United Nations
Educational, Scientific and
Cultural Organization

Sustainable
Development
Goals

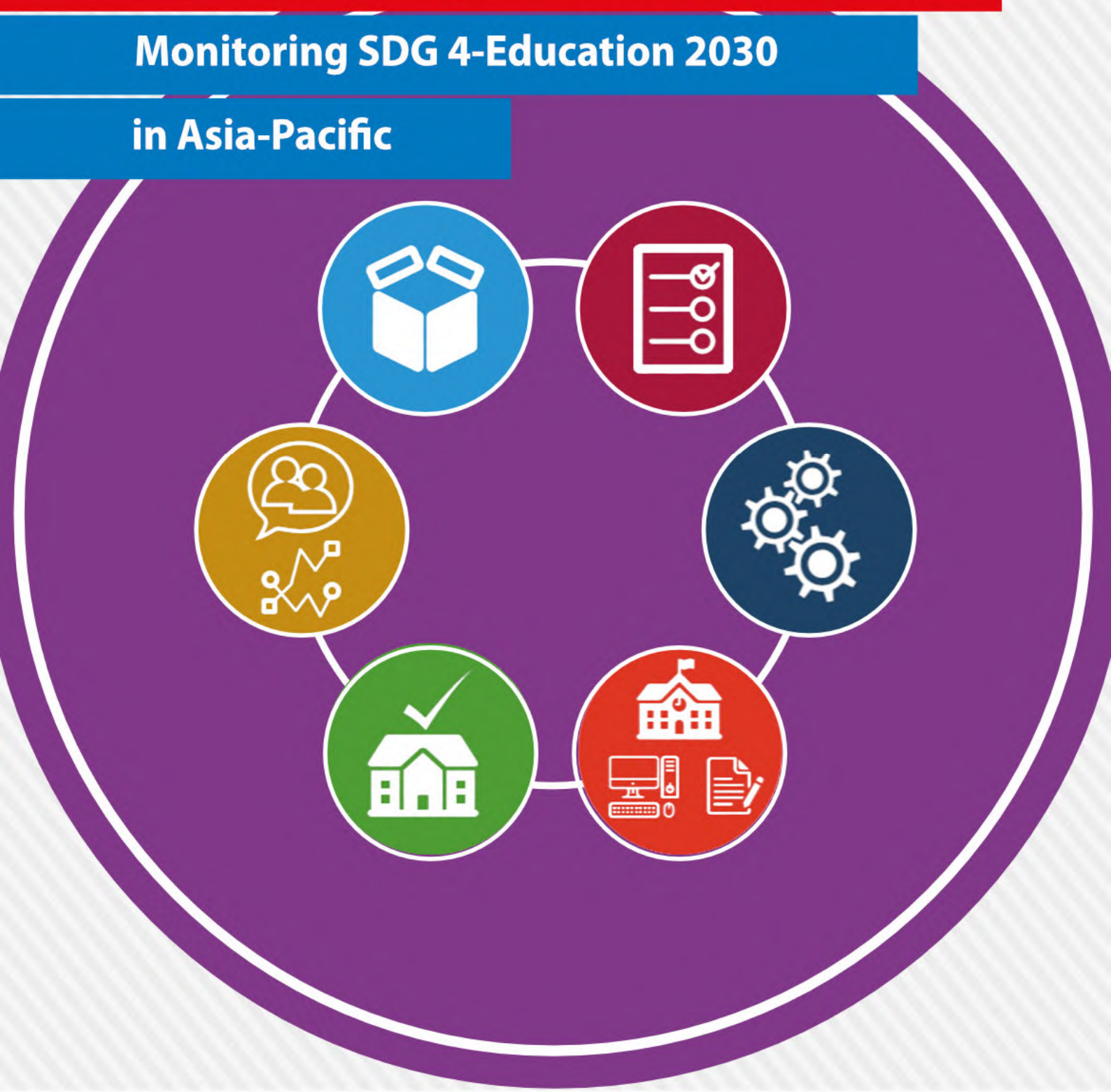
Bangkok Office
Asia and Pacific Regional Bureau
for Education

unicef
for every child

Trainer's Guide for the Regional Capacity Development on

Monitoring SDG 4-Education 2030

in Asia-Pacific



Education 2030

UNESCO Education Sector

Education is UNESCO's top priority because it is a basic human right and the foundation on which to build peace and drive sustainable development. UNESCO is the United Nations' specialized agency for education and the Education Sector provides global and regional leadership in education, strengthens national education systems and responds to contemporary global challenges through education with a special focus on gender equality and Africa.

United Nations
Educational, Scientific and
Cultural Organization

Education
Sector

The Global Education 2030 Agenda

UNESCO, as the United Nations' specialized agency for education, is entrusted to lead and coordinate the Education 2030 Agenda, which is part of a global movement to eradicate poverty through 17 Sustainable Development Goals by 2030. Education, essential to achieve all of these goals, has its own dedicated Goal 4, which aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all." The Education 2030 Framework for Action provides guidance for the implementation of this ambitious goal and commitments.

Education
2030

Trainer's Guide
for the Regional Capacity Development on
Monitoring SDG 4-Education 2030
in Asia-Pacific

This publication has been jointly developed by UNESCO Bangkok and UNICEF East Asia and Pacific Regional Office (EAPRO). For any inquiries, please contact:

UNESCO Bangkok

920 Sukhumvit Rd,
Phra Khanong,
Khlong Toei,
Bangkok, 10110,
Thailand

Phone: +66 2 391 0577
Web: https://bangkok.unesco.org/contact

UNICEF EAPRO

19 Pra Athit Rd,
Chana Songkhram,
Pra Nakhon,
Bangkok,10200,
Thailand

Phone: +66 2 356 9499
Email: asiapacificinfo@unicef.org

Table of Contents

1. Foreword 2
2. How to Use this Guide 3
   2.1. The Guide's Purpose 4
   2.2. Training Preparatory Advice 10
3. The Training Modules 15

Module: Background and Introduction 16

Module 1: Monitoring SDG 4 - Global and Thematic Indicators and International Comparable Education Statistics 18

Module 2: Developing a National Education Indicator Framework and Strategies for Education Statistics 33

Module 3: Improving Education Management Information Systems (EMIS) 52

Module 4: Household Surveys to Monitor SDG 4 62

Module 5: Data Analysis and Results Communication 72

Module 6: Monitoring Challenges Beyond Traditional Aspects of Education 84

(OPTIONAL) Final Session: Planning the Way Forward 96

1. Foreword

The Education 2030 Agenda has amplified the understanding of education spanning early childhood to lifelong adult learning and centralising equity and quality in education delivery. The Education 2030 Agenda requires robust monitoring, reporting and evaluating indicators across all education sectors. In order for countries to respond to the increased demand on data, efficient quality mechanism need to be in place for the statistical monitoring, evaluation and reporting on Education 2030.

For said purpose, within the framework of 'Enhancing Statistical Capacities for Education – Towards Strengthening SDG (Sustainable Development Goal) 4 Monitoring in Asia and Pacific' and as a part of the Regional Monitoring Mechanism, UNESCO Bangkok and UNICEF East Asia and Pacific Regional Office (EAPRO), with substantive technical input and guidance from UIS Regional Office for Asia and the Pacific, jointly developed the *Regional Capacity Development Resource Book on Monitoring SDG4-Education 2030 in Asia-Pacific*.

The present *Trainer's Guide for the Regional Capacity Development on Monitoring of SDG 4-Education 2030 in Asia-Pacific* has been created to further facilitate making effective use of the *Resource Book* and to support Member States in the effective organization of national and subnational training programmes. This *Trainer´s Guide* is a response to the need for facilitating the knowledge and information delivery in countries of Asia and the Pacific by means of professional trainings. The *Trainer's Guide* is accompanied with a set of presentations and other tools to be used by professional trainers in national or subnational training programmes.

2. How to Use this Guide

2.1. The Guide's Purpose

The *Trainer's Guide* has been prepared for professional trainers to deliver training on the systematic monitoring requirements of the SDG 4-Education 2030 Agenda in countries of Asia and the Pacific. By following the modular contents of the *Regional Capacity Development Resource Book on Monitoring SDG 4-Education 2030 in Asia-Pacific*, this document guides trainers to design and implement relevant trainings by providing resource materials with which to familiarise audiences from the education and statistical communities with monitoring, analysis and reporting of Sustainable Development Goal 4.

This guide follows the themes from the *Regional Capacity Development Resource Book on Monitoring SDG 4-Education 2030 in Asia-Pacific*, and it is meant to be used in conjunction with the Resource Book as the main reference. However, depending on the training purposes, not all topics are needed for a training. While the Resource Book has been written to guide the reader through one theme at a time, the training can and should be tailored.

The *Trainer's Guide* should be understood as a session template with the essential topics to cover, depending on the audience, upon which the trainer can build and expand by him- or herself. The guide has been designed to make training sessions participatory and experiential, with opportunities for peer learning through the question and answer sessions, case studies, group and individual exercises and assessment activities. Instructions are provided to indicate how and when to use the provided materials in the corresponding exercises.

This guide is accompanied by further resource material, consisting of presentation packages, suggested exercises (included in this guide and the presentation packages and this guide) and further references to be utilised as information material as deemed needed to achieve the following goals:

- To aid trainers in delivering standardised trainings on the topics of SDG 4, monitoring, statistics and reporting; and
- To provide a structural template for the two main target audiences at the regional and country levels.

This guide may find updating in the future to reflect ongoing developments if and when the need arises.

The *Regional Capacity Development Resource Book on Monitoring SDG 4-Education 2030 in Asia-Pacific* as a whole or by module is available for download from the UNESCO Bangkok website:

- https://bangkok.unesco.org/content/regional-capacity-development-resource-book-monitoring-sdg4-education-2030-asia-pacific

The supplementary and ready-made presentation packages can be downloaded from the Asia-Pacific SDG 4-Education 2030 Knowledge Portal:

- https://apa.sdg4education2030.org/resources/monitoring-sdg-4-ready-made-training-presentations

Overview of the structure of this guide book in relation to the underlying Resource Book

Resource Book Reference Module	Training Session	Training Unit
Background and Introduction		Introduction: The fundamentals of SDG 4–Education 2030
Module 1: Monitoring SDG 4 - Global and Thematic Indicators and International Comparable Education Statistics		Unit 1.1: SDG 4 monitoring: global and thematic Indicators Unit 1.2: SDG 4 International data collection and reporting
Module 2: Developing a National Education Indicator Framework and Strategies for Education Statistics	**Part A: Developing a National Education Indicator Framework**	Unit 2.1: Strengthening institutional capacities to monitor SDG 4 Unit 2.2: Developing a National Indicators Framework (NIF) Unit 2.3: Mapping data sources and identifying data gaps
	Part B: Data Quality Assessments and the Development of Strategies for Education Statistics	Unit 2.4: Assessments of education data quality – Principles and methodologies Unit 2.5: Reporting DQA results
	Part C: Development of Strategies for Education Statistics	Unit 2.6: Results-based management for the NSDES Unit 2.7: The connection between NSDES and national statistics
Module 3: Improving Education Management Information Systems (EMIS)		Unit 3.1: Understanding the Education Management Information System (EMIS) Unit 3.2: A good EMIS Unit 3.3: The role of EMIS in monitoring SDG 4 Unit 3.4: A School Management Information System (SMIS) to strengthen the EMIS Unit 3.5: Data innovations and EMIS
Module 4: Household Surveys to Monitor SDG 4		Unit 4.1: The role of household surveys and population censuses in monitoring SDG 4 Unit 4.2: Education data in household surveys Unit 4.3: Leveraging institutional mechanisms to utilize surveys and censuses for SDG 4
Module 5: Data Analysis and Results Communication	**Part A: The Purpose of Analysis and Education Indicators**	Unit 5.1: The purpose of data analysis Unit 5.2: Education indicator frameworks Unit 5.3: Calculating education indicators
	Part B: Conducting Analysis and Communicating the Results	Unit 5.4: Statistical data analyses Unit 5.5: Communicating the analysis results
Module 6: Monitoring Challenges Beyond Traditional Aspects of Education		Unit 6.1: Assessment of learning achievements Unit 6.2: Monitoring education and training for work Unit 6.3: Monitoring Education for Sustainable Development and Global Citizenship Unit 6.4: Inclusive learning spaces
(OPTIONAL) Final Session: Planning the Way Forward		

Note: The modules and units can be downloaded via their website by clicking on each item.

Target User of the Guide (Trainer)

As a set of knowledge resource and training material, this guide is meant to be used for training by individuals with professional training experience and the following knowledge, skills and competencies as a basic requirement to deliver a training:

- Technical knowledge in education monitoring and evaluation, and
- A solid understanding of SDG 4, its concepts and monitoring framework.

Target Groups of the Training (Trainees)

The sessions of the guide have been built on the themes of the *Regional Capacity Development Resource Book* and can be used flexibly for a variety of audiences. The three main audiences, however, can be understood as:

1. *Policy- and decision-makers* at the national and sub-national level (e.g. education ministers and other high officials related to any of the education sectors, as well as provincial/district executives)
2. *Technical and operational leads* at a ministry of education as well as sub-national education offices (e.g. planners, statisticians, supervisors, inspectors, school principals, etc.)
3. *Technical and operational staff* at a national statistical office and other education related institutions (e.g. statisticians, researchers, analysts, programme staff, etc.)

Trainers shall adapt the training materials for the respective audiences, depending on the context and needs of each group.

Training Elements

A training will typically be comprised of:

Presentations, which are meant to introduce a topic and facilitate subsequent discussions and activities. They will typically be delivered at the beginning of each training session; the trainer is meant to cover the important points he or she considers most needed in a specific context.

Exercises, which are meant to instil a sense of working collaboratively and across institutions while sharing knowledge and experiences, exercising the practical application of SDG 4 monitoring tools, and to find possible solutions and strategies conjointly. It is at the discretion of the trainer at what stage of a session to carry out an exercise and whether to create alternative or additional exercises. The activities are meant to verify if learning has been accomplished.

(OPTIONAL) Final Session: Planning the Way Forward. The final activity is meant to prepare how teams will work together on monitoring SDG 4 after the training, in terms of creating strategies, institutional arrangements, funding, coordination and communication mechanisms. Ideally, this exercise leads to setting up working groups for continuation after the training.

Intended Training Modalities and Schedule

The length of the training will depend on the targeted audiences and their needs and the required topics chosen for the training. To the trainer's discretion, he or she may add more days, depending on whether a topic needs to be discussed in-depth. As an indication, between three (3) and ten (10) days are recommended for:

1. *Policy- and decision-makers* at the national and sub-national level (e.g. education ministers and other high officials related to any of the education sectors, as well as provincial/district executives)
2. *Technical and operational leads* at a ministry of education as well as sub-national education offices (e.g. planners, statisticians, supervisors, inspectors, school principals, etc.)
3. *Technical and operational staff* at a national statistical office and other education related institutions (e.g. statisticians, researchers, analysts, programme staff, etc.)

The following overview outlines the recommended session approaches and indicates the intended length of each module. As can be seen, the training can be customised by choosing individual units, with each their corresponding training material. Due to their contents, Modules 2 and 5 are better delivered in sub-sessions, as indicated.

