



United Nations  
Educational, Scientific and  
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UNESCO  
INSTITUTE  
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STATISTICS



TECHNICAL  
COOPERATION  
GROUP



# Case Studies

## Group discussions

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## Case Study #1. Improving Teacher Quality to Increase Learning

This case study is intended to be a tool for generating a discussion about actual decisions. As such, it is intended to help participants focus their ideas on their issues and on the actions that they could take after they go back to the office, using the same practical logic requested by the case study.

Participants will divide into small groups (say 3 or 4 groups), and spend a few minutes on the description of the case, followed by 20 minutes discussing the items in the Situation Analysis. Next, participants will spend another 20 minutes discussing the key issues to be resolved, and 10 minutes deciding on the actions recommended by each group. Actions have to be concrete and actionable.

Once the above process is done, each group will spend 5 minutes explaining their analysis of the situation and their recommendations for action.

Once all presentations are done, the moderator will summarize the results of the case study and end the session.

### 1. Case description (5 minutes)

You are the main policy advisor to the Minister of Education in a country with 4 million students enrolled in basic education and about 200,000 teachers. While attending an international conference, the Minister saw a presentation showing the importance of teacher quality in improving system performance. On his return, he asks you to come up with a strategy and a work plan to increase teacher quality under the following context:

- a. In terms of resources, the country fits the normal profile of a low-middle income economy, where 15% of the national budget goes to education, but tertiary education absorbs about 2/5 of the education budget, leaving basic education with 3/5 of the total. Increasing the education share of the national budget to 17% is possible, but the Ministry of Finance clearly says that it cannot go above that percentage because it would negatively affect other ministries. However, a budget growth rate of 5% per year is feasible. Hence, you can reallocate the education budget among the different education levels, and you can also plan for future growth.
- b. In general, teachers enter the profession because of job security, convenient hours, and retirement benefits that are better than in the private sector, and a large percentage of them would not have been academically eligible to enter more demanding professions. Monthly salaries are considered lower than in the private sector, but if calculated by hours of work, they are competitive with the hourly wages received by people with similar levels of education and experience. Because of the financial constraints explained above, teacher salaries cannot increase drastically from one year to the next.
- c. Teacher accountability is low, as teacher evaluations are bureaucratic exercises where the evaluation form does not allow school principals to give low marks. Even if teachers receive a poor evaluation, their status and salaries remain unchanged.
- d. Although the Minister has the political backing of the President, the Minister needs to ensure that proposed changes to teacher policies need to be supported by enough teachers to ensure political viability. Hence, you need to create policies that foster better entrants to the profession, and that allows for the smooth retirement of teachers that should not be in the profession.
- e. Teacher training is decentralized, as universities have education departments capable of graduating certified teachers. The supply of good teachers would not be a problem.

## 2. Situation analysis (20 minutes)

Given this scenario you need to develop a basic strategy to improve teacher quality over a period of 15 years. To that end, you need to

- i. Identify two to three key problems that you are likely to face in designing the policies (list them in the flipchart). Why do they exist? Who is responsible? Which SDG 4 indicators would be affected and how?
- ii. Identify the main policies to be pursued by your strategy (e.g.: salaries, certification exams, professional development, changes in job tenure policies, retirement policies)
- iii. What would you demand from teachers in exchange for higher salaries?

## 3. Key issues to solve in this case study (20 minutes)

To verify performance of your strategy would require measuring and reporting. Discuss and present the following:

- i. Learning targets. What problems will you face in measuring and reporting SDG 4.1.1?
- ii. Quality Indicators. Do you need indicators of teacher quality? What would they look like?
- iii. What communication strategy would you implement to report quality performance and maintain political support?

## 4. Case Study Outcomes (10 minutes)

What actions can you take to implement your conclusions about the case study? Be specific. To assist you, you may want to consider actions along these lines, but be more specific:

- a. Changes in education legislation regarding teacher training
- b. Changes in education legislation regarding teacher tenure
- c. Changes to existing policies on the measurement of teacher performance
- d. Changes to existing policies on teacher salaries and bonuses
- e. Changes to existing policies on teacher retirement
- f. Reallocation of managerial and/or technical personnel
- g. Reallocation of the existing budget within the Ministry of Education
- h. Reallocation of the existing budget within the Government's social sectors
- i. Specific managerial decisions about teacher evaluation
- j. Specific managerial decisions about teacher accountability

## Case Study #2. Dealing with a Learning Crisis: Policies for Improving Student Learning

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This case study is intended to be a tool for generating a discussion about actual decisions. As such, it is intended to help participants focus their ideas on their issues and on the actions that they could take after they go back to the office, using the same practical logic requested by the case study.

