to check and improve the quality of data that have been reported** by the schools. This happens when the annual school census returns are verified and processed at the Ministry of Education. Gaps, anomalies, and errors in the data may be identified for some schools during this process. The recommended practice is for the **Ministry of Education to quickly contact these schools and request them to:**

- **complete any data omissions;**
- **correct any data errors; and/or**
- **explain the data problems or deviations from standard definitions and practices.**

As can be seen in Section 6 in Training Module A2, **timely communications between the Ministry of Education and the schools are crucial for ensuring the overall quality and credibility of the data collected during the school census.** Such communications can help to ensure that, once a school receives the enquiry from the Ministry of Education regarding data omissions and errors, the school manager will organize detailed verification of the school records and other data sources in order to provide rapidly the requested corrections and/or explanations.

District education officers, local education officers and school inspectors can play a decisive role in this process, by ensuring the timeliness of reply and quality of data corrections from the schools. Taking advantage of their physical proximity and direct access to the schools, they can be informed and tasked by the Ministry of Education to quickly follow up on communications about data quality. They can also advise and help the school to organize effective data verification and respond in a timely and reliable manner.

In the case of communications on paper, the Ministry of Education can provide the district and local education officers and school inspectors with a copy of the enquiry that has been sent to the school, to specify the kind of data omissions, errors and explanations required. When using electronic media, these intermediate level education officers can be copied in the same way by email. As part of their regular contact with the schools, the district and local education officers can remind the schools of their need to act promptly to respond with the required data corrections.

If problems with data quality continue after the school has responded, the Ministry of Education may issue additional communications to request the school to take additional corrective actions. All such communications should be copied to the district and local education officers for follow-up action and support.

ACTIVITY 5

Find out about how communications and actions are organized in your country, province, district, or school in order to ensure data quality including what are the respective roles of different levels of the education administration. Then, answer the following questions:

For school managers and personnel:

1. Has your school ever been asked by the Ministry of Education to correct omissions and errors in the data you reported in response to the annual school census?

2. If yes, did the communication from the Ministry of Education clearly specify the omissions and errors? Have you been able to respond well to such requests? How did you do so?

3. If no, do you think this kind of communication is important and useful? Why?

4. What kinds of actions have been taken by the district or local education officers or inspector to remind and help your school to provide timely response to such requests?

For district and local education officers, school inspectors:

1. Have you ever received a copy of the communication from the Ministry of Education to a school in your area, asking the school to correct omissions and errors in the data they reported in the annual school census?

2. If yes, did the communication from the Ministry of Education clearly specify the omissions and errors? Were there instructions asking you to follow-up by reminding and helping the school to provide a timely response to the Ministry of Education? What actions did you take to help the school respond?

3. If no, do you think this kind of communication is important? Why?

For central and provincial education administrators:

1. Does the Ministry of Education systematically contact schools to ask them to correct omissions and errors in the data they reported in response to the annual school censuses?

2. If yes, what percentage of these schools responded well to such requests for corrections? How was the quality of such responses? Why didn't the other schools respond?

3. Are the district and local education offices and school inspectors informed and involved in reminding and helping the schools to provide timely responses? How effective have they been in such tasks? Please give examples.

4. If no, what does the Ministry of Education plan to do in order to improve data quality in the future?

3.5 Feed back analytical information and indicators, decisions and impact

Schools are required to report data to the Ministry of Education.[11] In turn, the Ministry of Education is responsible for analysing the data[12] and providing summaries of their analysis and indicators to the schools and education officers at decentralized levels. These **education officers and schools use the information to formulate policy, to plan and manage the delivery of educational services,[13] as well as to monitor and evaluate their performance compared to other schools and districts.** This two-way flow of information from schools to the Ministry of Education and back is an important mechanism for accountability within the education system. It also promotes informed decision-making at all levels of the education administration.

Using the data collected from schools, the Ministry of Education can produce a variety of feedback information for different purposes and target stakeholders, such as:

    a. **annual reports, indicator reports, news bulletins, media releases, brochures and posters** for publication and dissemination to a wide range of stakeholders and the general public**.**

    b. **thematic analytical reports and briefings** for reference by policy-makers, planners and administrators at different levels of the education administration.

    c. **provincial and district summaries comparing the districts and the schools in the district** for use in decentralized education planning and management, and for comparisons of school performance (see Example 1 below)

    d. **individual school summaries with calculated indicators compared to district/provincial/ national averages** for use in school management

Example 1. Summary education indicators by district for Lindak province

District	Intake rate	Enrolment ratio	Pupil-teacher ratio	Girls as % of total enrolment	Repetition rate	Dropout rate	Observations
Samla	66%	58%	43	38%	11%	7%	Remote area
Tochok	78%	75%	36	45%	8%	4%	Rural plain
Dagor	89%	81%	33	53%	5%	2%	Major city

As the Ministry of Education communicates more and more information and indicators to education administrators at all levels and promotes accountability, they are **expected to develop practices in systematically using information and indicators as a basis for informed decision-making.** The more they use the information, the more they will become aware of its usefulness and the need to strengthen competencies and capacities in collecting, analysing and using data and information in their work.

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11 See also Training Module A2.

12 See also Training Module A3.

13 See also Training Module A4.

ACTIVITY 6

Find out about what kind of feedback or information products, such as the ones listed in points (a) to (d) above, have been produced and disseminated, and then answer the following questions:

For school managers and personnel:

1. Have you ever received any feedback information from the central Ministry of Education or the provincial or district education department like the ones cited in (a) to (d) above? If yes, please indicate what you received.

2. Do you think such feedback or information is useful for better management of your school? If yes, which information is especially useful? If no, why?

3. More specifically, what would you like these feedback or information to present in terms of summary data, indicators and information?

For district and local education officers, school inspectors:

1. Have you ever received any feedback information products from the central Ministry of Education or provincial education department like the ones cited in (a) to (d) above? If yes, please indicate what you received.

2. Do you think such feedback or information is important for better management of the schools in your area? If yes, which kind of information is especially useful? If no, why?

3. More specifically, what would you like these feedback information products to present in terms of summary data, indicators and information?

For central and provincial education administrators:

1. Does the Ministry of Education systematically produce and disseminate feedback information products like the ones cited in (a) to (d) above to the provincial, district, local and school levels? If yes, what have you produced and disseminated? If no, why not?

2. What have been the reactions you received from the different levels of the education administration about the usefulness of each kind of feedback information products you disseminated?