Module: Background and Introduction

Sub-Session:	n/a
Training Units:	Introduction to SDG 4 – Education 2030 & Modular Content Overview
Estimated Duration:	2h

Module 1: Monitoring SDG 4 - Global and Thematic Indicators and International Comparable Education Statistics

Sub-Session:	n/a
Training Units:	Unit 1.1.: SDG 4 monitoring: global and thematic Indicators Unit 1.2: SDG 4 international data collection and reporting Unit 1.3: International Standard Classification for Education (ISCED)
Estimated Duration:	3h to 3.5h

Module 2: Developing a National Education Indicator Framework and Strategies for Education Statistics

Sub-Session:	**Part A: Developing a National Education Indicator Framework**
Training Units:	Unit 2.1. Strengthening Institutional Capacities to Monitor SDG 4 Unit 2.2. Developing a National Indicators Framework (NIF) Unit 2.3. Mapping data sources and identifying data gaps
Estimated Duration:	4h to 4.5h

Sub-Session:	**Part B: Data Quality Assessments**
Training Units:	Unit 2.4 Assessments of education data quality – Principles and methodologies Unit 2.5. Reporting the DQA results
Estimated Duration:	2h to 2.5h

Sub-Session:	**Part C: Development of Strategies for Education Statistics**
Training Units:	Unit 2.6. Results-based management for the NSDES Unit 2.7. The connection between NSDES and national statistics
Estimated Duration:	3h to 3.5h

Module 3: Improving Education Management Information Systems (EMIS)

Sub-Session:	n/a
Training Units:	Unit 3.1. Understanding the Education Management Information System (EMIS) Unit 3.2: A good EMIS Unit 3.3: The role of EMIS in monitoring SDG 4 Unit 3.4: A School Management Information System (SMIS) to strengthen the EMIS Unit 3.5: Data innovations and EMIS
Estimated Duration:	4h to 4.5h

Module 4: Household Surveys to Monitor SDG 4

Sub-Session:	n/a
Training Units:	Unit 4.1. The role of household surveys and population censuses in monitoring SDG 4 Unit 4.2 Education data in household surveys Unit 4.3. Leveraging institutional mechanisms to utilize surveys and censuses for SDG 4
Estimated Duration:	3h to 3.5h

Module 5: Data Analysis and Results Communication

Sub-Session:	**Part A: The Purpose of Analysis and Education Indicators**
Training Units:	Unit 5.1. The purpose of data analysis Unit 5.2. Education indicator frameworks Unit 5.3. Education indicators
Estimated Duration:	3.5h to 4h
Sub-Session:	**Part B: Conducting Analysis and Communicating the Results**
Training Units:	Unit 5.5. Statistical data analyses Unit 5.6. Communicating the analysis results
Estimated Duration:	3.5h to 4h

Module 6: Monitoring Challenges Beyond Traditional Aspects of Education

Sub-Session:	n/a
Training Units:	Unit 6.1. Assessment of learning achievements Unit 6.2. Monitoring education and training for work Unit 6.3. Monitoring Education for Sustainable Development and Global Citizenship Unit 6.4. Inclusive learning spaces
Estimated Duration:	2h to 2.5h

(OPTIONAL) Final Session: Planning the Way Forward

Sub-Session:	n/a
Training Units:	n/a
Estimated Duration:	2h to 3h

2.2. Training Preparatory Advice

General Session Structure

This guide book and the accompanying resources do not cover all contents of the *Regional Capacity Development Resource Book* in-depths as not to replicate the undergirding resource book in a different format. The trainer is very much encouraged to create additional material, including presentations, handouts and further material, for the purpose of customising the delivery of the training for his/her respective target audience. Likewise, the trainer should explore the *Resource Book* for contents he or she considers relevant to add.

Every training unit can be approached flexibly with the provided material as well as additional material as considered necessary by the trainer or requested by training participants in advance of the training. The basic flow of each unit can, however, be approached by using the provided presentation files as introductory material to the topic, with additional explanations by the trainer and country-appropriate examples, followed by a training exercise also as provided with this guide. By doing so, it is advised to consider planning additional time where the participants can raise concerns, issues and other questions for clarification.

As for the presentation files, some slides have additional notes embedded at the bottom, which are meant to help explain the contents or directions as to where to find more information. Please do check for those comments.

Handouts may need to be printed with graphics and tables from the respective module for the purpose of reusing them during the training. Further material considered relevant may also be provided at the trainer's discretion. In any case, we generally discourage from printing any material to support protecting the environment.

Additional Exercise Approaches

Although the guide offers exercises with which to assess the participants understanding of the subject matter, additional exercises can be carried out by the trainer. A generic approach may be:

- On a group basis individual handouts and materials, such as pens, stick notes, tape and pins can be prepared in advance of the training.
- Assessment instructions can be distributed to the groups to allow them to discuss their solution(s) or be screened to be read for all.
- Allow the groups to write down their answers and post them on a board, wall or flat table, separated by the corresponding topics their answers are to address.
- Plan for two or three presentations to be given by the groups each time you carry out and assessment (or one of the exercises as proposed in the guide). The remaining groups shall compare their solutions and raise issues or concerns afterwards.
- A world café format can be applied where the participants will go from group to group to read and/or discuss the solutions of another group. Questions about a solution by another group can be explained by the group in that moment or after the café by means of a brief presentation for all.

Virtual Training Delivery

As important it is to deliver a training face-to-face for the purpose of engaging participants in hands-on activities with all their senses and in direct exchange with other participants to establish a sense of community among them, delivering a training through virtual information and communication technologies should also be considered.

The training sessions can be delivered live with online communication tools, such as ZOOM, Microsoft Teams or Skype/Skype for Business, Slack, Miro and many more popular programmes. These programmes can also be used for file sharing and live presentation. It must be ensured that participants also know how to manoeuvre these programmes.

Presentations may also be recorded and uploaded for viewing, such as on the popular YouTube or Vimeo, but also other providers offer solutions, such as Dacast, IBM Cloud Video, Kaltura and many more. Each of the platforms will likely require some time to get familiar with each their different interfaces, as well as ensuring that the targeted participants are able to use those platforms.

Notice, the longer your training, the less likely that participants are willing to follow an online live or recorded training. Especially when it spans many days. In such cases, it can be considered whether the training is best delivered in intervals on a weekly basis with one or two days of training.

Data Sources for the Training

Some of the training units require looking at data sources, analyse and calculate data. For this purpose, the participants and/or the trainer should bring raw data to the training which can be readily used for the respective purpose.

Notice that this does require a greater time preparation. It is advised to ask all participants at least one week ahead of the training. This way, chances are greater that relevant data will be at hand during the training.

Also pay attention to the data possibly being disaggregated by, for example, gender, disability, location, socio-economic status, ethnic or linguistic affiliation, migration background, professional qualifications, and others as required for monitoring students, teachers and the infrastructure. This serves as a reminder, which is an intrinsic part of the training, that SDG 4 requires disaggregate data for equity analyses.

We highly suggest the following approach:

1. To request education planners and monitors, and individuals who work in statistical capacities to bring education data, at best produced by their respective ministries or departments. The trainer should bring alternative data, in case no data was possible to be brought by the participants.
2. To provide education sector data for policy makers and general education stakeholders. The trainer can in addition ask whether the participants have access to data and to bring it to the training, too.

Overview of data sources on education and their relevant contents (variables)

Data sources	Relevant variables to be collected
Population censuses	• Literacy • School attendance • Fields of study • Population size by age • Student information on sex, age, schooling status, grade, field of study, residence, disability, language, socio-economic status etc.
Household (or other) sample surveys	• Literacy and educational attainment • Other specific subjects (reasons for drop-out, parents', teachers', communities' expectations or opinions) • Student information on sex, age, schooling status, grade, field of study, residence, disability, language, socio-economic status etc.
Periodic school surveys	• Student information on sex, age, schooling status, grade, field of study, residence, disability, language, socio-economic status etc. • Conditions of schools, equipment, facilities, etc.
Administrative files	• Educational expenditures • Teaching and other staff by age, qualification, status, etc. • Examination results • Student information on sex, age, schooling status, grade, field of study, residence, disability, language, socio-economic status etc

Country Case Material

Throughout the *Regional Capacity Development Resource Book on Monitoring SDG 4-Education 2030 in Asia-Pacific*, some country cases have been inserted that can be used as discussion and exploration content for situations other than prescribed in this guide. Depending on the need, stimulating and critical questions can be designed around these country cases for additional exercise material.

Module 2: Developing a National Education Indicator Framework and Strategies for Education Statistics

- Case Study: Managing education data in Pakistan (page 52)

Module 3: Improving Education Management Information Systems (EMIS)

- Case Study: Fiji FEMIS/LANA – Example of a developed and effective integrated and decentralized EMIS (page 106)
- Case Study: Case study: Including invisible children in Malaysia's Sabah region (page 118)
- Case Study: SMIS in Nepal using the Flash Report System (page 131)

Module 4: Household Surveys to Monitor SDG 4

- Case Study: Indonesia – Utilizing Multiple Sources of Data, including Household and Special Surveys, for Effective SDG4 Monitoring (page 183)

Module 5: Data Analysis and Results Communication

- Case Study: Unified District Information System for Education and Student Database Management Information System – India (page 237)
- Case Study: The benefit of feeding back data analyses to the community – Bangladesh report cards (239)

Making all Material Accessible

In addition to face-to-face or virtual training delivery, the participants as well as other individuals may be interested in accessing any and all material which intended for a training. The undergirding *Resource Book* and the general training presentation files can be retrieved from the above provided website.

Any changes to the presentation files with additional explanations and examples by the trainer should be made accessible by the trainer, too.

Intended Training Outcomes

Outlined as a Know-Do-Feel framework, the intended outcomes of the training are synthesized by each module's learning purpose below. The framework can be understood as a guidepost for a trainer on the contents and their outcomes, which aids to gauge whether learning has sufficiently been achieved.

The framework breaks down the inputs, the processes and the behaviour that is aimed to be achieved at the end of each module and serves an overview to how participants are meant to "feel" after completing a module.

Know-Do-Feel Approach

Reference	KNOW	DO	FEEL
Background & Introduction	To know the interconnectedness of SDG 4 with other SDGs	Plenary discussion on the transition from EFA, MDGs to SDGs – what has changed and how does it impact you?	**Enabled** to discuss the meaningfulness and obligations of the Agenda 2030 and SDG 4 with other stakeholders **Confident** to undertake a monitoring task of SDG4 in a systematic manner
Module 1	To know the global and thematic monitoring framework of SDG 4, its indicators, concepts and methodologies	Group discussion and reporting on the indicators relevant in the country context and existence of data sources Trainer-led discussion on the importance of standardising education programmes Group-led quiz on assigning potential data sources to areas of monitoring in education	
Module 2	To know and understand the development of the National Education Indicator Framework and explain the process of preparing National Strategies for the Development of Education Statistics	Group work on assessing the availability of national indicators relevant for SDG 4 monitoring Group work on assessing the availability of data sources to populate the required indicators (of the previous exercise) Group work on completing the data quality assessment matrix Group work on prioritising data quality assessment recommendations Group work on developing a goal for the National Strategies for the Development of Education Statistics	**Enabled** to develop the National Education Indicator Framework and strategies for education statistics **Confident** to explain the process of developing an indicator framework and the strategic approach
Module 3	To know about and familiarize oneself with the management information systems in education	Plenary discussion on "What is your understanding or experience with 'EMIS'?" Case studies and group work on characterising a good EMIS system to monitor SDG 4	**Confident** to use EMIS and SMIS for SDG 4 data collection **Motivated** to involve relevant stakeholders **Aware** of quality factors for effective monitoring through EMIS
Module 4	To be familiar with the information obtainable from household surveys for education monitoring and the cross-institutional collaboration required	Survey exercise on filling in the education section in the Multiple Indicator Cluster Survey Plenary discussion on education data in household surveys Plenary discussion on issues and challenges with household surveys in your country	**Enlightened** about the information that can be retrieved through surveys **Motivated** to synergise the educational information in administrative and household survey collections

Reference	KNOW	DO	FEEL
Module 5	To gain a higher understanding on statistical education indicators and experience in the computation	Individual exercise on identifying the kind of education indicators from a system and service perspective Group exercise on calculating education indicators Exercise on the interpretation of education (SDG 4) indicators Plenary exercise on the differences between the mean, the median and the mode	**Confident** to select, distinguish and interpret important indicators **Competent** in calculating descriptive indicators **Aware** of meaningful analysis techniques
Module 6	To examine some of the key challenges of the SDG 4-Education 2030 Agenda and the important aspects for monitoring them	Group exercise on practicing the 1974 Recommendation concerning ESD and GCED	**Motivated** to address key challenges for SDG 4 in the own country **Aware** of the monitoring challenges and means of information to deal with them **Assured** in the necessity to work across institutions
Final Session: Planning the Way Forward	To prepare how participants will work together on monitoring SDG 4 after the training	Working group setup for arrangements on producing national education and SDG 4 indicators cross-institutionally	**Motivated** and **optimistic** about setting up country-level working groups to continue collaborating after the training.

3. The Training Modules

Module: Background and Introduction

About this Module

The main focus of the Background and Introduction module is on monitoring SDG 4 but before going into a deep dive on this topic, it provides an overview of the SDGs and their history and context before focusing on SDG 4.

Objective

The objective of this module, as the name suggests, is to provide some fundamental and introductory information around the Agenda 2030 – Sustainable Development Goals, the Member States commitment to the agenda, and, therein, the relevance of SDG 4 on Education for other SDGs.

Learning Outcome

After completing the training from this module, the participants are able to:

- comprehend the commitment of their countries to the Agenda 2030, and
- can reconstruct the interrelatedness among the SDGs with SDG 4.

Topics to Address

- The Education 2030 Framework for Action
- Comparison of global education agendas
- Sustainable Development Goal 4 and its interconnectedness with the SDGs
- The challenges in monitoring SDG 4
- The basic systemic considerations for implementing SDG 4

Resource Book Chapter

- *Module: Background and Introduction*
  (click to open and download)

Introductory Unit: Introduction to SDG 4 – Education 2030 & Modular Content Overview

Presentation

- Introduction to SDG 4 – Education 2030 & Modular Content Overview

Handout files

Consider providing handouts with the graphics and tables from this module (see the Resource Book) for the purpose of reusing them during the remaining training, such as:

- Comparison of Global Education Agendas
- SDG 4-Education 2030 Targets and Policy Commitments for Actions/Outcomes
- The SDGs intersecting with SDG 4 Targets
- Education related targets and indicators in other SDGs
- SDGs are connected: Centrality of Education

It is at the trainer's discretion to print any handouts from the above as well as additional handouts if necessary.

Further Material

None

Exercise

Topic	**From EFA, MDGs to SDGs – what has changed and how does it impact you?**
Modality	Discussion
Time	30min to 60min
Instructions	As an open plenary, as part of the presentation or after, the following questions for the participants are meant to set the right mindset for the upcoming training. Think about: • In your perspective, how does SDG 4 enhance what was achieved in the MDGs? • How does this impact your country? • What can be done to improve the attainment of SDG 4 goals?

Note: some answers may be derived from participating in the training itself. The trainer can pinpoint to the relevant upcoming training session for the answer.

Module 1: Monitoring SDG 4 - Global and Thematic Indicators and International Comparable Education Statistics

About this Module

It is important for countries and its relevant personnel involved in education statistics and monitoring to understand the SDG 4 global and thematic indicators. Countries need to monitor and report on different levels, which concerns in particular the international comparable level. Aligning national and international data production is key for comparable reporting and drawing conclusions about one's own country.

Objective

This module is meant to explain the global and thematic framework within in which SDG 4 on Education operates, the indicators used for measuring progress as well as the concepts and methodologies which constitute the framework and its indicators.

Learning Outcome

After completing this module, learners will have acquired the following learning outcomes:

- Able to explain the global and thematic monitoring framework on SDG 4;
- Able to define the SDG 4 indicators and their methodologies for quality data production;
- Able to discuss international education statistics and their processes.