Participants will divide into small groups (say 3 or 4 groups), and spend a few minutes on the description of the case, followed by 20 minutes discussing the items in the Situation Analysis. Next, participants will spend another 20 minutes discussing the key issues to be resolved, and 10 minutes deciding on the actions recommended by each group. Actions have to be concrete and actionable.

Once the above process is done, each group will spend 5 minutes explaining their analysis of the situation and their recommendations for action.

Once all presentations are done, the moderator will summarize the results of the case study and end the session.

### 1. Case description (5 minutes)

For several weeks now, newspapers in your country have been talking about a learning crisis, with anecdotal evidence and testimonials showing primary school graduates that cannot read a simple paragraph or cannot perform basic math functions. Anticipating a grave political problem, the Minister of Education asks you to come up with a response. You and your technical team start preparing a strategy for improving student learning, and as part of that strategy you realize that there is a need to track learning progress through key indicators. These indicators should: (i) reflect actual progress in student performance, (ii) be easily understood by policy makers and the public, and (iii) be useful to school principals and teachers. To gather ideas on indicators you consult the indicators of educational performance that you currently publish, as well as the SDG 4 indicators. This is what you find:

- a. The Ministry of Education (MOE) sends its data on enrollment, repetition, and dropout in public and private schools, by grade, directly to the National Statistical Office (NSO), which transform it into indicators of educational efficiency for primary, lower, and upper secondary. In addition, the MOE sends administrative data to NSO. These data include the number of schools and teachers by education level, and the number of certified teachers, by school ownership, public or private. Data accuracy is not independently verified by the MOE or the NSO.
- b. SDG 4.4.1 could be a useful indicator for tracking student learning, but you realize that the MOE has yet to define learning standards, that it does not have a clear policy on measuring and reporting student learning, and that it lacks a clear strategy for applying standardized testing in primary school; sometimes they measure learning among all 4<sup>th</sup> graders in the country, and sometimes they do sample testing for grades 3 and 6. Results are not used to develop changes to the curriculum or to teacher training.
- c. Teachers do not support measuring and reporting learning outcomes for fear of retribution. For years they have been complaining that the MOE's in-service training is weak, and that in-class coaching by master teachers is practically absent. They want a clear signal from the MOE that student testing will benefit them in terms of training and resources.



## 2. Situation analysis (20 minutes)

Given this scenario you need to develop a basic strategy to improve the MOE's policies on measuring and reporting student learning, as well as policies about the use of data on learning outcomes. To that end, you need to:

- (i) Identify two or three key problems that you are likely to face in designing the policies for measuring and reporting student learning (list them in the flipchart). Why do they exist? Who is responsible?
- (ii) Unpack SDG 4.1.1 by (1) discussing and defining the minimum proficiency levels for language and math; (2) discussing if there is a need to define different standards for disadvantaged populations, and (3) discussing and deciding if the country needs to start by measuring and reporting on early grade reading and math.

## 3. Key issues to solve in this case study (20 minutes)

Discuss and present the results of your discussion, and also discuss the following issues:

1. Learning targets. What problems (budgetary, administrative, operational, political) will you face in measuring and reporting SDG 4.1.1?
2. How would you handle a possible reluctance from the President and high-level MOE officials to publish unflattering results? What arguments would you use to reduce the political fallout that they fear if the results on learning outcomes are unfavorable?
3. What communication strategy would you implement to report quality performance and maintain political support?

## 4. Case Study Outcomes (10 minutes)

What actions can you take to implement your conclusions about the case study? Be specific. To assist you, you may want to consider actions along these lines, but be more specific:

- a. Changes in education legislation regarding the reporting of learning outcomes
- b. Changes in management obligations for measuring and reporting learning outcomes
- c. Changes to existing policies on the measurement of learning outcomes
- d. Changes to existing policies on the reporting of learning outcomes
- e. Changes to existing policies on public access to data on learning outcomes
- f. Reallocation of managerial and/or technical personnel
- g. Reallocation of the existing budget within the Ministry of Education
- h. Reallocation of the existing budget within the Government's social sectors
- i. Specific managerial decisions about existing programs related to learning outcomes
- j. Specific managerial decisions about new programs related to learning outcomes



## Case Study #3. Improving tertiary education data and their utilization to meet the national, regional and global demand.