3. What do you plan to do in order to further improve the production and dissemination of feedback or information to different levels of the education administration?

4 Horizontal information dissemination

Various stakeholders - including policy-makers, government department heads, relevant agencies/bodies, community leaders, parents, students and the general public - all want to know what is happening in the education system. There is a growing demand for schools to be accountable, both to higher levels of the educational administration as well as to local stakeholders. The same applies to education offices at different levels. **By actively sharing information, schools and other offices in the education system can bring education closer to their local communities in order to increase understanding and participation, and to mobilize their support to encourage a communal sense of All for Education.**[14]

Diagram 2. Horizontal information dissemination by level

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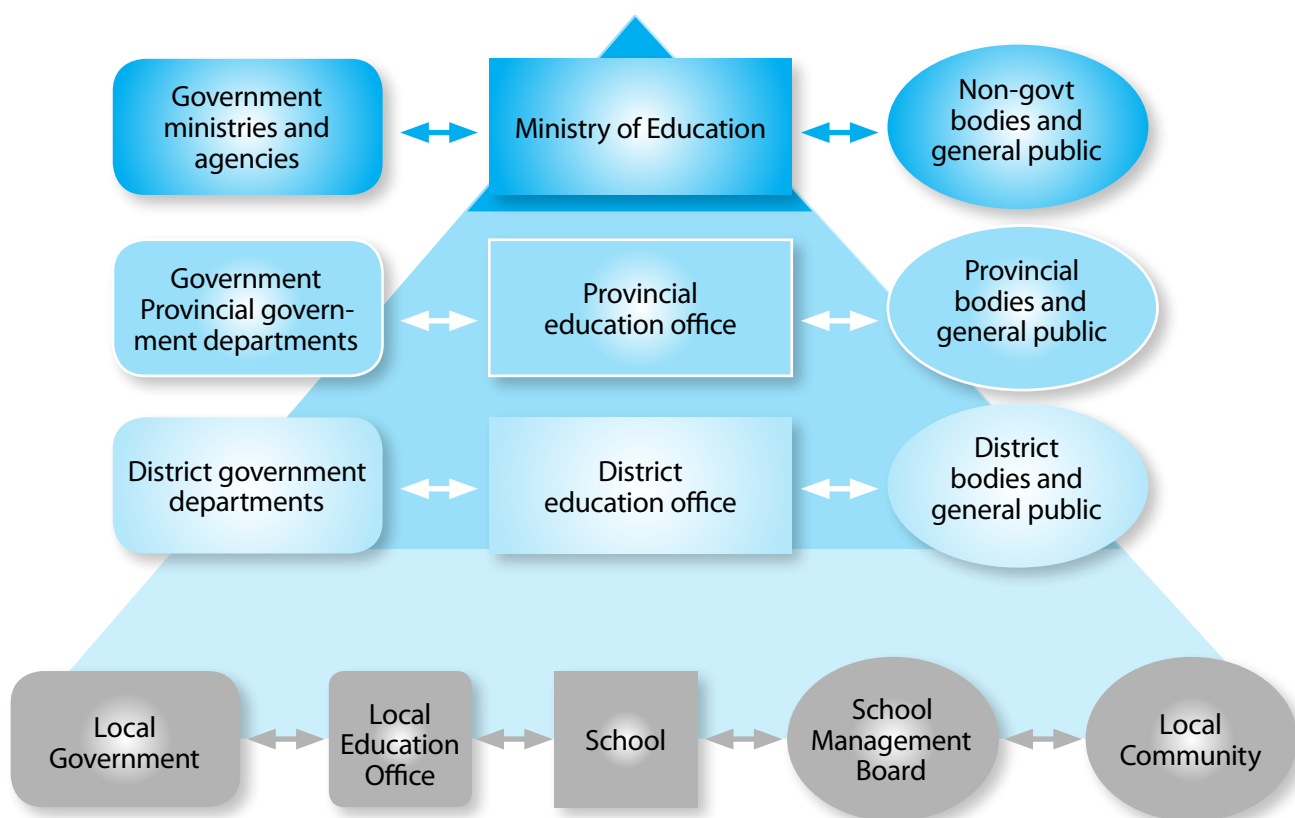
14 Brian J. Caldwell: The transformation of education through networking. (can be accessed at:
http://www.educationaltransformations.com.au/files/presentations/2004/et_transformations_of_education_through_networking.pdf)

For these reasons, all levels of the education administration, from individual schools to the Ministry of Education, must pay special attention to regularly disseminate information horizontally to the stakeholders at their respective levels (see Diagram 2 above).

The kind of tools to be used for information dissemination may include:

- **brochures/pamphlets/flyers** [15]
- **school profiles**
- **district/provincial education profiles**
- **annual reports**
- **special reports on a specific topic or theme**
- **summary tables, lists and charts**
- **information display on school boards and during community activities**
- **media releases**
- **Internet websites and by email**

The kind of information channel and communication tools to use depends upon the target audience and the purpose of sharing the information. At the school level, school managers may use the school records to produce school reports and various summary lists, tables and charts to inform the school management board[16] in order to mobilize and help them to actively participate in the school's planning, management and decision-making processes.

Selected parts of the report and summaries, together with general information about the school, can be incorporated into **brochures and pamphlets** for wider dissemination to the local community. Some tips about producing brochures are given in the textbox below and in the footnotes. Such brochures may be handed out during local or school events, and when the school manager and teachers meet with community leaders, parents and students.

Some schools **organize special days for visitors,** when they present summary information about the school, classes, teachers and students using displays and brochures. Copies of information brochures may also be provided to related local government departments and bodies, for them to serve as intermediaries for further distribution. These are some examples of good practices in general information dissemination by schools.

TIPS FOR PRODUCING EFFECTIVE BROCHURES:

- Most important information can be printed on six double-sided C-fold brochures
- Combine succinct text, graphics, photos, tables, etc.
- Use 2-4 colours and glossy paper if possible
- Consistently use same text font and colours
- Always print more copies than estimated

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15 For more information about producing effective brochures, see: About.com: Desktop publishing: Brochures. (See http://desktoppub. about.com/od/brochures/Brochures.htm) All graphic design: BROCHURE DESIGN TUTORIALS & TIPS & TEMPLATES. (See http://www.all-graphicdesign.com/graphicdesignarticles/brochuresgraphicdesign/brochuresdesigningtips.html)Chicago Brochure Design.(See http://www.dcfb.com/Pages/brochure-writing.html) Brochures Designs (See http://www.brochures-design.com/)

16 See also Section 7 in Training Module A1.

ACTIVITY 7

Find out about existing practices to disseminate information to stakeholders at respective levels, and answer the following questions:

For school managers and personnel:

1. Has your school produced and disseminated information to the school management board, parents-teachers association and other local stakeholders?