Topics to Address

The following topics are covered in this module:

- Monitoring SDG 4, the global and thematic indicator framework;
- Understanding SDG 4 indicators, their concepts and methodologies;
- Producing and reporting internationally comparable education data at the regional and global levels.
- The International Standard Classification of Education

Resource Book Chapter

- *Module 1: Monitoring SDG 4 - Global and Thematic Indicators and International Comparable Education Statistics*
  (click to open and download)

Unit 1.1: Global and Thematic Indicators

Presentation

- Unit 1.1. Global and Thematic Indicators

Handouts

The following handouts can be provided to the participants, and are included in this guide on the subsequent pages:

- Indicators of SDG 4 and their definitions
- Data quality assessment criteria
- Example of a metadata page

Indicators of SDG 4 and their definitions

4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes		
Learning	4.1.1	Proportion of children/young people in Grades 2/3 at the end of primary and at the end of lower secondary achieving at least a minimum proficiency level in reading and mathematics.
Completion*	4.1.2	Completion rate (primary, lower secondary, upper secondary).
Learning	4.1.3	Administration of nationally-representative learning assessments in the early grades of primary (2/3), at the end of primary and at the end of lower secondary.
Completion	4.1.4	Gross intake ratio to the last grade (primary, lower secondary).
Participation	4.1.5	Out-of-school rate (primary, lower secondary, upper secondary).
	4.1.6	Percentage of over-age children (primary, lower secondary).
Provision	4.1.7	Number of years of free and compulsory primary and secondary education guaranteed in legal frameworks.
4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education		
Readiness	4.2.1	Proportion of children under five years who are developmentally on track in health, learning, psychosocial well-being.
Participation	4.2.2	Participation rate in organized learning (one year before the official primary education entry age).
Readiness	4.2.3	Percentage of children under five years of age experiencing positive and stimulating home learning environments.
Participation	4.2.4	Gross early childhood education enrolment ratio in (a) pre-primary education; and (b) early childhood educational development programmes.
Provision	4.2.5	Number of years of free and compulsory pre-primary education guaranteed in legal frameworks.
4.3 By 2030, ensure equal access for all women and men to an affordable and quality technical, vocational and tertiary education, including university		
Participation	4.3.1	Participation rate youth and adults in a given age-range in formal and non-formal education and training in the previous 12 months, by type of programme.
	4.3.2	Gross enrolment ratio for tertiary education.
	4.3.3	Participation rate in technical and vocational education programmes (15- to 24-year-olds).
4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship		
Skills	4.4.1	Proportion of youth/adults with information and communications technology (ICT) skills, by type of skill.
	4.4.2	Percentage of youth/adults who have achieved at least a minimum level of proficiency in digital literacy skills.
	4.4.3	Youth/adult educational attainment rates by age group, economic activity status and level of education and programme orientation.
4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous people and children in vulnerable situations		
Equity cross-target	4.5.1	Parity indices (female/male, rural/ urban, bottom/top wealth quintile and others such as disability status and conflict-affected as data becomes available) for all education indicators on this list that can be disaggregated.
Policy	4.5.2	Percentage of students in primary education whose first or home language is the language of instruction.

	4.5.3	Extent to which explicit formula-based policies reallocate education resources to disadvantaged populations.
	4.5.4	Education expenditure per student by level of education and source.
	4.5.5	Percentage of total aid to education allocated to the least developed countries.
4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy		
Skills	4.6.1	Proportion of the population in a given age group achieving at least a fixed level of proficiency in functional literacy and numeracy skills.
	4.6.2	Youth/adult literacy rate.
Provision	4.6.3	Participation rate of youth/adults in literacy programmes.
4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development		
Provision	4.7.1	Extent to which global citizenship education and education for sustainable development are mainstreamed in national education policies, curricula, teacher education and student assessment.
	4.7.2	Percentage of schools that provide life skills-based HIV and sexuality education.
	4.7.3	Extent to which the framework on the World Programme on Human Rights Education is implemented nationally, as per the United Nations General Assembly (UNGA) resolution 59/113.
Knowledge	4.7.4	Percentage of students of a given age group (or education level) showing adequate understanding of issues relating to global citizenship and sustainability.
	4.7.5	Percentage of secondary education students showing proficiency in their knowledge of environmental science and geoscience.
4.a Build and upgrade education facilities that are child, disability and gender-sensitive and provide safe, non-violent, inclusive and effective learning environments for all		
Resources	4.a.1	Proportion of schools with access to basic drinking water, single-sex basic sanitation facilities and basic handwashing facilities.
		Proportion of schools with access to electricity, the Internet for pedagogical purposes and computers for pedagogical purposes.
		Proportion of schools with adapted infrastructure and materials for students with disabilities.
Environment	4.a.2	Percentage of students experiencing bullying, corporal punishment, harassment, violence, sexual discrimination and abuse.
	4.a.3	Number of attacks on students, personnel and institutions.
4.b By 2020, substantially expand globally the number of scholarships available to developing countries – in particular the least developed countries, small island developing states and African countries – for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries		
Number	4.b.1	Volume of Official Development Assistance (ODA) flows for higher education scholarships by beneficiary country.
	4.b.2	Number of higher education scholarships awarded by beneficiary country.
4.c By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially the least developed countries and small island developing states		
Trained	4.c.1	Proportion of teachers in pre-primary, primary, lower secondary and upper secondary who have received at least the minimum organized and recognized teacher training pre-service and in-service required for teaching at the relevant level in a given country, by type of institution.

Trained	4.c.2	Pupil-trained teacher ratio by education level.
Qualified	4.c.3	Percentage of teachers qualified according to national standards by education level and type of institution.
Qualified	4.c.4	Pupil-qualified teacher ratio by education level.
Motivated	4.c.5	Average teacher salary relative to other professions requiring a comparable level of qualification.
	4.c.6	Teacher attrition rate by education level.
Supported	4.c.7	Percentage of teachers who received in-service training in the last 12 months by type of training.

**Note: The new 4.2.1 indicator on the completion rate has been made a second global indicator for Target 4.1.*

Example of metadata for an indicator

Gross intake ratio to the last grade (primary, lower secondary)

Definition: Total number of new entrants into the last grade of primary education, or lower secondary general education, regardless of age, expressed as a percentage of the population at the intended entrance age to the last grade of primary education, or lower secondary general education. The *intended entrance age to the last grade* is the age at which pupils would enter the grade if they had started school at the official primary entrance age, had studied full-time and had progressed without repeating, or skipping a grade.

Purpose: This is a proxy measure of primary completion. It reflects how the impact of policies on access to and progression through the early grades of each level of education impact the final grade of that level. It also indicates the capacity of the education system to cater for the completion of the population of the intended entrance age to the last grade of the given level of education. It assumes that pupils entering the last grade for the first time will eventually complete the grade and hence the given level of education.
Calculation method: The number of new entrants in the last grade of the given level of education, regardless of age, is expressed as a percentage of the population of the intended entrance age to the last grade of that level of education.

$$\mathbf{GIRLG_n} = \frac{\mathbf{NE_{l,n}}}{\mathbf{P_{n,a}}}$$

where:
$\mathbf{GIRLG_n}$ = Gross intake ratio to the last grade **l** of level **n** of education.
$\mathbf{NE_{l,n}}$ = New entrants to the last grade **l** of level **n** of education.
$\mathbf{P_{n,a}}$ = Population of the intended entrance age **a** to the last grade of level **n** of education.
n = 1 (primary) or 2 (lower secondary).

Note: If data on new entrants is not collected directly, they can be calculated by subtracting the number of pupils repeating the last grade from total enrolment in the last grade.
Interpretation: A high ratio indicates a high degree of primary, or lower secondary education completion.
Disaggregation: By sex and level of education.
Data required and source: New entrants to the last grade of each level of education (or enrolment minus repeaters in the last grade); population of the intended entrance age to the last grade of each level of education and data on the structure (entrance age and duration) of each level of education. Administrative data from schools on enrolment and repeaters, or new entrants by grade; population censuses and surveys for population estimates by single year of age; administrative data from ministries of education on the structure of the education system.

Limitations and comments: This is a gross measure and may therefore exceed 100 per cent if there are large numbers of pupils who entered school either early, or late and/or who have repeated earlier grades. The fact that the GIR can exceed 100 per cent also makes it more difficult to interpret than the completion rate. Compared to the completion rate, the gross intake ratio to the last grade does not indicate how many children complete the last grade, only how many children enter that grade. If students in the last grade leave school before graduation, the gross intake ratio to the last grade overestimates completion.

For detailed information: UIS, 2018: Metadata for the global and thematic indicators for the follow-up and review of SDG 4 and Education 2030, access: http://uis.unesco.org/sites/default/files/documents/sdg4-metadata-global-thematic-indicators-en.pdf

Data quality assessment criteria

Criteria	Description
Relevance:	The extent to which the data serves to address the purposes for which they are sought by users.
Accuracy:	The degree to which the data correctly estimates, or describes the quantities or characteristics that they are designed to measure. Accuracy refers to the closeness between the values provided in the product and the (unknown) true values.
Reliability:	This refers to the closeness of the initially released values of a statistical output to the values that are subsequently released for the same reference period.
Coherence:	This reflects the degree to which a statistical output is logically connected and mutually consistent with other statistical outputs.
Timeliness of data:	This refers to the length of time between the availability of a statistical output and the event or phenomenon it describes. Timeliness is assessed in terms of a time scale that depends upon the period for which the data is of value – that is, sufficiently timely to be acted upon.
Punctuality:	The punctuality of a statistical output implies the existence of and adherence to an output dissemination schedule.
Accessibility:	This reflects how readily the data can be discovered, located and accessed from within data holdings.
Interpretability:	The interpretability, or clarity of a statistical output reflects the ease with which users can understand and properly use the data.
Objectivity:	Statistical methods and outputs are determined by statistical considerations and not by pressures from providers, users, or other stakeholders.
Impartiality:	Impartiality refers to commentaries and press releases being objective and non-partisan.
Transparency:	Users are informed about sources and methods and also about changes to sources and methods that might affect outputs. Again, the limitations of the outputs and of the processes by which they are produced are acknowledged.
Credibility:	This refers to the confidence users have in the products, based primarily on their image of the producer and its statistical outputs, as well as in their trust in the objectivity and impartiality of the methods used.
Validity:	Validation of data is done through a process of documenting all discrepancies, or data issues and following up on these with data producers. If after such a follow up, the data quality is still deemed questionable, then decisions are taken either to suppress the data, or replace it with suitable estimates, or alternate sources are utilized.
Coverage:	Data coverage is defined with a consideration of aspects, such as target population size, representativeness of sample, etc.
Methodological soundness:	This refers to the methodological basis for the statistics that follows internationally-accepted standards, guidelines and good practices.
Frequency:	This refers to the interval of time between two data collection periods, such as quarterly, half-yearly, annual, once-in-five-years, once-in-ten-years, etc.

Source: UIS, 2017: SDG 4 Data Digest, UIS, Montreal, access: http://uis.unesco.org/sites/default/files/documents/quality-factor-strengthening-national-data-2017-en.pdf

Further Material

None

Exercise

Topic	**Indicators relevant in your country context and existence of data sources**
Modality	Group discussion & plenary reporting
Time	30 min
Instructions	In groups of five to eight participants, discuss what indicators are relevant for your country and what data sources you are aware of. To facilitate discussing indicators and data sources, the following questions may aid as stimulation: • What thematic indicators do you consider relevant in your country? • What data sources are you aware of exist in your country where data for both the global and thematic indicators can be extracted from? A selected rapporteur from two to three groups shall briefly report for the plenary the group's discussions.

Unit 1.2: SDG 4 International data collection and reporting

Presentation file

- Unit 1.2 SDG 4 International data collection and reporting

Handouts

The exercise of this unit includes a ready-made handout. See the exercise section to find the handout.

Further Material

None

Exercise

Topic	**Assigning potential data sources to areas of monitoring in education**
Modality	Group-led Quiz
Time	20 min
Instructions	In groups of five to eight participants, each group is to fill in the provided assessment exercise on "Assigning potential data sources to areas of monitoring in education". Use of the provided template. The trainer will call upon each group to report at least one solution. The results will be written visible for everyone to read.

Exercise material

Assign the data sources which may be able to provide the necessary data for the "Areas of Monitoring" in education

To the best of your knowledge, choose from the following sources and list which sources apply to which areas of monitoring.

A. Policy documents & Legislations
B. Administrative collections (e.g. EMIS)
C. Household surveys
D. Annual in-class examinations
E. School assessments and inspections
F. School surveys

Areas of Monitoring	Possible Sources
1. Policies and provision	
2. Access and participation	
3. Completion	
4. Skills	
5. Learning outcomes	
6. Teacher quality	
7. School environment & resources	

Solution template

Areas of Monitoring	Possible Sources
1. Policies and provision	· Policy documents & Legislations
2. Access and participation	· Administrative collections (e.g. EMIS)
3. Completion	· Household surveys
4. Skills & learning outcomes	· Annual in-class examinations
6. Teacher quality	· School assessments and inspections
7. School environment & resources	· School surveys

Unit 1.3: International Standard Classification of Education 2011

Presentation file

- Unit 1.3 International Standard Classification of Education 2011

Handouts

The following handout can be provided to the participants, and are included in this guide on the subsequent page:

- Detailed ISCED 2011 overview, levels 0 to 4

Detailed ISCED 2011 overview, levels 0 to 4

ISCED 2011				
Level label	**Level**	**Category**	**Sub-category**	**Notes on sub-categories**
Early childhood educational development	0	01	010	Education programmes targeting children under 3 years old
Pre-primary education		02	020	
Primary education	1	10	100	
Lower secondary education	2	24 General	241	Insufficient for level completion or partial level completion, without direct access to upper secondary education
			242	Partial level completion, without direct access to upper secondary education
			243	Level completion, without direct access to upper secondary education
			244	Level completion, with direct access to upper secondary education
		25 Vocational	251	Insufficient for level completion or partial level completion, without direct access to upper secondary education
			252	Partial level completion, without direct access to upper secondary education
			253	Level completion, without direct access to upper secondary education
			254	Level completion, with direct access to upper secondary education
Upper secondary education	3	34 General	341	Insufficient for level completion or partial level completion, without direct access to tertiary education
			342	Partial level completion, without direct access to tertiary education
			343	Level completion, without direct access to first tertiary programmes (but may give direct access to post-secondary non-tertiary education)1
			344	Level completion, with direct access to first tertiary programmes (may also give direct access to post-secondary non-tertiary education)1
		35 Vocational	351	Insufficient for level completion or partial level completion, without direct access to tertiary education
			352	Partial level completion, without direct access to tertiary education
			353	Level completion, without direct access to first tertiary programmes (but may give direct access to post-secondary non-tertiary education)1
			354	Level completion, with direct access to first tertiary programmes (may also give direct access to post-secondary non-tertiary education)1
Post-secondary non-tertiary education	4	44 General	441	Insufficient for level completion, without direct access to tertiary education2
			443	Level completion, without direct access to first tertiary programmes2
			444	Level completion, with direct access to first tertiary programmes2
		45 Vocational	451	Insufficient for level completion, without direct access to tertiary education2
			453	Level completion, without direct access to first tertiary programmes2
			454	Level completion, with direct access to first tertiary programmes2
1. May include programmes previously classified at ISCED level 4 if they are equivalent to ISCED level 3 programmes.				

ISCED 2011				
Level label	**Level**	**Category**	**Sub-category**	**Notes on sub-categories**
2. Except programmes previously classified at ISCED level 4 if they are equivalent to ISCED level 3 programmes.				

Source: UIS, 2012: The International Standard Classification of Education 2011. Access: http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf

Further Material

To find examples of country ISCED mapping, the following website lists all the available mappings by UIS for download:

- http://uis.unesco.org/en/isced-mappings

Exercise

Topic	**The importance of International Standard Classification of Education for comparable international data**
Modality	Trainer-led discussion
Time	20 min
Instructions	In exchange with the trainer, discuss why it is important to have an international standard classification system for education data. The following are guiding questions to serve as stimulation. • Why is it important to have standardised classifications in education? • What effect do standardised classifications have on data quality? • What are your personal experiences with mapping the education system according to ISCED?

Module 2: Developing a National Education Indicator Framework and Strategies for Education Statistics

About this Module

It is important to understand existing data collection strategies and to identify the existing data producers for national education indicators. Collecting data at the national level also needs a supporting legal framework to formalise the roles of different institutions and institutionalise national statistical strategies to own the production of national education data. For those purposes, setting up a national education indicator framework (also called NEIF) provide specifications and approaches to collect and report data at both the national and global levels.

This module is best delivered in parts, as laid out below.

