Analyzing and Utilizing
Assessment Data
for Better Learning Outcomes

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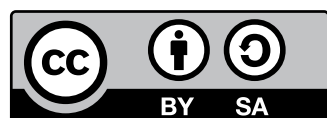# Contents

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Foreword

Despite the impressive expansion of schooling opportunities over the past decades, education quality and equity remain major concerns in the Asia-Pacific. With the Sustainable Development Goals (SDGs) and Education 2030 agenda, the shift in emphasis towards the quality of education is evident, and utilizing data will be crucial to informing best practices in education. Learning assessments, whether at international, regional or national levels, and efficient use of their data, have great potential to increase the quality of education. With SDG 4 and Education 2030, many countries need to develop indicators that can accurately reflect their progress towards these goals. The same capacity can be applied to learning assessment data, and utilizing the evidence to accurately and efficiently inform education policy.

Many countries have increasingly turned to international assessments such as the Programme for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS), in order to provide the stamp of approval on their educational outcomes. International assessments garner significant attention, and with the results making headline news, countries are able to hold themselves up on a pedestal should they reach the upper tier of the international rankings. The popularity of these assessments thus cannot be denied, particularly for developing countries, who strive to compete on the international stage. PISA and other international assessments, in many cases, are the measuring stick they seek.

Even for countries that have not participated in international assessments, the results of national examinations and assessments suggest wide disparities within the country and in some cases, indicate a very low level of learning even after students have spent years in school. In addition, these assessments are not without limitations. For example, test items are designed predominantly around cognitive skills, making it difficult to truly assess other skills such as creativity, communication, and collaboration, skills which are just as critical to learning.

However, students' scores are not the only valuable information which can be gleaned from these assessments. Indeed, the results and the data that is collected can be extremely useful at identifying underlying weaknesses and challenges. Assessments gather vast amounts of data, not only on students' scores, but on information relevant to schools, teachers, and households. This data can be crucial, and can lead to important decisions and changes in education systems. It is this large amount of data that offers an opportunity for secondary analysis. Learning assessments can be powerful tools for informing and reforming education policy. However, the use of education data to address education policy is relatively nascent in the Asia-Pacific, with many countries collecting large amounts of data, but left without the means to analyze or utilize this vast knowledge bank. The ability to analyze a variety of data, and interpret the factors that can contribute to or influence learning has the potential to make the education system more efficient, to place priority on issues that may not have been identified otherwise and to facilitate better decision-making for the investment and allocation of resources.

This report aims to find out how we can better analyze and utilize learning assessment data and design and implement policies to improve learning based on evidence. It provides a snapshot of the various challenges that countries face in terms of effectively utilizing assessment results, and responding to the trends that are occurring within their contexts. More work needs to be done, particularly with regard to strengthening the capacity of education systems, but the results shown here provide a good lesson for future policy and research.

Gwang-Jo Kim
Director
UNESCO Bangkok

Acknowledgements

Acronyms

ACER   Australian Council for Educational Research

ASER   Annual Status of Education Report

EQAP   Educational Quality and Assessment Program (Pacific Islands)

GDP   Gross Domestic Product

LEAP   Learning Enablers for Asia and Pacific

M&E   Monitoring and Evaluation

MoE   Ministry of Education

NEAS   National Education Assessment System (Pakistan)

NEQMAP   Network on Education Quality Monitoring in the Asia-Pacific

NGO   Non-Governmental Organization

OECD   Organisation for Economic Co-operation and Development

O-NET   Ordinary National Education Test (Thailand)

PDR   People's Democratic Republic (Lao PDR)

PILNA   Pacific Islands Literacy and Numeracy Assessment

PIRLS   Progress in International Reading Literacy Study

PISA   Programme for International Student Assessment

SBD   Solomon Islands Dollar

SDGs   Sustainable Development Goals

SEA-PLM   Southeast Asia Primary Learning Metrics

SISTA   Solomon Islands Standardized Tests of Achievement

SPC   Secretariat of the Pacific Community

TIMSS   Trends in International Mathematics and Science Study

UIS   UNESCO Institute for Statistics

UNESCO   United Nations Educational, Scientific and Cultural Organization

UNICEF   The United Nations Children's Fund

Executive Summary

Countries all across the globe are reaching to learning assessments as a way of improving educational outcomes. Whether through participation in international assessments such as the Programme for International Student Assessment (PISA), Trends in International Mathematics and Science Study (TIMSS) and Progress in International Reading Literacy Study (PIRLS) as well as in regional assessments such as the Pacific Islands Literacy and Numeracy Assessment (PILNA) and Southeast Asia Primary Learning Metrics (SEA-PLM), or national assessment programmes,[1] countries are investing more and more resources in assessing their learners. In addition to the results and scores, the type and use of data that is collected can have a profound impact on the performance of education systems. Data collected ranges from background information on students, teachers, school heads, and households to the content and outcomes of learning. Yet in many cases, much of this data is underutilized and underreported. Not only is learning assessment data underutilized, but so is data drawn from school surveys and inspections, teacher assessments and evaluations, and other information collected by Education Management Information Systems (EMIS) at the national level. As a result, the use of education-related 'big data' for evidence-based policy-making is limited, partly due to insufficient institutional capacity of countries to analyze such data and link assessment results to policy-making. Many countries therefore rely on research findings from learning assessments conducted in other countries and regions, even though these findings may not be relevant to their education systems or their country context.

In order to better understand the extent to which countries analyze and utilize their assessment data with the aim of identifying conditions that impact student learning outcomes, UNESCO Bangkok launched the Learning Enablers for Asia and Pacific (LEAP) Programme in 2015. Participating countries and researchers were selected based on their membership of UNESCO Bangkok's Network on Education Quality Monitoring in the Asia-Pacific (NEQMAP), as well as to represent various subregions within the Asia-Pacific. The LEAP programme included a mapping study, a regional capacity development workshop on utilizing assessment data, and a regional research study on analyzing national, international and citizen-led assessment data. The mapping study included a survey of assessment systems in the region, which was completed by country representatives. The survey included information on types of assessments, subjects covered, related policies, data analysis methods, and how countries utilized and disseminated assessment results. The capacity development workshop aimed to build the capacity of country participants in analyzing assessment data and utilizing results to better inform education policy and planning. At the workshop, countries completed an 'action plan', in which they decided which assessment data to analyze and their specific research questions. The case studies included a desk review of assessment systems, policies on assessments, and secondary analysis of national or international assessment data. A total of 15 countries participated in at least one of these activities, with the final case studies submitted by ten countries as listed in the following table. All of these activities were synthesized to produce this regional report on utilizing assessment data for evidence-based policy-making.

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1 Assessment programme refers to any individual assessment, whether international, regional or national. For example, PISA is an assessment programme.

Participating Countries

	South Asia	South-East Asia	East Asia	Pacific
Case studies	Afghanistan Bhutan Pakistan India & Pakistan (ASER)*	Malaysia Myanmar Thailand Viet Nam	Mongolia	Solomon Islands
Mapping study	Maldives Sri Lanka	Cambodia La PDR	Republic of Korea	

Note: Annual Status of Education Report (ASER) study was a joint study looking at citizen-led assessments in India and Pakistan. More information is provided in the report.

Key findings

Mapping of Assessment Systems

The first activity undertaken in the programme aimed to gather information on learning assessments and map how assessment systems are organized and carried out across the Asia-Pacific region. Fifteen countries within the region were given questionnaires to complete that asked for detailed information on the countries' national assessment programmes, policy and planning, data analysis, use of assessment data and dissemination of the results. Thirteen countries in the Asia-Pacific region completed the questionnaire with the results used to form the mapping study.

Seven of these countries, just over half of the total, reported that they had participated in an international or regional assessment within the past ten years. All the countries surveyed currently have national assessment programmes (though at varying stages of development), and most conduct background surveys with students, teachers and schools. The most common subjects assessed across the region are mathematics, science and language. The countries reported that they aim to measure knowledge of the curriculum as well as the application of knowledge. In addition, half of the countries indicated that they also measure students' interests, which makes for a very interesting finding. The overall purpose of assessments varies from identifying factors in student performance, supporting education policy development, providing recommendations for curriculum review and reform, and monitoring the quality of education. This can vary from country to country, but also within country as some countries listed more than one assessment, each having slightly different purposes and objectives.

More than half of the countries surveyed have no specific education policy for learning assessments, though learning assessments may be covered under an overall education policy. The results of the mapping study indicate that most of the countries used the results of their assessments to review national curriculum and education policy, the two highest responses in the survey, as well as for professional development. However, very few actually use these results for learning interventions at the classroom level.

In terms of sharing and disseminating assessment results, most countries disseminate the results to education stakeholders and hold seminars or meetings for policy-makers. Only some of the countries provide feedback to students, parents and teachers, or publish the results online, and only four countries reported that they issue a press release of the findings.

Case Studies

Following the capacity development workshop, country researchers then conducted secondary analysis of learning assessment data from their countries. While most countries examined national assessment data, Malaysia examined TIMSS 2011, Myanmar collected primary data and India and Pakistan examined the results of citizen-led assessments conducted by the Annual Status of Education Report (ASER).

Student Achievement

The objective of the case studies was not to evaluate overall student performance, but instead to provide an overview of possible factors that may lie beneath performance results. Since countries use different assessment criteria, data, sample methods, coverage, analysis methods and assessment frameworks, the results of student performance are not directly comparable. Based on each country's set criteria of achievement levels, many of the case studies (Bhutan, ASER India & Pakistan, Malaysia, Pakistan, Solomon Islands, and Thailand) reported that overall performance was low, or poorer than expected. Only Viet Nam reported that the majority of its students performed at the country's set criteria for average or above-average levels. In general, it was found across the case studies that girls performed better at language subjects compared to boys. However, boys often performed better in mathematics or sciences. This would indicate that in addressing these differences it may be necessary to properly gauge students' interest in subjects, as well as determine if sex-specific interventions are necessary.

Contributing Factors to Better Learning Outcomes

Following a review of the case studies, several common factors influencing student learning outcomes were identified. These include: school location (urban vs rural); school type (private vs public); student-teacher ratio and class size; teacher education, qualification and experience; student attitude; household income and expenditure on education; and parental occupation, education and involvement in children's education. Overall, the case studies indicate that several of these factors contribute to, or are closely related to, student learning outcomes. In no particular order, these are:

- Performance is better in urban areas
- Performance is better with parents who are involved in student's learning
- Performance is better in households with higher income and expenditure on education
- Performance is better when students are engaged and like their classes and schools
- Performance is better when students have qualified teachers

Socio-economic indicators also suggest that families which are better off financially seem better able to support their children in terms of learning achievement. This is true for parents who: send their children to private schools; provide opportunities for private tutoring; spend more money on education-related expenses; have higher education; have higher paying occupations; and provide a better home environment (i.e. study space, or involvement and encouragement) for their children. Urban students perform better than rural students in most cases, which shows that there are likely socio-economic differences between urban and rural schools. Education policies can be formulated to address this disparity by ensuring school facilities are adequate and that qualified teachers are motivated to teach in these areas.

Issues and Challenges

The case studies identified several challenges that learning assessment data could address. Some of these relate to education systems in general, such as the disparity between urban and rural schools, private and public schools, teacher quality, school infrastructure and materials, and student engagement. However, the main challenges that countries face in their learning assessment programmes are lack of technical capacity and infrastructure, and limited financial resources to effectively carry out the analysis and fully utilize the results. In one way or another, all of these challenges hinder education systems in improving learning outcomes.

Recommendations[2] and Way Forward

The conclusions from the mapping study and case studies provide us with the following overall recommendations for follow-up, with an objective of maximizing the utilization of learning assessments for better learning outcomes. The report lists four policy areas that may be of interest to Member States to improve the function and operation of learning assessments, the utilization of data, and ultimately, student learning outcomes. These are to:

1. Develop national learning assessment policies, analytical frameworks, and monitoring and evaluation frameworks that can guide countries for improved learning outcomes;

2. Develop capacity of staff to collect, interpret, and report data and translate key messages into policy needs;

3. Mandate the dissemination of assessment results in order to promote evidence-based policy-making in the education system; and

4. Utilize results and evidence to improve the quality and capacity of teaching and learning, including curriculum and pedagogy.

Member States in the region may take a strategic effort in addressing assessment policies, research and analysis skills, and reporting and advocacy, in order to improve the utilization of learning assessment results and the accompanying data. Developing effective **assessment policies** can provide the necessary institutional arrangements for a well-functioning assessment system to inform education practitioners and policy-makers. In addition, staff will need the capacity to engage in both qualitative and quantitative research. Improved **research and analysis skills** include the ability to interpret data and identify relationships in order to prepare possible remedies to the issues and challenges. Finally, **reporting and advocacy** are important for achieving success in delivering policy change based upon the evidence from learning assessments, as research and analysis skills alone will not impact policy change or secure the resources needed to implement the policy actions and plans.

2　Country-specific recommendations can be found in Annex A.

Part 1
Introduction

1 Background

Large-scale data on learning assessments are becoming increasingly available. International assessments such as the Programme for International Student Assessment (PISA) and the Trends in Mathematics and Science Study (TIMSS) collect vast amounts of data on schools, students and households. PISA, for instance, with an increasing number of countries participating every time, has become a very powerful tool in education policy-making. While the framework of such assessments has clear limitations, for instance limited coverage of those in formal schools and emphasis on cognitive skills, they offer great potential for secondary analysis. In addition, most countries have assessment mechanisms with nation-wide coverage for both high stakes and low stakes tests. However, the use of education-related 'big data' for evidence-based policy-making is limited, partly due to insufficient institutional capacity of countries to analyze such data and link results with policy-making. Many countries therefore rely on research findings from other countries and regions, even though these findings may not be relevant to their country context or their education systems.

In order to improve the use of student learning assessment data in strengthening education systems, and to support evidence-based policy-making in improving education quality, UNESCO's Asia-Pacific Regional Bureau for Education (UNESCO Bangkok) launched a regional programme called 'Learning Enablers for Asia and Pacific' (LEAP). The LEAP programme aims to develop the capacity of Member States in designing and implementing policies to improve learning based on evidence. For the implementation of LEAP programme activities, UNESCO Bangkok leveraged the Network on Education Quality Monitoring in the Asia-Pacific (NEQMAP).[3]

Box 1	**Key Definitions**

Learning assessment

This is the process of gathering and evaluating information on what students know, understand, and can do in order to make an informed decision about next steps in the educational process.

Assessment system

This is a group of policies, structures, practices, and tools for generating and using information on student learning and achievement.

International and regional large-scale assessment

This is a process where student learning is assessed and data is collected from a number of countries following the same assessment framework, thereby allowing each country to compare the results of the performance of its students with the results achieved by students in other countries and to monitor trends over

time. Data on the students' teachers', and schools' background information are usually collected to understand the relationship between learning achievement and other characteristics. Well-known international assessments include: Programme for International Student Assessment (PISA); Trends in International Mathematics and Science Study (TIMSS); Progress in International Reading Literacy Study (PIRLS). Regional assessments in the Asia-Pacific include: Southeast Asia Primary Learning Metrics (SEA-PLM) and the Pacific Islands Literacy and Numeracy Assessment (PILNA).

National and sub-national large-scale assessment

This is an assessment of student learning designed to describe the achievement of students in a curriculum area calculated to provide an estimate of the achievement level in

the education system as a whole, at a particular age or grade level. It normally involves administration of tests either to a sample or population of students. Teachers and others may be asked to provide background information, usually in questionnaires.

National examinations

An assessment specifically designed for the purposes of certifying or selecting students, usually covering the main subject areas in the school curriculum. Generally, all students who are at the designated age or grade level are tested (usually at the end of upper secondary schooling). These are often referred to as 'high-stakes' exams.

Note: **For this report, countries may have used data from international assessments, national assessments, and national examinations.**

Sources: **Clarke (2012); UNESCO (2013).**

NEQMAP is a regional platform established by UNESCO Bangkok in 2013 for networking and information exchange on monitoring learning to raise the quality of education in Member States. NEQMAP aims to improve the quality of learning in the Asia-Pacific by enhancing the use of student learning assessment to strengthen education policy and practice. In order to do so, the network promotes knowledge sharing, research and capacity-building on assessment and other factors that contribute to better learning outcomes in the classroom including curriculum and pedagogy.

The LEAP programme utilizes and enhances NEQMAP by exploring how countries monitor learning outcomes. In addition, the countries in the Asia-Pacific region, with diverse experiences from a wide range of perspectives, have tremendous potential to learn from each other and collaborate to improve the way learning is monitored and to use assessments in order to improve learning across the region.

The overall goal of the LEAP programme is to improve the quality of learning in the Asia-Pacific region by developing the capacity of Member States to collect, analyze and utilize international and national assessment data with an aim to identify factors contributing to better learning outcomes. This capacity will allow Member States to then translate education results and evidence into policy formulation and implementation.

2 Methods

The LEAP programme activities included various methods: a mapping study, a regional capacity development workshop on utilizing assessment data, and a research study on analyzing national and international assessment data. The results from all of these activities were synthesized to produce this report.

As UNESCO's Regional Bureau for Education in the Asia and Pacific, UNESCO Bangkok identified countries within the Asia-Pacific region that could analyze and report on their national or international assessment datasets. Through NEQMAP members, UNESCO Bangkok sent invitations and nomination requests to various countries in the hope of securing their participation in LEAP programme activities. Countries and teams that were initially targeted were already NEQMAP members, while others were also identified in order to ensure representation from different sub-regions. In order to participate in the programme, UNESCO Bangkok requested that country teams comprise government officials from the Ministry of Education (or relevant ministries) who work in: 1) conducting quantitative analysis of national or international assessment data; and 2) planning and formulating policy of their respective education systems. In addition, UNESCO Bangkok invited members of the ASER Centre from both India and Pakistan, to share their experiences in citizen-led assessments.[4] To represent the entire region, countries were selected to represent the sub-regions within the Asia-Pacific[5] (see Table 1).

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4 Citizen-led assessments are independent of government. Unlike other large-scale assessments that are coordinated by government organizations (i.e. Ministries of Education), citizen-led assessments are led by NGOs, which develop the tools, train the volunteer assessors, process the data, and analyze and disseminate the reports. For more information, see Box 2.

5 Unfortunately, no country from Central Asia was able to participate.

Table 1. Countries Participating in the LEAP Programme

South Asia	South-East Asia	East Asia	Pacific
Afghanistan	Cambodia[1]	Republic of Korea[1]	Solomon Islands[5]
Bhutan	Lao PDR[1]	Mongolia	
India[3]	Malaysia		
Maldives[1]	Myanmar		
Pakistan[3,4]	Thailand[2]		
Sri Lanka[1]	Viet Nam		

Notes: Countries listed were represented by officials within the Ministry of Education unless otherwise noted.