2. If yes, what kinds of information dissemination products/channels have you produced/used? To whom have you disseminated the information? How effective is each of these products/channels?

3. If no, do you plan to begin producing and disseminating information to the local stakeholders? What kind of information dissemination tools/channels do you intend to produce/use?

For district and local education officers, school inspectors:

1. Do the schools in your area systematically produce and disseminate information to their school management board, parents-teachers association and other local stakeholders? What have you done to promote and support such practices?

2. Have you produced and disseminated information to the stakeholders in your district? If yes, what kind of information dissemination products/channels have you produced/used? To whom have you disseminated the information? How effective is each of these products/channels?

3. If no, do you plan to begin producing and disseminating information to the stakeholders in your district? What kind of information dissemination products/channels do you intend to produce/use?

**For central and provincial education administrators:**

1. Does the Ministry of Education systematically produce and disseminate information to the stakeholders at the central and lower levels? If yes, what kind of information dissemination products/channels have you produced/used? To whom have you disseminated the information? How effectively is each of these products/channels?

2. If no, do you plan to begin producing and disseminating information to the stakeholders in your district? What kind of information dissemination products/channels do you intend to produce/use?

3. What can the Ministry of Education do to promote and support the practices of systematic information dissemination at all levels of the educational administration?

4.1 Improving school-community interactions through information dissemination and exchange

An added advantage of disseminating information to the local community and stakeholders is to facilitate the exchange of information and increase interactions for the mutual benefit of the school and the school's local community. **Active dissemination of information about the school can encourage local stakeholders to take interest in the school's activities, achievements and problems.** This can help to generate support from the local government and community. It can also encourage parents and guardians to send their children to school.

By opening channels for sharing information, local stakeholders will be encouraged to share other relevant information with the school's personnel, including:

- **local population dynamics and issues especially about disadvantaged 'unreached' children and adults**
- **economic prospects and their impact on education**
- **changes in production and employment patterns**
- **social issues affecting the schools**
- **emerging needs for learning**
- **families with children facing difficulties in attending school.**

Such information may be crucial for identifying the 'unreached' children and unmet learning needs in the local area, and for adjusting the priorities and improving management of the school to achieve Education for All.

ACTIVITY 8

Find out about the nature of existing data and information flow between the school and the local community, and answer the following questions:

For school managers and personnel:

1. Does your school frequently share information about the school with the local community and stakeholders? What kind of data and information do you share with them?

2. What kind of data and information flow exists between your school and the local community and stakeholders? What kind of information can you obtain from which local stakeholder? How? When?

3. What use do you make of the information obtained from the local stakeholders? How useful are such data and information? What are the problems with such information and its use?

4. What should be done in order to improve the processes of school-community interactions through information dissemination and sharing?

For district and local education officers, school inspectors:

1. Do the schools in your area frequently share information about the school with the local community and stakeholders? What kind of data and information do they share?

2. What kind of data and information flow exists between the schools in your area and their local community and stakeholders? What kind of information can they obtain from which local stakeholders? How? When?

3. How do schools in your area use the information obtained from their local stakeholders? How useful are such data and information? What are the problems with such information and its use?

4. What should be done in order to improve the processes of school-community interactions through data flow and information dissemination?

4.2 Information exchange and networking among schools

When schools share information with each other, such as school reports and performance indicators, it **promotes mutual learning** based on each other's experience and good practices. It also helps schools compare their performance with other schools, which often **motivates people to improve their own school's performance.**

Schools can exchange information by sharing school brochures, school profiles and school reports and engaging in discussions with personnel from other schools. This may occur face-to-face or using telephone, Internet or other telecommunications services. The district and provincial education offices can also help to promote and facilitate such dissemination and exchange of information among schools, for example by organizing meetings and distributing school brochures and reports.

Provincial and district summaries produced by the Ministry of Education[17] can be used to promote dialogues among the provinces, districts and schools in order to compare performance and issues encountered, identify important experiences, and learn from each other. Such summaries can include tables and charts of common indicators for use in comparing the performance of individual schools or districts, and generating exchange of experience.

ACTIVITY 9

Find out about existing practices to exchange information among the schools, and answer the following questions:

For school managers and personnel:

1. Does your school directly exchange information with other schools? If yes, what kind of information and how? If no, why not?
2. What benefits does your school obtain from exchanging information with other schools? Also, what have been the constraints?
3. How do you plan to improve information exchange with other schools?

For district and local education officers, school inspectors:

1. Do the schools in your area exchange information with other schools? If yes, what kind of information and how? If no, why not?
2. What has been your role in promoting and facilitating such information exchange among the schools in your area?
3. How do you plan to improve such information exchange among the schools in your area?

For central and provincial education administrators:

1. Does the Ministry of Education systematically promote and facilitate information exchange among the schools in your country/province?
2. How do you plan to improve such information exchange among the schools in your country/province?

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17 See Example 1 in Section 3.5.

4.3 Press and media releases

More and more, schools and education offices use the press and media coverage to communicate information to the general public in order to keep them informed and to mobilize their support [18] (See Picture 1).

Besides regularly distributing the latest school brochure and documented information to the media, school managers and education officers may **directly engage the media on the occasion of important school events or activities, or whenever there is a newsworthy piece of information or story to tell the public.** For example, a school open day, sports day, graduation day or other national commemorations such as Teachers' Day are all occasions for the school management to inform the media and the public in order to mobilize their participation and support. An interesting and meaningful happening or story with a class, a student or a teacher in the school can also be the topic of a separate media release.

To help the media to quickly and correctly write about and disseminate the information, **the school may write up its own media release article** (also known as a press release),[19] **and send it to the media agencies** for use. Here are some tips:

TIPS FOR WRITING MEDIA RELEASES:

■ Pick a good story

■ Use an interesting headline

■ Attractive writing covering the basic information: who, what, when, where, why, how.

■ If possible include quotes from persons involved and/or affected

■ Always end with your contact information (phone number, email, etc.)