Part A: Developing a National Education Indicator Framework	Unit 2.1 Strengthening Institutional Capacities to Monitor SDG 4 Unit 2.2 Developing a National Indicators Framework (NIF) Unit 2.3 Mapping Data Sources and Identifying Data Gaps
Part B: Data Quality Assessments	Unit 2.4 Assessments of education data quality – Principles and methodologies Unit 2.5 Reporting DQA results
Part C: Development of Strategies for Education Statistics	Unit 2.6 Results-based management for the NSDES Unit 2.7 The connection and coordination between NSDES and national statistics

Objective

This module discusses the development of the National Education Indicator Framework (NEIF), the assessment or audit of data quality, including the mapping of data sources, and explains the process of preparing the National Strategies for the Development of Education Statistics (NSDES).

Learning Outcome

After completing the module, learners will have acquired the following learning outcomes:

- Able to explain the importance of and requirements for developing a National Education Indicator Framework;
- Able to develop a National Education Indicator Framework for the individual's own country;
- An understanding of the means to conduct data source mapping;
- An understanding of conducting a data quality assessment of national data sources;
- Able to explain the rationale and process/steps of creating National Strategies for the Development of Education Statistics;
- Able to apply the process and utilize the tools for developing National Strategies for the Development of Education Statistics for the individual's country.

Topics to Address

The following topics are covered in this module:

- Developing a National Education Indicator Framework and the undergirding requirements
- The national data quality assessment to strengthen data collection methodologies
- Developing strategies for creating national education statistics

Resource Book Chapter

- *Module 2: Developing a National Education Indicator Framework and Strategies for Education Statistics*
  (click to open and download)

Unit 2.1: Strengthening Institutional Capacities to Monitor SDG 4

Presentation file

- Unit 2.1 Strengthening Institutional Capacities to Monitor SDG 4

Handouts

The following handout can be provided to the participants, and are included in this guide on the subsequent page:

- Case Study - Managing education data in Pakistan

Case Study: Managing education data in Pakistan

Education data management in Pakistan struggled with missing common standards in data collection and processing and subsequently with harmonizing the education indicators from its eight provinces. Some provinces showed delays in the collection, processing and reporting of the data due to limited capacities, such as absent data validation mechanisms, insufficient data analysis competencies and low priorities in resource allocation to the Education Management Information System (EMIS). Some provinces also did not collect relevant data from all sectors of education. Also, the usability of the data for policy making and education planning was limited. To tackle the challenges, face-to-face advocacy and sensitization seminars were conducted among EMIS stakeholders to improve the data collection within the EMIS. This required developing common data standards valid for the time of collection until the time of dissemination. The improvement of the coordination with and among the many education data stakeholders was crucial in this process.

Key achievements and sustainability:

The most recent achievement that has emerged from improved standardization and coordination in Pakistan has been the establishment of the Education Atlas. This has resulted in six publications to date and an interactive website on presenting institution-level data to visually compare education indicators by district and identify geographical areas that require attention. This was possible thanks to establishing regulatory committees within the provinces and providing technical support to the provincial EMIS. The data now collected, processed and analysed is distributed to national and international entities, such as the Economic Survey of Pakistan, or the UNESCO Institute for Statistics (UIS). In order to ensure effective management of education data, the established EMIS regulatory committees play a pivotal role in provincial coordination and ownership. Hereby, EMIS' role is at the federal level and acts as the standard setting agency for all provinces. The federal EMIS coordinates and facilitates sub-national data production, analysis and applications.

Further Material

None

Exercise

Topic	**Managing education data in Pakistan**
Modality	Case Study
Time	20 min
Instructions	By yourself, read the provided case study. Then, discuss the case with regards to: • What makes the system efficient and effective? • Where you see potential for improvements? • Would you be able to adapt the approach in your country, and what obstacles would need to be overcome? Either everyone by themselves or together as a group through a plenary discussion, organise the ideas into a list of good characteristics and characteristics to be improved upon.

Unit 2.2: Developing a National Indicators Framework (NIF)

Presentation file

- Unit 2.2 Developing a National Indicators Framework (NIF)

Handouts

The following handouts can be provided to the participants, and are included in this guide on the previous and subsequent pages:

- Indicators of SDG 4 and their definitions (see Unit 1.1)
- Example NEIF for Cambodia (below)

The exercise of this unit also includes a ready-made handout. See the exercise section to find the handout.

Example of a national education indicators framework on education in Cambodia

Expected results in line with SDG 4	Indicators to monitor policy priorities			Linkage with national indicative strategies
	Concept	**Indicator**	**Type**	
Priority 1: All girls and boys have access to quality ECCE and pre-primary education and complete free, equitable and quality basic education (primary and lower secondary) with relevant and effective learning outcomes.				
1.1 All young children under 5 years of age have increased access to quality early childhood development, care and pre-primary education and are fully prepared for primary education,	Readiness	1.1.1. Proportion of children under 5 years of age who are developmentally on track in health, learning and psychosocial well-being, by sex	Global	1.1.2; 1.1.3, 1.1.4f
		1.1.2. Percentage of children under 5 years experiencing positive and stimulating home learning environments	Thematic	1.1.2; 1.1.3
		1.1.3. Percentage of new Grade 1 students with pre-school or ECCE experience	Additional	1.1.2
		1.1.4. Percentage of children with an acceptable nutritional status	Additional	1.1.3
	Participation	1.1.5. Participation rate in organized learning (one year before the official primary entry age), by sex	Global	1.1.3
		1.1.6. GER of Pre-primary	Thematic	1.1.3
		1.1.7. NER of ECCE and Pre-primary	Additional	1.1.3
	Provision	1.1.8. Number of years of (a) free and (b) compulsory pre-primary education guaranteed in legal frameworks	Thematic	1.1.2; 1.1.3
		1.1.9. Percentage of ECE services which meet quality standards	Additional	1.1.3f
	Qualified and trained	1.1.10. Pupil-qualified teacher ratio	Thematic	1.1.4
		1.1.11 Percentage of teachers qualified according to national standards	Thematic	
		1.1.12 Pupil-trained teacher ratio	Thematic	
		1.1.13. Percentage of teachers in pre-primary who have received at least the minimum organized and recognized teacher training pre-service and in-service required by type of institution	Global	
	Equity	Parity indices (sex, location, age, wealth and disabilities)		
1.2 All girls and boys complete nine years of free, publicly funded, inclusive equitable and quality basic education (primary and secondary) and acquire functional literacy	Learning	1.2.1. Proportion of children and young people (a) in Grades 2 or 3; (b) at the end of primary education; and (c) at the end of lower secondary education achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex	Global	1.2.4
		1.2.2. Administration of a nationally-representative learning assessment (a) in Grade 2 or 3; (b) at the end of primary education; and (c) at the end of lower secondary education	Thematic	1.2.4
	Completion	1.2.3. Completion Rate by levels of education	Thematic	
		1.2.4. Gross intake ratio to the last grade (primary education, lower secondary education)	Thematic	
		1.2.5. No. of districts that achieved primary education completion rate of at least 80 %	Additional	1.2.3

Expected results in line with SDG 4	Indicators to monitor policy priorities			Linkage with national indicative strategies
	Concept	Indicator	Type	
	Participation	1.2.6 Out-of-school rate (primary education and lower secondary education)	Thematic	1.2.3
		1.2.7. Percentage of children over-age for grade (primary education, lower secondary education	Thematic	
		1.2.8. Net Admission Rate	Additional	
		1.2.9. Transition rate from primary to lower secondary education	Additional	
		1.2.10. Transition rate from lower secondary to upper education	Additional	
		1.1.11. Percentage of students enrolled in private institution as a total enrollment by levels of education	Additional	
	Provision	1.2.12. Number of years of free primary and secondary education guaranteed in legal framework	Thematic	1.2.1; 1.2.2
		1.2.13. Percentage of child friendly schools at intermediate and developed levels	Additional	
		1.2.14. Number of students completed in re-entry program to be integrated into primary and lower secondary programmes	Additional	

Source: Ministry of Education, Youth and Sport (MoEYS) 2018: Cambodia's Sustainable Development Goal 4-Education 2030 Roadmap. Phnom Penh, Royal Government of Cambodia (RGC).

Further Material

None

Exercise

Topic	**Assessing the availability of national indicators relevant for SDG 4 monitoring**
Modality	Group exercise
Time	60 min
Instructions	Breaking into groups of five to eight participants, each group will be given a handout of the "SDG 4 indicators and their definitions" (see Module 1) as well as the template for this task. Each group will be assigned at least one of the global and one of the thematic indicators. Questions to stimulate considerations: 1. What are the national indicators on education? 2. Which national indicators correspond to the SDG 4 indicators? 3. What data collections happen in the country? 4. What mechanism is or which institutions are involved in obtaining the data? 30 minutes will be allocated for group discussion. 20 minutes can be allocated for at least two groups to present their results. 10 minutes should be provided for any brief questions.

Exercise material

Assessing the availability of national indicators relevant for SDG 4 monitoring

SDG 4 indicator assigned by trainer	National indicators identified by participants	What institutions collects the data for the indicators?
(Global indicator)		
(Thematic indicator)		

Criteria for selecting indicators:

- Indicators must be **relevant**: They must reflect the most critical national policy themes in the SDG 4 Targets and vice versa. Generally acknowledged among the education community has been the emphasis on measuring learning outcomes and equity.
- The indicators must have proper **alignment**: They must have the same meaning and significance in all settings, be ideally measured by a similar question, or item in different surveys.
- Indicators must be **feasible**: This implies regularity in the collection of data. This also implies being cost-effective.
- Indicators must be **communicable**: They must be easily understood and narrate progress towards aspirations.
- The indicators must be **interpretable**: Their values can change; this change must be easily understood by keeping in mind the time, circumstance, or population they originated from.

Unit 2.3: Mapping Data Sources and Identifying Data Gaps

Presentation file

- Unit 2.3 Mapping Data Sources and Identifying Data Gaps

Handouts

The SDG 4 Data Mapping Questionnaire (see below section) may be provided as a printed handout (at least A3 size). Notice, however, that some functions require using the tool on a computer.

Further Material

The SDG 4 Data Mapping Questionnaire will be required for this module and subsequent exercises. To retrieve the questionnaire, go to the UIS website and download the questionnaire under: *Mapping potential data sources to monitor SDG 4*:

- http://uis.unesco.org/en/capacity-development-tools

Exercise

Topic	**Assessing the availability of data sources to populate the required indicators (from the previous exercise)**
Modality	Group exercise
Time	60 min
Instructions	The "SDG 4 Data Mapping Questionnaire" (spreadsheet) is required for this task. It is recommended to use this spreadsheet on computers. The attention for the purpose of this exercise rests on the spreadsheets for **4.1 to 4.c**. The participants shall familiarise themselves with the cell headings for a few minutes. Within 40 minutes, each group shall focus on their **previously assigned global and thematic indicators**, and fill in the row in the corresponding spreadsheet which addresses the previously assigned indicators. The participants may address other targets/indicators as they consider relevant for a specific country-context or institutional purpose. And the participants shall make known which targets they will look at. The last 20 minutes are allocated to have at least two groups present on the filled in spreadsheets and whether or not data sources for the specific indicators exist. The outputs can be submitted to the trainer for further comments where assistance was or is still needed. It should be shared with all participants.

Unit 2.4: Assessment of education data quality – Principles and methodologies

Presentation file

- Unit 2.4 Assessment of education data quality – Principles and methodologies

Handouts

The Data Quality Assessment Framework (see below section) may be provided as a printed handout. Notice, however, that some functions require using the tool on a computer.

Further Material

For this unit and its subsequent exercise, the Data Quality Assessment Framework, will be required and can be download from the UIS website under *Data quality analysis: Administrative routine data systems*:

- http://uis.unesco.org/en/capacity-development-tools

Note that there are two types of frameworks: one for administrative sources, and one for household surveys.

Exercise

Topic	**Completing the data quality assessment matrix**
Time	60 min
Modality	Group exercise
Instructions	In groups, the data quality assessment framework will be practiced. For this purpose, it is assumed that the findings from a data quality assessment have been retrieved by an independent auditor. The findings are listed in the handout. With these findings and the spreadsheet file of the "data quality assessment framework" (for administrative data), the participants are to locate the corresponding "level" and allocate the level's corresponding "score" in the columns of the spreadsheet. Once all levels and corresponding scores have been identified, the **average score for each indicator** shall be calculated. Also, the **total average score for each principle** shall be calculated. Finally, in the recommendations column, the participants are to annotate what they consider needs to be done in order to improve the results. Two to three group rapporteurs shall present their results.

Completing the data quality assessment matrix - Findings

Data Quality Assessment by Indicators and Principles		Findings
Principle 1: Policy and legal framework		
1.1	**The responsibility for collecting, processing, and disseminating statistics is clearly specified**	
	The structure in charge of the data source has a legal mandate	An Act or a Policy exists but is implemented in and ad hoc manner
	The structure in charge of the data source is informed of data collection conducted by other structures and is empowered to authorize and coordinate it. It seeks to reduce respondents' burden.	Arrangements exist but not implemented
	The statistical activities is governed by methods and standards produced by the National Statistical Agency (NSO) and regular meetings take place between NSO and line ministries	NSO plays no role
1.2	**Respondents' data are to be kept confidential and used for statistical purposes only**	
	Mechanisms (ACT or Policy) exist to ensure that individual data are treated with confidentially	Mechanisms are in place but not always applied
	Mechanisms exist to ensure that individual data are treated with confidentiality	Mechanisms are in place and adhered to
Principle 2: Adequacy of resources		
2.1	**Staff and their qualification commensurate with EMIS functions and policies for retention are in place**	
	Overall, the number of staff is adequate to perform the required tasks.	Staff establishment exists, not all positions are filled
	The qualifications, skills and experience of the staff are adequate.	Less than 50% related qualifications and related experience
	Efforts are made to ensure the retention at any point of time of a core contingent of skilled staff.	Strategy exists and is applied in an ad hoc manner
2.2	**Computing resources and physical facilities are commensurate with statistical programs**	
	Software utilized for compiling and analysing data is adequate to perform existing and emerging tasks and the maintenance is sustainable.	Adequate Software and not sustainably maintained
	Hardware is adequate to ensure efficient processing of data and is adequately protected against all types of security risks (e.g. back-up systems for retrieval of statistical series and updates in the event of natural disasters, accidents, and other unusual events)	Not Adequate Hardware and not well protected
	Physical facilities (office building, furniture and equipment, transportation arrangements) are adequate to perform required tasks.	Adequate facilities exist
2.3	**Financial resources are commensurate with statistical programs**	
	Adequate and sustainable funding exist.	Adequate funding exists but with inadequate implementation (delayed, partial disbursement, etc.)
Principle 3: Relevance		
3.1	**Consultations with data's users are done periodically**	
	Processes are in place to regularly consult with users on their needs.	User are never consulted to get their input
3.2	**User satisfaction is monitored on a regular basis and is systematically followed up**	
	A User Satisfaction Survey is conducted among users.	User feedback is maintained but Ad hoc
Principle 4: Sound Methodology		
4.1	**Concepts and definitions used are in accord with standard statistical frameworks**	
	Documents on statistical concepts and definitions available and are reconcilable with international concepts	Documentation in developmental phase
	Concepts and definitions (as above) used for this dataset are consistent with those used in other national datasets.	Concepts and definitions are partially standardised across other datasets
4.2	**The scope is in accord with good quality standards**	