1. Did not participate in the research study.
2. Did not participate in the mapping study.
3. ASER Centre, an NGO affiliated with the Pratham Education Foundation (India) and Idara-e-Taleem-o-Agahi (ITA) (Pakistan), which conducts a large citizen-led assessment programme, participated from India and Pakistan.
4. Pakistan was also represented by National Education Assessment System and Ministry of Education officials.
5. Solomon Islands was represented by officials from the Education Quality and Assessment Programme (EQAP), Secretariat of the Pacific Community (SPC).

2.1 Mapping of Learning Assessments in Asia-Pacific

As part of an ongoing NEQMAP activity, which aims to map assessment systems in the Asia-Pacific region, the LEAP programme gathered information on the various learning assessment programmes of the participating countries. A questionnaire,[6] along with a request for background documents, was sent to all the participating countries of the region. The questionnaire was designed to collect information on international, regional, and national assessments that have been conducted in the past ten years (since 2005). The questionnaire collected information such as: target age or grade, subjects assessed, purpose of assessment, data analysis, and use of data.

Thirteen countries responded, and the questionnaire was completed by a member of the Ministry of Education or division responsible for learning assessments. This questionnaire was then used to conduct a mapping of national practices of collecting, analyzing and utilizing international and national assessment data for policy formulation and implementation. The background documents included education policy documents relevant to learning assessments, along with actual learning assessment tools, test manuals or guidebooks, test booklets, background questionnaires, and statistical reports among others. The purpose of this activity was to gather current information on national assessment programmes and to understand the relationship countries have in analyzing the results, as well as how they utilize these results to inform policy and planning decisions within their education systems. The collected results were provided to each member for verification before being utilized in this report.

2.2 Regional Capacity Development Workshop

As part of the LEAP programme, a capacity development workshop[7] was hosted by UNESCO Bangkok from 14–18 September 2015 in Bangkok, Thailand. The workshop aimed to build capacity in the country participants in analyzing assessment data and utilizing evidence to better inform education policy and planning. Teams from 17 countries in the Asia-Pacific region participated in the workshop: Afghanistan, Bhutan, Cambodia, India, Republic of Korea, Lao PDR, Malaysia, Maldives, Mongolia, Myanmar, Pacific Islands[8] (Solomon Islands and Tuvalu), Pakistan, Sri Lanka, Thailand, Timor-Leste and Viet Nam. The workshop was facilitated by colleagues from the Australian Council for Educational Research (ACER).[9]

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6 See Annex B for the full questionnaire.

7 More information on the capacity development workshop can be found here: http://bangkok.unesco.org/content/workshop-analyzing-and-understanding-learning-assessment-evidence-based-policy-making

8 The Pacific Islands team comprised two officials from the Education Quality and Assessment Programme (EQAP), Secretariat of the Pacific Community. To learn more, see: http://www.spc.int

9 For more information on ACER see: https://www.acer.edu.au/

The UNESCO Institute for Statistics (UIS) also provided important support to the workshop. Following knowledge sharing on different national, regional and citizen-led assessments, as well as input from the Organisation for Economic Co-operation and Development (OECD) on PISA, the workshop kept a technical focus, covering the development of analytical frameworks, introductory statistics, hypothesis testing, regression analysis, survey data structure and an introduction to hierarchical linear modeling. In addition, there were interesting sessions on the usage and presentation of assessment results, as well as a discussion on practical considerations such as: logistics and feasibility of assessment programmes, sampling issues, confidentiality, ensuring relevance of the curriculum, textbooks and assessments, and reporting of sensitive data and results. As a final activity, teams produced action plans to guide the research and analysis that they would undertake following the workshop, including an estimated timeline. This 'action research' approach aimed to enhance country capacity in analysis of assessment data, which allows for better utilization of this data for policy-making in order to improve learning.

Box 2	Citizen-led Assessments – ASER

An innovative approach to learning assessment has been implemented by the Annual Status of Education Report (ASER) in several Asian and African countries. Using basic reading and arithmetic tasks, these countries have engaged community members to assess for themselves what their children are able to do by conducting a household based assessment mostly in rural areas. The model first began in India in 2005 and has been adapted for use in Pakistan (2008), Tanzania, Kenya, and Uganda (2009), Mali (2011), Senegal (2012), Mexico (2014), Nigeria and Bangladesh (2015), and most recently Ghana, Mozambique, Cameroon and Nepal (2016). In India and Pakistan, the exercise is called ASER (meaning 'impact'), while in East Africa it is called *Uwezo* (meaning 'capability'). The Mali effort has been named *Beekungo* (meaning 'we are in it together') and in Senegal it is called *Jangandoo* (meaning 'learn together'). In 2014 alone, these citizen-led, large-scale, household-based assessments covered over one million children in South Asia and sub-Saharan Africa and are gathering momentum by illustrating the power of informed citizenry to influence national and global agendas for education and learning.

These assessments use rigorous sampling methodologies and generate representative samples of children at national and sub-national levels. The tools are designed to be simple so that parents, teachers, schools, communities and ordinary people may understand the findings and conduct the assessment themselves. Together these efforts provide large-scale, annual, easily understandable indicators of children's ability to read simple text and do basic arithmetic operations. Hence, such citizen-led assessments of basic learning have three primary objectives: (i) to put children's learning at the centre of the debates and discussions on education in their own countries; (ii) to engage citizens everywhere in understanding their children's learning levels; and (iii) to promote government, parent and citizen action to influence education policy and practice from the bottom-up.

The ASER approach differs in fundamental ways from that of other large-scale learning assessments. The guiding principles of the model can be summarized as (i) household-based assessment, so as to include all children – those in government schools and private schools, as well as those not in school or not attending on the day of the school visit; (ii) assessment of children's mastery of basic reading and arithmetic, rather than grade level competencies, using tools that are simple to administer and easy to understand; (iii) involvement of 'ordinary citizens', in conducting the assessment and disseminating the results; and (iv) the generation of estimates at district, state, and national levels, so as to facilitate local level discussions, planning and action.

Source: Dave and Saeed (2016).

2.3 Case Studies

Based on the background information collected from the questionnaire, a research framework[10] was developed to guide and assist the countries in the preparation of case studies. The case studies aimed to conduct secondary analysis of existing data and results of national and international student assessments. The case studies also utilized secondary data obtained from other studies and surveys if necessary, available and applicable. The research framework encouraged the collection of primary data, if needed, to supplement the main analysis of student assessments. In other words, the research encouraged multiple sources of data regarding student performance and student background

10 See the LEAP Programme Research Framework in Annex C.

information. Along with the research framework, an outline was also sent to all the countries to guide them in the preparation and submission of their case studies.

The overarching objective was to understand factors that would contribute to improved learning, based on the analysis of national or international assessment data. This objective was fairly ambitious and quite broad of scope, especially for a limited research study. Countries were therefore encouraged to narrow their field as well as to simplify their research in order to fit within the timelines and parameters of the data at their disposal. Researchers used secondary data from national or international datasets, national household surveys or census, as well as any other data that they collected previously.

While all case studies used the research framework as an overarching guide, the case studies carried out by the country researchers were not uniform. In most cases,[11] the datasets were based on national assessments, which test different subjects and grade levels and use different methods and tools (see Table 2). The analysis therefore varied depending on the guiding questions for each country and the learning assessment that they chose (i.e. grade level and subjects). Table 2 provides an overview of the different assessments examined in the research.

Table 2. Assessment Data used for LEAP Programme Case Studies

Case Study	Assessment	Subject(s)	Year	Grade	Sample Size
Afghanistan	Class 6 Proficiency in Afghanistan	mathematics, reading and writing literacy	2013	Grade 6	5,979 students from 110 schools in 13 provinces
Bhutan	National Education Assessment	mathematics, English	2013	Grade 10	5,581 students from 45 schools across 20 districts and 2 cities
Malaysia	Trends in Mathematics and Science Study (TIMSS)	mathematics, science	2011	Grade 8	5,733 students from 180 schools
Mongolia	National Assessment of Primary Education	mathematics[1]	2014	Grade 5	4,414 students from 100 schools in both urban and rural areas
Myanmar[2]	n/a	mathematics, English	2015	Grade 5	88 students from 5 schools
Pakistan	National Achievement Test	mathematics, Urdu (reading and writing)	2014	Grade 4 and 8	11,200 students from 448 schools (5,600 students from 224 schools for each grade)
Solomon Islands	Solomon Islands Standardized Test of Achievement (SISTA)	literacy and numeracy	2013	Grade 6	3,000 students from 200 schools (of which 30% completed background questionnaire)
Thailand	Ordinary National Education Test (O-NET)	all curricular subjects	2011	Grade 9	3,039 students completed questionnaire (of which 1,425–1,439 included O-NET scores)
Viet Nam	Grade 5 Student Achievement in Mathematics and Vietnamese	mathematics, Vietnamese	2010–2011	Grade 5	73,200 students from 3,660 schools
India & Pakistan (ASER)	Annual Status of Education Report (ASER)	reading literacy, arithmetic, English	2014	N/A[3]	**India:** 585 rural districts covering 341,070 households and 569,229 children of age 3–16 years.[3] **Pakistan:** 279,427 children of age 3–16 years3 in both urban and rural areas

Notes:
1. The Mongolia National Assessment of Primary Education assesses mathematics, Mongolian, and science; however, for this case study the researchers only examined mathematics results.
2. Myanmar used primary data they collected themselves, not data from a national or international assessment. Because the sample size of the Myanmar study is notably different from the other case studies, the Myanmar study has not been included in the case study results and may be published separately.
3. India and Pakistan (ASER) programme surveys all children aged 3–16 years within the household, however, the programme assesses children aged 5–16, regardless of their grade or level.

11 Malaysia used TIMSS 2011 data; Myanmar used primary data collected by researchers; and ASER (both India and Pakistan) used their citizen-led assessment data.

Many of the case studies examined their assessment data in terms of sex, location (rural vs urban, differences between different regions or provinces) or factors related to socio-economic status. Some countries added other factors into their research. For example, Bhutan looked at their assessment results together with student attitudinal and motivational factors, while Thailand examined the effect that household spending on education has on student performance. The citizen-led assessment of ASER also analyzed results based on the type of school (private vs public) that students were enrolled in. The research and analysis of this secondary data was carried out following the workshop in September 2015.

2.4 Limitations of the Study

This report is based on a mapping study of 13 countries in addition to nine case studies of national or international assessments and one case study that combined the citizen-led assessments of India and Pakistan. The mapping study was based on self-reported questionnaires in which the responses were also self-verified. Therefore, subject bias and possible error due to confusion in terminology or question phrasing is possible.

As explained earlier, the research participants were chosen in a deliberate attempt to reflect a diversity of contexts from across the Asia-Pacific region. Thus, as an extremely large and diverse region, the case studies reflect the varying conditions that exist. Included in the research are countries with high-performing education systems, as well as those which are currently re-building their education systems after years of conflict. Geographic, economic, political and demographic differences between the countries are also quite extreme. All of these different contexts make it very difficult to make straightforward comparisons, and therefore this report is presented as a synthesis rather than a comparative study.

More specifically, each research team was free to establish their main research questions based upon their country-specific contexts. As a result, no two case studies were the same and no two case studies used the same data. The sample sizes, the grade levels, the types of analysis, and the lack of qualitative data and analysis further contribute to the complexity and difficulty in reaching general conclusions.

Finally, the quality and detail of the analysis within the case studies also vary. This is consistent with one of the major overall findings; that capacity to analyze and utilize educational data and assessment data for evidence-based policy-making is lacking. In many cases, there is a disconnect between the analysis of the data and the discussion of the results, which does not create the effective linkages that are necessary to inform evidence-based policy-making. Some reports were quite detailed in their analysis and explanations, while others only briefly reviewed the overall characteristics of their national data. Some reports were able to formulate relevant policy-related recommendations, while others focused on the challenges that exist without examining possible recommendations. In some cases, the reports do not clearly examine what the underlying conditions may be, or are unsure of how to link the various data to examine proper relationships between variables. There were few discussions on the possible constraints of resource mobilization for implementing the recommendations made. Finally, concrete measures for policy change, resource allocation and fundraising were not fully developed in all cases.

On the positive side, the case studies do contain several useful points, and this research in itself has been a valuable exercise to show the level of capacity that some countries of the Asia-Pacific region have regarding analyzing and utilizing assessment data for education policy and planning.

3 Country Background Information

The geographic area covered by the countries involved in this study spreads from **Afghanistan**, **Pakistan**, **India** and **Bhutan** in South Asia, through **Myanmar**, **Malaysia**, **Thailand** and **Viet Nam** in South-East Asia, in East Asia, to the **Solomon Islands** in the Pacific. The geographic diversity encompasses an enormous variation of climate and topography, ranging from tropical to temperate, and from the Himalayas to coral reefs.

Socially and culturally, the countries in the study cover just as great a variation; the ethnic, linguistic and religious diversity is remarkable. Most of the countries are multi-ethnic, multi-religious, multi-linguistic and multi-cultural in nature, and are home to significant populations of some of the world's major religions: Buddhism, Christianity, Hinduism, and Islam.

3.1 Socio-economic Background

It has been estimated that the entire Asia-Pacific region, which consists of 49 countries,[12] is home to more than 4.4 billion people – or approximately 60 per cent of the world's population (UNESCAP, 2015). The following table indicates select demographic characteristics of the countries covered by this study.

Table 3. Country Context

Country	Geographic Area (In km²)	Population (in thousands)	Population Growth (%)	Rural population (%)	GDP per capita (current US$)	GDP Growth (annual %)
Afghanistan	652 860	32 527	2.7	74	634	1
Bhutan	38 395	775	1.2	62	2 561	5
India	3 287 260	1 311 051	1.2	68	1 582	7
Malaysia	330 800	30 331	1.4	26	11 307	6
Mongolia	1 564 120	2 959	1.6	29	4 129	8
Myanmar	676 590	53 897	0.9	66	1 204	8
Pakistan	796 100	188 925	2.1	62	1 317	5
Solomon Islands	28 900	584	2.0	78	2 024	2
Thailand	513 120	67 959	0.3	51	5 977	1
Viet Nam	330 972	93 448	1.1	67	2 052	6

Note: Data as of latest available date.
Sources: UIS database (n.d.); UNESCAP (2015); World Bank (n.d.) .

Table 3 highlights that the population sizes of the countries covered in this study vary greatly, from over 1.3 billion in India to nearly 600,000 in the Solomon Islands. The most recent highest annual population growth rate has been recorded by Afghanistan with 2.7 per cent, followed by Pakistan and the Solomon Islands (roughly 2 per cent each). Thailand reported the lowest growth rate at 0.3 per cent. Population growth in the region as a whole is relatively low, growing at 0.9 per cent in 2015 (UNESCAP, 2015).

12   These 49 countries are listed as members and associate members by UNESCO.

The highest proportion of rural population is seen to be in the Solomon Islands (78 per cent); followed by Afghanistan (74 per cent) and India (68 per cent); with the lowest proportion recorded by Malaysia (26 per cent) and Mongolia (29 per cent). The low proportion of rural population in Malaysia and Mongolia points to higher levels of urbanization than the other countries. This is an interesting point among these countries, and one that will be examined further when looking at the contextual factors that affect student performance and learning.

Like all other indicators, the economic condition across the countries is quite different. Some countries (India, Malaysia, Thailand, Viet Nam) have middle-income economies that rely on a variety of industries, namely manufacturing and services, in addition to agricultural products. Other countries rely on natural resources and agriculture as their main industries (Bhutan, Mongolia, Myanmar, Solomon Islands). Most Solomon Islanders live in rural communities based on traditional village social structures and are dependent on subsistence agriculture supplemented by cash cropping, fishing and forest products. Afghanistan still remains one of the poorest and least developed countries in the world and is highly dependent on foreign aid.

Table 3 also provides a simple comparison of Gross Domestic Product (GDP) rates across the countries, with relatively high GDP growth rates witnessed by Mongolia and Myanmar (8 per cent each), India (7 per cent), followed by Malaysia and Viet Nam (6 per cent each). Bhutan and Pakistan have witnessed moderately high growth rates (5 per cent each). The lowest among the lot have been recorded by Thailand and Afghanistan (1 per cent each) and the Solomon Islands (2 per cent).

Despite the economic growth across the region, poverty and inequality are still prominent in many of the countries. India, for instance, is the largest functioning democracy of the world and a middle-income economy, yet more than 20 per cent of the population lives below the poverty line (World Bank, 2011). The equitable distribution of the benefits of economic development still remains a challenge. Improving the quality of education can play a vital role in effectively addressing the poverty gap, as well as sustaining economic growth and development.

Some of the countries in the region have newly formed governments and have undergone significant political changes in recent years. Afghanistan is now emerging from years of war and conflict, and political stability is still uncertain. Since 2011, the government of the Republic of the Union of Myanmar has launched an ambitious and wide-ranging series of economic, political and administrative reforms that are impacting all aspects of Myanmar's society. It recently had its general elections in 2015, heralding a transition to a full-fledged democracy. Thailand has also seen political turmoil over the past decade, with several coup d'états and changes of government; at the time of writing the military occupied the role of government.

Nonetheless, the political leadership of the countries participating in the LEAP programme shows commitment to educational outcomes and to education quality.

3.2 Education Systems

Just as there are significant variations between the countries' economic and political conditions, there are also varying characteristics of their education systems. These underlying conditions are key for policy-makers and education planners to understand in order to address shortcomings and challenges. In this section, the participating countries´ current education systems are examined with regard to structure, enrolment, literacy, expenditure, and human resources.

Education Structure and Years of Schooling

Education in the Asia-Pacific region is based on internationally recognized standards. However, countries do vary slightly in terms of their education structure and who is responsible for carrying out and ensuring education quality. In most countries education is the responsibility of a Ministry of Education (MoE), or a similar government department that organizes and carries out the delivery of education. These powers are typically granted in the constitution or similar legislative document, such as an Education Act for instance, and aim to ensure that all citizens have the opportunity and right to education. The following table describes each country's commitments to free and compulsory education.

Table 4. Free and Compulsory Education by Country

Country	Free	Compulsory
Afghanistan	All education levels	9 years (Primary, Lower Secondary); ages 7–16
Bhutan	Up to Class X (Primary, Lower Secondary)	Not compulsory
India	Ages 6–14 (Primary, Lower Secondary)	Ages 6–14 (Primary, Lower Secondary)
Malaysia	11 years (Primary, Secondary)	6 years (Primary); ages 6–11
Mongolia	All education levels	12 years (Primary to Secondary); ages 6–17
Myanmar	5 years (Primary)	5 years (Primary); ages 5–9
Pakistan	Ages 5–16	Ages 5–16
Solomon Islands	6 years (Primary)	Not compulsory
Thailand	15 years (Pre-primary to Secondary)	9 years (Primary, Lower Secondary); ages 6–15
Viet Nam	5 years (Primary)	10 years (Primary, Secondary); ages 6–14

Sources: UIS database (n.d.); UNESCO (2015b).