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18 The John Lyon School: Press releases. (See http://www.johnlyon.org/content/category/4/13/49/)

19 Media College.com: Press releases format. (See http://www.mediacollege.com/journalism/press-release/format.html)

Picture 1: Effects of Media Release

Family says: "We should continue to encourage him for further study."

Local community members say: "Children are the future of our community. Let's raise funds for supporting the school."

Media Release on April 5, 2010

"Sam Lee, a grade 4 student in the Yongsei Primary School won an award in the national mathematics competition…………"

District education officer says "Let's interview him and his school, so that we can take measures to bring ripple effects to other schools."

School manager in another school thinks "How can we improve the quality of education in our school?"

4.4 Using the Internet

With the spread of access to the Internet, schools and district education offices can disseminate information by either setting up their own website to disseminate information,[20] or making use of other existing websites such as those of the Ministry of Education [21] and of local government departments (see samples below and websites in the footnote).

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20 There are various examples of school website, such as Bangkok Patana School (see http://www.patana.ac.th/), Jakarta International School (see http://www.jisedu.org/site/main.php?sWidth=1366&sHeight=768,), etc.

21 Singapore Ministry of Education web site. (See http://www.moe.gov.sg/)

Bangladesh Ministry of Educaiton web site. (See http://www.moedu.gov.bd/)

Philippines Department of Education web site. (See http://www.deped.gov.ph/)

Sample of school website 1[22]

In some countries, the Ministry of Education provides technical assistance to help individual schools design, build and maintain their own website. In other countries, school managers are asked to fill in a standard template with information about their school. This information is then incorporated and posted on the Ministry of Education's website on behalf of the school.

There are many books and Internet-based resources that give simple instructions about how to set up a website.[23] We can also learn about mistakes to avoid while designing our own website, from poorly designed sites.[24]

Sample of school website 2[25]

A website should be easy to update, and should be updated regularly. Visitors will quickly lose interest in your site if they see lots of out-dated information. **A person should be trained and assigned to systematically gather the latest information and to regularly update the website.** This person must regularly look for relevant news, events, information and stories, and to use them to update the site.

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22 Singapore Nanyang Primary School web site. (see http://www.nyps.moe.edu.sg/)

23 See: http://www.w3.org/2002/03/tutorials#webdesign_htmlcss

24 See http://www.topdesignmag.com/20-examples-of-bad-web-design/

25 New Zealand Ngatea Primary School web site. (see http://www.ngatea.school.nz/)

ACTIVITY 10

Find out about the state of information dissemination and flow between the education system and other stakeholders. In particular, find out what kind of information are disseminated, how are they disseminated, what are the experiences and lessons learnt, and then answer the following questions:

For school managers and personnel:

1. Does your school prepare media releases whenever there is a worthwhile occasion, event or story about what is happening at your school? If yes, how frequently do you do this? If no, why not?

2. Does your school disseminate information using a website? If yes, are you using your own website or some other website? If no, why not?

3. What kind of feedback have you received regarding the information you disseminated?

4. Do you think such information dissemination helps to strengthen the linkages between your school and the local community as well as with other schools? Why?

5. What do you think should be done in order to further improve information dissemination?

For district and local education officers, school inspectors:

1. Do the schools in your area prepare media releases whenever there is a worthwhile occasion, event or story to tell the public about what is happening at their school? If yes, how frequently? If no, why not?

2. Do the schools in your area disseminate information using a website? If yes, are they using their own website or some other website? If no, why not?

3. What kind of feedback have you received regarding the information the schools disseminated?

4. Do you think such information dissemination helps to strengthen the linkages between the schools in your area and the local community as well as with other schools? Why?

5. What do you think should be done in order to further improve information dissemination?

For central and provincial education administrators:

1. Do the schools in your country/province prepare media releases when there is a worthwhile occasion, event or story about what is happening at their school? If yes, how frequently? If no, why not?

2. Do the schools in your country/province disseminate information using a website? If yes, are they using their own website or some other website? If no, why not?

3. What kind of feedback have you received regarding the information the schools in your country/province disseminated?

4. Do you think such information dissemination helps to strengthen the linkages between the schools in your country/province and the local community as well as with other schools? Why?

5. What do you think should be done in order to further improve information dissemination?

5 Data and information flow within a school

Well-managed data and information flow within a school can help to strengthen mutual understanding and collaboration among all concerned persons. Within a school environment, data and information can flow among four main groups of people (see Diagram 3 below):

- **school manager**
- **administrative personnel**
- **teachers**
- **students**

Diagram 3. Data and information flow within a school
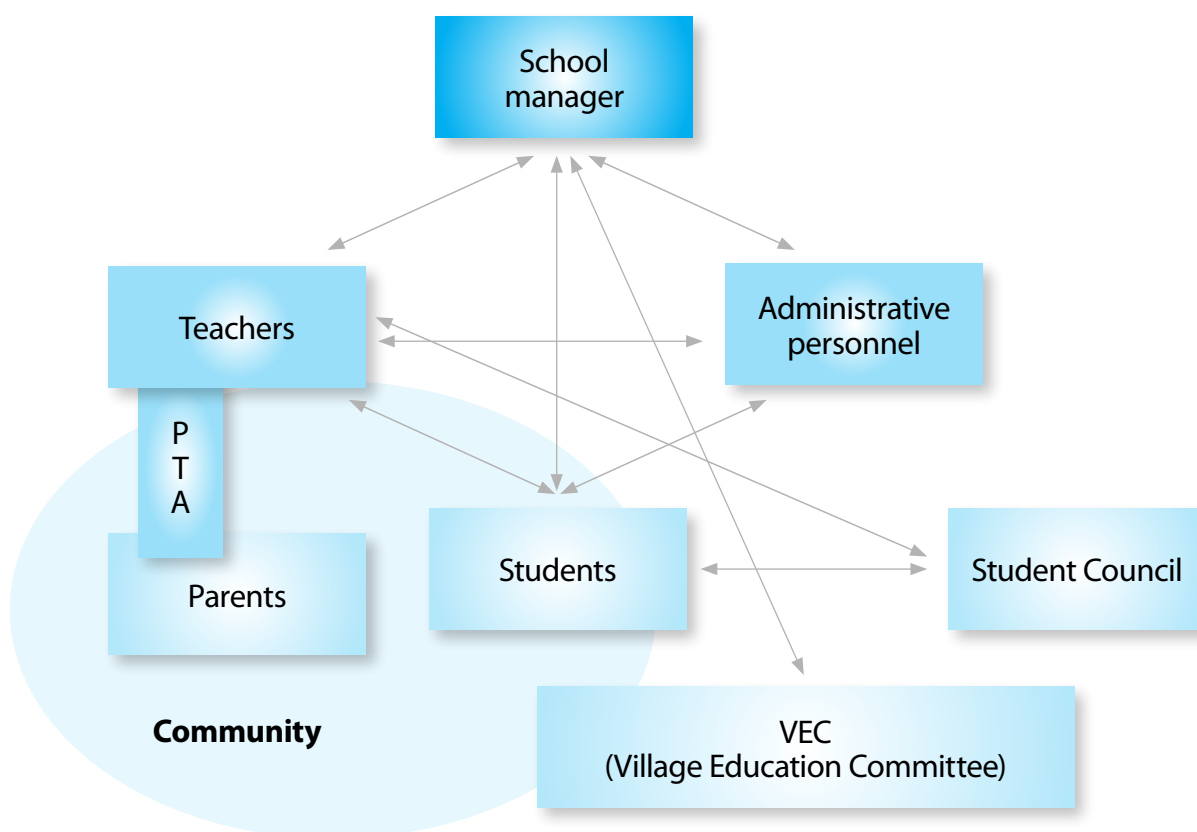
The flow of information may also extend to immediate stakeholder bodies, such as the School Management Board, Parent-Teacher Association, Village Education Committee, and Student Council (if it exists).