### 1. Case description (5 minutes)

Ministers of education in your region meet every two years to assess the levels of implementation of regional programs in education. In the previous meeting, the ministers decided to create five training programs to support the regional economic development plan. At the meeting this year, the report on the status of education was presented by the Secretariat of the Regional Development Community. The report included country profiles on a number of key indicators. These profiles are aligned to the global and regional education frameworks. The report was prepared based mainly on internationally comparable data available at the UIS global database, and from other credible secondary data sources.

Your country's delegation comprises the Minister of education (MOE), MOE staff, and staff from the National Council for Higher Education (NCHE) and the National Qualifications Authority (NQA). Delegation members are shocked to find that basic data in tertiary education is missing in your country's profile for the last five years, despite the fact that data have been collected and published by the NCHE every year. Authorities of your country believed that, at the regional level, your tertiary institutions had a comparative advantage in the training of engineers, allowing your country to host regional training programs aimed at increasing the number of engineers in critical domains. Hence, the absence of data is a serious setback. As a result, your bid to host the engineering training program will have to be postponed until next year.

You are the head of the department for planning and research who has the mandate to collect and publish the data in tertiary education at the Council. As such, you are given the task of explaining the missing data from the regional report, and the missing information on the value for money for the production of the annual statistical booklet. The Minister has also asked all delegates to work with the Secretariat to fill the data gaps and prepare the bid next year.

The country context in relation to data production in tertiary education is as follows.

- The ministry of education (MOE) comprises 3 departments: basic education, technical and vocational programs, and higher education. Each department is in charge of data collection in its sub-sector.
- Until recently, data collection was done by the office of educational planning, which used to submit data to UIS and which benefitted from the capacity building efforts over the years. Now that each MOE department provides its own data, there is no collaboration among them, or with the office of planning and the National Institute for Statistics.
- Training programs at the tertiary levels offered by other ministries in the country and data are not accessible outside of the respective ministries. Their data are rarely submitted to the National Institute for Statistics, as required by the law for inputs in the statistical yearbook.

### 2. Situation analysis (20 minutes).

Given the context, you need to understand why your data are not included in the regional report, and undertake corrective actions. An action plan will include the following steps

- (i) Identify your country's commitments for data sharing at the regional, continental and global levels based on the different indicators frameworks
- (ii) Identify the potential data sources and advise the Ministry for the formation of a Task Force (TF) and draft ToRs. The TF comprises the institutions that host the data needed, including the National Institute for Statistics as the custodian of official data in the country, which was not consulted nor involved in the NCHE statistical operations



Organize a meeting of the TF to discuss and develop a costed action plan for the short and long-term strategy. The short-term strategy should deal with the immediate need to host the regional training program, while the long-term strategy should deal with the scope and relevance of data collected so far. The long term strategy should include the mapping of key data producers and users, and the establishment of a sustainable Education Management Information System.

### 3. Key issues to solve in this case study (20 minutes).

1. Outline a justification for the resources needed to establish a sustainable information system in tertiary education. Your arguments should explain why data are needed in relation to the country policy priorities for education development.
2. Outline the policies and directives needed to integrate the diverse databases, and the directives needed to reinforce the role of the National Institute for Statistics. These directives should address issues of institutional incentives and accountability.
3. Define the institutional incentives needed to improve the culture of data utilization for decision making, and its relationship with data quality for the production of a statistical yearbook that can be useful for policy decisions.
4. Data dissemination inside and outside the country for monitoring regional and global development agenda to which the country subscribed

## Case Study #4. Internalizing the cost for data production in education in the Government budget

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### 1. Case description (5 minutes)

Your Government is engaged in structural reforms leading to position the nation as a middle-income country by 2035. The Government strategy clearly identifies human resources development as a key factor to absorb the massive investments contributed by development partners, and for ensuring a continuous level of economic growth and development. The Ministry of education has to play a critical role in terms of planning and forecasting the capacities of training institutions, in the creation of new training programs, as well as in the upgrading of standards in existing ones. There is a need to analyze a time series data to capture the trends from primary education to tertiary levels in order to advise the National development committee formed by the Prime Minister. This request happens when your ministry is finalizing the education sector analysis (ESA) that precedes the fifth Education section plan (ESP) 2020-2025.