Education systems are categorized into pre-primary, primary, secondary, and tertiary (or higher) education levels. Basic education, which is often free and compulsory, is usually comprised of primary and secondary (lower) levels. The official entrance ages to these levels also vary between countries. Figure 1 depicts both the usual entrance age for each level, as well as the duration. Students tend to enter pre-primary education between ages 3 and 4, which usually lasts for 2–3 years before students enter primary education. As indicated in Table 4, pre-primary education is not compulsory in most countries. Primary education in these countries mainly lasts for 5 or 6 years, followed by another 3–7 years of secondary education.

Figure 1. School System Structure by Country
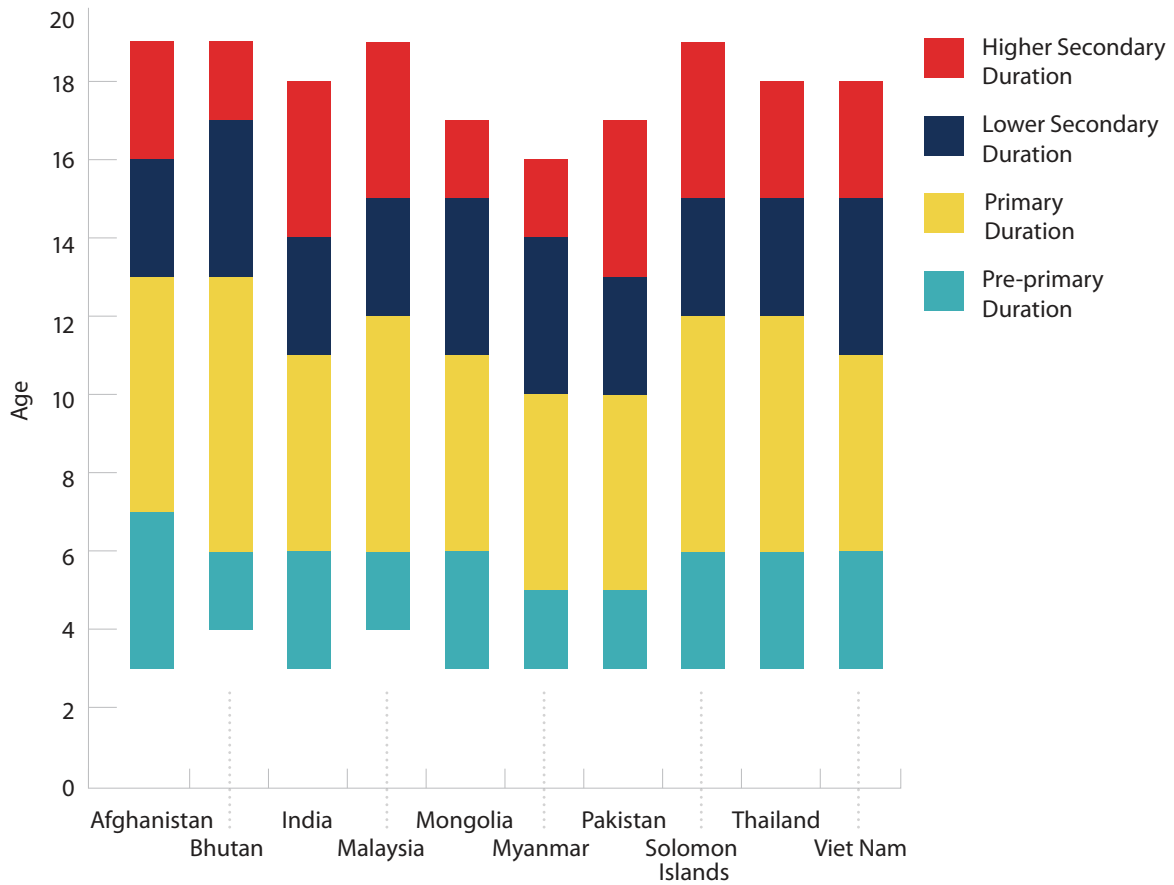
Source: UIS database (n.d.).

Access to Education and Enrolment Rates

Given the focus of the Millennium Development Goals (MDGs) and Education for All (EFA) movement to expand access to education, many countries placed great emphasis on preparing suitable infrastructure and conditions that would get learners into the classroom. Current enrolment rates from the countries in this study indicate that many countries have indeed improved their school enrolment rates over the past several years. Figure 2 shows the enrolment trends over the past 15 years, and many countries are reaching quite high rates in recent years. Much of the improvement occurred in South Asia, with Bhutan improving from roughly 60 per cent enrolment in 2000 to nearly 90 per cent enrolment in 2014, and Pakistan and India following with improvements from nearly 60 to 80 per cent and 85 to 98 per cent respectively. As of 2014, most of the countries in the study have a total net enrolment rate of over 80 per cent. These numbers are for primary enrolment, and correspond to the earlier commitments many countries have placed on free and compulsory education.

Figure 2. Total Net Enrolment Rates at Primary Level, 2000–2014
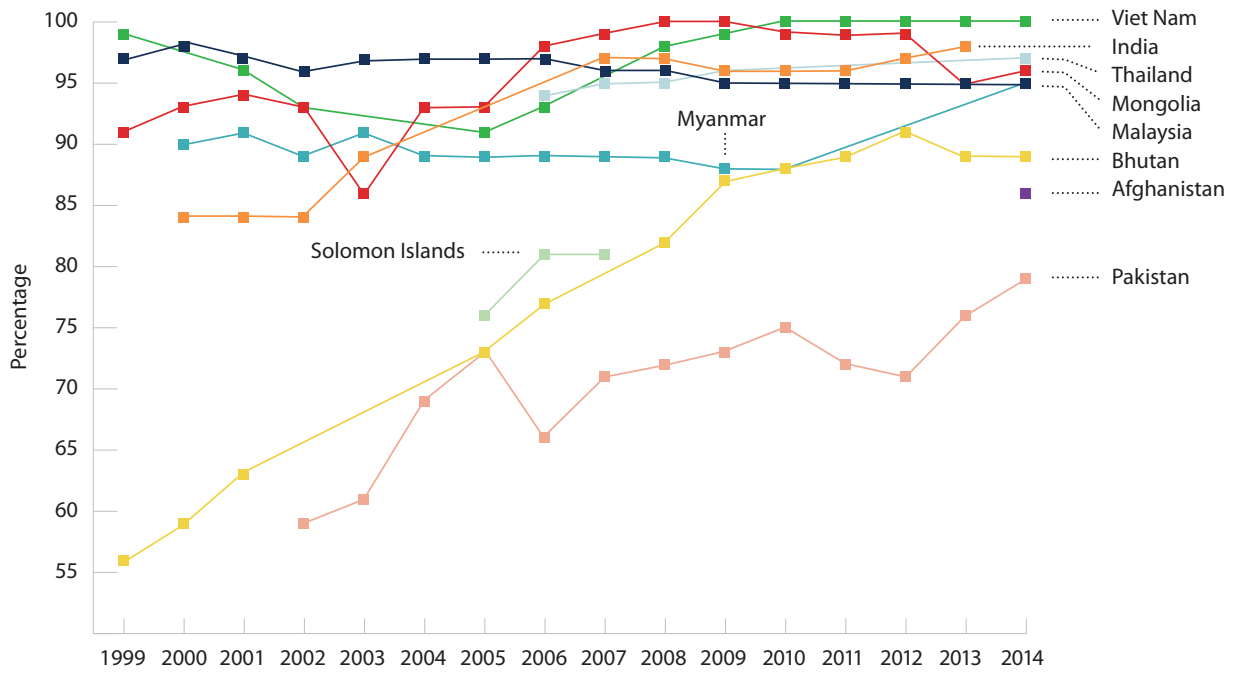
Source: UIS database (n.d.).

Figure 3 however, shows the most recent enrolment rates (as of 2014, or latest available date) for primary and lower secondary education. This figure clearly shows that a significant number of children still do not progress to secondary school from primary school. This gap indicates signs of inefficiency and issues in providing quality education for learners at higher grades.

Figure 3. Total Net Enrolment at Primary and Lower Secondary Level by Country, 2014
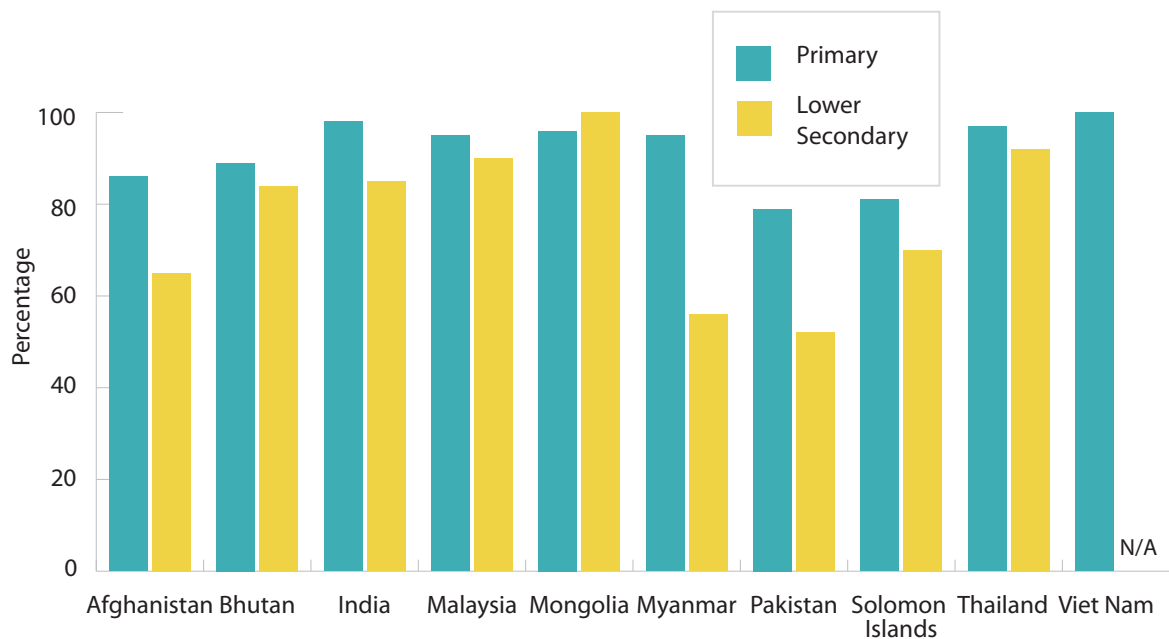
Notes: Viet Nam lower secondary data not available. Data as of 2014 with the exception of India (2013) and Solomon Islands (2007).
Source: UIS database (n.d.).

11

Adult Literacy Rates[13]

Literacy rates, like the overall performance of the education systems, vary greatly. Literacy shows the effectiveness to some degree of the country's education system and the quality that it provides. In Figure 4, it is clear that some countries are nearing universal literacy rates, while others are slowly improving their adult literacy rates to a majority of the adult population.

Figure 4. Adult Literacy Rates by Country, 2015
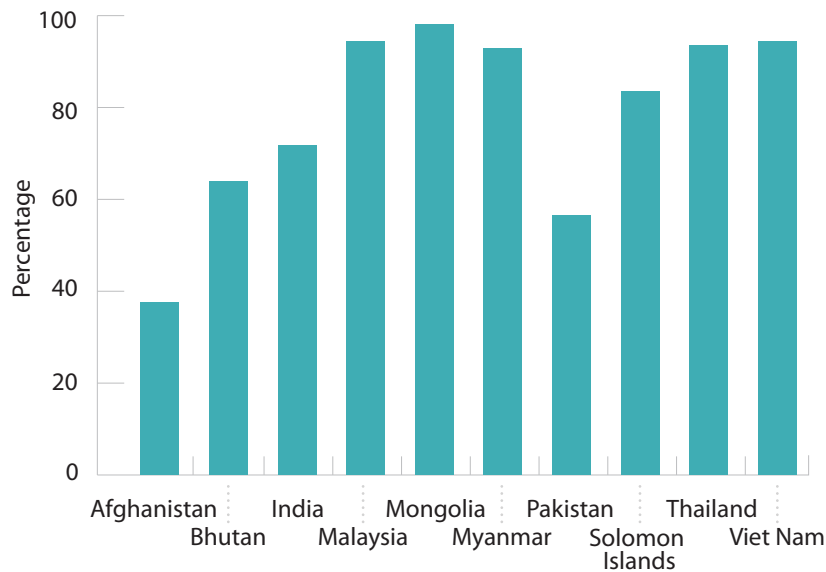
Note: Solomon Islands figures are from 2009.
Sources: UIS database (n.d.); World Bank (2012).

Malaysia, Mongolia, Myanmar, Thailand and Viet Nam all report adult literacy rates of over 90 per cent. The Solomon Islands reports over 80 per cent, India over 70 per cent, and Bhutan and Pakistan 60 and 50. Afghanistan reports the lowest rate of adult literacy, increasing slightly over the last few years to just under 40 per cent. This is highlighted as a significant challenge in the Afghanistan case study – a recent government survey reported that approximately 95 per cent of women in the country are illiterate, and in the case of men it is about 90 per cent. According to these rates, it makes it one of the highest illiteracy rates in the world.

Expenditure on Education

It is agreed that spending and investing on education is crucial, with international benchmarks showing that 4–6 per cent of GDP and 15–20 per cent of public expenditure should be allocated to education systems as outlined in the Addis Ababa Action Agenda[14] (UNESCO, 2015b). Most countries fall within the above-mentioned ranges (see Figure 5), however increasing budgets alone do not ensure that the quality of education will improve. How the money is allocated and used is far more important than how much money is spent.

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13 Adult literacy rate: Percentage of population aged 15 years and over who can both read and write with understanding a short simple statement on his/her everyday life (UIS n.d.).

14 The Addis Ababa Action Agenda is the outcome document of the Third International Conference on Financing for Development held in Addis Ababa, Ethiopia and was adopted by the UN General Assembly in July 2015.

Figure 5. Expenditure on Education by Country
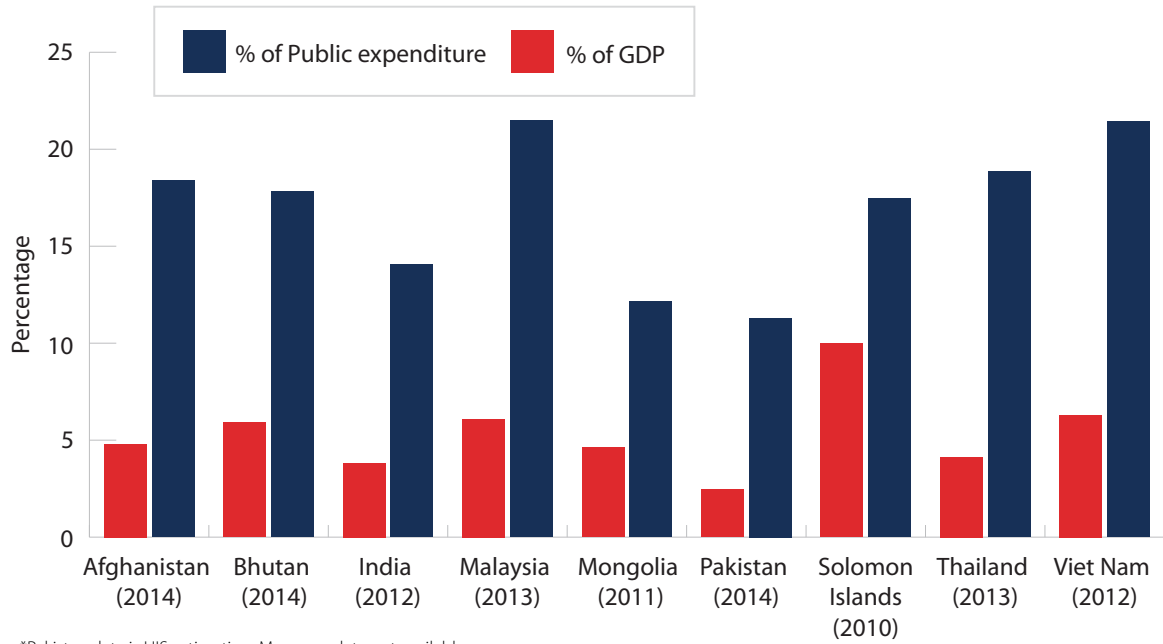
Notes: *Pakistan data is UIS estimation. Myanmar data not available.
Source: UIS database (n.d.).

Teachers

While countries pushed to achieve universal primary education through the EFA agenda, this has presented a great challenge to ensure that there are enough qualified teachers. In fact, the creation of new schools has only added to teacher shortages in many countries (UNESCO, 2015c). In addition, an increase in enrolment often leads to larger student-teacher ratios. This can further impact the quality of learning, particularly when there are not enough qualified teachers. There is a positive relationship between smaller class sizes and better working conditions as well as student learning outcomes (OECD, 2010, 2013). The following figure indicates the current student-teacher ratios of the participating countries.

Figure 6. Student-Teacher Ratio, 2014
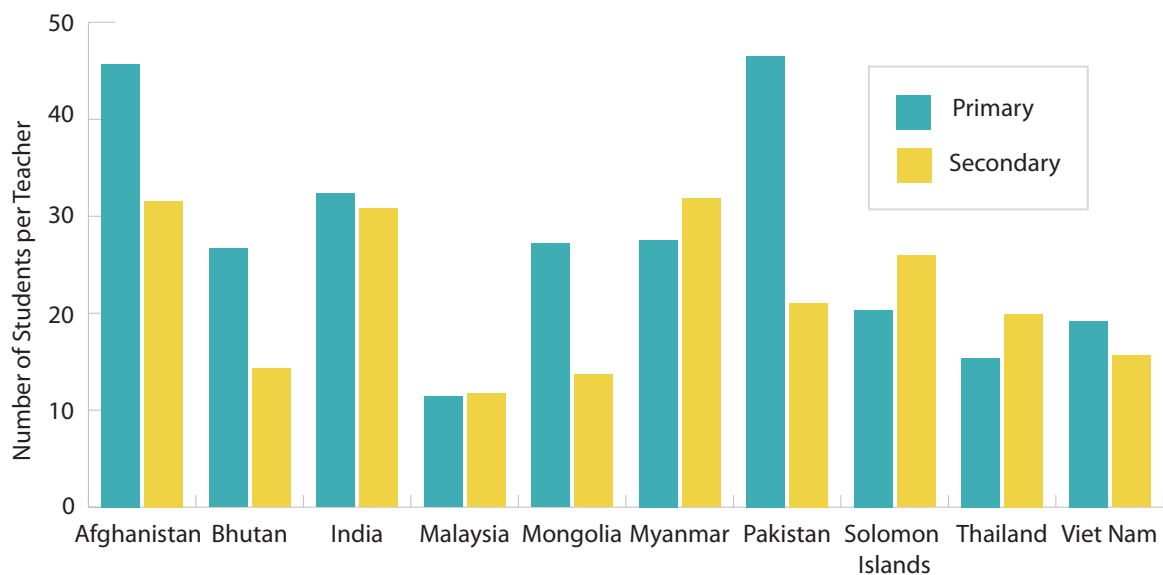
Source: UIS database (n.d.).