5.1 In-school data flow

The flow of data within a school begins when a teacher or administrative personnel collects and records data, such as information about a student, a class, a school activity and/or a financial transaction related to, for example, the purchase of a piece of equipment. In doing so, they create a school record which will be a tool to carry the flow of data. Initially, the data on record will be transferred to the school management office for organized storage, and for authorized persons to access the records and use the data and information.[26]

Data flow through the use of school records usually occurs following schedules that are based on the calendar of school activities, as well as according to defined rules and procedures that govern access to and usage of information within a school.[27] Frequent two-way communications can occur between the school manager and other school personnel who are responsible for maintaining and updating specific school records to ensure that the schedules and procedures are respected.

When it comes to accessing and using the data in the school records, further interactions between the school manager, teachers and students can occur regarding the timeliness, reliability and completeness of the data, and the way these data are recorded, updated and used. Depending on the type of recorded data and information (e.g., data on student attendance and performance, or data on the use of various facilities and teaching/learning materials), such in-school interactions can help in many instances to further improve the quality of the recorded data.

Special attention must be paid to ensure that no unauthorized persons have access to school records, especially those that contain personal or financial details.[28] Rules and procedures about which school personnel can access which record must be clearly defined and enforced. In principle, people should only have access to the records they need in order to perform their duties. For example, the school manager and administrative personnel usually have access to all school records, whereas the teachers may only access records about the classes and students they teach. Students may be allowed to access their own student records and test/examination results.

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26 See also Training Module A1.

27 See Sections 3.1 to 3.9 in Module A1.

28 See Sections 3.1 to 3.9 in Module A1.

5.2 Information dissemination within a school

Although certain school records may not be directly accessible because they contain personal or financial data, the data in the records can be used to produce various summaries that contain non-confidential or aggregated information that can be shared within the school and with the public. Such summaries can be created by extracting, listing or tallying the data from individual school records[29] and included in information products[30] such as:

- **summary tables of the number of students by grade, class, sex, age or performance.**
- **summary lists of students who participate in various school activities**
- **graphs depicting changes over the past years in terms of student enrolment and the number of classes and teachers**
- **charts showing the structure of school personnel and of the school management board**
- **school calendar indicating major school activities and events.**

Besides actual counts, these summary tables and graphs can show various school and class indicators in the form of percentages, ratios, growth rates, etc. These information products can be posted on the school board, and/or incorporated into brochures and the school's website. They can also be copied and distributed either on paper or electronically to the teachers, students and community members.

Example 2: Summary table on the school board

Average score of midterm exam

Class A	Class B	Class C
77	79	73

We made it! We should continue to study hard.

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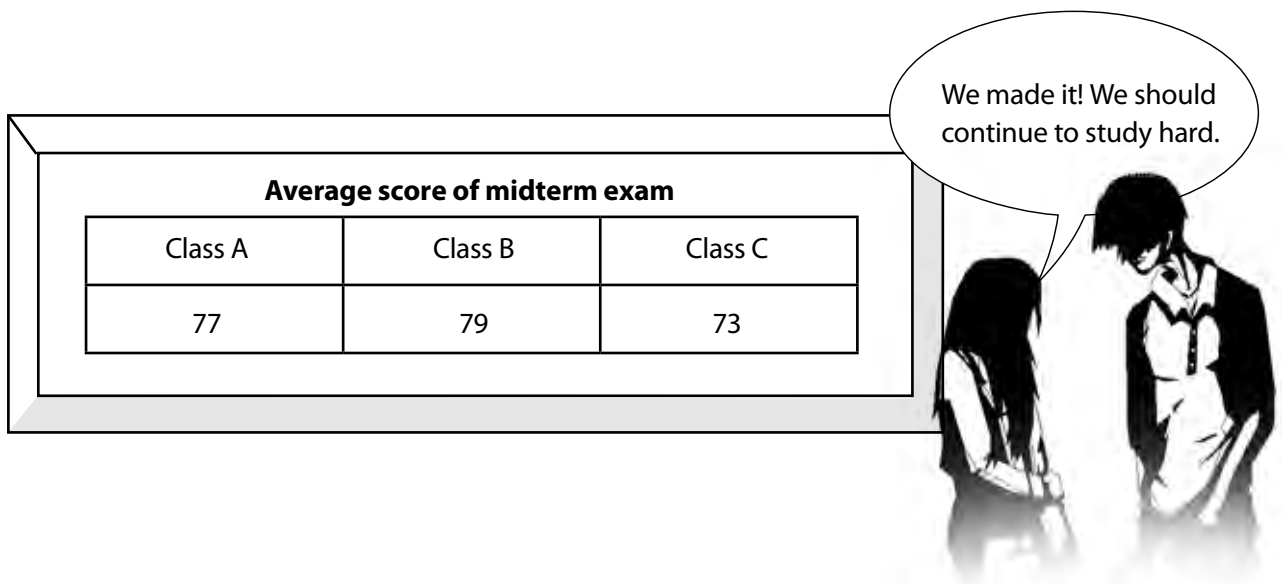
29 See also Section 4.2 in Training Module A2.
30 See also Section 7 in Training Module A1.