The ESA exercise has not been easy to finalize within the deadline due to lack of data readily available. This new request is considered by the Ministry as an opportunity to improve the current situation and project the future robust EMIS. Therefore, the Ministry is looking to a sustainable solution, given that data is key if the sector is to play a critical function in the future economic development of the country. A team has been appointed by the Minister of education to propose a viable solution.

### 2. Situation analysis (20 minutes).

The country context in relation to data production in education is as follows.

- Data gap was one of the biggest challenge of the team in charge of the ESA. Over the last 10 years, the Ministry of education has collected data during two consecutive years only once. Otherwise, data are collected every two years, and not always processed and disseminated. The ESA team had to process data from incomplete school census, and complement it with data from other sources.
- Launch of data collection was possible only when external funds were mobilized by development partners, but the data collected are not readily accessible to the Ministry of education.
- The EMIS team has limited capacity to manage the data platform that was designed by the partner, and any data request has to be submitted to a consulting firm based abroad that keeps the source code of the program. All consultations must be paid to the firm.
- Other partners have proposed their help to the ministry, but on a similar model of partnership given that their aid is conditional to having the partner selecting a consulting firm based abroad.

### 3. Key issues to solve in this case study (20 minutes).

- Outline a strategy that would assert the leadership of the Ministry on data collection operations and sustainability of partners interventions. The strategy should reconcile the responsibilities of departments within the Ministry, and the links with the National Statistical Institute and the Ministry of Finance.
- Outline the implementation of a data needs assessment through consultations with different stakeholders by defining who would conduct the assessment and which institutions would be consulted.

Define the appropriate data management tools based on data needs assessment, including the implementation of an EMIS, capacity building, year-to-year financing, and the provenance of such financing. In particular, address the issue of internalization of the cost for data production- cost to be supported by the Government budget to ensure availability



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## Case Study #5. Policy and strategies for improving student learning in Nepal

### 1. Objective

The main objective of this case study is to use Nepal's experience to identify some key issues that need to be resolved to improve Learning Assessment systems and policies. The goal of this discussion is to draw lessons and to suggest policies and practices that can improve learning assessments and student learning for other countries. The general idea of the case study is to present the situation in Nepal, with the intent of asking some key questions to the meeting participants in order to generate discussion, draw important lessons, and reach practical recommendations.

### 2. Learning assessment practice in Nepal

The Ministry of Education (MOE) begun National Assessments in 1995 at a small scale by outsourcing most of the assessment related activities. In 2011, the MOE established the Education Review Office (ERO), for conducting learning assessments in the country. Since then, learning assessment activities are conducted by ERO, with funds from the School Sector Reform Plan (SSRP) and the School Sector Development Plan (SSDP)<sup>1</sup>. The resulting learning assessment database is used to analyze the strengths and weaknesses of educational policies and practices that affect students' learning.

Each learning assessment cycle takes 3 years to complete. The first year is spent on items development, pre-testing and item analysis, the second year on test administration, and the third year on report writing, dissemination, and policy advocacy. On average, learning assessments are conducted every two years covering grade 3, 5, 8 and 10. Around 1200 to 1950 public and private schools, and 25 students per school are selected in the sample covering all seven provinces.

#### 2.1 Definition of minimum proficiency levels for Grade 5, 2018

The National curriculum for grade 5 was deconstructed into four levels of proficiencies mentioned below:

- **Pre-basic (below basic):** Student knowledge is lower than Grade 5 content;
- **Basic:** Student partial knowledge of Grade 5 content;
- **Proficient:** Student knowledge of most or all of Grade 5 content;
- **Advance:** Student knowledge exceeds Grade 5 content;
- **Minimum proficiency:** Student knowledge exceeds the Basic Level but is below the Proficient level.