Figure 6 shows that at the primary level, Malaysia, Solomon Islands, Thailand and Viet Nam have comparatively lower ratios. While at the secondary level, Bhutan, Malaysia, Mongolia, and Viet Nam have comparatively lower ratios.

All of the countries, except for Afghanistan and Pakistan, have a primary level classroom student-teacher ratio of less than 40 students per teacher. Of course, country specific contexts apply, and a deeper analysis of these situations may provide more salient results, but as an overall indication of the situation, the case studies showed that most countries are able to manage class sizes. However, this simple analysis doesn't take into consideration urban and rural differences. In many countries urban classrooms are much larger than rural classrooms, and if a country has guaranteed free and compulsory education, this will lead to some inefficiencies in rural areas, such as difficulty finding qualified teachers.

The insufficient number of teachers is not the only issue that must be addressed, however. Increasingly, the focus has shifted to what happens inside the classroom and the degree to which students are actually learning. This has naturally shifted to an emphasis on teacher quality and effectiveness, rather than reducing the student-teacher ratio with underqualified teachers (UNESCO, 2015c).

Despite the differences between countries in socio-economic and political conditions, education structures are quite similar; most countries provide free and compulsory education, although the duration of education provided differs. However, there is quite a variation in spending on education, not only in absolute figures but in percentages of GDP and government budgets. Enrolment and literacy rates also vary quite a bit – yet overall improvements have been seen in both of these indicators over the past 15 years. Granted, the starting points for some countries were much lower, for instance in Afghanistan and Pakistan, so improvements have been much greater. Other countries measure improvements on a much smaller scale, and efforts are now focused on providing quality education, ensuring that education systems have the proper inputs into school infrastructure, but more importantly a qualified supply of teachers.

Part 2
Key Findings

4 Mapping Assessment Systems in Asia-Pacific

4.1 Review of Assessment Systems

Assessment systems, including large-scale and classroom assessments and examinations, are an essential means to measure and improve the quality of education. They are important tools for policy-makers, planners, and programme implementers in governments to assess, evaluate and monitor the learning outcomes of students in the country as well as to plan improvements to their education systems. A basic assumption is that the right kinds of assessments, and the right uses of the data generated by those assessments, contribute to better learning outcomes or improved policy decisions (Clarke, 2012; OECD, 2013; Tobin et al., 2015).

Results from large-scale, system-level assessments of overall student achievement levels increasingly provide the foundation for accountability programmes in many countries. Research shows a link between the uses of data from these assessments to hold schools and educators accountable and better student learning outcomes (Clarke, 2012; OECD, 2013).

Across the region, an increasing number of countries are participating in large-scale assessments (national, regional or international) to analyze education system performance and areas for improvement. Countries of all income levels in the Asia-Pacific region are increasingly interested in participating in a large-scale assessment of students' learning. As of 2013, 69 per cent of countries in the region had carried out a national assessment, compared with only 17 per cent in the 1990s (Tobin et al., 2015).

To find more information about assessment systems in the Asia-Pacific region, UNESCO Bangkok sent the LEAP questionnaire to 15 selected countries. The questionnaire asked countries to provide information regarding international, regional or national assessments that they have carried out over the past ten years. The questionnaire collected various information from the purpose of assessments to the use and analysis of data. A total of 13 countries submitted responses (see table in Methodology section). Of these countries, seven countries have participated in either a large-scale international or regional assessment. The international or regional assessments listed by the participants were:

- Programme for International Student Assessment (PISA)
- Trends in Mathematics and Science Study (TIMSS)
- Pacific Islands Literacy and Numeracy Assessment (PILNA)
- Programme d'Analyse des Systèmes Éducatifs de la CONFEMEN (PASEC)[15]
- Southeast Asia Primary Learning Metrics (SEA-PLM)[16]
- International Computer and Information Literacy Study (ICILS)

Figure 7 shows which countries have participated in these assessments over the past several years. In addition, a majority of countries indicated their desire to participate in upcoming international assessments, such as PISA and TIMSS. For example, Cambodia will be participating in the PISA for Development initiative in 2018, their first time being involved in this programme, and Pakistan will participate in TIMSS 2019.

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15 The Analysis Programme of the CONFEMEN Education Systems. See more information on PASEC at http://www.pasec.confemen.org. CONFEMEN stands for: Con-férence des Ministres de l'Éducation des États et Gouvernements de la Francophonie.

16 SEA-PLM is the first-ever regional learning assessment initiative in South-East Asia. See more at http://www.seaplm.org/seaplm/

Figure 7. International and Regional Assessments
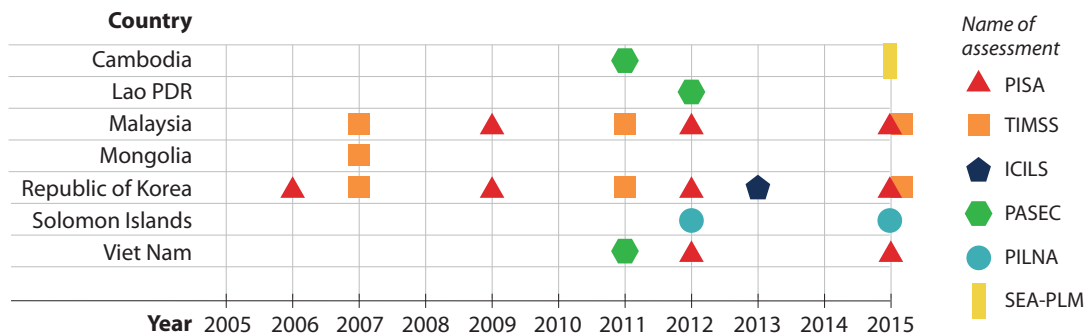
Figure 8. Learning Assessments by Country, Year and Type, 2005–2015
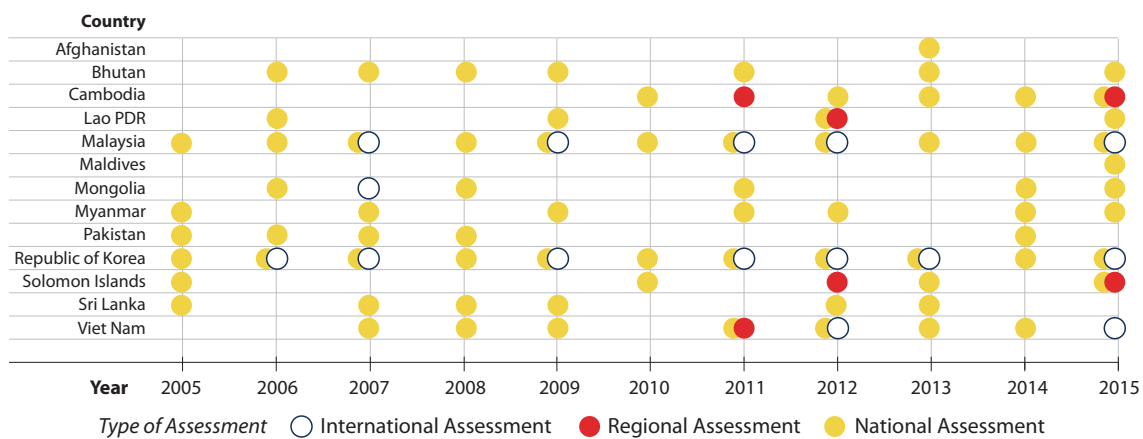
In addition to participating in international and regional assessment programmes, almost all the countries in the study have national assessments to some extent. For example, Afghanistan conducted its first national assessment in 2013, and the Maldives undertook its first in 2015. Some countries conduct these assessments every year, while others conduct them at frequent intervals. Figure 8 indicates that the majority of participating countries have regularly occurring national assessments.

Countries aim to measure learners at various stages, and most countries measure at least once in primary school, usually between Grades 3–6, and again in secondary school, usually at Grade 8 or 9. Overall, since 2005, the countries reported a total of 29 assessments that have taken place, and in some countries there have been up to five different assessment programmes administered within this time period. One assessment may cover several grades, for instance Grades 6 and 10, but is still considered as one assessment. In other cases, different assessment programmes evaluate different subjects, have different purposes, and may be carried out by different agencies or departments.

In addition to the assessment itself, countries aim to broaden the depth of the results by including some form of background survey or questionnaire. By including background surveys, countries enhance the amount of information collected about the students, teachers, and schools, and this allows them to analyze what factors may contribute to student performance and learning outcomes. For example, countries ask their students about the amount of time they spend studying, the kind of activities they do in class, their interest in learning and their experiences at home. In addition, teachers may be

given questionnaires to determine the amount of time they spend preparing for class, their methods of instruction and what they think of the curriculum content.[17] Figure 9 indicates that many of the countries administer at least one type of survey in order to collect additional and contextual data.

Figure 9. Percentage of Assessments that Conducted Background Surveys (%)

80%
administered background surveys to teachers

70%
administered background surveys to schools

25%
administered background surveys to parents

90%
administered background surveys to students
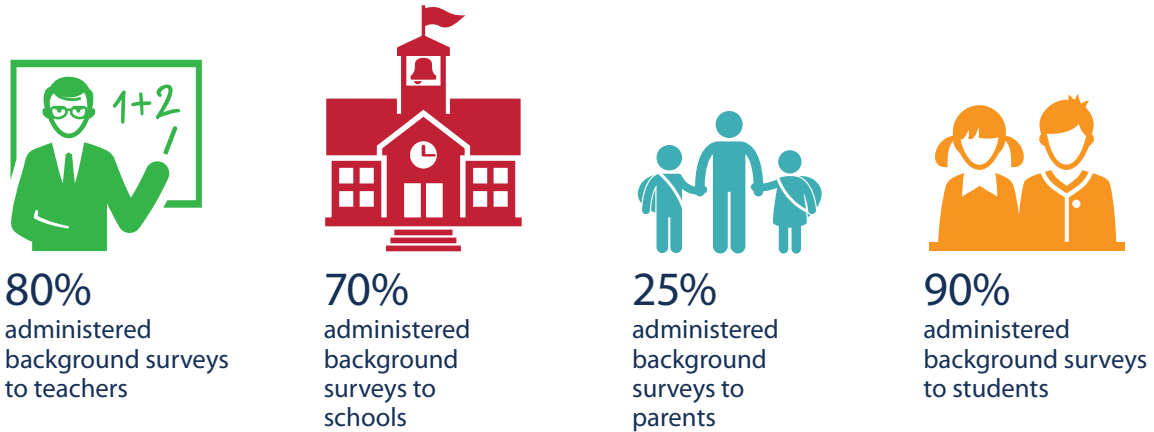
Note: These figures represent the percentage of assessments, based on information from 20 out of 29 assessments

Overall, the assessments aim to measure learners' knowledge of the curriculum, and the main subjects tested are mathematics, sciences and languages. However, countries also indicated that assessments are used to measure additional criteria, for example, the application of knowledge, students' interest and attitude towards subjects, and the non-cognitive abilities of students, such as creativity, collaboration and communication. Figure 10 shows that almost all the learning assessments conducted in the countries intend to measure knowledge of the curriculum, but also the application of that knowledge.

Figure 10. What National Assessments Measure

95%
Knowledge of curriculum

76%
Application of knowledge in practice

52%
Student interest & attitudes towards subject area

33%
Knowledge beyond curriculum

5%
Non-cognitive abilities of students
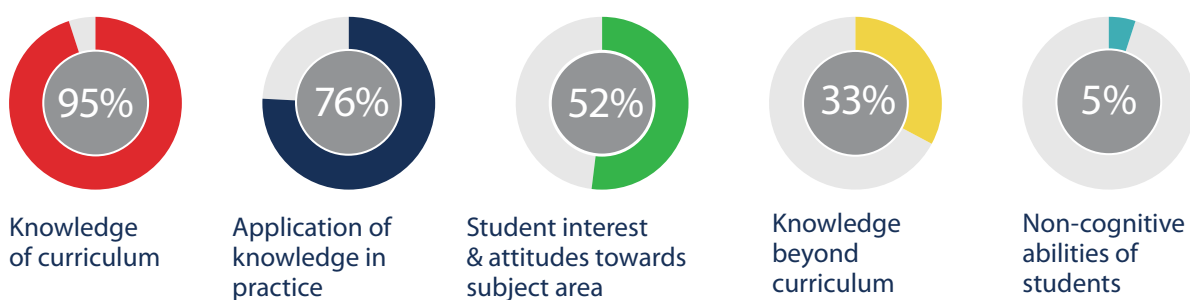
Note: These figures represent the percentage of assessments, based on information from 21 out of 29 assessments.

The purpose of analyzing the results of learning assessments varies from identifying factors in student performance, supporting education policy development, providing recommendations for curriculum review and reform, and monitoring the quality of education (see Figure 11).

17 These examples were found in the student and teacher questionnaires of Bhutan, Lao PDR, Maldives, Solomon Islands and Sri Lanka.

Figure 11. Purpose of Analyzing Learning Assessment Results

To identify the factors affecting student performance	To support education policy development
To understand the variations among students' cognitive abillities with regard to literacy and numeracy from socio-economic, regional, and gender dimensions	To monitor progress of implementation of policies/ programmes related to student outcomes and education quality
To provide recommendations for improving the design/development of curriculum	To provide recommendations for improving the teaching-learning environment

4.2 Assessment Policies and Plans

Despite this interest in student assessment, few countries across the region have the policies, structures, practices, and tools that constitute an effective assessment system. All countries can benefit from an overarching plan or framework; however, this is particularly the case for low-income countries, which stand to benefit most from systematic efforts to measure learning outcomes. Some of these countries have experimented with large-scale or other standardized assessments of student learning and achievement levels, but too often these have not been implemented as part of a long-term education strategy or plan, and are not sustained over time (Clarke, 2012).

More than half of the countries surveyed have no specific education policy for learning assessment, as shown in Figure 12, however learning assessments may be covered under an overall education policy. The existence of specific policies for learning assessments could indicate that the authorities responsible for national assessments have clear frameworks, guidelines and mandates to carry out their assessment and the accompanying analysis. The presence of national policies (or lack thereof) on assessment systems may provide some insight into how the country measures and evaluates the quality of learning.

Figure 12. Countries with Learning Assessment Policies

Mongolia

Republic of Korea

Pakistan

Cambodia

Malaysia

Solomon Islands

*Of the 13 countries surveyed as part of NEQMAP's mapping study, only six countries have education policies that guide assessment programmes.

Coordination of the assessment systems is another important aspect with regard to how well a country manages its assessment. In some countries, several different organizations within the Ministry of Education can be responsible. For example, Malaysia's policy on national assessment emphasizes the development of individuals that includes both cognitive and non-cognitive domains, as outlined in the National Education Philosophy of 2012 and the Education Act of 1996. In administering national assessments, the relevant authorities, such as the Examination Syndicate and the Examination Council within the Ministry of Education, have been assigned to undertake the responsibility of ensuring quality and accountability.

In other countries, autonomous organizations are provided the mandate to carry out assessments in all phases (design, administration, analysis, reporting, etc.). The organizations responsible for assessments in the countries sampled are listed in Table 5.

Table 5. Organization(s) Responsible for Assessments by Country

Country	Organization(s)
Afghanistan	Ministry of Education: General Education and Curriculum
Bhutan	Bhutan Council for School Examinations and Assessments
Cambodia	Ministry of Education, Youth and Sport: Department of Education Quality Assurance
Lao PDR	Ministry of Education and Sports: Research Institute for Educational Sciences
Malaysia	Ministry of Education: • Examinations Syndicate • Examination Council • Educational Planning Research Division
Maldives	Ministry of Education: Quality Assurance Department
Mongolia	Ministry of Education, Culture and Science: Education Evaluation Center
Myanmar	Ministry of Education: Department of Educational Planning and Training
Pakistan	Ministry of Federal Education and Professional Training: National Education Assessment System
Republic of Korea	• Ministry of Education: National Curriculum Management Division • Korea Institute for Curriculum and Evaluation
Solomon Islands	Ministry of Education and Human Resources Development: National Examination and Standards Unit
Sri Lanka	University of Colombo: National Education Research and Evaluation Center
Viet Nam	• Ministry of Education and Training: Department of Education Testing and Accreditation, Center of Education Quality Evaluation • Viet Nam Institute of Educational Sciences

Sufficient funding and financial resources need to be allocated to effectively administer large-scale assessment programs. The various activities and the human resources required to effectively administer, collect, analyze, report the data and results can be quite substantial. Nine out of thirteen countries that responded indicated that there is regular funding from government budgets, while others receive support from external funding or irregular government funds. This would indicate that some countries may have difficulty in sustaining their assessment programmes, and may not have sufficient funding to accomplish all activities. A detailed examination of both financial and human resources, however, was not conducted as part of the case studies. Nonetheless, the countries responded that most of the budget allocated for assessments is spent on design, analysis, administration and reporting, with only half of the countries reporting that staff training or research and development is included in the budget. Very few countries indicated that funds are available for long or medium-term planning of assessment programmes (four countries) or software and other infrastructure (one country).

4.3 Data Analysis, Use and Dissemination

In terms of analysis, most of the countries surveyed reported that they use a broad range of tools and statistical analysis techniques such as regression analysis or longitudinal analysis. Data collected from the learning assessments is incorporated into the analysis, but so may be data from other external sources, such as the country's Education Management and Information System (EMIS), or school surveys and household surveys among others. Only Afghanistan reported that they were currently not capable of conducting analysis of the results. However, the interesting finding is what countries can do with these analyses.

Previous studies have indicated that assessments are not frequently used for the design and formulation of education policy options nor the selection of a policy strategy. In addition, high-income countries in the Asia-Pacific region are more likely than low- or middle-income countries to use assessments for these purposes (Tobin et al., 2015). However, the self-reported responses of the mapping study indicate that all countries claimed that they used the results of their national assessments to review curriculum and education policy (the two most reported elements in the survey), as well as for professional development (see Figure 13). Very few countries reported that the results were used to specifically target and develop learning interventions at the classroom level, for instance in order to address marginalized students or specific learning areas. This indicates perhaps that while the results are used to review education policies, there could still exist a significant gap, either capacity or otherwise, in translating the results and effectively formulating and designing measures to address challenges raised by the results.