5.3 Managing data and information flow in school

Efforts to improve the flow and usage of data and information within the school can help to build the capacity among school personnel for evidence-based management. The ultimate goal is to form a culture that encourages the active production, flow and use of data for informed decision-making in school.

It is the role and responsibility of the school manager to set rules, procedures and schedules to govern the flow of data and maximize their usage. Such rules and schedules may govern:

- communication between the school manager and teachers – these rules specify the kind of data teachers must collect and record, and the feedback the school manager must provide to the teachers such as indicators regarding students' attendance rates, performance by subject and behaviour, and other issues that need the teacher's attention.

- administration personnel-teacher communication – in terms of the flow of data between teachers and the administration personnel about the school's operations, class and student management, and the use and administration of the school's facilities, school personnel, materials and financial resources.

- school manager-administrative personnel communication – about the summary information to be regularly produced and submitted by the administrative personnel on the functioning of the school, and the feedback instructions and queries to be provided by the school manager.

- communications among teachers – teachers communicate with each other about issues such as class scheduling, coordination of contents and methods, teacher absence and replacement, student characteristics, performance, behaviour and issues.

ACTIVITY 11

Discuss with school managers, teachers and administrative personnel to identify issues about data flow and dissemination of information within schools, good practices and lessons learned. Then, answer the following questions:

For school managers and personnel:

1. How does the flow of data and information function within your school compare to what has been mentioned in the sections above?
2. What kind of problems and issues do you face regarding data flow and information dissemination within your school? Why?
3. What action can be taken to improve data and information flow within your school? How do you propose to go about implementing such action?

For district and local education officers, school inspectors:

1. How does the flow of data and information function within the schools in your area as compared to what has been mentioned in the sections above?
2. What kind of problems and issues do the schools in your area face regarding data flow and information dissemination within your school? Why?
3. What action can be taken to improve data and information flow within the schools in your area? How do you propose to go about helping the schools in your area to implement such action?

For central and provincial education administrators:

1. What can be done at your level to improve data and information flow within the schools in your country/province? How do you propose to go about implementing such action?

ACTIVITY 12

Discuss with other school managers and personnel about designing various kinds of in-school information dissemination tools including those indicated in Section 4.2

ACTIVITY 13

Discuss with other school managers and personnel about how best to define rules and regulations, procedures and schedules governing data flow, access and information dissemination within the school.

6 Quiz

Q1. Which of the following are correct about information?
(Please tick all correct answers)

❏ Better to keep information to oneself and not to share it.

❏ With growing demand of information, quality of it becomes worse.

❏ Information has more value when it is shared and used by more people.

❏ Information includes indicators.

❏ It is necessary to choose carefully whether this information correct or not.

❏ The more people have access to information, the less information will be generated by them.

❏ Information is provided by only media.

❏ The more people have access to and use information, the more information and knowledge will be generated, shared and used.

❏ Information can contribute to upgrade our skills and knowledge.

❏ Information dissemination can be implemented across the education systems.

Q2. Education for All (EFA) is about:
(Please tick all correct answers)

❏ Improving life standard

❏ Spreading information and knowledge to all

❏ Enhancing gender equality

❏ Decentralization in education

❏ Making sure that every person finds a job

❏ Increasing schools ownership

❏ Giving everyone the abilities to learn and to apply knowledge and skills

❏ Teaching people to teach

❏ Promoting community based education

❏ Building schools everywhere

Q3. The reasons for promoting data flow and information dissemination within the education system are:

(Please tick all correct answers)

❏ To keep students and teachers busy

❏ To keep all stakeholders informed about what is happening in education

❏ To discuss with education stakeholders

❏ To promote decentralization in education

❏ To confuse stakeholders and to discourage them from interfering with the education system

❏ To improve transparency and accountability

❏ To upload skills and knowledge about education

❏ To generate better understanding and support from the stakeholders

❏ To make concern for education issues we have

❏ To exchange information with other schools, regions, or countries

Q4. Data and information flow within the education administration should be:

(Please tick all correct answers)

❏ Managed carefully not to get out information to others

❏ Mainly for the Ministry of Education to give orders to the districts and schools

❏ Benefiting all levels including communities

❏ Data and information only flow upwards from the schools to the Ministry of Education

❏ 2-way both upwards and downwards

❏ Benefiting to improve education policy

❏ Benefiting only the central and provincial education authorities

❏ Sharing within same level

❏ Benefiting all levels of the education administration down to the school level

❏ Dealt with government mainly

Q5. Which are the five principles for data flow and information dissemination?
(Please fill in the blanks marked by the dotted lines)

• Reliable

• ....

• timely

• ....

• as complete as possible

• ....

Q6. What can be the pitfalls when the Ministry of Education feeds back processed and analysed information and indicators to decentralized education offices and the schools?
(Please fill in the blanks marked by the dotted lines)

• too little information

• ....

• too much information

• ....

• available only after a long span of time

• ....

Q7. What kind of benefits are there to exchange information among schools?
(Please tick all correct answers)

❏ To facilitate comparison of school performance indicators
❏ To get example to improve school policy
❏ To identify issues each school has
❏ To encourage students and teachers to move from school to school
❏ To enhance teachers motivation
❏ To promote mutual learning of salient experiences, good practices and knowhow
❏ To facilitate accountability by schools
❏ To obtain more funding for all the schools
❏ To generate networking among schools and sharing of teaching-learning resources
❏ To know school characteristics each other

Q8. What kind of information feedback can be provided to the schools and district education offices?
(Please fill in the blanks marked by the dotted lines)

• Annual report, indicator report, news bulletins, media releases, brochures and posters

• ....

• Provincial and district summaries comparing the districts and schools

• ....

• Individual school summaries with calculated indicators compared to district/provincial/
   national averages

Q9. The channels and tools for information dissemination can include:
(Please fill in the blanks marked by the dotted lines)

• Brochures/pamphlets/flyers

• ....

• District/provincial education profiles

• Annual reports

• Special reports on a specific topic or theme

• ....

• ....