### 3. Main findings in Mathematics (2018)

- 32% of students achieved a **below basic** level, demonstrating knowledge of only 5% of the tested curriculum. They cannot perform mathematical calculation independently;
- 39% students achieved **Basic** level, knowing only 28% of the tested curriculum;
- 25% Students achieved **Proficient** level, knowing 62% of the tested curriculum;
- 4% students achieved **advance level** students, knowing 96% of the tested curriculum;
- Boys performed better than girls in Mathematics, but girls performed slightly better than boys in Reading;
- Students from institutional schools performed better than students from community (public) schools;
- Students that suffered bullying performed 31 points lower in Math, and 22 points lower in reading, than students who have not been bullied;

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<sup>1</sup> Both SSRP and SSDP are funded by multiple development partners from 2009 to 2023

- Students who were assigned regular homework, and had feedback from teachers, performed better than those without homework and feedback;
- Students whose mothers had a Bachelor's degree and fathers with Master's degree, scored 35 points higher in Math than students with illiterate parents.

#### 4. Issues to discuss on the use of assessment results:

- Capacity of interpretation and use of learning assessment results at national, sub national and school levels;
- Implications of findings for teacher training, curriculum revision, classroom delivery, promoting equity, and other policy reform.

#### 5. Challenges

- **Technical expertise:**

- Data analysis and communication to the policy makers:
  - Insufficient technical staff at ERO;
  - Inadequate capacity to analyze and communicate learning assessments results;
  - Limited use of evidence for planning and program development.
- Low retention of technical staff:
  - Frequent transfer of technical staff and replacements without standard expertise due to new political context- introduction of federal system.
- Limited ICT infrastructure:
  - Limited software and technical human resource to handle the available software;
  - No servers and provision of data security.

- **Operational challenges: Relying on outsourcing/ external support:**

- Report Writing, conducting assessments and data entry;
- Field testing and finalizing test items;
- Communicating assessment results and its implication on policy, curriculum, pedagogy and teacher training.

#### 6. Situation Analysis and issues to be solved

**6.1 Data analysis and communication to the policy makers:** Data analyses are largely done by the ERO staff and reports are published. The ERO staff are not trained and there is no provision of communication experts to package and communicate the results according to the need and interest of the policy makers, researchers, teachers, and media. The report has to be developed keeping in mind the target audience. Mostly 'negative' points of the assessment are highlighted and unable to get attention of policy makers in areas where policy interventions are imperative to improve the learning level of the students and promote equity. It could be on curriculum, textbooks, teacher training and other areas of interventions.

**6.2 Low retention of technical staff:** Nepal was declared as federal state and more than 1000 professionals were transferred from center to sub national levels recently, especially at the 753 local government.

The government has a rotation policy based on the seniority of staff in MOE, it applies to ERO also. ERO, which has a unique mandate and special type of expertise is adversely affected because of this policy. Due to this mobility policy, ERO loses trained staff and gets new untrained staff which poses a great challenge to the quality of work needed to be delivered. Moreover, trained staff are resigning from ERO and joining NGOs and other agencies.

Most of the senior officials prefer to be posted in Kathmandu even though they do not have expertise and knowledge in relevant field e. g. in assessments.

**7. Key issues to solve in this case study (20 minutes).**

Discuss and present the results of the discussion on the issues identified above:

1. What communication strategies will enhance political support and commitment for improving learning level?
2. What type of staff transfer policy will help in retaining technical staff or what could be other alternatives?