Figure 13. How are Learning Assessment Results Used?

13/13	Education policy review and reform
13/13	Curriculum review and reform
10/13	Professional development of teachers
7/13	Professional development of principals/school leaders
4/13	Intervention programmes for specific groups of students
4/13	Intervention programmes on specific themes/learning areas
3/13	Intervention programmes for specific types of schools
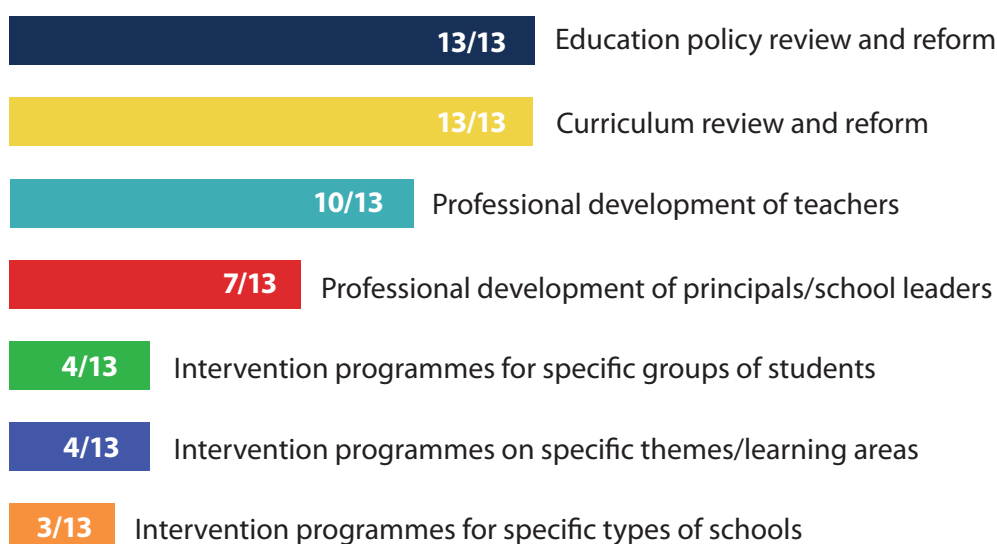
Note: The figures represent the responses from 13 countries.

In terms of sharing and disseminating assessment results, most countries disseminate the results to stakeholders and hold seminars or meetings for policy-makers. Only some of the countries provide feedback to students, parents and teachers, or publish the results online, and only four countries reported that they issue a press release of the findings (see Figure 14).

Figure 14. How are Learning Assessment Results Shared?

12/13	Reports are distributed to stakeholders
12/13	Seminar/ conferences for policy-makers
7/13	Feedback to students/teachers/parents, etc.
6/13	There is a report available online
6/13	Seminars for unions and professional bodies
4/13	Results are issued in a press release
2/13	Other activities
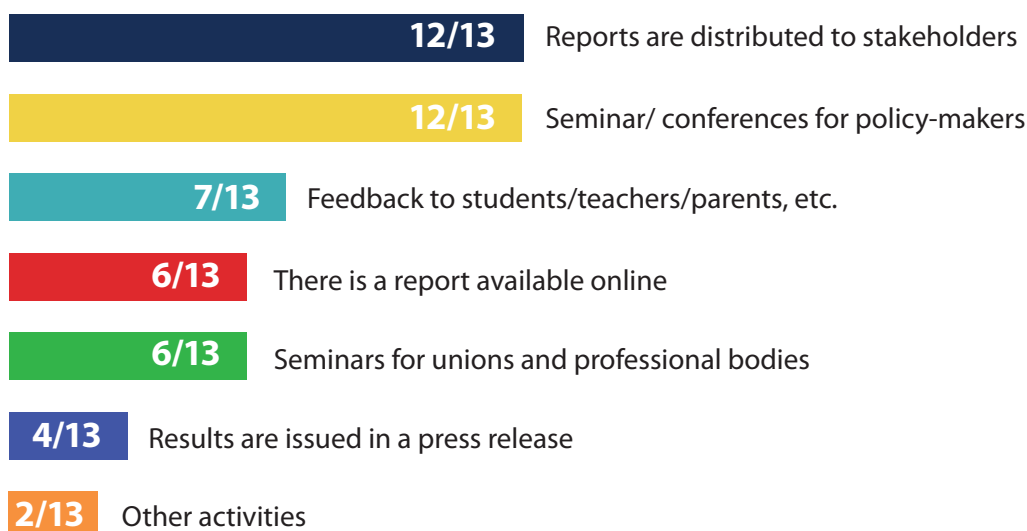
Note: The figures represent the responses from 13 countries.

The main issues that countries reported in their learning assessment programmes are lack of technical capacity and infrastructure, and limited financial resources to effectively carry out the analysis and to fully utilize the results.

In short, most countries in the region are committed to measuring the learning outcomes of their students. However, the results show that the manner in which they carry out these assessments and for what purpose varies. Some countries have established assessment systems, while others are still emerging. Overall, given the complexity and stakeholders involved, as well as the varying processes of developing, administering, collecting, analyzing, and disseminating, many countries do not have a well-established and fully functioning assessment system in place that can effectively utilize assessment results to formulate education policies and address quality of learning issues.

5 Student Achievement

Before taking a closer look at the individual variables that may affect student learning outcomes and performance, it would be useful to provide an overall look at each country's performance. This analysis will simplify the various country results (as each country's assessment and methodology differed) and report on the student performance based on what has been reported in the case studies[18] rather than provide a comparison based on international benchmarks.

5.1 Overall Student Performance

While the objective of the case studies was not to evaluate overall student performance, it provides an initial overview and benchmark in examining the factors that may lie beneath these results. However, the reported overall student performance should not be used to compare across countries because the

18 The information presented in Chapter 5 and 6 comes directly from the case studies. This information has not been cited, however the case studies are listed in the Bibliography section. The case studies will be available on NEQMAP's Knowledge Portal: http://nespap.unescobkk.org/neqmap/

reported values are based on different criteria for each country. For example, the 'minimum', 'expected', or 'above average' criteria for one country may not be equivalent to other countries. Even if the unit of measurement is the same (e.g. per cent of correct answers) the instruments are not the same and therefore the measured values do not mean the same. The reported overall student performance should only serve as a broad overview of the distribution of student performance within each country. Only **Viet Nam** indicated that the results of the assessments showed most students have achieved the set 'expected' or 'above average' levels. A few of the case studies noted that results were encouraging. However, many of the cases reported mixed results with below average performance and worrying trends in overall learning.

Most of the students in **Viet Nam** perform at a standard or above-standard level in both subjects (Vietnamese and mathematics). The percentage of students achieving above-standard levels in mathematics is quite high, from 98 to more than 99 per cent, while overall achievement ranges from 77 per cent to 98 per cent in Vietnamese, across all six regions.

In **Afghanistan**, a large percentage (almost 96 per cent) of students are at Level 5 or above in its 'reading literacy proficiency scale'.[19] Level 5 is the lowest level along the scale, and indicates that students are able to recognize the meaning of single sentences. In addition, 55 per cent of students are at Level 8 or above and able to answer questions in which they are required to retrieve information stated in the text or from the topic sentence.

Bhutan indicated that the pass rate on national high-stakes examinations has averaged close to 90 per cent over the past decade. Results from National Education Assessments from 2006 to 2013 show that the mean score in English has slightly increased from 32.87 in 2006 to 34.72 in 2013, while there may be no significant change in the performance of mathematics; the mean score was 38.97 in 2006 and 38.03 in 2013. However, the case study also reported that, in 2013, only around half of the students achieved minimum competency in mathematics (50.63 per cent) and English (48.03 per cent), and a much smaller fraction of students achieved proficiency levels in both of these subjects.[20] This performance benchmark was used in 2013 but was not defined in 2006.

In the **Solomon Islands**, significant differences and variations in literacy and numeracy achievement were observed between Honiara (capital) and the rest of the provinces. While Honiara performed consistently above the national mean score in all subjects, mixed performance was observed in the other provinces. Out of all the learning strands assessed, the writing component attracted average to low performance in eight out of ten provinces. Only two provinces (Honiara and Temotu) performed above average in writing.

In **Malaysia**, results from recent national assessments and from TIMSS 2011 offer mixed results. On national assessments at Grade 6 (primary level), the percentage of students scoring the minimum competency has risen from 64.4 per cent to 65.9 between 2010 to 2012. Data from assessments at the end of secondary level from 2010 to 2012 has seen the percentage of pupils with the minimum competency remain almost constant. However, the results from TIMSS have significantly decreased since 2003. In TIMSS 2011, for instance, the levels of achievement for both sexes were found below the international average for both mathematics and science. While the majority of the students (65 per cent for mathematics and 62 per cent for science) achieved at least the 'low' benchmark set as

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19 The Afghanistan Reading Literacy Proficiency Scale ranges from Level 5 to Level 11 (i.e. seven levels overall, each with specific criteria).

20 The performance benchmark in 2013 was defined as follows: Proficiency = a score of greater than or equal to 55 per cent; Minimum Competency = a score of greater than or equal to 35 per cent.

an international standard by TIMSS, a large proportion of the student population (i.e. 35 per cent for mathematics, 38 per cent for science) performed below the International Benchmark.[21] This trend is a cause for concern among the stakeholders of the Malaysia education system.

Pakistan reported that the national average of scaled scores in two of the three subjects (writing in Urdu and mathematics) remained below the scaled centerpoint of 500, the exception being reading comprehension in Urdu. This indicates that the student performance in these two subjects is poorer compared to reading comprehension in Urdu.

In **Thailand**, it was reported that the results of almost all subjects of the Ordinary National Education Test (O-Net) were below 50 per cent, and that the performance in core subjects is particularly unsatisfactory with mathematics and English having the lowest average scores across the assessed subjects. However, the case study also noted that there was a large group of students who scored zero in this test, indicating that they turned in a blank answer sheet. Since students are not required to take the O-Net for admission or graduation purposes, they do not have any incentive to complete the test.

Mongolia provided the overall results, but did not indicate whether the overall performance was expected or satisfactory. The case study reported that the average performance of students in the state examination was 40.47 per cent nationally (44.33 per cent for urban schools and 38.15 per cent for rural schools). However, there were no defined performance levels or benchmarks.

5.2 Performance by Sex

Most countries disaggregate the results of assessments and performance outcomes based on sex. These results can provide greater insight to the learning conditions within the country and to specific challenges that may be facing boys and girls. It can also influence policy development and learning and teaching strategies. Results from the case studies indicate that girls and boys in fact often perform differently depending on the types of subjects.

Several of the case studies (Afghanistan, ASER India & Pakistan, Malaysia, Solomon Islands, and Viet Nam) indicated that girls perform significantly better at language subjects (both reading and writing) than they do in mathematics and science. In **Afghanistan**, there are significant differences between girls and boys in reading and writing outcomes at Grade 6, where the data shows that there is a larger proportion of girls in the higher proficiency levels of reading and writing than of boys. The report also noted that the proportion of girls who are able to read is greater than boys across all types of reading materials that were surveyed. Similar results are found in the Solomon Islands and Viet Nam. In the **Solomon Islands**, it was reported that girls significantly outperformed boys in writing in all the provinces except one. In **Viet Nam**, the study stated that significantly more female students achieved above-standard level in Vietnamese language than male students. In **Malaysia**, the difference between the achievement of boys and girls was not large, however girls achieved slightly higher scores. Girls were also seen to have fared better in their level of knowledge, outperforming males on the TIMSS cognitive domain as well. The average achievement of boys in mathematics was found to be very much below the 400 benchmark for higher levels of cognitive skills.

Counter to this, **Bhutan** reported mixed differences between girls and boys in mathematics and language (English for Bhutan). The Bhutan study indicated that while not very large, the differences are statistically significant and boys had outperformed the girls in mathematics and girls outperformed boys in English.

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21 The overall breakdown for Malaysian students in TIMSS 2011 by benchmarks. Mathematics: Advanced – 2%, High – 10%, Intermediate – 24%, Low – 29%, Below International Benchmark – 35%; Science: Advanced – 1%, High – 10%, Intermediate – 23%, Low – 28%, Below International Benchmark – 38%.

The case of **Pakistan** is also interesting, as boys outperform girls in all three subjects (writing and reading Urdu, and mathematics). However, boys and girls are mostly educated separately, and the case study indicated that there may need to be further examination in the teaching-learning process to determine this discrepancy.

However, in several of the cases no statistically significant differences in achievement between the sexes were reported. While in **Mongolia** and **Thailand**, there were generally no significant differences between boys and girls across all subjects, **Afghanistan**, **Solomon Islands** and **Viet Nam** reported differences only in mathematics.

In general, some of the studies (ASER India & Pakistan, Malaysia, Pakistan, Solomon Islands and Thailand) reported that overall performance was low, below average, or worse than expected based on each country's set criteria of achievement levels. Only **Viet Nam** reported that the majority of its students performed at the country's set criteria for average or above-average levels.

In addition, the studies found that while girls performed better at language subjects in some countries, boys often performed better in mathematics or sciences. These findings are consistent with other literature on the differences in achievement between boys and girls, particularly recent findings with regard to girls' interest and performance in mathematics and science subjects UNESCO, 2015a). This would indicate that in addressing these differences it may be necessary to properly gauge students' interest in subjects, as well as determine if sex-specific interventions are necessary.

6 Contributing Factors to Learning Outcomes

Previous research and analyses of learning assessments indicate that school location, school environment, and family background are all key to student performance (OECD, 2010; Farooq et al., 2011). Following the mapping study and the workshop, countries were asked to examine their national assessment datasets in order to identify some common contributing factors that lead to better student performance. Country researchers used the previously mentioned national, international assessments or other data, in order to determine what common contributing factors may exist.

Common contributing factors that were examined across the case studies were: school location (urban vs rural); school type (private vs public); student-teacher ratio and class size; teacher education, qualification and experience; student attitude; household income and expenditure on education; parental occupation, education and involvement in children's education. The following table shows an overview of the factors each case study examined or analyzed. Not all countries examined the same type of information, owing to the fact that not all of their assessment data is consistent.

Table 6. Contributing Factors to Learning Outcomes Examined by Case Study

Case Study	School Location	School Type	Teacher Qualification, Education & Experience	Student-Teacher Ratio & Class Size	Student Attitudes	Household Income & Spending	Parents' Education	Home Environment & Parental Involvement
Afghanistan	✓		✓					✓
Bhutan	✓	✓			✓	✓		
Malaysia			✓*		✓			
Mongolia	✓	✓		✓	✓	✓		✓
Pakistan	✓		✓			✓	✓	✓
Solomon Islands	✓	✓	✓			✓		✓
Thailand	✓		✓			✓	✓	✓
Viet Nam	✓		✓	✓	✓	✓	✓	✓
India & Pakistan (ASER)		✓				✓	✓	

Note: * Malaysia surveyed teachers' attitudes and practices in TIMSS 2011, but did not examine teachers' qualifications or education.

6.1 School Location and Type

In almost all the cases, students at urban schools significantly outperform their counterparts in rural or remote schools. A closer look at the results show some variation depending on the subjects tested, however in general students located in urban areas perform better than those in rural areas. The only exception to this was Bhutan, however their results provide a very interesting case as will be highlighted in this section.

In **Mongolia**, the overall scores for mathematics were higher for students in urban areas, and in **Pakistan** the mean scores between rural and urban students were statistically significant in all subjects, with urban students outperforming rural students. This reveals a significant disparity in the provision of education between students of rural and urban schools.

There are distinct variations in **Solomon Islands** students' achievements by province, particularly in writing as opposed to the other key subjects such as reading and mathematics. An average of 51 per cent of the cohort in Year 6 in the Solomon Islands are performing at a critical level in writing compared to only 10 per cent and 9 per cent in mathematics and reading literacy respectively. Honiara, the capital, remained the best performing province with the lowest percentage of pupils performing at the critical level in the mentioned subjects. The results also suggested that urban students generally performed better than rural students in mathematics.

Similarly, a notable difference is observed between students in urban and rural areas in **Thailand** and **Viet Nam**. In **Thailand**, the largest O-Net test score gap is found in science, where students in urban areas score approximately 7.42 percentage points higher than students in rural areas. In **Viet Nam**, for both mathematics and Vietnamese the percentage of students achieving above-standard level in urban areas is higher than those in rural areas, which in turn is higher than those in remote areas in general, although the gap in achievement between urban and remote is narrower in mathematics.

Bhutan was the only case that reported outcomes slightly different from the norm with regard to school location. While urban students do have a tendency to perform better in some subjects such as English for instance, the study reported that in many cases student achievement in schools located in rural settings have a tendency to perform better than schools located in other settings (either urban or remote). The study examined this further and found that students who had to walk less than 30 minutes to schools performed better than those who took more time to walk to school. Therefore, walking distance from home to school had some association with the achievement of students, regardless of whether the school was located in an urban, rural, or remote area. The fact that most of the students in rural areas were boarding students also impacted the results. These students often get remedial support from the school and teachers and spend more than 3 hours studying daily. Overall, the results show that they perform relatively better in mathematics compared to students in urban or remote settings.

The **Afghanistan** report also noted that due to a shortage of schools the majority of primary school students are required to walk more than five kilometers. This is especially a big problem for girl students, compounded with problems such as shortage of qualified female teachers and higher student-teacher ratio for females in remote areas. This is a considerable concern, but the effects of these factors on achievement were not examined in the report.

The underlying causes for the differences between urban and rural performance could be associated with the other factors contributing to improved learning outcomes identified in the case studies. For example, the case studies from the **Solomon Islands** and **Thailand** indicated the likely reason urban students outperform their counterparts in the rest of the country comes down to factors related to socio-economic status – urban families are better off financially and can spend more on education, urban schools are of higher quality, and urban teachers are more qualified. These potential factors are examined further in the following sections.

Type of School (private vs public)

Several case studies reported on the difference between private schools and public schools. In **Bhutan, India, Mongolia, Pakistan** and **Solomon Islands**, students at private schools tend to outperform their counterparts at public or government schools significantly in all subjects. These schools are more often than not located in urban areas. Further, private schools are better off than public schools to equip their learners with quality learning due to the socio-economic conditions of the learners' families. Boxes 3 and 4 later in this chapter offer more details of the differences between public and private schools in **India** and **Pakistan,** drawing from results of the ASER study.

6.2 School Environment

Prior research and analyses have indicated that the ability of the education system to deliver equitable teaching and learning to its learners is key for learning outcomes (OECD, 2010). In order to ensure equitable education, the quality of the teachers, sufficient human resources and school infrastructure, as well as the overall atmosphere in the schools need to be contextually compatible across regions, urban and rural locations, and be available to the majority of the population.