Data Quality Assessment by Indicators and Principles		Findings
	Mechanisms are in place to align and reconcile different geographical boundaries within the same data source	Mechanisms are always in place
	All relevant institutions are covered (e.g. public/ private, sub-sectors considered in the data source, local, regional, etc.)	All relevant institutions are covered
4.3	**Classification systems are in accord with national and internationally accepted standards, guidelines, or good practices**	
	An agreed ISCED 2011 mapping including classifications exists (e.g. levels of education, field of study, literacy, vocational, technical, and student completion)	Mapping exists but concepts are partially covered
4.4	**Archiving of source data and statistical results based on sound database principles**	
	Referential integrity is applied.	Referential integrity is non-existent
	Nomenclatures are systematically used and Naming of variables and tables is standardised	These principles are partially applied
	The database allows to store all information in the questionnaire.	All information is stored in the database
	Documentation material is available.	Documentation material is partially available
Principle 5: Accuracy and reliability		
5.1	**Available data sources provide an adequate basis to compile statistics**	
	The data source covers the expected required information identified in the data mapping for this specific data source.	Data source covers 75% to100% of the expected information
	Mechanisms are in place to maintain the list of institutions (duplicates, confusion in naming, robustness of administrative code, other noticed discrepancies).	Mechanisms in place but partially implemented
	Age is collected based on legal documents and the reference date is harmonized over all statistical units	Age is always based on legal documents and reference date harmonized
5.2	**Data sources are regularly assessed and validated**	
	Data are annually audited to check the accuracy of source data (e.g. head count of sample schools)	Data audits are non-existent
	Information is compiled on coverage, non-response and missing data	Information is partially compiled (e.g. only on coverage)
	Mechanisms are in place to ensure that standardised institution registers (including students and teachers' details) are maintained, assessed and used	Mechanisms are in place and not implemented
5.3	**Statistical techniques employed conform to sound statistical procedures, and are documented**	
	The data collection instruments are designed in a way that makes them easy to complete and to verify and is appropriate for computer processing, and they have also been pilot-tested with a sample of respondents.	Instruments are well designed and not pilot tested
	Imputation methods are documented and implemented	Imputation methods documented and not implemented
Principle 6: Periodicity and timeliness		
6.1	**Periodicity and timeliness follow dissemination standards**	
	The administrative school census is conducted	Administrative school census conducted at least annually
	Data are disseminated in a timely manner	Data disseminated within the following year
	Internationally comparable data are timely reported	According to UIS surveys more than 1 year
	A calendar of publication of education statistics exists	A calendar of publication exists and not implemented
Principle 7: Consistency		
7.1	**Final statistics are consistent within a dataset**	
	Consistency checks are conducted amongst data aggregates: enrolments, repeaters, drop-outs, financial and demographic data are observed.	Consistency checks are always conducted
7.2	**Final statistics are consistent or reconcilable over a reasonable period of time**	
	Consistent time series data are available for an adequate period of time	Time series data are continuously available for 5 years and more

Data Quality Assessment by Indicators and Principles		Findings
7.3	**Final statistics are consistent or reconcilable with those obtained through other surveys and data sources**	
	Education statistics are reasonably reconcilable with data from other data sources including cross-checking across geographical areas and sub-groups of education.	Partially reconcilable (only at some levels)
Principle 8: Accessibility and clarity		
8.1	**Statistics are presented in a clear and understandable manner, forms of dissemination are adequate**	
	Education data are published in a clear manner, charts and tables are disseminated with the data to facilitate the analysis.	Publication contains charts, tables without interpretation
	Data of different degree of aggregation (e.g. school region), sub-components (e.g. by gender, by level of education, by age, private and public, full-time and part-time) are routinely made available (not only ad-hoc request).	Data of different degree of aggregation at sub-national level with all sub-components
	The data is disseminated in a manner that facilitates its access (e.g., websites, statistical publications) and its availability is well publicized	Data accessible only to some users
8.2	**Up-to-date and pertinent metadata are made available**	
	Metadata, including information on concepts, definitions, classification and other methodology, data sources, and statistical techniques are prepared	Metadata partially exist
	The metadata is disseminated in a manner that facilitates its access (e.g., websites, statistical publications) and its availability is well publicized	Metadata difficult to access
8.3	**Prompt and knowledgeable assistance support service to users is available**	
	Mechanisms are in place to respond to user's request	Mechanisms exist but not implemented
	Assistance to users is provided and monitored.	Assistance to users is provided but not monitored
	Not routinely disseminated data is made available upon request	Not routinely disseminated data is made available on an ad hoc basis

Unit 2.5: Reporting the Data Quality Assessment results

Presentation file

- Unit 2.5 Reporting the DQA results

Handouts

The Data Quality Assessment Framework (see below section) may be re-used from above.

Further Material

The Data Quality Assessment Framework (see below section) may be re-used from above.

Exercise

There is no specific exercise for this unit. However, an exercise can be created by the trainer, directly building on the previous exercise. This may entail creating charts and tables and interpreting the results. In that sense, the trainer may return to this exercise as a practice section for Module 5 (Unit 5.5. Communicating the analysis results).

Unit 2.6: Results-based management for the NSDES

Presentation File

- Unit 2.6 Results-based management for the NSDES

Handouts

The Toolkit for the National Strategy for the Development of Education Statistics (see below section) may be provided as a printed handout. Notice, however, that some functions require using the tool on a computer and the paper size (A3) may need to be adjusted.

Further Material

For this unit and its subsequent exercise, the Toolkit for the National Strategy for the Development of Education Statistics, will be required and can be download from the UIS website under *From assessment to recommendations: Drafting the National Strategy for the Development of Education Statistics* (NSDES) (Click on: Practical Tools):

- http://uis.unesco.org/en/capacity-development-tools

Exercise

Topic	**Prioritising Data Quality Assessment recommendations**
Modality	Group exercise
Time	45 min
Instructions	The "Toolkit for the National Strategy for the Development of Education Statistics" (spreadsheet) is required for this task. It is recommended to use this spreadsheet on computers. The previous exercise's recommendations and scores will be needed to provide an orientation for this task. Notice that some cells have information written in them, recognisable by their italics formatting. This information serves as examples and should be deleted. Participants shall familiarise themselves with the tool for a few minutes. Using the "TOOL 1-Prioritising DQA" of the toolkit, the participants formulate the respective recommendations, indicate the important and state the objective for each recommendation. This exercise can be completed without forming groups and allows every person to allocate priorities and objectives. The trainer should go around to assist every group in formulating relevant outputs and outcomes, paying attention to the logical connection of the individual elements outlined in Tool 2.

Unit 2.7 The connection between NSDES and national statistics

Presentation File

- Unit 2.7 The connection between NSDES and national statistics

Handouts

The Toolkit for the National Strategy for the Development of Education Statistics (see below section) may be provided as a printed handout. Notice, however, that some functions require using the tool on a computer and the paper size (A3) may need to be adjusted.

Further Material

For this unit and its subsequent exercise, the Toolkit for the National Strategy for the Development of Education Statistics, will be required and can be download from the UIS website under *From assessment to recommendations: Drafting the National Strategy for the Development of Education Statistics* (NSDES) (Click on: Practical Tools):

- http://uis.unesco.org/en/capacity-development-tools

For more information on developing the NSDES and using the toolkit, download the Manual "Guidelines for Country-Level Design of the National Strategy for the Development of Education Statistics" (Under: *From assessment to recommendations: Drafting the National Strategy for the Development of Education Statistics (NSDES)*:

- http://uis.unesco.org/en/capacity-development-tools.

Exercise

Topic	**Developing a goal for the NSDES**
Modality	Group exercise
Time	45 min
Instructions	The "Toolkit for the National Strategy for the Development of Education Statistics" (spreadsheet) is required for this task. It is recommended to use this spreadsheet on computers. Notice that some cells have information written in them, recognisable by their red formatting. This information should not be deleted, as no information is meant to be entered there. All information written in italics are examples and can be deleted. Participants shall familiarise themselves with the tool for a few minutes. Notice, the overarching goal is an example for an NSDES goal. It can a) be retained and be used as a guiding example goal, or b) replaced with a goal formulated in advance by the plenary. The trainer may also provide a more fitting goal as he or she sees fit for the training. Using the "TOOL 2-Results Matrix", participants in a group draft an NSDES medium term vision/goal within 45 minutes. The trainer should go around to assist every group in formulating relevant outputs and outcomes, paying attention to the logical connection of the individual elements outlined in Tool 2.

Module 3: Improving Education Management Information Systems (EMIS)

About this Module

Reliable information is necessary to assess the state of education in a country. It demands data are available about the types and level of different resource inputs, governance approaches, and institutional operations of a country's education system. These educational measurements feed into the Educational Management Information System (EMIS). In management, it is often said that you cannot manage what you cannot measure and EMIS provides systematic, quality data that can be used in planning and policy dialogue.

Objective

The module has been prepared to help managers within the education system to familiarise themselves with the basics of structuring and managing an EMIS in the context of SDG 4.

Learning Outcome

After completing the module, learners will have acquired the following learning outcomes:

- Understanding an enabling environment, the necessary support systems, the production of data and dissemination;
- A better understanding of EMIS data that is utilized in education planning, administration, monitoring and evaluation;
- An understanding that EMIS can report information regarding gender, disability and children in and out of the formal education system;
- Understanding how EMIS caters to the Non-Formal Education (NFE) sector;
- Knowledge about School Management Information Systems (SMIS) and their relation to EMIS;
- Ensuring the tracking of individuals through EMIS, while also guaranteeing their privacy.

Topics to Address

The following topics are covered in this module:

- Understanding EMIS and making an EMIS effective;
- Utilizing EMIS data in education and monitoring SDG 4;
- Expanding the EMIS with an integrated School Management Information System (SMIS);
- Innovations in data collection with significance for an EMIS.

Resource Book Chapter

- *Module 3: Improving Education Management Information Systems (EMIS)*
  (click to open and download)

Unit 3.1 Understanding the Education Management Information System (EMIS)

Presentation File

- Unit 3.1 Understanding the Education Management Information System (EMIS)

Handouts

None

Further Material

None

Exercise

Topic	**What is your understanding or experience with 'EMIS'?**
Modality	Plenary Discussion
Time	15 min
Instructions	With this approach, the trainer is tasked to stimulate thinking and exchange about the topic of EMIS before commencing the first session. The reason is to communicate that the concept of an EMIS is not easily understood by everyone. Not to know what an EMIS is and how it works is meant to reinforce the participants motivation to know about it better. You may ask the participants, what they understand under 'EMIS' and whether they have had any experience with it. At first, refrain from commenting on whether answers are correct/incorrect.

Unit 3.2: A Good EMIS

Presentation File

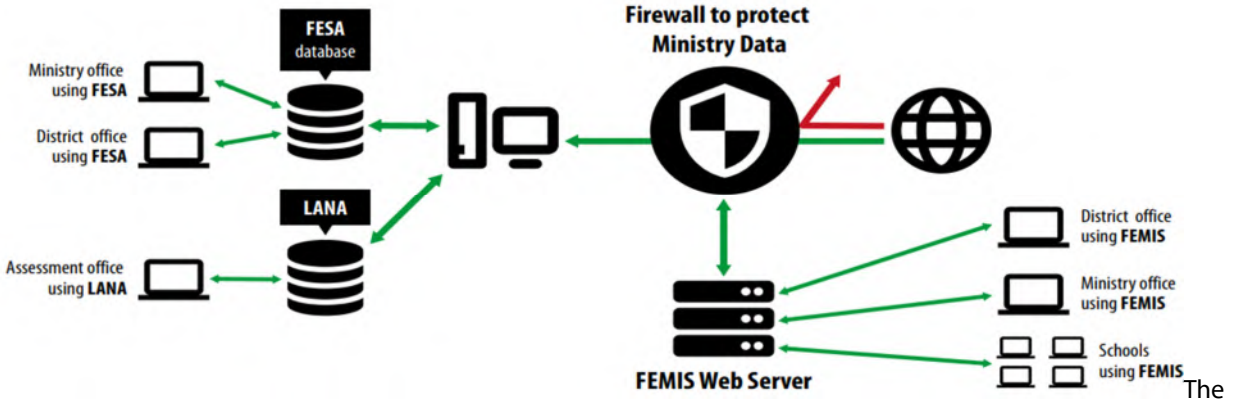
- Unit 3.2 A good EMIS

Handouts

The following handout can be provided to the participants, and are included in this guide on the subsequent page:

- Case Study - EMIS development in Fiji

Fiji FEMIS/LANA – Example of an integrated and decentralized EMIS



The Fiji Ministry of Education developed an integrated system of administration called the Fiji Education Management Information System (FEMIS). FEMIS enables evidence-based policy planning and resource allocation. FEMIS is a web-based application whereby data is almost exclusively managed through schools. FEMIS facilitates the collection and analysis of all routinely used data on the education system. FEMIS includes data on individual students from kindergarten through the basic education system and is being expanded to include higher education and TVET. Data on every student is available through the system including biodata, families, daily attendance, learning outcomes and school grades, subsidy programmes, such as transport allowances and emergency relief and disciplinary action.

The national formative standardized assessment for literacy and numeracy is undertaken on all students in years four, six and eight to the completion of basic education (changed in 2016 to years five and seven). The ministry's examination and assessment unit design, manages and reports on Literacy And Numeracy Assessment (LANA) data annually. Reports are sent back via FEMIS directly to teachers and head teachers in the same year so that corrective action can be taken to improve learning outcomes. This rich source of data enables the monitoring and evaluation of each individual's student performance throughout their entire academic career.

LANA analysis is used as a diagnostic tool to provide feedback to students, teachers and parents on student learning progress. Almost real time data provides planners and policy-makers with a large amount of data on which to evaluate the success, or failure of education policies. The system provides intervention (at individual, school and national levels) to improve students' learning in literacy and numeracy. For example, if support or subsidy is offered to particular students such as those from low-income houses, the immediate impact on attendance and learning outcomes can be assessed:

- To identify what students have learned;
- To identify students' strengths and weaknesses;
- To provide a way to measure a teacher and/or school's effectiveness;
- To lead to pedagogical improvement;
- To measure specific elements of learning;
- To identify academic weaknesses and strengths so that educators can define a pathway for improvement that takes many forms and requires an assortment of refined strategies and techniques.

The system is fully integrated and can correlate inputs such as financial contributions to individual students, teacher training and qualifications and facilities and supply of pedagogical materials with student attendance and learning outcomes. The system is presently being expanded to include the TVET and HE sub-sectors. Fiji FEMIS/LANA provides a good example of a comprehensive system that is able to track learners and their learning outcomes throughout their career.

Sources: DFAT. (2017). Analysis of Fiji Learning Literacy and Numeracy Assessment (LANA) results for AQEP-supported Schools 2012-2016, Department for Foreign Affairs and Trade (DFAT),; DFAT. (2017b). FEMIS Analysis of Attendance at Access to Quality Education Programme (AQEP) Supported Schools 2016, Department for Foreign Affairs and Trade (DFAT); World Bank. (2017). SABER Evaluation of Fiji.

Further Material

None

Exercise

Topic	**Characterizing a good EMIS System for SDG 4**
Modality	Case study & group exercise
Time	45 minutes
Instructions	In groups of five to eight, read the provided case studies from Fiji. Discuss the case with regards to what makes those systems efficient and effective, and where you see potential for improvements, as well as how you might be able to adapt the approach in your country and what obstacles would need to be overcome in order to align the system better to the monitoring of SDG 4. The participants may organise their ideas into a list of good characteristics and characteristics to be improved upon. Finally, share any discussion, ideas and comments with the plenary for further feedback on aspects to consider to make an EMIS work.

Unit 3.3: The role of EMIS in monitoring SDG 4

Presentation File

- Unit 3.3 The role of EMIS in monitoring SDG 4

Handouts

None

Further Material

The Annex of Module 3 in the Resource Book contains more country experiences with EMIS. Those can be used to create activities for this unit.

Exercise

See remarks above.

Unit 3.4 A School Management Information System (SMIS) to strengthen the EMIS

Presentation file

- Unit 3.4 A School Management Information System (SMIS) to strengthen the EMIS

Handouts

The following handout can be provided to the participants, and are included in this guide on the subsequent page:

- Case Study - SMIS in Nepal

SMIS in Nepal using the Flash Report System

Under EMIS, Nepal has been using its flash report system to monitor and manage its school sector since 2004. The Flash Report System was designed specifically for 'just-on-time' delivery of tailor-made reports produced for planning at the local to central levels, resource management, support to schools, M&E and targeted priority users. The system serves three major functions: i) National policy formulation; ii) Performance review; and iii) Donors' investment decision-making. Subsequently, it has been facilitating targeted interventions, such as per capita funds, incentive grants and scholarships.

The system includes school records management and district data entry; Resource Centre (RC) data collection and local application; ministry national database management, early planning and resource management, monitoring and evaluation; and national and district policy analysis and reporting.

The system proved to be crucial for policy development and the management of resources. However, accuracy and reliability issues of the data were observed due to a lack of capacity at the school level to keep good records of all the information needed.