**Table 1. Proficiency descriptors of grade 5 Mathematics.**

Standards and level of standards	General descriptor of standards	General descriptor of Grade 5 Mathematics
Pre-basic	Students generally perform <b>significantly below</b> the standard required for the grade level; however, students could demonstrate a <b>partial mastery</b> of prerequisite knowledge and skills that are essential for proficient work at the grade level.	<ul style="list-style-type: none"> <li>• Students identify/measure angles, measure length and identify different types of triangles given in normal positions on look-like manner.</li> <li>• Students read and write numbers up to thousands using place value system (but cannot read place value in all the cases) and differentiate between even and odd numbers among small numbers (small two digit numbers).</li> <li>• Perform partially the fundamental operations of arithmetic on whole numbers up to four digits and their use in solving simple routine verbal problems.</li> <li>• Identify different units of measurements and change partially units of measurements from bigger to smaller on time, money, distance, capacity, area and volume and solve simple numerical and verbal problems involving one operation.</li> <li>• Arrange, add and subtract proper fractions with common denominators, change simple decimal fractions into decimal numbers/percentages and add and subtract simple decimal numbers (without renaming/ borrowing).</li> <li>• Solve simple problems on direct variation (one to many only) by unitary method and read simple bills (without VAT and commission) to get different information mentioned on it.</li> <li>• Read partially scale/type of given simple information in table and graph and draw some information from them.</li> <li>• Use set notation to write small finite sets of things/objects/ names/alphabets and to examine belongingness of the elements in the set.</li> <li>• Identify algebraic terms and solve given linear equations (in one variable) by using <i>inspection and hit and trial method</i>.</li> </ul>
Basic	Students generally perform <b>slightly below</b> the standard for the grade level. However, they demonstrate an <b>adequate mastery</b> of prerequisite knowledge, skills with a basic understanding of knowledge and skills specified by the curriculum of the grade level, and	<ul style="list-style-type: none"> <li>• Students measure angles/lengths and identify different types of triangles given in normal position on the basis of sides and angles.</li> <li>• Students read and write numbers up to million in usual ways of grouping and differentiate small numbers as prime and composite and square and prime.</li> <li>• Perform the fundamental operations of numbers up to four digits and to solve simple routine verbal problems (Involving one operation) on them.</li> <li>• Identify different units of measurements and change units of measurements from bigger to smaller on time, money, distance, weight and capacity, find the area and volume of rectangle and cuboid by counting units and solve simple numerical and verbal problems of routine types on them.</li> <li>• Arrange, add and subtract proper fractions with common denominators, change decimal fractions into decimal numbers/percentages and vice-versa (with rounding off decimal numbers) and add and subtract decimal numbers together with solving verbal problems of routine types.</li> <li>• Solve simple problems on direct variation (one to many only) and find simple interest by unitary method, read simple bills (without VAT and commission) to get different information mentioned on it.</li> <li>• Read scale/type of given simple information on table and graph and draw some information from them.</li> <li>• Use set notation to write small finite sets of numbers and of things/objects/ names/alphabets and to examine belongingness of the elements in the set.</li> <li>• Performing the operations of addition and subtraction of algebraic expressions containing like terms and solve given linear equations (in one variable) by using <i>inspection and hit and trial method</i>.</li> </ul>



Standards and level of standards	General descriptor of standards	General descriptor of Grade 5 Mathematics
	demonstrate a <b>partial proficiency</b> in applying such knowledge and skills.	
3. Proficient	Students generally perform at the required <b>standard for the grade level</b> . They demonstrate <b>proficiency</b> over the subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.	<ul style="list-style-type: none"> <li>• Students measure/draw different angles, measure angles of triangle and quadrilateral and classify triangles on the basis of sides and angles.</li> <li>• Students read and write numbers up to and greater than Crore in accordance to usual ways of place value and differentiate between prime and composite numbers and squares and cubes.</li> <li>• Perform algorithms for the four fundamental operations involving numbers (up to six digits) and to use them in solving numerical and verbal problems of the routine types.</li> <li>• Transform units of measurements on time, money, distance, weight and capacity, find the area and volume of rectangle and cuboid using formulae and solve numerical and verbal problems of routine types (involving addition and subtraction/ multiplication and division) on them</li> <li>• Convert mixed and improper fractions into each other and to decimals/percentages and vice-versa with rounding off decimal numbers and add and subtract mixed numbers (with simple multiplication) and decimal numbers (up to three decimal places) together with solving routine verbal problems.</li> <li>• Solve simple problems on direct variation( one to many and many to one)) and find simple interest by unitary method, read and construct simple bills (without VAT and commission) and read income/expenditure of home budget for saving/loss.</li> <li>• Put the given simple information on table and graph and read the given table and graph so as to draw information on them.</li> <li>• Use set notation to write and describe finite sets, such as of numbers and of things/objects/ names/alphabets and to examine belongingness/uniqueness of the elements.</li> <li>• Performing the four operations on algebraic expressions containing (up to two terms) and solve given linear equations (in one variable) by using the axioms of equality.</li> </ul>
Advanced	Students generally <b>perform above</b> the standard for the grade level. They demonstrate an <b>advanced</b> ability to apply knowledge and skills specified in the curriculum, including the ability to <b>combine</b> more than one relation for solving the problems in <b>unfamiliar situations</b> .	<ul style="list-style-type: none"> <li>• Students measure/draw angles in different sizes/orientations, measure angles of triangle and quadrilateral and classify triangles on the basis of sides and angles given even in complex configuration.</li> <li>• Students read and write numbers up to and greater than Crore by grouping them differently (including grouping by million) and differentiate between primes and composites (up to 100) and square and cube numbers.</li> <li>• Perform algorithms for the four fundamental operations involving numbers (up to six digits) together with parentheses and to apply them to solve verbal problems of none routine types.</li> <li>• Transform units of measurements on time, money, distance, weight and capacity and find area of rectangle and volume of cuboid (using formulae) and solve numerical and verbal problems (involving any operations) of routine and none-routine types on them.</li> <li>• Convert mixed and improper fractions into each other and to decimals/percentages and vice-versa with rounding off decimal numbers and add and subtract decimal numbers together with solving verbal problems of routine and none-routine types.</li> <li>• Solve problems on direct variation (one variable) and find simple interest by unitary method, read and construct simple bills (without VAT and commission) and evaluate income/expenditure of home budget.</li> <li>• Put the given information on table and graph, read them so as to draw conclusions and to apply them in some unfamiliar situations (e. g., using ordered pairs to denote different locations).</li> <li>• Use set notation to write/describe finite sets such as, of numbers and of things/objects/ names/alphabets and to explore commonalities/differences among different sets in terms of elements and its uniqueness.</li> <li>• Performing the four operations on algebraic expressions containing (up to two terms), solve linear equation in one variable by stating the axioms of equality and apply them in solving verbal problems of unfamiliar situations.</li> </ul>