Teacher qualifications, education and experience

It was evident from the **Pakistan** results that students whose teachers have higher qualifications, particularly at postgraduate (master's) level, perform better in reading and mathematics than those whose teachers hold an undergraduate (bachelor's) degree or lower. A similar trend was noticed in **Thailand**, where the case study results showed that for every 10 percentage-point increase in the proportion of teachers with a master's degree or higher, this led to a 0.64 point increase in mathematics and English test scores of students in that school.

In the **Solomon Islands** there is a moderate association between teacher qualifications and student achievement by province in reading literacy, writing and mathematics. In other words, this suggests that increasing the number of qualified teachers may have some effect in increasing achievements in literacy, writing and mathematics. A closer look at the results indicated that high performing provinces in writing skills tend to have a higher percentage of qualified teachers. More qualified teachers corresponded to higher writing achievement, but did not seem to be related with literacy or mathematics to a significant degree.

Interestingly, the **Pakistan** report indicated that the performance of students tends to decline as the teachers grow older and more experienced. The results did not indicate the education qualifications by age of these teachers, so the underlying reason behind this phenomenon is unclear. The Pakistan study suggested that older teachers may not have incentives or motivation to teach as they gain more experience, however this cannot be concluded definitively and it would be interesting to examine this trend further. In addition, the study also examined the performance of students by the sex of the teacher. While there is a general perception in Pakistan that students of female teachers perform better only in languages, the results are evident that students of female teachers performed significantly better in mathematics, social studies as well as in languages.

In **Malaysia**, while the study did not examine teachers' qualifications, it noted the importance of teacher collaboration. In the background questionnaires, teachers were asked if they interacted with other teachers and how often they met with other teachers in order to collaborate and improve their teaching, and their responses were categorized as *very collaborative*, *collaborative*, and *somewhat collaborative*. An analysis of the responses indicates there is a significant relationship between the frequency of teachers to collaborate and the average scores of the Malaysian students. The data showed that the *collaborative* category is associated with the highest average scores for Malaysian students in mathematics and science. However, students whose teachers were classified as *very collaborative* do not have a higher average score, but the gap between mathematics and science scores is narrower compared to the other frequency categories. The possible reasons for this are unclear.

Finally, the **Viet Nam** report ranked school management, educational activities and teaching time as the most important factors associated with higher achievement in mathematics. This was followed by the percentage of female teachers (4th), teachers' capacity (5th), and school facilities and books (6th) as significant school-level factors that affect student learning outcomes. The ranking, based on the amount of variance explained, is slightly different for Vietnamese, but the above factors are still among the most important. The report did not provide detailed examination of teachers' qualifications or experience, but from these results, it shows that these conditions would significantly impact the learning outcomes of students.

Class Size and Student-Teacher Ratio

Class size and student-teacher ratio can determine the degree to which teachers are able to assist students who may be struggling, or in general to give more attention to those who can perform at higher levels. The **Mongolian** report noted that the performance average is the highest for students who study in a class of 40–49 students. However, it also found that performance tends to decrease as class sizes become smaller, while overall performance was reported to be the lowest in classes with more than 50 students.

In **Afghanistan**, class size is a significant issue, and some areas of the country struggle to provide suitable learning facilities and enough qualified teachers, with the average student-teacher ratio at 42 for primary, 38 for lower secondary, and 37 for upper secondary. However, there was no analysis on whether student performance correlates with class sizes or the number of teachers.

Student Attitudes and Engagement

The school learning environment may also impact student attitude, behaviour and engagement. In the **Viet Nam** case study, student achievement and interest in learning was the factor that was correlated second-highest with outcomes. In **Malaysia**, students engaged in their lessons have a higher average achievement rate compared to students with a lower level of engagement. There is a significant score difference (higher in mathematics than in science) when teachers engage students in their learning during lessons by bringing interesting material to lessons. The frequency of engagement also has a significant relationship with the average achievement in science and mathematics. In TIMSS, students were asked their confidence level in the tested subjects. Students with a higher level of confidence have average TIMSS scaled scores that are 74 points and 79 points higher than the average scaled scores of Malaysian students in science and mathematics respectively.

The school learning environment in **Bhutan** appears to influence children's performance in mathematics and English. Students who felt that their schools were comfortable and caring towards them performed better than those who felt their schools to be unwelcoming or uncomfortable. Interestingly, those students who reported being bored with school did slightly better than those who enjoyed being in their schools.

The Bhutan study says that the students who reported liking English performed better than those who disliked it. Those who liked the subject because it was easy did much better than those who liked it for other reasons, whereas students performed the worst if they disliked it for being a difficult subject. However, those who disliked the subject because it was boring seemed to do better than those who disliked it for other reasons. These student perspectives on learning of mathematics also seem to affect student achievement. According to the case study, those students who liked mathematics performed significantly better than those who did not like it. Those who reported that they liked the subject because it was easy or interesting did better than those who reported that they liked it because of good teachers or because the teaching methods were interesting.

Similarly, liking the subject has a relationship with the average achievement of **Malaysian** students. Students that like learning mathematics show a difference of 33 TIMSS scaled score points from the students that responded 'somewhat like' on the scale. For science, the difference is as much as 43 points. Malaysian students were also asked how much they valued the subjects, and a similar trend emerged. The extent to which students value mathematics and science also correlates with their average achievement. The higher value students place on the subject shows a difference of achievement level from the 'somewhat value'. For mathematics, the difference in average achievement in TIMSS is as much as 20 points, while for science the difference is even higher at 34 points.

Mongolian students who spend time on homework and who do not 'miss' or 'leave' classes show better performance results. Students who spend 3–4 hours a day on homework outperform those who spend less time studying, although performance was also reported to be declining as students spend more than four hours a day on homework. As found in other case studies regarding the relationship between attitude and performance, Mongolian students who liked mathematics performed better than those who did not, showing that there is a positive association between liking mathematics and average scores in the subject.

6.3 Household Environment

There are a variety of socio-economic factors that can affect the performance of learners: household income, parents' education and occupation, spending on private tutoring, and home environment have all been identified in previous research (OECD, 2010, 2013; Farooq et al., 2011). The involvement of the family in the child's education is extremely important, both from a financial standpoint, and from a

role model standpoint. Students who have parents that encourage them to perform and achieve, do their homework, and participate in extra-curricular activities, often perform at higher levels than those who do not. The case studies reveal that many of these factors have a significant rel ationship with the outcomes of their learners.

Household Income/Expenditure; Parent's Job Status and Occupation

The majority of case studies reported that income or the home environment were significantly related with the learning outcomes of students. The Viet Nam report describes families' socio-economic status as one of the most important factors affecting learning outcomes of students (third highest in their ranking). The students with parents that have regular, stable jobs, higher levels of education and better living conditions perform at a higher level than those who do not.

Living conditions of students were also examined in **Mongolia**. Students who categorized their family living conditions as bad showed very poor performance, although no clear relationship with performance was identified in students with other categories of family living conditions. Students were asked the type of home they lived in, and students who lived in an apartment, cottage or house performed better than those who live in a dormitory or ger. The report highlighted that living conditions are one of the biggest factors influencing learning achievement in Mongolia's case.

In the **Solomon Islands,** the report states that expenditure on education indicates the value of education in the household. Urban households spend significantly more on education than rural households. In Solomon Island Dollars (SBD), urban families spend SBD 3,007 compared to SBD 843 (roughly USD 379 compared to USD 106) for rural families. Urban households in the capital Honiara pay more for additional learning support such as special tutoring and sending children to high performing schools than households in rural households in other provinces. The difference in expenditure could explain a higher demand by urban households for their children have access to better quality education. The most likely explanation, however, is because urban families are better off and have more opportunities to access quality education, and therefore take advantage of those opportunities.

In the **ASER Pakistan** study (see Box 3), household income plays an important role in learning achievement. The learning level of children in all three subjects (reading, writing and mathematics) increases for the richest quartile, while the poorest have the lowest learning levels. Similar results and patterns are seen in the **ASER India** study (see Box 4).

Box 3	ASER Pakistan

ASER Pakistan has developed simple, easy to use tools that measure children's competencies between the ages of 5–16 years in language (Urdu/Sindhi/Pashto), English and arithmetic. In addition, ASER Pakistan introduced a general knowledge tool in 2012 to include items such as picture recognition and word problems. In both the language and arithmetic assessments, the highest level that the child can do comfortably is recorded. The tests are based on the Grade 1 and 2 curricula.

Sex and School Type

A comparison of the reading levels of children across government and private schools shows that children in private schools perform better in each grade. For instance, the percentages of boys and girls in Grade 5 who could read Grade 2 level test in government schools are 41 and 45 per cent respectively. The corresponding percentages in private schools for boys and girls are 59 and 63 respectively. Overall, the reading performance of girls is relatively better than that of boys in both government and private schools.

A similar trend can be seen for arithmetic learning outcomes between students at private schools and government schools, however, there was no significant difference in outcomes by sex. For Grade 7 and 8 students, 65–75 per cent at government schools are able to do division, while a relatively larger percentage (75–83 per cent) of Grade 7 and 8 students at private schools are at the division level.

Household Income

The ASER Pakistan results reveal that learning levels are directly related to wealth. The learning level of children in all three subjects increases as towards the richest quartile. This also corresponds to enrolment rates. The results reveal that the richest quartile has the highest percentage of children enrolled at 85 per cent, while the poorest quartile has the lowest enrolment rate at 59 per cent. Further breaking down this relationship, the data reveals that the poorest quartile has the highest percentage of children enrolled in government schools at 77 per cent whereas the remaining 19 per cent of the children are enrolled in private sector schools. On the other hand, the richest quartile has the highest percentage of children enrolled in private schools at 53 per cent and the lowest percentage of children in government schools at 46 per cent. The evidence clearly indicates that households with more income are able to spend significantly more on their children's education, improving their opportunities for better quality schooling as reflected by the enrolment figures mentioned above.

Moreover, socio-economic background is also found to influence inequity. The girls and boys belonging to the poorest quartile are particularly disadvantaged, as evidenced by the lowest enrolment rates. The highest enrolment rates of girls and boys are from the richest quartile at 83 and 87 per cent respectively. The overall enrolment rate decreases as the wealth index also decreases. The most alarming trend is that of girls' enrolment, which has a faster rate of decrease than the overall rate, but is also lower than the enrolment rate of boys. In other words, the gap in enrolment rates between girls and boys becomes wider as the wealth index becomes lower. Girls and boys in the richest income group, however, are better able to perform the language and numeracy tasks than children falling in low income groups.

Source: **Dave and Saeed (2016).**

Analysis of household incomes in **Thailand** shows that richer households spend much more on tuition, supplementary programs, school activities and tutors than middle- and lower-income households and these show positive associations with the scores of the three test subjects (science, mathematics and English). However, expenditure on books, equipment, uniforms, donations, lunches, accommodation, transportation and other expenses among different income quintiles do not show statistically significant associations with test scores. Nevertheless, there is a correlation between a student's O-Net score in science, mathematics and English and family income quintile. Students from the richest quintile score highest in every subject of the national assessment. The analysis indicates a notable correlation between household income level and the amount of educational expenditure with school achievement. This could imply that students from high-income families invest more in children's learning, and as a result achieve higher academic scores.

The **Bhutan** report used parents' occupation as a proxy for household income. Analysis of the findings indicate that students whose parents are in the government service, international organizations and corporations seemed to outperform students whose parents were in other occupations. However, it was interesting to find that children of farmers also did much better than the children whose parents work in the 'National Workforce' (employed by the government), the armed forces and in other businesses.

Parents' Education

Not all countries examined parents' education level, however it was identified as a contributing factor in the performance of their children in **India**, **Pakistan** and **Thailand**. In **Pakistan**, overall students whose parents hold a master's degree have the highest average scaled score in all three subjects (reading, writing and mathematics). The qualifications of the parents themselves thus may have a positive relationship with their children's learning achievement. In **India**, children of parents who had been educated, particularly mothers, had better learning outcomes on the ASER assessment (see Box 4).

Parents in **Thailand** with higher education degrees are able to support their children's education both financially and academically. Parents who have a high level of schooling acknowledge the value of education and participate in the school's activities. Students whose parents graduated from university also outperform students of lower-educated parents in science, mathematics and English. The difference is particularly substantial in English. For example, the average English score of a student with at least one parent that holds a master's degree or higher is 52.83 per cent, whereas the average score of a student whose parents have primary education or lower is 33.04 per cent.

Box 4	**ASER India**

ASER India assesses children in three competencies: (i) basic reading levels, where the highest level tested is Grade 2 level text in the local language (Hindi or other); (ii) basic arithmetic, where the highest level tested is a simple division problem commonly taught in Grade 3 or Grade 4; and (iii) ability to read English, where the highest level tested is Grade 2 level text. The ASER report analyzed the assessment to determine differences between sex, school type (private vs public), and the role of private tutoring and tuition support.

Overall results

Overall, the situation with basic learning is poor in India. In 2014, in Grade 3, less than a fourth of all students (23.6 per cent) could read Grade 2 level text fluently. Even in Grade 8, only close to 75 per cent of children could read Grade 2 level text, implying that even after more than seven years in school, a quarter of all children still could not read simple text. The poor results were also mirrored in arithmetic and English. The results highlighted that, by the end of the elementary stage more than half of all children still cannot do basic division. The ASER India analysis found an overall positive association between reading and arithmetic levels for both grade groups. In other words, the children who are at low reading levels are also at low arithmetic levels and vice-versa. Furthermore, there is a positive association between reading levels in the local language and reading levels in English.

Although enrolment rates are over 97 per cent for the 6–14 age group, which is the age group covered by India's Right to Education Act, the overall learning levels are extremely low for both reading and arithmetic. Enrolment does not translate into learning. The ASER India analysis indicates that most children are at least two grades behind in their competency levels.

Sex

The results show that girls perform relatively better than boys in the case of reading in the native languages. However, boys perform better than girls in numeracy and reading in English. This difference is largest in the case of numeracy, followed by reading in the native language and reading in English.

Controlling for household assets, there does not seem to be much difference in learning outcomes of girls and boys, and this is true across all grades. This might be due to the fact that ASER tests foundational skills as opposed to grade level competencies.

Type of school, Household income and Parents' Education

The overall trend shows that private inputs are clearly correlated with better learning outcomes. Students enrolled in private schools and/or taking privately tutored classes had higher reading and arithmetic levels than their peers in government schools and/or not taking private classes. Further, there

are stark differences in the learning outcomes of children who come from poor families and those who come from rich families. Overall, children from more affluent backgrounds perform better. In all three competencies, the study observed that the poorest children enrolled in government schools have the lowest learning levels, followed by poor children enrolled in private schools, and then rich children in government schools. The highest learning outcomes are found with the richest children enrolled in private schools. This includes examining the effect of private tutoring for children in either government or private schools. While private tutoring does affect learning outcomes, it did not change the overall distribution.

After controlling for the difference in socio-economic status, the results show that children whose both parents had attended school perform much better than the children whose parents did not. For all three competencies, the mother's schooling has a stronger relationship with the child's learning outcomes than the father's schooling. This relationship is stronger for more educated mothers. In contrast, a relationship with the learning levels of their children was only observed in fathers who have studied beyond the primary level.

Source: Dave and Saeed (2016).

Home environment/parental involvement

Aside from direct financial support, several case studies indicated that students' home environment was associated with their learning outcomes. In **Pakistan**, students with suitable facilities at home for doing schoolwork, such as a table and chair for instance, performed better than the students without these facilities. The same situation was identified with regard to the availability of a computer at home. The use of a computer at home was reported to be just 46 per cent by the sample students, yet the performance of students in all three subjects was significantly better than that of students who did not use a computer at home. Similar results regarding the availability of suitable facilities at home for schoolwork were also observed in **Thailand**.

Family involvement is a very important factor affecting learning outcomes in **Viet Nam.** Students with an interest in learning are often provided with enough books, textbooks and learning supplies and spend more time learning and studying at home. The report also notes that these parents have higher levels of education, stable and regular jobs and proper living conditions.

In **Pakistan**, children whose parents helped them at home in academic matters showed statistically significant differences in achievement, with children whose parents asked about their school-related activities at least twice a week scoring higher on average. The difference exists in all three subjects, and the highest scores were among students who had received the assistance of their mothers at home. One implication for this finding is that a focus on female education may significantly impact the learning outcomes of their future children.

In **Afghanistan** boys receive more support from family members, friends and community members compared to girl students. However, girl students' achievements are higher than boys, thereby indicating that students with lower learning achievement need more support and encouragement from these groups.

In the **Solomon Islands,** the language of instruction English as well as Pidgin.[22] The students' mother tongue is quite important, as is having parents who speak their mother tongue the majority of the time and help them with schoolwork. These influences may significantly impact students' achievement in literacy. The case study reported that over 70 per cent of the students use their mother tongue at home and close to 50 per cent responded that their mothers helped them with their schoolwork at home. However, a regression analysis of the SISTA data found no statistically significant relationship between the language used in teaching and student achievement. In general, background factors were found to explain very little of the variance in achievement.

Overall the results indicate that there are several factors that contribute or that are closely related to student achievement. A quick analysis of the results (in no particular order) is provided below:

- Performance is better in urban areas
- Performance is better with parents who are involved in student's learning
- Performance is better in households with higher income and expenditure on education
- Performance is better when students are engaged and like their classes and schools
- Performance is better when students have qualified teachers

Urban students perform better than rural students in all countries (with the exception of Bhutan where students in rural areas attend boarding schools and have greater access to teachers and study time). This shows that there are most likely socio-economic differences between urban and rural schools. Education systems can move to address this disparity by ensuring school facilities are adequate and that teachers are qualified in these areas.

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22   While English is the official language, Solomon Pidgin is the lingua franca of the Solomon Islands.

As expected, socio-economic indicators clearly show that families which are better off financially enable their children to increase their learning achievements. This is true for parents who: send their children to private schools; provide opportunities for private tutoring; spend more money on education-related expenses, have higher education; have better paying occupations; and provide a better home environment such as a study space, their involvement and encouragement for their children.

The learning conditions of the school environment are also conducive to better achievement. Education systems that can provide properly maintained and equipped schools and classrooms (for instance in terms of infrastructure, curriculum, materials, etc.), that are pleasant for learners, and have qualified and trained teachers who can engage students in learning activities, will see better achievement levels (UNESCO, 2016).

Often these results are interconnected and linked. As an example from the **Solomon Islands** indicates, Honiara (the capital) performed exceptionally well in literacy and numeracy because it has the highest adult literacy rate in English, the highest household expenditure on education as well as many qualified teachers at the primary level. In addition, the case study for **Thailand** highlighted that families with higher socio-economic status tend to live in urban areas where higher quality schools (either private or public) are located. These cases point to how hard it is to truly isolate the conditions that are necessary to improve learning achievement and the overall quality of education.