The Department of Education upgraded the Flash Reporting System to an electronic EMIS system by developing the individual school's EMIS (IEMIS). The IEMIS captures the original individual records of students, teachers, infrastructure, exams and other school activities to analyse the data immediately at the school-level and use the data for their own management, planning and resource generation. The outcome of the IEMIS in Nepal has been a culture of evidence-based decision-making at the school level.

Data collected in IEMIS

- Individual student's detailed records by age, sex, cast/ethnicity, grade, exam achievements etc. by tracking their history over the year;
- Individual teacher's records by age, sex, ethnicity, training, qualification, subject, grades, salary, subject teaching by grade and others by tracking their history over the year;
- Students learning achievements by tracking their history over the year;
- School facilities (building, WASH, library, playground, health etc.);
- Others (child clubs, audits – both financial and social, local contributions etc.);
- School Management Committee (SMC) and Parent Teachers Association (PTA) and their composition and functions.

The data reporting process

Each school applies a simple spreadsheet software and processes user-friendly summary tables and reports. Schools upload these spreadsheet-based reports into the web-portal, where they are reviewed at the local, provincial and central levels, as well as by other stakeholders who can further utilize the data (confidentiality protection applies). The data is obtained more efficiently, with greater reliability and timeliness compared to school questionnaire surveys.

Further Material

None

Exercise

Topic	**Characterizing a good EMIS System for SDG 4**
Modality	Case study & group exercise
Time	45 minutes
Instructions	In groups of five to eight, read the provided case studies from Nepal. Discuss the case with regards to what makes those systems efficient and effective, and where you see potential for improvements, as well as how you might be able to adapt the approach in your country and what obstacles would need to be overcome in order to align the system better to the monitoring of SDG 4. The participants may organise their ideas into a list of good characteristics and characteristics to be improved upon. Finally, share any discussion, ideas and comments with the plenary for further feedback on aspects to consider to make an EMIS work.

Unit 3.5 Data innovations and EMIS

Presentation file

- Unit 3.5 Data innovations and EMIS

Handouts

None

Further Material

None

Exercise

None

Module 4: Household Surveys to Monitor SDG 4

About this Module

Current administrative data sources alone are not always capable of capturing information on children with disabilities, ethnic minorities, migration backgrounds, out-of-school children and other marginalised populations. However, SDG 4 pays particular attention to those marginalised populations, which is why capturing their statuses is a must. Household surveys and population censuses have the unique reach to include such populations, including those which have never been to school or have dropped out indefinitely.

Objective

This module introduces household surveys and population censuses, and the education data these sources contain for education policy informing, programme planning and monitoring. The ultimate aim is to confer how surveyed household information can fill the administrative data gaps.

Learning Outcome

After completing the module, learners will have acquired the following learning outcomes:

- An understanding of the importance of household surveys in monitoring SDG 4;
- An overview of the many existing household surveys which contain education relevant data;
- Knowledge on relevant information retrievable from household surveys to monitor SDG 4;
- The ability to maximize the use of household surveys to their fullest capacity.

Topics to Address

The following topics are covered in this module:

- The role of household surveys and population censuses for monitoring SDG 4
- The education data contained in these surveys and censuses
- Examples of household surveys/population censuses
- Leveraging institutional mechanisms to utilize surveys and censuses

Resource Book Chapter

➢ *Module 4: Household Surveys to Monitor SDG 4*
(click to open and download)

Unit 4.1: The role of household surveys and population censuses in monitoring SDG 4

Presentation File

- Unit 4.1 The role of household surveys and population censuses in monitoring SDG 4

Handouts

The following handouts can be provided to the participants, and are included in this guide on the subsequent page:

- Example from the Lao Social Indicator Survey II in 2017

LIST OF HOUSEHOLD MEMBERS — HL

First complete HL2 for all members of the household. Then proceed with HL3 and HL4 vertically. Once HL2-HL4 are complete for all members, make sure to probe for additional members: Those that are not currently at home, any infants or small children and any others who may not be family (such as servants, friends) but who usually live in the household. Then, ask questions HL5-HL20 for each member one at a time. If additional questionnaires are used, indicate by ticking this box:

HL1. *Line number*	**HL2.** First, please tell me the name of each person who usually lives here, starting with the head of the household. *Probe for additional household members.*	**HL3.** What is the relationship of (***name of the head of household***)?	**HL4.** Is (*name*) male or female? 1 MALE 2 FEMALE	**HL5.** What is (*name*)'s date of birth? 98 DK 9998 DK	**HL6.** How old is (*name*)? *Recordin completed years. If age is 95 or above, record '95'.*	**HL7.** Did (*name*) stay here last night? 1 YES 2 NO	**HL8.** *Record line number if woman and age 15-49.*	**HL9.** *Record line number if man, age 15-49 and HH8 is yes.*	**HL10.** *Record line number if age 0-4.*	**HL11.** *Age 0-17?* 1 YES 2 NO ☆ *Next Line*	**HL12.** Is (*name*)'s natural mother alive? 1 YES 2 NO ☆ *HL16* 8 DK ☆ *HL16*	**HL13.** Does (*name*)'s natural mother live in this household ? 1 YES 2 NO ☆ *HL15*	**HL14.** *Record the line number of mother and go to HL16.*	**HL15.** Where does (*name*)'s natural mother live? 1 ABROAD 2 IN ANOTHER HOUSEHOLD IN THE SAME PROVINCE 3 IN ANOTHER HOUSEHOLD IN ANOTHER PROVINCE 4 INSTITUTION IN THIS COUNTRY 8 DK	**HL16.** Is (*name*)'s natural father alive? 1 YES 2 NO ☆ *HL20* 8 DK ☆ *HL20*	**HL17.** Does (*name*)'s natural father live in this household ? 1 YES 2 NO ☆ *HL19*	**HL18.** *Record the line number of father and go to HL20.*	**HL19.** Where does (*name*)'s natural father live? 1 ABROAD 2 IN ANOTHER HOUSEHOLD IN THE SAME PROVINCE 3 IN ANOTHER HOUSEHOLD IN ANOTHER PROVINCE 4 INSTITUTION IN THIS COUNTRY 8 DK	**HL20.** *Copy the line number of mother from HL14. If blank, ask:* Who is the primary caretaker of (*name*)? *If 'No one' for a child age 15-17, record '90'.*
LINE	NAME	RELATION*	M F	MONTH YEAR	AGE	Y N	W 15-49	M 15-49	0-4	Y N	Y N DK	Y N	MOTHER		Y N DK	Y N	FATHER		
01		0 1	1 2	___ ———	__	1 2	01	01	01	1 2	1 2 8	1 2	__	1 2 3 4 8	1 2 8	1 2	__	1 2 3 4 8	__ __
02		__	1 2	___ ———	__	1 2	02	02	02	1 2	1 2 8	1 2	__	1 2 3 4 8	1 2 8	1 2	__	1 2 3 4 8	__ __
03		__	1 2	___ ———	__	1 2	03	03	03	1 2	1 2 8	1 2	__	1 2 3 4 8	1 2 8	1 2	__	1 2 3 4 8	__ __
04		__	1 2	___ ———	__	1 2	04	04	04	1 2	1 2 8	1 2	__	1 2 3 4 8	1 2 8	1 2	__	1 2 3 4 8	__ __
05		__	1 2	___ ———	__	1 2	05	05	05	1 2	1 2 8	1 2	__	1 2 3 4 8	1 2 8	1 2	__	1 2 3 4 8	__ __
06		__	1 2	___ ———	__	1 2	06	06	06	1 2	1 2 8	1 2	__	1 2 3 4 8	1 2 8	1 2	__	1 2 3 4 8	__ __
07		__	1 2	___ ———	__	1 2	07	07	07	1 2	1 2 8	1 2	__	1 2 3 4 8	1 2 8	1 2	__	1 2 3 4 8	__ __
08		__	1 2	___ ———	__	1 2	08	08	08	1 2	1 2 8	1 2	__	1 2 3 4 8	1 2 8	1 2	__	1 2 3 4 8	__ __
09		__	1 2	___ ———	__	1 2	09	09	09	1 2	1 2 8	1 2	__	1 2 3 4 8	1 2 8	1 2	__	1 2 3 4 8	__ __
10		__	1 2	___ ———	__	1 2	10	10	10	1 2	1 2 8	1 2	__	1 2 3 4 8	1 2 8	1 2	__	1 2 3 4 8	__ __
11		__	1 2	___ ———	__	1 2	11	11	11	1 2	1 2 8	1 2	__	1 2 3 4 8	1 2 8	1 2	__	1 2 3 4 8	__ __
12		__	1 2	___ ———	__	1 2	12	12	12	1 2	1 2 8	1 2	__	1 2 3 4 8	1 2 8	1 2	__	1 2 3 4 8	__ __
13		__	1 2	___ ———	__	1 2	13	13	13	1 2	1 2 8	1 2	__	1 2 3 4 8	1 2 8	1 2	__	1 2 3 4 8	__ __
14		__	1 2	___ ———	__	1 2	14	14	14	1 2	1 2 8	1 2	__	1 2 3 4 8	1 2 8	1 2	__	1 2 3 4 8	__ __
15		__	1 2	___ ———	__	1 2	15	15	15	1 2	1 2 8	1 2	__	1 2 3 4 8	1 2 8	1 2	__	1 2 3 4 8	

* *Codes for **HL3**: Relationship to head of household:*

01 HEAD
02 SPOUSE / PARTNER
03 SON / DAUGHTER
04 SON-IN-LAW / DAUGHTER-IN-LAW
05 GRANDCHILD
06 PARENT
07 PARENT-IN-LAW
08 BROTHER / SISTER
09 BROTHER-IN-LAW / SISTER-IN-LAW
10 UNCLE/AUNT
11 NIECE / NEPHEW
12 OTHER RELATIVE
13 ADOPTED / FOSTER / STEPCHILD
14 SERVANT (LIVE-IN)
96 OTHER (NOT RELATED)
98 DK

EDUCATION 1 — **ED**

ED1. *Line number*	**ED2.** *Name and age.* *Copy names and ages of all members of the household from HL2 and HL6 to below and to next page of the module.*		**ED3.** *Age 3 or above?* 1 YES 2 NO ⇩ *Next Line*		**ED4.** Has (***name***) ever attended school or any Early Childhood Education programme? 1 YES 2 NO ⇩ *Next Line*		**ED5.** What is the highest level and grade or year of school (***name***) has ever attended? LEVEL: 0 ECE ⇩ *ED7* 1 PRIMARY 2 LOWER SECONDARY 3 UPPER SECONDARY 4 POST SECONDARY NON TERTIARY 5 TERTIARY EDU. 8 DK	GRADE/YEAR: 11-15 PRIMARY 21–24 LOW SEC 31–33 UP SEC 41–43 POST SEC NON TER. 51–57 TERTIARY 98 DK ⇩ *ED7*	**ED6.** Did (***name***) ever complete that (grade/year)? 1 YES 2 NO 8 DK			**ED7.** *Age 3-24?* 1 YES 2 NO ⇩ *Next Line*		**ED8.** *Check ED4: Ever attended school or ECE?* 1 YES 2 NO ⇩ *Next Line*	
Line	Name	Age	Yes	No	Yes	No	Level	Grade/Year	Y	N	DK	Yes	No	Yes	No
01		_____	1	2	1	2	0 1 2 3 4 5 8	__ __	1	2	8	1	2	1	2
02		_____	1	2	1	2	0 1 2 3 4 5 8	__ __	1	2	8	1	2	1	2
03		_____	1	2	1	2	0 1 2 3 4 5 8	__ __	1	2	8	1	2	1	2
04		_____	1	2	1	2	0 1 2 3 4 5 8	__ __	1	2	8	1	2	1	2
05		_____	1	2	1	2	0 1 2 3 4 5 8	__ __	1	2	8	1	2	1	2
06		_____	1	2	1	2	0 1 2 3 4 5 8	__ __	1	2	8	1	2	1	2
07		_____	1	2	1	2	0 1 2 3 4 5 8	__ __	1	2	8	1	2	1	2
08		_____	1	2	1	2	0 1 2 3 4 5 8	__ __	1	2	8	1	2	1	2
09		_____	1	2	1	2	0 1 2 3 4 5 8	__ __	1	2	8	1	2	1	2
10		_____	1	2	1	2	0 1 2 3 4 5 8	__ __	1	2	8	1	2	1	2
11		_____	1	2	1	2	0 1 2 3 4 5 8	__ __	1	2	8	1	2	1	2
12		_____	1	2	1	2	0 1 2 3 4 5 8	__ __	1	2	8	1	2	1	2
13		_____	1	2	1	2	0 1 2 3 4 5 8	__ __	1	2	8	1	2	1	2
14		_____	1	2	1	2	0 1 2 3 4 5 8	__ __	1	2	8	1	2	1	2
15		_____	1	2	1	2	0 1 2 3 4 5 8	__ __	1	2	8	1	2	1	2

Source: Lao Statistics Bureau, 2018: Lao Social Indicator Survey II 2017, Survey Findings Report. Vientiane, Lao Statistics Bureau and UNICEF, access: https://www.lsb.gov.la/wp-content/uploads/2017/05/Lao-Social-Inndicator-Survey-Lsis-II-2017.pdf

Further Material

For more supplementary information, see:

- World Bank, 2011: Assessing Sector Performance and Inequality in Education. World Bank Group, Washington. Available at: https://openknowledge.worldbank.org/handle/10986/2326

To download the MICS questionnaire, go to the UNICEF MICS website and under *Questionnaires and indicator list*, choose the household questionnaire:

- http://mics.unicef.org/tools?round=mics6

To retrieve a DHS Questionnaire, go to the website of the DHS programme and under *Core Questionnaire* (right side) click on the latest phase. On the subsequent web page, choose the household questionnaire:

- https://dhsprogram.com/What-We-Do/Survey-Types/DHS-Questionnaires.cfm

- For a Labour Force Survey example from Brunei Darussalam, go to the Department of Economic Planning and Statistics and download the questionnaire (at the bottom of the page): http://www.deps.gov.bn/SitePages/Labour%20Force.aspx

As mentioned in one of the activities, it is advised to find the most *recent* household survey or population census from the examples discussed in the undergirding Resource Book. Specifically, for this module, participants may also be requested to bring surveys/censuses to the training and/or submit those in advance for better planning. If multiple data sources are available, different data sources can be looked at the same time.

Exercise

Topic	**Filling in the education section in MICS**
Modality	Survey Exercise
Time	20 min
Instructions	Using the MICS questionnaire, the participants are to fill in the two section on education as if they were the interviewed household member. The trainer will stand by to provide advise on how to read the survey.