• Internet websites and by email

Q10. In-school data and information flow mainly involves:
(Please tick all correct answers)

❏ the school manager
❏ District officer
❏ administrative personnel
❏ parents
❏ Ministry of Education
❏ community leaders
❏ teachers
❏ local government departments
❏ students
❏ police

7 Further studies

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Glossary

■ **Achievement**

Performance on standardized tests or examinations that measure knowledge or competence acquired in a specific area. The term is sometimes used as an indication of education quality within an education system or when comparing a group of schools or students.

....

■ **Attendance**

The act of attending a class in school. This can apply to students or teachers. Class attendance sheets are used to record student attendance.

....

■ **Capital expenditure on education**

Expenditure for assets that last longer than one year. It includes expenditure for construction, renovation and major repairs of buildings and the purchase of durable equipment or vehicles.

....

■ **Census**

An official survey involving the whole population within a defined system. For example, a school census involves all the schools within the education system.

....

■ **Child labor**

Children working at age below the official age to start work that deprives them of their childhood, their potential and their dignity, and that is harmful to their physical and mental development.

....

■ **Class**

A group of pupils or students who receive the same instruction in common. Students from different grades may be present in the same class, as occurs in one-teacher or two-teacher schools, or in a multi-grade class. Conversely, a school may have a number of classes for the same grade.

....

■ **Closed-ended question**

A form of question which can normally be answered using a simple "yes" or "no" or a selection from multiple choices. (Cf. Open-ended question)

....

■ **Co-curricular activity**

Activities in or outside of school that are organized to accompany and reinforce the learning in class.

....

■ **Completion rate**

Proportion of pupils in the final grade who successfully completed his/her studies at the school.

....

■ **Current expenditure on education**

Expenditure for goods and services consumed within the current year and which will be renewed if needed in the following year. It includes expenditure on: personnel salaries, pensions and benefits; contracted or purchased services; other sources including books and teaching materials; welfare services; and other current expenditure, such as subsidies to students and households, furniture and minor equipment, minor repairs, fuel, telecommunications, travel, insurance and rents.

....

■ **Data**

Facts, statistics, or items of information from which conclusions may be drawn. In this module, data refers to the educational data mainly recorded in school and within the education management information system.

....

■ **Database**

A collection of related information organized for storage usually in computer which enables easy search, retrieval, processing, analysis and production of information.

....

■ **Data collection**

Data collection is a term used to describe a process of preparing and obtaining/gathering specific information regarding a phenomenon or an activity in order to keep the collected information on record, to use it to make decisions about important issues, and to pass on information to others.

....

■ **Data collection instrument**

Data collection or measuring tools such as questionnaires and tests including their instruction manuals or guides.

....

■ **Data quality**

Data quality refers to the degree of relevance, reliability and accuracy exhibited by the data in relation to the portrayal of the actual phenomena.

....

■ **Data verification**

A process of cross-checking the completeness and accuracy of the data or information provided by the respondents. This process is important for controlling the quality of data in completed questionnaires.

....

■ **Decentralized**

Withdrawn from a center or place of concentration; especially having power or function dispersed from a central to local authorities. In this module, it refers to decentralized levels of the education administration such as at the provincial, district or local levels, and to decentralized processes of planning and management of education.

....

■ Dissemination

Normally it means to spread broadly as though sowing seeds. In this module, it means to distribute and spread education information within the education system and to related stakeholders.

■ Drop-out

Pupil or student who leaves school definitively without completing a given school year.

■ Dropout rate by grade

Proportion of pupils from a cohort enrolled in a given grade at a given school year who are no longer enrolled in the following school year.

■ Early childhood care and education (ECCE)

Programmes that, in addition to providing children with care, offer a structured and purposeful set of learning activities either in a formal institution (pre-primary or ISCED 0) or as part of a non-formal child development programme. ECCE programmes are normally designed for children from age 3 and include organized learning activities that constitute, on average, the equivalent of at least 2 hours per day and 100 days per year.

■ Education Management and Information System (EMIS)

A system that collects, processes, stores, analyses and disseminates data and information in an organized manner about the functioning of the education system, aiming at informing the stakeholders and to support evidence-based policy-making, planning, management and monitoring of education.

■ Enrolment

Number of pupils or students registered to attend a school or an educational programme.

■ Entrance age

Age at which pupils or students would enter a given level of education or programme.

■ Extra-curricular activity

Activities organized by a school for students that are not part of the regular curriculum.

■ Grade

Stage of instruction within a level of education which spans one complete school year, the completion of which enables enrolment into the next higher grade or level of education.

■ Incentives

Rewards offered to incite to action or greater effort. In education, incentives such as school lunch, school uniform, free textbooks, etc. are offered to motivate students to attend school regularly and to improve their academic performance.

■ Indicator

A piece of data or information which indicates a state or changes. In these modules, it refers to data and information with statistical values that give an indication of the situation with regard to education.

....

■ Information

Information is a term with many meanings depending on context, but is as a rule closely related to such concepts as meaning, knowledge, instruction, communication, representation, and mental stimulus.

....

■ In-service teacher training

In-service training is further education for currently employed teachers to help them develop or upgrade their knowledge and skills.

....

■ In-take

New entrants to the first grade of primary education.

....

■ In-transfer

Pupils who moved to a specific school from another school during a specific school year.

....

■ Learning needs

Basic learning needs refer to the essential tools for learning (e.g. literacy, oral expression, numeracy, problem-solving) as well as basic learning content (e.g. knowledge, skills, values and attitudes) that individuals should acquire in order to survive, develop personal capacities, live and work in dignity, participate in development, improve quality of life, make informed decisions and continue the learning process. The scope of basic learning needs, and how they should be met, varies by country and culture, and changes over time. The other needs refer to the needs from pupils besides the learning needs. It can be the needs for financial support, the needs for law assistance, the needs for understanding, etc. The same as the basic learning needs, the other needs also depend on the social, economical, political and cultural context of each region/country.

....

■ Marginalized

Generally, it refers to being separated from the rest of the society, forced to occupy the fringes and edges and not to be at the centre of things. In education, marginalized children are often those who do not attend school and those who have difficulties learning at school.

....

■ Missing data

Questions and data queries which are not answered, without any footnote nor explanation.

....

■ Monitoring

The act to observe, record, keep track of the state of a system. In this module, it means to keep track of changes in the education system by collecting data and analyzing education indicators.

....

■ **Monitoring EFA**

Collecting data and analysing indicators to check progress in achieving the six EFA goals, and to identify shortfalls and issues.

....

■ **Mother tongue**

A language of one's mother. It is used to refer to the language that a person learned at home (usually from the parents).