7 Issues and Challenges

While many countries embrace learning assessments as an integral element in helping to deliver quality education, considerable gaps remain. Overall, the systematic capacity to plan, design and implement learning assessments and then use the results to improve the performance of schools and the broader system need special attention. In addition, addressing and measuring learning beyond the traditional, cognitive domains, including around the social and emotional dimensions of learning is also of crucial importance (UNESCO and UNICEF, 2012; UNESCO, 2013).

The mapping and case studies all identified several challenges for both education systems and learning assessment programmes. These include the disparity between urban-rural schools, private-public schools, teacher quality, school infrastructure and materials, and student engagement. On the other hand, some challenges are specific to evidence and data collection, analysis and utilization. In one manner or another, all of these challenges hinder education systems in improving learning outcomes and the quality of education.

7.1 Issues and Challenges for Education Systems

Socio-economic Factors

Poor socio-economic conditions were highlighted by some of the countries as challenges to basic functions of the education system such as enrolment, retention and completion. Poor families find it difficult to afford school attendance costs. Similarly, in rural and remote areas, children often have to work to support the household income. In contrast, higher household income/expenditure and better home environment, has been identified as contributing to improved learning outcomes. In addition, factors such as malnutrition and poor health act as deterrents to children attending schools, and even if they attend schools, they find it difficult to stay or make progress in learning. Here, the challenge is to properly gather and harmonize data on these issues and report to policy-makers and other stakeholders in order to introduce targeted interventions to improve the learning outcomes of children from low socio-economic families and marginalized groups.

Urban-rural Disparities

Generally, many countries observed a wide urban-rural divide in educational outcomes. There is a low concentration of schools observed in several rural areas, and a lack of data regarding the number of students and school coverage in these areas. This challenge needs to be adequately understood and appropriately addressed in order to enhance the quality of learning. There is also the problem of inadequacy of the geographical distribution of educational institutions to cater to the needs of all the regions of the countries, for example remote regions, mountainous areas, islands, etc. Properly analyzing the disparity between these schools can help to introduce measures that can benefit remote, rural schools and reduce the disparity between the schools.

Private vs. Public Schools

While there continues to be debate over whether private schools or public schools increase student performance, the case study results indicated private school students often perform at higher levels than students in public schools. The significant difference between the achievement levels of public school students and the ones from private schools raises questions about the quality of public schools. The quality of public schools' learning and teaching materials is a common challenge identified by several countries. From faculty and instruction to textbooks and facilities, great changes are needed in terms of bridging the gap between private and public school education.

Teacher Capacity and Quality

Some of the country reports (Afghanistan, Bhutan, Malaysia, Myanmar, Solomon Islands) talk about the issue of unqualified teachers, the lack of appropriate in-service training for the existing teachers and the neglect of the academic and pedagogical dimensions of teacher training. These issues make the translation of a quality curriculum into daily classroom experience a major challenge. In order to provide high quality teaching, improved teacher training and professional development has been identified by the countries.

Teacher capacity and quality are also affected by low salaries, a lack of professional standards, and a lack of synchronizing teacher development with other areas, such as curriculum and textbook development, school management and financing, as well as education research and academic studies in education sciences. In addition, poor teacher placement and high student-teacher ratios places a burden on the education system and hinders learning outcomes. In this regard, effective teacher development programs will play a vital supporting role, particularly in public schools. A major challenge of course is ensuring continuous action in the areas of monitoring, needs assessment, capacity-building and supportive budgetary provisions in regard to teachers.

Access, Enrolment and Engagement

Even though many countries have made great improvements in terms of access to education and increased enrolment rates, these were identified as challenges by several countries (Afghanistan, Bhutan, Myanmar, Solomon Islands, and Viet Nam). There are two aspects: first, the lack of proper facilities at educational institutions, and second, the adequacy of these facilities. This applies to buildings, furniture, electrical fittings, appropriate heating/cooling systems, water supply, sanitation, toilets in usable conditions (particularly for girls), proper arrangements for waste disposal, availability of teaching/learning materials, library facilities with computer and internet connections, proper and well-equipped laboratories and facilities for sports and recreation, to name just a few.

In addition, even when countries do offer sufficient and adequate infrastructure and resources, students can leave school for other reasons. Several countries indicated that keeping students in class

and engaged, particularly in secondary school, is often a problem. This could be due to lack of interest or engagement in learning or due to the low quality of education or the school.

Further, many of the countries indicated that student engagement and interest corresponds to better scores, therefore those schools that are better equipped to 'hold' a student's attention – whether it be an engaging lesson, innovative methods, quality materials, etc. – will offer the student a better opportunity for higher achievements. The challenge of providing a quality curriculum as well as learning and teaching materials was highlighted by several of the countries (Afghanistan, Bhutan, Pakistan, Viet Nam).

7.2 Issues and Challenges for Evidence-based Policy-making

While almost all the countries carry out learning assessments, the main challenge is how they utilize the results of these assessments to inform policy and targeted interventions. To a certain extent, this is due to a lack of capacity among policy-makers, education leaders, research institutions and other stakeholders, to extract valid elements from data and translate the data for implementation into policy.

Another challenge is a lack of standards and results-oriented assessment frameworks to determine the quality of education against education goals. This makes it difficult to establish achievement levels, but also to identify causes and sources of educational failures, take alternative actions, and make effective plans for tackling these issues in order to improve the system. There is a need for some countries to review their existing education and assessment policies, and formulate a clear education blueprint that responds to these challenges as well as the changing needs of the countries' education system.

Capacity

Lack of sufficient human resources, such as technical experts, for analyzing large-scale data can be observed within many Ministries of Education in the region. Consequently, there is the absence of detailed analysis of the factors influencing learning performances and apprising the Ministries of Education for further policy action. This requires the hiring of such expertise from outside. And in some cases, the countries lack the appropriate infrastructure and are unable to carry out much of the required work in gathering and analyzing assessment data. Fast paced environments offering little time, and in many cases little resources, are also seen as significant constraints.

Similarly, there are problems seen with the interpretation of findings by policy practitioners. Even though research related to educational outcomes has been carried out, the available information and data often do not provide the elements necessary for decision-making. This can be either because rigorous research relevant to policy needs has not been conducted or the research that is available does not suggest a course of action by which policies can be formulated.

Coordination

In many cases, education activities are carried out by varying departments (and in some cases) ministries. Even the collection of data is sometimes carried out by various actors and stakeholders. Managing assessment data and the capacity to link this to the overall ministry of education database can be a challenge. In addition, sharing information with and between other line ministries and linking it to a central database, such as the national statistics office, can be an issue as ministries and agencies have varying standards and procedures. Even though this is done with the expectation that it may enhance the effective use of data and avoid duplication, the real issue becomes time and effort to effectively coordinate all those concerned at all levels.

Further, when countries have more than one assessment programme taking place at the same time, this places much strain on the staff involved. Staff are often required to multi-task in order to meet the deadlines set by the different assessments, which in turn may also affect the quality of data.

Effective Use and Dissemination of Findings

Effective use of assessment results is another challenge, possibly warranting a better packaging of the dissemination focusing on policy issues in order to attract the attention of policy-makers. This links to lack of capacity of writing suitable reports for different audiences and data dissemination to different stakeholders at large and to the media using appropriate delivery packages. This finding is consistent with the experience of several countries in the region, as highlighted in a recent ACER and UNESCO policy brief on using the results from large-scale assessments to inform education policy (Tobin, et al., 2015) This points to the need for capacity-building in the preparation, implementation and monitoring of advocacy plans for influencing policy changes to enhance education quality.

Part 3
Conclusion

8 Policy Recommendations

The LEAP study has highlighted several factors that have a relationship with learning outcomes and the quality of education in the Asia-Pacific region. However, many issues and challenges remain for education systems across the region. There are many different prescriptions to address deficiencies and gaps in education systems, for example, to provide more opportunities for students from low socio-economic status, such as subsidies and grants, governments should aim to efficiently allocate school resources in order to ensure the quality of curriculum and teaching. With regard to learning assessments and utilizing the data and results, the conclusions from the mapping study and case studies provide us with a different perspective. Therefore, the following recommendations have been developed with the purpose of enhancing the utilization of learning assessments and the accompanying data. These recommendations are not country-context specific, however, have been listed as areas of priority for consideration by countries across the region. More specific recommendations for the countries that participated in the study can be found in Annex A.

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Recommendation 1

Develop national learning assessment policies, analytical frameworks, and monitoring and evaluation frameworks.

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Discussion of Evidence: Many countries do not have large-scale learning assessment policies of their own. Many utilize policies that merely include education assessment as an important part of the education system. It is necessary to provide the specific policies and guidelines for a well-functioning assessment system to inform education practitioners and policy-makers. The analysis of assessment data can provide valuable information for countries to review education policies, including assessment policies, and to prepare strategies to address any challenges. Many of the countries in this region have participated in at least one international or regional assessment, however, in many cases these assessments are carried out or overseen by external partners such as PISA, TIMSS, PILNA. By utilizing the expertise and experience of international agencies, countries can bolster their education policies and plans.

Where possible, countries may consider participating in large-scale international or regional assessments. Participation in international or regional assessments can support countries in building capacity in conducting large-scale assessments and analyzing the results of these assessments to better inform education policy and practice. It will also enable comparison of the national achievement standards with those of other countries, thereby allowing the countries to focus more on areas needing further attention.

Recommended Policy Action Plan: National assessment policies need to be developed by countries that do not currently have them. This will include developing supporting frameworks and guidelines. Countries that already have policies in place can establish regular reviews of these policies. Proposals for participation in international or regional assessments, such as SEA-PLM and PILNA in the Asia-Pacific region for instance, can be developed for those who would like to build capacity for their national assessment systems.

Modality of Implementation:

1. Ministries concerned should take action to develop and put in place national assessment policies and supporting frameworks for assessment development, data analysis, monitoring and reporting.

2. Regular reviews and evaluations can be undertaken to ensure that any existing policies or frameworks are updated based on learning assessment results.

3. Ministries concerned should initiate proposals for participation in international and regional assessments in order to build capacity in conducting and analyzing assessments. Participation in international or regional programmes can also provide further information on the quality of education.

4. Required financial resources should be mobilized to support implementation.

Recommendation 2

Develop capacity to collect, interpret, and report data and translate key messages into policy needs.

Discussion of Evidence: A lot of data is collected with regard to education, not only as part of learning assessments, but also information on the health of the education system in general. In addition, many countries collect background information on students and families, either through household surveys, census, or other questionnaires. However, countries do not always have the capacity to handle and interpret such large amounts of data. Even if countries are able to manage the analysis of data, it is not always that there is the capacity to translate the results into clear messages that can enhance the quality of education.

Such capacity not only involves data extraction and statistical competency, it also requires writing and presentation skills as well as linking with policy objectives. In this case, countries may have several staff members to carry out very different roles, but countries will also need to ensure that the staff who carry out statistical analysis can properly communicate and translate the results to staff responsible for preparing the final reports and sharing with policy-makers. Writing press briefs, or conducting policy research, policy analysis and policy briefs all call for special skills. Similarly, establishing logical causal relationships between variables requires special skills on the part of those who have to do it. Therefore, suitable capacity-building training needs to be developed and implemented for the purpose.

Recommended Policy Action Plan: Conduct a training needs assessment, followed by the actual implementation of training and capacity-development programmes to the staff concerned.

Modality of Implementation:

1. Ministries should initiate a training needs assessment to identify gaps in the utilizing of education statistics and assessment data, and preparing evidence-based policy.

2. After the training needs assessment, prepare curriculum and training materials and carry out training and capacity development programmes for staff involved in the collection, analysis and utilization of education statistics and assessment data.

3. Ministries of Finance should be approached for the needed budget allocations.

Recommendation 3

Promote the dissemination of assessment results in order to nurture and strengthen evidence-based policy-making in the education system.

Discussion of Evidence: In several country scenarios, proper identification of evidence of factors contributing to better learning outcomes and disseminating them to policy-makers is not seen as a practical and routine action on the part of data analyzers and disseminators. Similarly, such dissemination to education stakeholders, including the community and teachers, is not well articulated. However, these actions are essential for informing policy-makers and education stakeholders of the issues and challenges that face learners, as well as to ensure all stakeholder support. The value of learning assessments also depends on whether the dissemination of results is done regularly and effectively. In the absence of such dissemination, the reports may just gather dust in the shelves. Further, such dissemination should also be done, besides policy-makers, to teachers, school management and the media such that they are motivated to pursue action and do their best to improve the quality of education.

Recommended Policy Action Plan: Effective dissemination of assessment results needs to be made mandatory, and adequate budget provision should be made in the budget for this purpose.

Modality of Implementation:

1. Ministry of Education should initiate action to mandate the proper dissemination of evidence-based results of assessment.
2. Appropriate capacity should be developed for the staff to do this task effectively and professionally.
2. Ministry of Education should identify the proper channels and medium for effective dissemination.
4. Countries can disseminate results through international partners and networks such as UNESCO/NEQMAP, ACER, UNICEF for instance.

Recommendation 4

Utilize assessment results and evidence to improve the quality of teaching and learning, for example through improved pedagogical skills and knowledge of subject matter, and curriculum review and reform.

Discussion of Evidence: Better performing schools are seen to be having better performing teachers. Teacher performance may be affected by several factors, such as remuneration, incentives to work, infrastructure, training and re-training in pedagogical skills, attitudes of students and teachers, a system of recognition and rewards for excellence in work, parent-teacher relations, and school leadership among others. The results of learning assessments, education statistics, and other evidence can be used to determine what areas teachers need support and training. Further analysis can determine whether teachers are able to interpret and utilize the findings of the assessments or not. This can lead to well-designed teacher assessments and professional development programmes which may capture and improve on quality aspects much better.

Without regular reviews, curriculum and subject content can become outdated and inappropriate. In some cases, textbooks are produced outside of the country and lack local context for students to become fully engaged with the learning materials. Learning assessments should be aligned properly with curriculum, subject contents and textbooks, in order to determine learning outcomes. Analysis of learning assessments and learning outcomes can provide insight into areas in the curriculum that may be lacking or problematic for learners.

Recommended Policy Action Plan: The analysis of assessment data should be given priority in education policy and action plans and incorporated into teachers' pre-service and in-service training, as well as to curriculum review and development. Capacity-building can be carried out for those involved in designing teacher training and professional development plans and programmes, as well as curriculum development.

Modality of Implementation:

1. A needs assessment survey may be undertaken as a first step to identify gaps in utilizing data to improve the quality of teachers, teacher-training programmes, course content and curricula.

2. Develop a teacher training plan and curriculum development and reform plan based on the needs assessment survey.

3. Capacity-building efforts should be undertaken by MoEs on a regular basis in order to ensure that teachers and curriculum development staff upgrade their skills.

4. Teachers and curriculum may be assessed and evaluated regularly. These results can be examined in conjunction with results and findings of student assessment programmes. The conclusions can be incorporated into the next round of teacher trainings or curriculum revisions.

5. Establishment of a Teacher Accreditation System may be considered where necessary.

6. The above implementation modalities could be suitably incorporated into the monitoring and evaluation system of each country concerned.

9 Way Forward

Continued capacity development at the national level can address the main challenges and recommendations for improving evidence-based policy-making. This includes an emphasis on the utilization of data, from assessments and other sources with regard to education statistics, household and socio-economic indicators; as well as how to properly share, communicate, and learn from these results. This section provides a way forward for how countries can look to build upon their current structures and systems in order to better utilize data. Improving the capacity of staff involved in all aspects of education and education assessments is vital to ensuring that the work done on gathering and collecting education data is not wasted. Several areas are worth mentioning here.

Assessment Policies

As indicated in the policy recommendations, many countries do not have specific assessment policies or frameworks. The complexity of administering the assessment, collecting and analyzing the data, and disseminating and utilizing the data for the benefit of improved learning outcomes needs the corresponding guiding documents. Countries that need to update and/or create assessment frameworks, guidelines, and policies may start by utilizing the expertise of external partners and development agencies, as well as other countries within the region.

Research and Analysis

This set of skills can include capacity in both qualitative and quantitative research. The ability to design, sample, collect and analyze data is key in order to utilize data from multiple studies, particularly the qualitative ones like ethnographic surveys, focus group discussions and case studies. Analysis of data collected under open-ended questions of regular surveys will also fall under this category. Skills to harmonize data collected by national and international assessments with other data collected from secondary sources, including surveys like India's National Sample Survey (NSS), or a household sampled survey, as well as any primary data, if collected. Such harmonization will factor in a balanced analysis of the education situation of the country concerned. There is also need to strengthen the capacity to properly structure a report, present the information logically, collating all relevant data collected from primary and secondary sources. The ability to interpret data and identify causal relationships observed between variables is key to preparing logical arguments, as well as identifying possible remedies to the issues and challenges identified.

Reporting and Advocacy

Reporting and advocacy are important for achieving success in delivering policy change based upon the evidence from learning assessments. In addition, it is crucial in securing the financial resources required to implement the policy actions and plans, if it requires funding. An action plan needs to be prepared and acted upon with the active involvement of decision-makers and policy-makers. Skills related to a collection of robust evidence and presenting it convincingly to the decision-makers constitute an important requirement for achieving success in the advocacy process. Often, research and analysis skills alone will not impact policy change or securing additional funds, unless the underlying evidence is supported by equally excellent reporting, advocacy and leadership skills. The impact of reporting or advocacy is seen in terms of drawing the attention of policy-makers, funding agencies or the community to the issue in question and obtaining their support (in terms of favourable policy decision, budget allocations or approval). Ideally, capacity development in reporting and advocacy skills should be provided to all senior staff in charge of assessments of learning outcomes and education planners as well as other concerned officials of the MoEs. It is notable that UNESCO Bangkok, under NEQMAP, recently organized a capacity development workshop in this regard.[23]

Asia-Pacific Regional Initiatives and Collaboration

Network on Education Quality Monitoring in the Asia-Pacific

In an effort to improve the quality of education across the region, and to establish a strong network for collaboration and capacity-building, UNESCO Bangkok launched NEQMAP in 2013. As a regional network focused on monitoring the quality of education, NEQMAP is well situated to engage Asia-Pacific countries in efforts to share knowledge on assessment systems, factors contributing to better learning outcomes and the quality of learning, as well as how to build capacity in these areas.

Participation in NEQMAP can enable countries of the region to avail of useful opportunities to participate in training and capacity development in the area of assessment. To date, the capacity development workshops organized by NEQMAP have focused on assessment literacy, assessment design and development, alignment with curriculum and pedagogy, data analysis as encapsulated in the LEAP project herein and reporting and dissemination. In addition, NEQMAP is well suited to facilitate and introduce experts in educational assessment to support the efforts being undertaken in member countries, as it has already done in a number of countries such as Nepal, Mongolia, Bhutan and Lao PDR as well as sub-regions such as Central Asia.