## Case Study#6. Management of the Ministry of Education Budget

The objective of this case study is to understand the basic components of the Ministry of Education (MOE) budget, under the main assumption that funding should be related to the MOE's policy priorities. For example, if teacher quality is low, and teacher training needs to be improved, funding for teacher training should be reexamined.

### 1. Case Description (5 minutes)

As head of Planning at the Ministry of Education (MOE) you have received a request from the Minister to review the MOE budget to comply with new policy priorities. A recent analysis by the World Bank concluded that student enrollment was almost universal for children between the ages of 9 and 13, and that learning outcomes were poor. In other words, coverage had improved but student learning had not. As a result, the Minister and high level staff (including you, as head of Planning) have outlined new policy priorities based on three main approaches: (i) improved teacher quality, requiring all new primary and secondary school teachers to have a bachelor's degree; (ii) improve the coverage and quality of public preschools to improve the readiness of new entrants to primary, and (iii) reinforce the measurement and reporting of student learning at the school level in order to promote school accountability. Although there are other policies that could be undertaken, the Minister considers that the managerial capacity of the MOE cannot handle more policy initiatives efficiently.

Most MOE expenditures go to primary education, which has the largest number of students, but expenditures at the central Ministry seem to be too high, as the amount spent in the administration of MOE is larger than expenditures in secondary education.

**Table 1. MOE Expenditures by Program and Source of Funding**

Program	\$millions	%
Central Ministry	778	14.8%
Central programs	85	1.6%
Teacher Training	72	1.4%
Pre Primary	81	1.5%
Primary	3,548	67.7%
Secondary	621	11.8%
Special Education	57	1.1%
<b>Total Expenditures</b>	<b>5,242</b>	<b>100.0%</b>
<b>Funding Sources</b>		
Ministry of Finance	3,544	67.6%
Debt Alleviation (IADB, Paris Club)	719	13.7%
External Loans	110	2.1%
External Grants	870	16.6%
<b>Total funding</b>	<b>5,242</b>	<b>100.0%</b>

Funding for education comes from several sources, of which the Ministry of Finance contributes with 67% of total expenditures using national tax revenues. About 14% of financing come from debt relief and about 18% from external grants and loans. There is little room for generating more tax revenues, and the Minister of Finance is always trying to find external aid to finance government operations.



## 2. Situation Analysis (20 minutes)

Given the above scenario, you need to develop a strategy for making the aligning the education budget to the new policy priorities. To that end you need to:

- i. Identify any key problems that you are likely to face in reconfiguring the budget. For example, which sectors within MOE would likely protest for cutbacks or re-adjustments to the budget? Teachers or Administrators?
- ii. Identify the main policies to be pursued by your realignment of the budget to comply with the new policy priorities.
- iii. Identify key actors who could be crucial for supporting your policy recommendations. Remember that increasing taxes to increase the government's education budget may not be politically feasible.