Unit 4.2: Education data in household surveys

Presentation File

- Unit 4.2 Education data in household surveys

Handouts

The following handout can be provided to the participants, and are included in this guide on the subsequent page:

- SDG 4 indicators retrievable from household surveys

SDG 4 indicators retrievable from household surveys

Indicator number	Indicator clause	HHS is the only source	HHS is one of the sources	Other possible sources
Target 4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes				
4.1.3	Gross intake ratio to the last grade (primary education, lower secondary education)		√	EMIS
4.1.4	Completion rate (primary education, lower secondary education, upper secondary education)	√		
4.1.5	Out-of-school rate (primary education, lower secondary education, upper secondary education)		√	EMIS
4.1.6	Percentage of children over age for grade (primary education, lower secondary education)		√	EMIS
Target 4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education				
4.2.1	Proportion of children under five years of age who are developmentally on track in health, learning and psychosocial well-being	√		
4.2.2	Participation rate in organized learning (one year before the official primary entry age), by sex		√	EMIS
4.2.3	Percentage of children under five years experiencing positive and stimulating home learning environments	√		
4.2.4	Gross early childhood education enrolment ratio in (a) pre-primary education; and (b) early childhood educational development		√	EMIS
Target 4.3 By 2030, ensure equal access for all women and men to affordable quality technical, vocational and tertiary education, including university				
4.3.1	Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months		√	EMIS
4.3.2	Gross enrolment ratio for tertiary education		√	EMIS
4.3.3	Participation rate in technical vocational programmes (15-to-24-year olds)		√	EMIS
Target 4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship				
4.4.1	Proportion of youth and adults with Information and Communications Technology (ICT) skills, by type of skill		√	EMIS
4.4.3	Youth/adult educational attainment rates by age group, economic activity status, levels of education and programme orientation	√		
Target 4.5 By 2030, eliminate sex disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous people and children in vulnerable situations				
4.5.1	Parity indices (female/male, rural/urban, bottom/top wealth quintile and others such as disability status, indigenous people and conflict-affected, as data become available) for all education indicators on this list that can be disaggregated		√	EMIS
4.5.2	Percentage of students in primary education whose first, or home language is the language of instruction		√	EMIS
4.5.4	Education expenditure per student by level of education and source of funding (public and private)		√ (private)	EMIS (public)

Indicator number	Indicator clause	HHS is the only source	HHS is one of the sources	Other possible sources
Target 4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy				
4.6.1	Percentage of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy; and (b) numeracy skills		√	Examinations
4.6.2	Youth/adult literacy rate	√		
4.6.3	Participation rate of illiterate youth/adults in literacy programmes		√	EMIS
Target 4.7. By 2030, that all learners acquire the knowledge and skills needed to promote sustainable development, including among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development				
4.7.2	Percentage of students by age group (or education level) showing adequate understanding of issues relating to global citizenship and sustainability		√	Examination
4.7.3	Percentage of secondary education students showing proficiency in knowledge of environmental science and geoscience		√	Examination
4.7.4	Percentage of schools that provide life skill-based HIV and sexuality education		√	EMIS

Further Material

None

Exercise

Topic	**Reviewing education data contained in household surveys**
Modality	Plenary Discussion
Time	40 min
Instructions	For this exercise, it is advised to find the most *recent* household survey or population census from the country where the training takes place. More than one type of survey can be used at the same time, when distributing different surveys to different groups. Review either in groups or individually the education module contained in the survey(s) with regards to areas of: • Age coverage • Educational types (Formal, non-formal, TVET) • Education level (ECE, Pre-primary, primary, lower secondary, upper secondary, Tertiary etc.) • Number of years of attendance • Other issues, such as literacy, education attainment, learning, skills specific in literacy, numeracy, ICT, global citizenship etc. After 20 minutes, discuss openly what actions to take in order to improve the household survey(s) to better monitor SDG 4.

Unit 4.3 Leveraging institutional mechanisms to utilize surveys and censuses for SDG 4

Presentation file

- Unit 4.3 Leveraging institutional mechanisms to utilize surveys and censuses for SDG 4

Handouts

None

Further Material

None

Exercise

Topic	**Discussing issues and challenges with household surveys in your country**
Modality	Plenary Discussion
Time	20 min
Instructions	Based on the issues and challenges presented, discuss openly with the audience, which of the issues/challenges they are aware of to exist in their own country. Specifically ask how they intend of dealing with the conclusions to resolve any obstacles.

Module 5: Data Analysis and Results Communication

About this Module

Many organizations in many countries collect data, and they often use them only for their own purposes. The problem is, the collected data is not processed sufficiently, not used for monitoring nor for policy formulation nor for decision-making. Data only become relevant when they are transformed into information by means of contextual analysis, interpretation and communicative mediation.

Disseminating information to education and statistics stakeholders must be comprehensible, reliable and timely. The created information from data is then transparent, which is crucial for building trust among education stakeholder from parents to ministries, both nationally and internationally.

This module is best delivered in parts, as laid out below.

Part A: The Purpose of Analysis and Education Indicators	Unit 5.1. The purpose of data analysis Unit 5.2. Education indicator frameworks Unit 5.3. Education indicators
Part B: Conducting Analysis and Communicating the Results	Unit 5.4. Statistical data analyses Unit 5.5. Communicating the analysis results

Objective

The objective of this module is to introduce basic data analysis methods, and to offer methods of communicating information for the purpose of reaching and including all education stakeholders.

Learning Outcome

After completing this module, the training participants are to have acquired:

- An ability to comprehend data analysis and their requirements;
- The knowledge of how to select appropriate education indicators;
- An understanding of the adequate data presentation method for strategic communication.

Topics to Address

After completing the module, learners will have acquired the following learning outcomes:

- An ability to comprehend data analysis requirements;
- Knowledge of how to create and select appropriate education indicators;
- An understanding of how to choose the right data presentation method for strategic communication.

Resource Book Chapter

➢ *Module 5: Data Analysis and Results Communication*
(click to open and download)

Unit 5.1: The purpose of data analysis

Presentation File

- Unit 5.1 The purpose of data analysis

Handouts

None

Further Material

None

Exercise

None

Unit 5.2: Education indicator frameworks

Presentation File

- Unit 5.2 Education indicator frameworks

Handouts

Example of indicator metadata (see Module 1)

Further Material

More metadata examples are available in:

- UIS, 2018: Metadata for the global and thematic indicators for the follow-up and review of SDG 4 and Education 2030. UIS, Montreal. Available at: http://uis.unesco.org/sites/default/files/documents/sdg4-metadata-global-thematic-indicators-en.pdf

For more metadata information on the global SDG 4 indicators, see the publication by:

- UIS, 2018: Quick Guide to Education Indicators for SDG 4. UIS, Montreal. Available at: http://uis.unesco.org/sites/default/files/documents/quick-guide-education-indicators-sdg4-2018-en.pdf

Exercise

Topic	**Identifying the kind of education indicators from a system and service perspective**
Modality	Individual Exercise
Time	20 min
Instructions	The exercise sheet for the exercise, either printed for each individual or projected on a screen, will be provided. Either in a group of the usual five to eight participants or an individual basis, complete the exercise sheet and discuss and compare the results with the plenary.

Identifying the kind of education indicators from a system and service perspective

In the table you find listed a number of indicators. On the right side, fill in what type of a) systems indicator and b) service indicator the examples are. Multiple answers are possible.

Indicators	System perspective	Service perspective
(1) Number of classrooms		
(2) Attrition rate		
(3) Gross enrolment ratio		
(4) Repetition rate		
(5) Gender parity index		
(6) Pupil-teacher ratio		
(7) Proportion of women among teaching staff		
(8) Number of students per classroom		
(9) Public expenditure on education as a share of GDP		
(10) Number of adult illiterates		
(11) School life expectancy		
(12) Gross admission rate		
(13) Transition rate from primary to secondary education		
(14) Number of teachers		
(15) Percentage of repeaters		

Solution template

Indicators	System perspective	Service perspective
(1) Number of classrooms	-	Teaching resources (infrastructure), school characteristics
(2) Attrition rate	Process	Teaching resources (human)
(3) Gross enrolment ratio	Process	Participation
(4) Repetition rate	Process	Teaching/learning effectiveness
(5) Gender parity index	Outcome	Equity
(6) Pupil-teacher ratio	Process	Teaching resources (human), quality
(7) Proportion of women among teaching staff	Outcome	Gender equality
(8) Number of students per classroom	Input, process or output	Teaching resources (infrastructure), quality
(9) Public expenditure on education as a share of GDP	Input	Teaching resources (financial)
(10) Number of adult illiterates	-	-
(11) School life expectancy	Outcome	Retention
(12) Gross admission/intake ratio	Process	Access
(13) Transition rate from primary to secondary education	Outcome	Teaching/learning effectiveness
(14) Number of teachers	Input	Teaching resources (human)

Unit 5.3: Education indicators

Presentation File

- Unit 5.3 Education indicators

Handouts

It may be considered whether providing calculation examples as handouts will be helpful.

Further Material

More technical calculation examples (formulas) are available in the UIS metadata:

- UIS, 2018: Metadata for the global and thematic indicators for the follow-up and review of SDG 4 and Education 2030. UIS, Montreal. Available at: http://uis.unesco.org/sites/default/files/documents/sdg4-metadata-global-thematic-indicators-en.pdf

Exercise

Topic	Calculating education indicators
Modality	Exercise
Time	60 min
Instructions	Either on an individual basis, in groups or alongside the trainer, practice calculating the indicators as provided in the presentation file of Unit 5.3 on "Calculating Education Indicators".

Notes

For the exercise on calculating education indicators, administrative data and/or household survey data (on schools and other education institutes, attainments, literacy, etc. depending on the context) will be necessary to prepare in beforehand of the training. National education digests and statistical reports may provide some of the needed information, depending on the indicator.

The respective ministry of education and/or statistical authority may be consulted for this purpose, too. In particular, student specific information involving age and education progression over years will need detailed country information. A relevant statistical authority should be able to provide the data, in particular for the purpose of this training.

The pertaining presentation file (Unit 5.3) contains many SDG 4 education indicator examples with their calculation method. These should not be understood as the only indicators to be practiced, and alternative national but also SDG 4 indicators can be practiced. It is at the trainer's discretion to choose which indicator might be most needed to practice.

The trainer can request the participants to bring data to the training; better is to submit it in advance to better plan on the relevance and kind of available data for calculation exercises. In either case, it is necessary to plan for additional time in advance to the training to retrieve and prepare the needed data.

Any encountered data unavailability should be noted and made part of the training on available data sources (Module 2).

Unit 5.4: Statistical data analyses

Presentation File

- Unit 5.4 Statistical data analyses

Handouts

None

Further Material

When working with statisticians, consider addressing the Technical Note at the end of the Module 5 in the Resource Book on imputation methods: *Substituting missing values* (page 245).

Exercise

Topic	**Interpretation of education (SDG 4) indicators**
Modality	Exercise
Time	20-40 min
Instructions	Either on an individual basis, in groups or alongside the trainer, review existing education indicators and statistics (e.g. education digests, or global monitoring reports, or school cards, or previous examples of education indicator calculations) and interpret what the presented information means to you. Especially with an eye on the monitoring framework for SDG 4 and the respective audience that is meant to be targeted, reflect on what should be done in order to improve the presentation and content of those indicators.

Unit 5.5: Communicating the analysis results

Presentation File

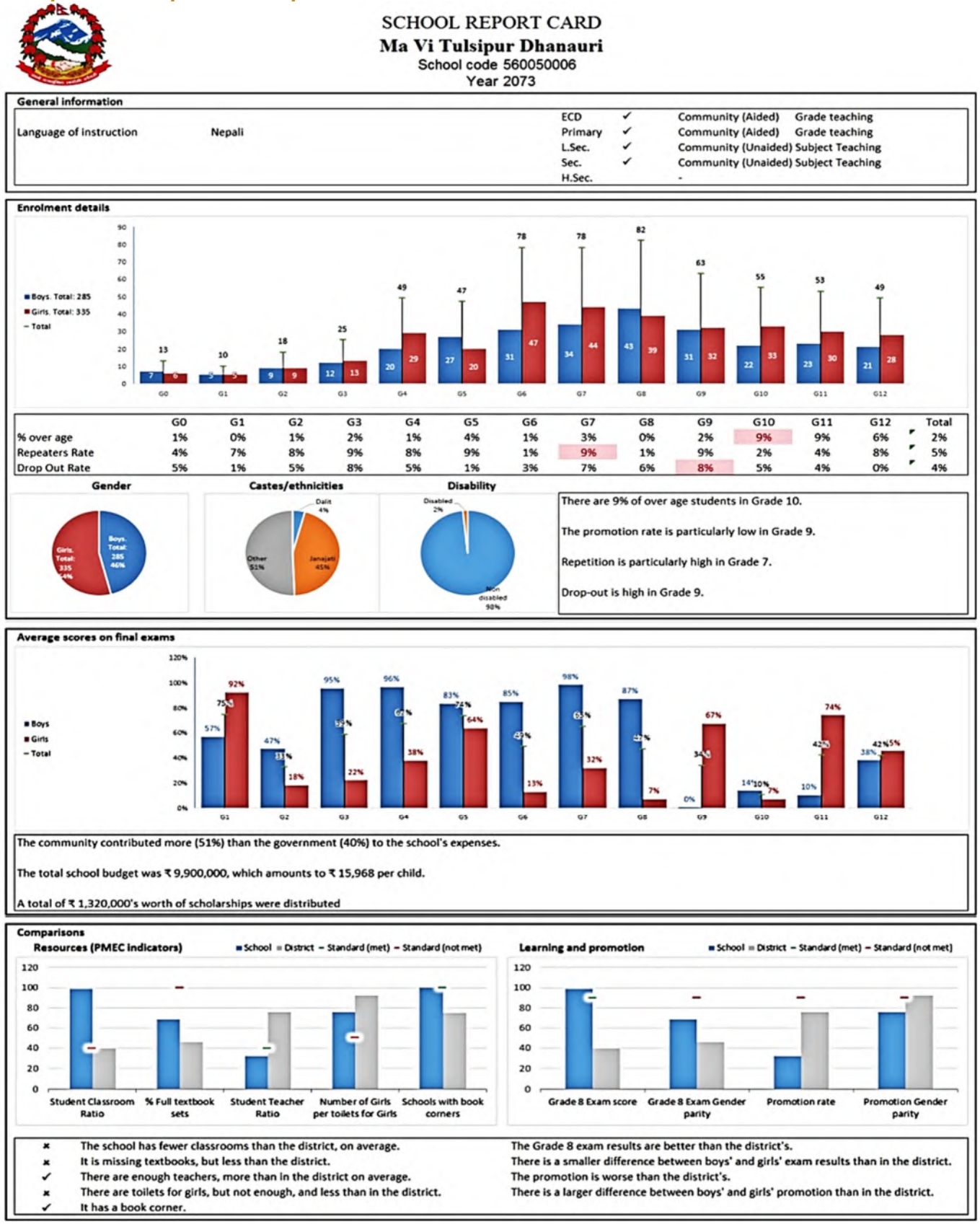
- Unit 5.5 Communicating the analysis results

Handouts

The exercise may be supplemented with a handout on Box 3 "A common misunderstanding on averages" from Module 5 of the Resource Book (page 210).

The below Example School Report Card from Nepal may be provided as a handout. The legibility may be compromised due to very small fonts. Other school report cards of good (informational) quality may be used in its stead.

Example School Report Card, Nepal



SCHOOL REPORT CARD

Ma Vi Tulsipur Dhanauri

School code 560050006

Year 2073

General information

Language of instruction	Nepali	ECD	✓	Community (Aided)	Grade teaching
		Primary	✓	Community (Aided)	Grade teaching
		L.Sec.	✓	Community (Unaided)	Subject Teaching
		Sec.	✓	Community (Unaided)	Subject Teaching
		H.Sec.		-	

Enrolment details

	G0	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11	G12	Total
% over age	1%	0%	1%	2%	1%	4%	1%	3%	0%	2%	9%	9%	6%	2%
Repeaters Rate	4%	7%	8%	9%	8%	9%	1%	9%	1%	9%	2%	4%	8%	5%
Drop Out Rate	5%	1%	5%	8%	5%	1%	3%	7%	6%	8%	5%	4%	0%	4%

Gender

Castes/ethnicities

Disability

There are 9% of over age students in Grade 10.

The promotion rate is particularly low in Grade 9.

Repetition is particularly high in Grade 7.

Drop-out is high in Grade 9.

Average scores on final exams

The community contributed more (51%) than the government (40%) to the school's expenses.

The total school budget was ₹ 9,900,000, which amounts to ₹ 15,968 per child.

A total of ₹ 1,320,000's worth of scholarships were distributed

Comparisons

Resources (PMEC indicators) ■ School ■ District – Standard (met) – Standard (not met)

Learning and promotion ■ School ■ District – Standard (met) – Standard (not met)

✗	The school has fewer classrooms than the district, on average.	The Grade 8 exam results are better than the district's.
✗	It is missing textbooks, but less than the district.	There is a smaller difference between boys' and girls' exam results than in the district.
✓	There are enough teachers, more than in the district on average.	The promotion is worse than the district's.
✗	There are toilets for girls, but not enough, and less than in the district.	There is a larger difference between boys' and girls' promotion than in the district.
✓	It has a book corner.	