....

■ **Multi-grade class**

Pupils of more than one grade are taught in the same class.

....

■ **National language**

Language spoken by a large part of the population of a country, which may or may not be designated an office language (i.e., a language designated by law to be employed in the public domain).

....

■ **Net Enrolment Ratio (NER)**

Number of pupils in the official age-group to attend a given level of education who are enrolled in that level, expressed as a percentage of the total population in that same age-group.

....

■ **New entrants**

Pupils entering a given level of education for the first time; this data can be derived by subtracting from enrolment in the first grade of the level, the number of repeaters.

....

■ **New entrants to the first grade of primary education with ECCE experience**

Number of new entrants to the first grade of primary school who have attended the equivalent of at least 200 hours of organized ECCE programmes, expressed as a percentage of the total number of new entrants to the first grade.

....

■ **Open-ended question**

Open-ended questions allow the respondent to formulate their own answer in their own way, whereas closed questions make the respondent choose between pre-defined answers. (Cf. Close-ended question)

....

■ **Outcomes**

End result of learning in school. This refers mainly to the graduates who received a degree, diploma, certificate or other forms of recognition on completing an educational programme or course of study in a university, college, or school, or students who have successfully completed a level or grade of education.

....

■ **Out-of-school children**

Children in the official primary school age range who are not enrolled to attend any school or organized educational programme.

....

■ Over-age enrolment

Pupils or students enrolled at a given level or grade of education who are of the age above the corresponding official school age.

....

■ Parent-teacher association

An organization run jointly by teachers and the parents of students at a school which tries to help and support the school, especially by arranging for and organizing activities that raise funds and support for the school.

....

■ Pre-service teacher training

Training of teachers prior to their employment as a teacher.

....

■ Primary education

Programmes normally designed on a unit or project basis to give pupils a sound basic education in reading, writing and mathematics, and an elementary understanding of subjects such as history, geography, natural sciences, social sciences, art and music. Religious instruction may also be featured. These subjects serve to develop pupils' ability to obtain and use information they need about their home, community or country.

....

■ Pupil/teacher ratio

Number of pupils for each teacher in a school, a grade or a class.

....

■ Qualified teachers

Teachers who fulfill established norms in terms of minimum academic qualification (e.g. highest level of education completed) and/or teacher training received.

....

■ Quality of education

The quality of education is determined by the quality of the: (a) learning environment, (b) teaching-learning process, and (c) learning outcomes in terms of knowledge, skills, attitude and abilities imparted.

....

■ Record management

A practice of maintaining the records of an organization from the time they are created up to their eventual disposal. This may include updating, classifying, storing, securing, and destruction (or in some cases, archival preservation) of records.

....

■ Repeaters

Pupils enrolled in the same grade of education as in the previous year.

....

■ Percentage of repeaters

Number of pupils enrolled in the same grade as in the previous year, expressed as a percentage of the total enrolment in that grade or level.

....

■ **Repetition rate by grade**

Proportion of pupils from a cohort enrolled in a given grade at a given school year who attend the same grade in the following school year.

....

■ **Retention**

This term refers to students continuing their studies in school, without dropping out.

....

■ **School-age population**

Population of the official age-group to attend a given level of education as indicated by a theoretical entrance age and duration.

....

■ **School census**

An official survey covering and involving all schools within the education system.

....

■ **School-entrance age population**

Population at the official age to enter Grade 1 of primary school.

....

■ **Secondary education**

Programme comprising lower secondary and upper secondary education. Lower secondary education (ISCED 2) is generally designed to continue the basic programmes of the primary level but the teaching is typically more subject focused, requiring more specialized teachers for each subject area. The end of this level often coincides with the end of compulsory education. In upper secondary education (ISCED 3), the final stage of secondary education in most countries, instruction is often organized even more along subject lines and teachers typically need a higher or more subject-specific qualification than at ISCED level 2.

....

■ **School Records**

School records are documented information evidences of what a school does.

....

■ **School Records Management System (SRMS)**

A School Records Management System (SRMS) systematically record, store and update data and information in the form of school records at school so as to enable easy search, retrieval, analysis and use of the stored data and information.

....

■ **Teachers**

Persons employed full time or part time in an official capacity to guide and direct the learning experience of pupils and students. Education personnel who have no active teaching duties (e.g. headmasters, headmistresses or principals who do not teach) and persons who work occasionally or in a voluntary capacity are excluded.

....

■ Teacher's salaries

Teachers' salaries are expressed as statutory salaries, which are scheduled salaries according to official pay scales. Reported salaries are defined as the sum of wages (total sum of money paid by the employer for the labour supplied) minus the employer's contribution to social security and pension funding (according to existing salary scales). Bonuses that constitute a regular part of the salary (such as holidays or regional bonuses) are included in the figures. Additional bonuses (for example, remuneration for teachers in remote areas, for participating in school improvement projects or special activities, or for exceptional performance) are excluded from the reported gross salaries.

■ Teaching aid

The materials or tools used by the teacher to support teaching/learning process at school.

■ Under-age enrolment

Pupils or students enrolled at a given level or grade of education who are of the age below the corresponding official school age.

■ Unreached

There is no exact definition of "unreached". Generally, it refers to the people who are not attend school or education due to various socioeconomic- cultural-political factors, or who are under difficult circumstances due to natural or man-made disasters. More importantly, who can be considered as the "unreached" should depend on each region/country's context.

■ Untrained teacher

Teachers who have not received the minimum organized teacher-training (pre-service and/or in-service) required for teaching at the relevant level and grade in the given country

SYSTEMATIC MONITORING OF EDUCATION FOR ALL

TRAINING MODULES FOR ASIA-PACIFIC

Education for All (EFA) cannot be achieved unless there is All for Education. As we approach the 2015 target to achieve the six EFA goals, more systematic collection, analysis, dissemination and use of EFA data and indicators at the Ministry of Education, provincial and district education offices and schools will be instrumental in informing stakeholders at all levels of progress and issues and in mobilizing their active participation and support. With this, comes a transparent and accountable education system. These training modules A1-A5 build on EFA monitoring experiences over the past twenty years, and can be used by education administrators at all levels and school managers to strengthen capacities in managing school records and collecting, analysing, disseminating and using school data. These together with a parallel series of training modules B1-B5 on the analysis of education data from population censuses and household surveys will be e-published and available on www.unescobkk.org.