## 3. Key Issues to Solve in this Case Study (20 minutes)

- i. List your three policy recommendations in order of priority
- ii. Recommend specific actions for measuring and reporting the results
- iii. Make recommendations on creating an SDG 4 indicator that would help monitor the education budget.

## Case Study #7. The Public Education Budget. Implications for Equity

The objective of this case study is to government examine expenditures in public education, and its impact on equity. Public education is financed by tax revenues paid to the central and municipal governments, by external funding from loans and donations from international agencies and bilateral donors, and by households with children attending public schools. Depending on the country, parents may have to pay school fees, and pay for uniforms, shoes, books and school materials, school breakfast/lunch, transportation, and extracurricular activities. However, government expenditures in public education is what is usually measured and reported in education statistics.

### 1. Case Description (10 minutes)

As the senior policy advisor to the Minister of Education you just received a request to recommend a set of actions to deal with pressures from international development agencies recommending that education expenditures be more equitable. That is, that the Government should make sure that poorer families have access to truly free public education.

Government funding for education is channeled through several sources and institutions. The biggest share comes from the Ministry of Education (MOE), which administers 70% all expenditures. Most MOE expenditures go to basic education, from preschool to secondary. Universities account for 25% of government spending and the legislature is seriously contemplating reducing funding because many legislators argue most university students could pay for their tertiary education because they come from the most affluent families. Education is a priority for the Government, accounting for 21% of the budget, but only 5.3% of GDP, which is slightly lower than the 6-7% found among countries in the region.

**Table 1. Government Expenditures in Public Education (in millions of local currency)**

Source	Millions of Pesos	%
Ministry of Education	5,241	70.5%
Ministry of Labor	125	1.7%
National Council for Evaluation of Education	6	0.1%
National Institute for Vocational Education	26	0.3%
Teacher's College	12	0.2%
Public utilities	132	1.8%
Budget transfers to public universities	1,866	25.1%
Capital investment from other govt. institutions	26	0.3%
<b>Total budget for education</b>	<b>7,434</b>	100.0%
National Budget	35,312	
GDP	139,916	
<b>Education as % of the National Budget</b>	<b>21%</b>	
<b>Education as % of GDP</b>	<b>5.31%</b>	

Enrolment in public institutions favors the more affluent households. In an equitable education system, student enrolment should be the same across income levels. Children from households at the bottom 20% of the income distribution should account for 20% of enrolment, and children for households at the top 20% of the income distribution should account for 20% of enrolment. Reality in your country is different. Many poor children do not attend school. Children in the lowest 20% of income account for 10% of primary enrolment, while children from the richest 20% of households account for 29% of enrolment. This disparity worsens at the university level, where children from the poorest households account for 7% of enrolment, while those

from richer households account for 35% of enrolment. Because education has been proven to be an effective vehicle for social and economic mobility, it is highly recommended that education access be more equitable.

**Table 2. Distribution of enrolment in public schools**

Income Quintile	Percent of enrollment by Income Quintile		
	Primary	Secondary	Tertiary
0-20% Poorest	10.60%	9.03%	7.10%
21-40%	17.80%	14.05%	10.20%
41-60%	19.60%	16.39%	18.90%
61-80%	22.20%	27.09%	28.30%
81-100% Richest	29.80%	33.44%	35.40%
Total	100%	100%	100%

## 2. Situation Analysis (20 minutes)

Given the above scenario, you need to develop a strategy for making the education system more equitable. To that end you need to:

- i. Identify three key problems that you are likely to face in designing the policies. Why do they exist? Who is responsible? Which SDG 4 indicators would be affected and how?
- ii. Identify the main policies to be pursued by your strategy (e.g.: vouchers, scholarships, income-based fees, more funding for improving access)
- iii. Identify key actors who could be crucial for supporting your policy recommendations. Remember that increasing taxes or reducing access to richer students may not be politically feasible.

## 3. Key Issues to Solve in this Case Study (20 minutes)

- i. List your three policy recommendations in order of priority
- ii. Recommend specific actions for measuring and reporting education equity
- iii. Make recommendations on what actions in your strategy should be included as an SDG 4 indicator