Source: Presentation by the Ministry of Education in Nepal on the lessons learned and outcomes of the collaboration under the Data Must Speak initiative. Prepared for the GPE Webinar, 27 July 2017, Kathmandu, Nepal, access: https://www.unicef.org/sites/default/files/2018-08/General%20Presentation%20Nepal.pdf

Further Material

For more statistical tables, see the UNESCO Global Education Monitoring Report, by following this link:

- https://en.unesco.org/gem-report/statistics

For more statistical graph and chart examples, also see the UNESCO Global Education Monitoring Reports, by following this link:

- https://en.unesco.org/gem-report/allreports

For advice on building (online) school report cards, see the publication by:

- CCSSO et al., 2017: A State Guide to Building Online School Report Cards. Available at: https://www.excelined.org/wp-content/uploads/2018/08/ExcelinEd.AStateGuideToBuildingOnlineReportCards.May2017.pdf

Exercise

Topic	The differences between the mean, the median and the mode
Modality	Exercise
Time	30-60 min
Instructions	Read Box 3 on "A common misunderstanding on averages" in Module 5 of the Resource Book. In an open discussion with the plenary and the trainer, identify when the mean, the median and/or the mode has been used in education statistics in your country. Also highlight if one or the other was never or rarely used. Try to explain why.

Notes

For the exercise on the differences between the mean, the median and the mode, providing calculation examples for each type of average is recommended in order to familiarise those participants with the calculation method where it has never been used.

Consulting with the education and/or statistical departments ahead of time may serve to prepare which type of average to practice. It may also help acquiring sources for example calculations.

Searching the Internet will also provide illustrative calculations, even when they may not fit into the topic of education monitoring. Likewise, reaching out to mathematics teachers/professors for examples can help.

Module 6: Monitoring Challenges Beyond Traditional Aspects of Education

About this Module

Module 6 discusses multiple themes of the Education 2030 Agenda, which tend to find underrepresentation as national education concerns and subsequently in monitoring. The themes of education in emergency situations (migrants and refugees), disability, vocational education and concerns of sustainable development and global citizenship (in particular human rights) are therefore incorporated in a stand-alone training module to raise attention to the necessity of incorporating them in education monitoring, existing approaches that already exist for this purpose as well as serving for awareness raising.

Not all contents are addressed in the training package, outside the Resource Book. It is left at the discretion of the trainer to include more advocacy material from the Resource Book or his/her own, in particular if a specific issue is a frequent shortcoming in the country of concern.

Objective

With this module, crucial themes of the SDG 4-Education 2030 Agenda are to be addressed and discussed strategies, including on monitoring, on how to tackle them are to be presented.

Learning Outcomes

After completing the module, the learner will have acquired the following learning outcomes:

- An understanding of the thematic areas critical to achieving SDG 4;
- The means to explore more information and data pertinent to the stated areas that are critical for SDG 4 monitoring.

Topics to Address

The following topics are covered in this module:

- Assessment of Learning Achievements
- Monitoring Education and Training for Work
- Monitoring Education for Sustainable Development and Global Citizenship
- Learning Spaces

Resource Book Chapter

➢ *Module 6: Monitoring Challenges Beyond Traditional Aspects of Education*
(click to open and download)

Unit 6.1: Assessment of Learning Achievements

Presentation File

- Unit 6.1 Assessment of Learning Achievements

Handouts

None

Further Material

For more information on the Principles of Learning Assessments:

- UIS and ACER, 2017: Principles of Good Practice in Learning Assessment. Available at: http://uis.unesco.org/sites/default/files/documents/principles-good-practice-learning-assessments-2017-en.pdf

Exercise

None

Unit 6.2: Monitoring Education and Training for Work

Presentation file

- Unit 6.2 Monitoring Education and Training for Work

Handouts

None

Further Material

For more assistance and material on TVET, see the UNESCO-UNEVOC International Centre for TVET:

- https://unevoc.unesco.org/go.php

Exercise

None

Unit 6.3. Monitoring Education for Sustainable Development and Global Citizenship

Presentation file

- Unit 6.3. Monitoring Education for Sustainable Development and Global Citizenship

Handouts

For more information on calculating SDG Target 4.7 indictors:

- UIS, 2018: Metadata for the global and thematic indicators for the follow-up and review of SDG 4 and Education 2030. Available at: http://uis.unesco.org/sites/default/files/documents/sdg4-metadata-global-thematic-indicators-en.pdf

The below exercise includes a ready-made handout.

Exercise

Topic	**Practicing the 1974 Recommendation concerning ESD and GCED**
Modality	Group Exercise
Time	30 min
Instructions	With the provided exercise sheet and in groups of five to eight people, either printed for each group or projected on a screen, complete the questionnaire of the 1974 recommendation. The group arrangement will allow for knowledge exchange as not every participant may know the answer to each question.

Practicing the 1974 Recommendation concerning ESD and GCED

The extent to which global citizenship education (GCED) and education for sustainable development (ESD), including climate change education, human rights and gender equality, are mainstreamed in their education systems, specifically in policies, curricula, teacher education and student assessment.

National education policy

Q1. To what extent are the guiding principles of the 1974 Recommendation (e.g. cultural diversity and tolerance, equality and non-discrimination, peace and non-violence, justice, human rights and fundamental freedoms, human survival and well-being, caring for our planet/sustainability, etc.) reflected in your constitution or domestic legislation?

(The ticked box is scored with the corresponding digit above (5 points max).)

	1	2	3	4	5	
Not at all	☐	☐	☐	☐	☐	**Fully**

Q2. To what extent are the principles of the 1974 Recommendation reflected in your country's current education policy/ies and frameworks?

(The ticked box is scored with the corresponding digit above (5 points max).)

	1	2	3	4	5	
Not at all	☐	☐	☐	☐	☐	**Fully**

Q25. How would the current overall implementation of the principles of the 1974 Recommendation be rated?

(The ticked box is scored with the corresponding digit above (5 points max).)

	1	2	3	4	5	
Not at all	☐	☐	☐	☐	☐	**Fully**

Curricular content

Q7. Which of the following, or similar, principles and topics are taught in your formal educational system as part of the curriculum? (please tick all that apply)

(One point is awarded for each of the 12 boxes ticked.)

Peace and non-violence:

- ☐ friendly relations among nations
- ☐ preventing violent extremism
- ☐ preventing other forms of violence, including bullying, gender-based violence, schoolrelated gender-based violence, etc.

Human rights and fundamental freedoms:

- ☐ equality, inclusion and non-discrimination
- ☐ justice and fairness
- ☐ ethics, morals and values.

Cultural diversity and tolerance:

- ☐ international understanding, solidarity and cooperation
- ☐ intercultural and interreligious dialogue
- ☐ global citizenship.

Human survival and well-being:

- ☐ climate change
- ☐ environmental sustainability, caring for the planet
- ☐ sustainable development, consumption and livelihood.

Q23. What opportunities are provided at school level for students to participate in decision-making processes that concern them? (please tick all that apply)

(One point is awarded for each box except when 'none' is ticked.)

- ☐ school governance/decision-making
- ☐ student council or similar bodies
- ☐ student clubs
- ☐ none
- ☐ other, please specify

Curricula resources

Q11. Overall, are the number of teaching hours for the principles and topics mentioned in Q7 (peace and non-violence, human rights and fundamental freedoms, cultural diversity and tolerance and human survival and well-being) estimated to be sufficient?

(The ticked box is scored with the corresponding digit above (5 points max).)

	1	**2**	**3**	**4**	**5**	
Not at all	☐	☐	☐	☐	☐	**Fully**

Q18. To what extent are there adequate teaching and resource materials (including ICTs and audio-visual materials) to teach/deliver the principles below and engage learners? (please tick all that apply)

(The ticked box is scored with the corresponding digit above (5 points max for each principle).)

Principle		**1**	**2**	**3**	**4**	**5**	
peace and non-violence	**Not at all**	☐	☐	☐	☐	☐	**Fully**
human rights and fundamental freedoms	**Not at all**	☐	☐	☐	☐	☐	**Fully**
cultural diversity and tolerance	**Not at all**	☐	☐	☐	☐	☐	**Fully**
human survival and well-being	**Not at all**	☐	☐	☐	☐	☐	**Fully**
other, please specify: _____	**Not at all**	☐	☐	☐	☐	☐	**Fully**

Teacher education

Q12. To what extent are the principles and topics mentioned in Q7 (peace and non-violence, human rights and fundamental freedoms, cultural diversity and tolerance and human survival and well-being) reflected in the curriculum of pre-service teacher training?

(The ticked box is scored with the corresponding digit above (5 points max).)

	1	**2**	**3**	**4**	**5**	
Not at all	☐	☐	☐	☐	☐	**Fully**

Q13. Teachers for which level of education received training that reflects the principles and topics mentioned in Q7 (peace and non-violence, human rights and fundamental freedoms, cultural diversity and tolerance and human survival and well-being)? (please tick all that apply)

(One point is awarded for each box which is ticked.)

- ☐ pre-primary
- ☐ primary
- ☐ secondary
- ☐ post-secondary/tertiary
- ☐ other, please specify (e.g. adult education, TVET, etc.)

Q14. Please indicate the overall percentage of teachers estimated to have been trained on the principles and topics mentioned in Q7 (peace and non-violence, human rights and fundamental freedoms, cultural diversity and tolerance and human survival and well-being) through in-service training and teacher professional development.

(The ticked box is scored with the corresponding digit above (5 points max).)

	1	**2**	**3**	**4**	**5**	
	(0-20%)	**(21-40%)**	**(41-60%**	**(61-80%)**	**(81-100%)**	
0%	☐	☐	☐	☐	☐	**100%**

<u>Student assessment</u>

Q15a. Are the principles and topics mentioned in Q7 (peace and non-violence, human rights and fundamental freedoms, cultural diversity and tolerance and human survival and well-being) included generally in student assessments/examinations?

- ☐ Yes (1 point)
- ☐ No or no information (no point).

Q15b. If yes, please indicate which of the following dimensions of learning were included in the last student assessment/examinations. (please tick all that apply)

(One point is awarded for each ticked box, except when 'none' or 'no information available' is ticked.)

- ☐ knowledge
- ☐ skills and competencies
- ☐ values and attitudes
- ☐ behaviours
- ☐ none
- ☐ no information available

Q16. Which of the following dimensions of learning is your country planning to reinforce in student assessment/examinations in the next five years in the principles and topics mentioned in Q7 (peace and non-violence, human rights and fundamental freedoms, cultural diversity and tolerance and human survival and well-being)?

(One point is awarded for each box which is ticked, except when 'none' or 'no information available' is ticked.)

- ☐ knowledge
- ☐ skills and competencies
- ☐ values and attitudes
- ☐ behaviours
- ☐ none
- ☐ no information available

Interpretation:

The questions that are used for each component are based on the 2016 reporting round.

The results are reported for each component or sub-component separately but are not combined into an overall score on the grounds that strong progress in one component does not compensate for weak progress in another. Analysing each component separately is more useful and informative in identifying the areas in which more efforts are required.

Acknowledging that evidence on how the policy guidance and implementation in policy, curricula, teacher training and student assessment actually work and what impact they may have, progress might be interpreted in relation to the comparative/ipsative priority and emphasis assigned to these areas over time, i.e. if and how existence, frequency, priority and scope of implementation change from one collection to the next.

Component		**Score**
National education policy		
Curricula		
a)	Curricular content	
b)	Curricula resources	
Teacher education		
Student assessments		

International comparability:

The above scores are for the purpose of this training only. This method may be used as a quick assessment in the country. To make these score comparable across countries, each score must be standardised. The scores for each question will be standardised to lie between 0 and 100 using a Min-Max procedure as follows:

Standardisation Formula

$$Z_{ij} = \frac{(x_{ij} - \min(x_i)) \times 100}{\max(x_i) - \min(x_i)}$$

Zij = standardised score for question i for country j

xij = actual score for question i for country j

min(xi) = minimum score for question i reported by any country

max(xi) = maximum score for question i reported by any country

For a given component of this indicator, the simple mean is calculated of the standardised z-scores for the questions contributing to the given component. The results for all responding countries are then divided into terciles to give the following categories for reporting:

- Upper tercile = making strong progress
- Middle tercile = Progress is under way
- Bottom tercile = Has more room for progress

Unit 6.4: Inclusive Learning Spaces

Presentation file

- Unit 6.4. Inclusive Learning Spaces

Handouts

The following page contains the exemplary checklist on components and indicators to monitor against in education in emergencies.

Exemplary checklist on components and indicators to monitor against in education in emergencies

The following checklist is suggestive only. A relevant checklist needs to be implemented on a situational basis. However, the listen components and indicators provide a basis from which to raw and build upon.

Components to monitor against

- ✓ Location of learning spaces and the physical settings and facilities;
- ✓ Number and location of children out-of-school;
- ✓ Reconstruction/rehabilitation of learning spaces;
- ✓ Distribution, receipt and use of supplies, including pre-packaged kits;
- ✓ Satisfaction of students and teachers with services and resources.

Indicators to monitoring against

- ✓ Number of pupils enrolled/attending schools, disaggregated by gender and age;
- ✓ Percentage of participation of affected students, based on the proportion of participants to non-participants;
- ✓ Factors that may prevent, or limit participation (gender, caste, ethnicity, religion, language, domestic chores, disabilities, etc);
- ✓ Ratio of children to teachers in each class;
- ✓ Number and characteristics of teachers and paraprofessionals, disaggregated by sex;
- ✓ Level of teacher training;
- ✓ Age and level-appropriateness of activities for participants;
- ✓ Existence of school feeding in learning spaces (if appropriate);
- ✓ Availability of water and sanitation near learning spaces;
- ✓ Feedback from all stakeholders on material, content and conditions of the programmes, measured through formal feedback forms, or less formal feedback sessions with students, teachers and parents.

For more information, see:

Inter-agency Network for Education in Emergencies

http://www.ineesite.org/

Further Material

For more advice on disability statistics, visit the Washing Group on Disability Statistics:

- http://www.washingtongroup-disability.com/

For more information on EMIS and disability monitoring:

- UNICEF, 2016: Guide for Including Disability in Education Management Information Systems. Available at: http://training.unicef.org/disability/emergencies/downloads/UNICEF_guide-for-including-disability-in-education-management-information-systems.pdf

Exercise

None

(OPTIONAL) Final Session: Planning the Way Forward

About the Session

The final exercise is meant to establish working groups or teams which will work together on monitoring SDG 4 and producing national and SDG 4 education data after the training. The participants are encouraged to come together to create strategies, institutional arrangements, funding, coordination and communication mechanisms where possible, leaning on the obtained training knowledge. This session is entirely optional. **This session has the purpose of overcoming working in departmental silos, which is the greatest obstacle in creating comprehensive education monitoring systems.** The trainer is welcome to add anything else of importance.

Objective

With this session is emphasised that monitoring SDG 4 is not the task of a single person or institution, but that it requires the communication with and the collaboration of many different minds and institutions. This session is meant to set the mood for formalizing the possible working arrangement among the participants, if possible, post the training.

As this exercise will require shifting into the right mindset, sufficient time should be allocated. The indicated time may be extended if it is considered necessary. The outcome is not so much to get everything right at once but to spark a sense of "getting things done" and "we can do it".

Exercise

Topic	**Planning the Way Forward**
Modality	Simulated Planning Meeting
Time	120min to 180min
Instructions	Grouping the participants by their institutions, departments or sectors, at least two people from two different backgrounds should be in one group. This session is a means to cement the need for collaboration and thinking beyond one's own horizon. One could argue, it is to practice the fundamental principle of ESD and GCED (communication, collaboration, solution-finding together). Given the lack of national indicators, plan on how to work with other national institutions, agencies and ministries on obtaining education data for SDG 4, the steps involved and the arrangements to be made. As guiding questions, you may think of: • What data do you need? What data do you know is available? What is not available? (try to use the SDG 4 indicators in addition to national indicators) • Who will you work with to obtain the available data? Who will you work with to make unavailable data available? (think about institutions) • From what sources will/can the data be generated? (think administrative data and surveys) What mechanisms is/are needed to make this possible? (think of the Pillars of the DQA/Code of Practice) • Don't forget to include data on vulnerable populations.