23   NEQMAP Workshop: Reporting & Dissemination of Large-Scale Learning Assessments, http://bangkok.unesco.org/content/workshop-reporting-dissemina-tion-large-scale-learning-assessments

In addition, NEQMAP facilitates knowledge-sharing of best practices regarding assessments and the quality of education in an aim to facilitate more effective cooperation among its members. It also coordinates and conducts research on issues of common concern across the region, such as the assessment of transversal competencies, school-based assessment and the usage and impact of learning assessment on education policy and practice. Participation in the network can enable countries of the region to contribute to these activities and avail of enhanced knowledge and capacity.

Southeast Asia Primary Learning Metrics

Another recent example of regional collaboration is the SEA-PLM assessment programme. Initiated in 2012, the programme began field trials in 2015 and aims to be a leading regional assessment programme. SEA-PLM will contribute towards improving and redefining learning outcomes by providing a regional culturally appropriate metric and thereby promoting a more equitable and meaningful education for all children across the region.

SEA-PLM is a contextualized primary education learning metric for SEAMEO Member Countries and covers the key domains of reading, writing, mathematics and global citizenship – for primary school Grade 5. Currently, SEA-PLM is working with seven countries in the region (Brunei Darussalam, Cambodia, Lao PDR, Malaysia, Myanmar, Philippines, and Viet Nam), to achieve improved capacities for conducting large-scale learning assessments.

Pacific Islands Literacy and Numeracy Assessment

The other regional assessment programme is the Pacific Islands Literacy and Numeracy Assessment. Administered by the Educational Quality and Assessment Program (EQAP) of the Secretariat of the Pacific Community (SPC). Formerly the South Pacific Board for Educational Assessment (SPBEA), the primary role of EQAP has been to assist the Pacific region and its member countries in developing assessment procedures towards their national and/or regional certificates since it was set up in 1980.

First administered in 2012, PILNA provides a measurement of regional standards based on a common scale, which gives the participating countries valid and reliable results to inform the improvement of student learning outcomes over time. The 2012 PILNA was administered in 14 countries to establish regional and national baselines in literacy and numeracy achievements at the end of 4 years and 6 years of primary education. The latest PILNA was also the largest ever assessment for the Pacific region. It was administered in 13 countries in October 2015 and more than 45,000 students in Year 4 and Year 6 in some 700 schools participated.

The way forward, therefore, requires countries to ensure that they have robust policies and frameworks in order to guide and monitor the assessment process. At the same time, capacity building is essential not only in terms of research and analysis skills to better understand learning assessment data, but also in terms of reporting and advocacy so that this research can impact and implement education policies effectively. Moreover, cooperation and networking within and among countries is crucial. Networks such as NEQMAP not only support countries in capacity building efforts, but also in knowledge sharing of best practices among countries. At the same time, regional assessment programmes such as SEA-PLM and PILNA show a promising way forward with regard to culturally appropriate assessments at the regional level.

In conclusion, countries should explore utilizing education data not just for administration and management purposes, but also to improve learning outcomes. Learning assessment data is often underutilized, and some conditions that hinder or help learning are potentially going unnoticed. A closer examination of this data, along with other data from household census or school surveys for example, can provide valuable clues as to what might contribute to better learning outcomes. Investing more in data analysis, research, reporting and dissemination can help identify enabling conditions or contributing factors for learning, which in turn can provide a rich evidence base for policy-makers.

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Annex A: Country-specific Recommendations

The country-specific recommendations as made in the country reports are briefly stated below. Detailed discussions on evidence, policy action and modalities of implementation are not discussed here as these may be better developed by the countries concerned with reference to their own contexts.

Afghanistan

As enrolment has increased dramatically over the last few years, there is a need to address further aspects of quality improvement. Recommendations fall into three categories: Capacity development of teachers and education staff, improving curriculum and teaching and learning materials, and improving physical infrastructure. For example, capacity development solutions for teachers and staff include: improving the quality of teachers through content mastery and pedagogical skills; improving the system of teacher supervision; providing support to school management councils and management training of head teachers; and ensuring merit-based recruitment and promotion of head teachers and institutional managers. Solutions for improving the curriculum and content include: distributing textbooks and teachers' guides to the school level; continuing to improve and update the curriculum; increasing the hours of instruction, especially in crowded urban areas; and improving assessment system/framework of learning achievement. Other recommendations to enhance the quality of the education system include: strengthening community outreach efforts, focusing on active school shuras (school management committees) and community participation; the establishment of standard science centres and educational technology centres in each province; and the allocation of more posts for teachers and lab technicians.

Bhutan

The case study provided a list of recommendations for improving the standards of the student assessments and the utilization of the assessment results for policy planning purposes. In order to improve student learning achievement, recommendations include: reduce the class size; reduce walking distances between children's homes and schools particularly in remote and difficult areas; allocate more resources for schools in rural areas and remote schools; pay equal attention and provide equitable support to both girls and boys in their learning; review programmes and manuals in order to include more girl-friendly content; provide professional and timely support to the schools and teachers through frequent in-service workshops on content knowledge validation, teaching skills, effective assessment practices and use of Information and Communication Technologies (ICTs); make schools' physical and social ambience comfortable in order to perform better; and place an emphasis on moral literacy along with academic literacy in the schools.

The second set of recommendations focused on improving assessment and how it could be best utilized in policy planning. Some suggested remedies are to: develop national assessment policies, analytical and monitoring framework involving the international assessment agencies; prioritize the areas that need further study and make it relevant to policy-makers; and disseminate the assessment results of the students at the school and individual level and involve the policy-makers and bureaucrats in formulating the recommendations from the findings.

Malaysia

The country-specific recommendations have been made in terms of curriculum, assessment and teachers. The policy recommendations for improving the curriculum are: increase content of curriculum to include higher-order thinking skills during the teaching and learning experience; engage teachers

to engage students for primary and secondary levels; emphasize hands-on and project-based activities during the teaching and learning experience. The recommendation to improve assessments includes introducing school-based assessment into the national examination. With regard to improving the training and capacity of teachers, the recommendations are to: recruit high-performing graduates, provide more opportunities for career advancement, upgrade training colleges to university status, and improve in-service professional development.

Mongolia

The Mongolian case study highlighted the difference between urban and rural students. In order to improve the education quality of students in remote, rural location, the schools need qualified teachers. In many cases teachers in remote, rural schools are required to teach subjects they may not be qualified in. The proposal is to improve teacher training in these areas to ensure that teachers are qualified to teach multiple subjects. In addition, incentives must be provided so that qualified teachers will relocate, or remain in these remote and rural schools. The report also indicated that class size attributed to differences in learning outcomes, therefore a reduction in class size will enhance learning achievements.

In order to improve learning assessments and utilize the information, the report highlighted that during the data collection phase, the assessment programme could solicit school and teachers feedback and comments for education policy development. In addition, since the assessment programmes take a lot of time and effort, more advanced technologies could be adopted to reduce the time spent on collection and analysis. Finally, the results of these assessments should be utilized to coordinate the content of the curriculum and textbooks.

Myanmar

The Myanmar case study cited the need for the expansion of existing schools and the construction of new schools based on a mapping of school coverage across the country. School construction should ensure minimum standards for a quality school environment, including construction of disaster-resilient buildings that are also accessible to children with disabilities. The report recommends that the MoE should adopt a system to keep textbooks as school property instead of providing them to all students, along with a programme for hiring textbooks. This measure would ensure the quality of textbooks and would save expenditure on printing of textbooks.

In terms of access and enrolment, the case study recommends targeted efforts to bring more children into schools, to prevent children most at risk from dropping out, and to find ways of bringing back those who have already dropped out. These measures include: eliminating extra school costs, increasing the number of schools servicing remote populations, ensuring the availability of transportation to schools, providing school feeding programmes, and implementing policies to reduce the impact of the tuition, for example the existing stipends programme. The report adds that through the government's introduction of free, compulsory education at primary level and intention to expand this to all levels, as set out in the National Education Law and its amendment, is a fundamental first step towards realizing this, additional targeted support is required for disadvantaged groups of students, including appropriate steps to address the variations in causes for dropping out at the local levels.

Finally, the report recommends improved capacity-building programmes for education officials and headteachers. This includes regular training programmes and potentially also recruitment programmes based on a standard competency framework.

The recommendations start with the need for a policy decision for the provision of financial resources on a regular basis. The quality of public schools needs improvement, particularly in the quality and capacity of teachers. The Pakistan case study indicated the low achievement of students in writing skills

and students from rural areas. To address this lack of achievement in writing skills, the report suggests an increased emphasis on writing skills by revising the curriculum, textbooks and classroom practices in order to improve writing outcomes. To address the disparity in rural and urban schools, the report recommends more exposure and support for learners in rural areas, which includes supplementary writing and reading practice and support.

In addition, there is a need for building the capacity of NEAS staff through in-country training with the support of development partners, starting with degree courses in education assessment from renowned universities through scholarships or fellowships in different countries. Institutional linkages with international research organizations with facilities for exchange of researchers or faculty could also be introduced.

To improve the utilization and analysis of assessment results, there is a need for longitudinal studies. Like all other national or international assessments, NEAS should consider a longitudinal assessment design which allows reporting growth/progress in performance over the years and also gives an opportunity to introduce interventions and investigate their impact over time (for example, teacher training, provision of teaching resources, textbooks, etc.). Finally, NEAS needs to properly develop and implement a dissemination and application mechanism in order to translate key results to the relevant policy-makers and develop interventions for improving education outcomes.

Solomon Islands

The Solomon Islands case study listed several recommendations. The first recommendation relates to the variation in achievements in literacy and numeracy between the provinces. Unequal distribution of qualified teachers is evident from some provinces having a very high proportion of qualified teachers compared to other provinces. Therefore, policies and incentives to support mobilization of teachers across the provinces are needed. Another recommendation is to conduct further investigation in response to this case study's inability to establish the link between student achievements and their contextual factors, for instance: sex disparity and the disparity in writing skills across the various regions. Therefore, further research may assist policy decision-makers. The next recommendation has to do with the dissemination of key results. Appropriate training, specific on analytical data analysis that leads to evidence-based policy-making, should be provided to the assessment professional staff to build their capacity and skills in analytical work. The final recommendation states that policies on data integration and use should be developed to support and formalize such initiatives. Data coordination and sharing of information is becoming a crucial factor for effective decision making at all levels.

Thailand

The Thailand case study examined socio-economic factors in terms of educational outcomes. As a result, the report concentrates its recommendations on these aspects. The first recommendation is to increase the education opportunity for students from low socio-economic status families to gain access to high quality schools. To achieve this, the current flat-rate subsidy should be adjusted based on socio-economic status of student to increase equity among various groups. Second, the government can provide support and enhance the capacity of households in raising their children's learning achievement. This research reveals that the educational expenditures that correspond to student academic achievement are special program fees and private tutoring fees. Therefore, the government should consider channeling more subsidies toward these expenditure types. Third, as mentioned previously, the report cited household factors as the key determinant of academic achievement. Therefore, policies should aim to increase parent's attention to student learning, promote knowledge of child care, and support students' personal learning space at home. The fourth recommendation is with regard to bridging the gap in student test scores. The gap in student test scores is partly the result from

the difference in socio-economic status. Therefore, the policy to reduce economic and social inequality would positively affect overall student achievement as well as reduce the test score gap. One possible strategy is to provide low socio-economic status students the opportunity to attend schools of their choice. This could be done through the provision of scholarships or vouchers to students from a low-income background. The final recommendation relates to improving the quality in classroom learning of disadvantaged students. The government needs to have an efficient school resource allocation that reduces the differences in school resources among public schools in order to ensure the enrolment of all students.

Viet Nam

The Viet Nam case study points to several recommendations in terms of assessment policies, enhancing the use of national assessment results, capacity development, and overall awareness. The first recommendation is to develop a system of policies and management solutions for narrowing the gap of primary education quality between regions, in which special attention should be given to improving teachers, facilities and materials. In addition, these policies, regulations and specific solutions should aim to improve the quality of student learning at the individual campuses. The recommendations for enhancing the use of national evaluation results in education management include: publishing the findings and building an information sharing system. In addition, these evaluation and assessment results can be utilized to enhance professional capacity for primary teachers and management skills for principals, especially those in rural and remote areas. The quality of teachers can be improved by upgrading and improving the curriculum content and the training methodology. Finally, more effort is needed to raise the awareness of all family members and the community in looking after the educational needs of all children.

Annex B: Questionnaire

UNESCO's Learning Enablers for Asia-Pacific (LEAP) Programme Questionnaire

Part I. Information on Assessment Programmes

1   Acronyms and full name of the assessment:

....

2   Full name of entity responsible for overall implementation of the assessment:

....

3   Responsible entity (governing body/dept./unit) for designing assessment framework/questions:

....

4   Responsible entity/person for invigilating/administering the assessment to learners (ex. Teachers, volunteers, ministry officials, etc.):

....

5   Responsible entity (government body/dept./unit) for data processing:

....

6   Responsible entity (governing body/dept./unit) for conducting analysis on assessment data:

....

7   Full name of international agencies/donors/NGOs/INGOs that provided financial/technical support (if applicable):

....

8   Years of assessment (please list all years assessment was conducted since 2005)

....

9   What are the official purposes of the assessment? Select all that apply.

     a.   Monitoring and evaluating education quality/ learning outcomes ☐

     b.   Monitoring education inequalities ☐

     c.   Curriculum review and reform ☐

     d.   School accountability (e.g. recognition, probation, accreditation, closure) ☐

     e.   Teacher accountability (e.g. bonuses, probation, promotion) ☐

     f.   Student accountability (e.g. promotion, retention, graduation, admission) ☐

     g.   For policy or programme evaluation ☐

     h.   Education policy review and reform ☐

     i.   No specific purposes of the assessment ☐

     j.   Other, please specify: ☐

....

10 Curricular subject(s) tested:

....

11 What is measured by the assessment? Select all that apply

      a.   Knowledge of curriculum   ❑

      b.   Knowledge beyond curriculum   ❑

      c.   Application of knowledge in practice   ❑

      d.   Non-cognitive abilities of students   ❑

      e.   Student interest and attitudes towards subject area   ❑

      f.   Other, please specify:

....

12 Target grade/age: ....

13 What is the target area of the assessment?

      a.   Nationwide   ❑

      b.   Some states/provinces   ❑

      c.   Please specify number of provinces/states covered: ❑

....

14 What sampling methodology has been applied (if applicable)?

      a.   Simple random sampling   ❑

      b.   Stratified sampling   ❑

      c.   Cluster sampling   ❑

      d.   Systematic sampling   ❑

      e.   Others, please specify:

....

      f.   No sampling   ❑

15 Sample Size: ....

16 Does the assessment include any background survey or questionnaire? If yes, please list which categories the questions cover. Select all that apply.

      a.   Students   ❑

      b.   Teachers   ❑

      c.   School   ❑

      d.   Parents   ❑

      e.   Other, please specify:

....

      f.   No background survey conducted   ❑

Part II. Education Policy and Planning

17 Does the country/system have education policy that guides assessment programme(s)? (Y/N)

18 If Yes, what are the current education policies* (formal and/or draft) that guide the assessment programmes in your country? *'Policy' refers to any policies, planning documents, assessment frameworks, and/or guidelines.

Please list ALL policy documents in the following table.
Please provide the link or attach a copy of the policy with your submission of the completed questionnaire.

	Name of the Policy Document	Status (formal/draft)	Year of adoption	Weblink
1				
2				
3				
4				
5				
6				

*If you need more rows to list policy documents, please add/insert more lines as necessary

19 Which organization is responsible for developing education policy/regulation for assessment programmes in your country?

a. Ministry of Education: please specify department/unit name:

b. Other Ministry: please specify:

c. Other organization or institute: please specify:

20 Does the country have any plan to participate in any international or regional assessment in the coming years? (Y/N)

21 If Yes, please specify the assessment programme and year:

....

22 Is there funding available for the assessment programme(s)? Tick all that apply.

      a. Yes, there is regular (continuous and predictable) funding allocated by the government ❏

      b. Yes, there is regular (continuous and predictable) funding allocated by non-government sources ❏

      c. Yes, there is irregular funding from the government ❏

      d. Yes, there is irregular funding from non-government sources ❏

      e. Other, please specify

....

      f. No, there is no funding available for the assessment program ❏

23 What per cent of the education budget is allocated to assessment programmes?

....

24 What activities are covered by the funding available for the assessment programme(s) (include both in-house and outsourced activities)? Tick all that apply.

      a. Assessment design ❏

      b. Assessment administration ❏

      c. Data analysis ❏

      d. Data reporting ❏

      e. Long- or medium-term planning of program milestones ❏

      f. Research and development ❏

      g. Staff training ❏

      h. Activities not related to the large-scale assessment, please specify:

....

      i. Other, please specify

....

Part III. Data Analysis

25 In your country, is quantitative analysis conducted on assessment data? (Y/N)

....

26 If your response is YES, what types of analysis are used? Tick all that apply.

        a.   Simple regression analysis   ☐

        b.   Cross-sectional analysis   ☐

        c.   Time-series analysis   ☐

        d.   Longitudinal analysis   ☐

        e.   Item Response Theory   ☐

        f.   Other, please specify:

....

27 If your response is NO, what are the possible challenges in doing so?

        a.   Lack of financial resources   ☐

        b.   Lack of human resources   ☐

        c.   Lack of technical capacity and infrastructure   ☐

        d.   Other, please specify

....

28 What statistical software is used to conduct the quantitative analysis?
(i.e.: SPSS, STATA, Microsoft Excel, etc.)

....

29 Apart from assessment data, what other datasets are used during quantitative analysis?
Tick all that apply.

        a.   Household census   ☐

        b.   EMIS   ☐

        c.   School survey   ☐

        d.   Other household surveys, please specify:

        e.   Others, please specify: _

....

        f.   No other datasets are used   ☐

30 Is regular school data collected through EMIS linked to assessment data when doing
quantitative analysis? (Y/N)

....

31 What are the official purposes of quantitative data analysis in your country? Tick all that apply.

To identify the factors affecting student performance

a. To understand the variations among students' cognitive abilities with regard to literacy and numeracy from socio-economic, regional, and sex dimensions ❑

b. To support education policy development ❑

c. To monitor progress of implementation of policies/programmes related to student outcomes and education quality ❑

d. To provide recommendations for improving the teaching-learning environment ❑

e. To provide recommendations for improving the design/development of curriculum ❑

f. Others, please specify:

Part IV. Use of Assessment Data and Dissemination of Results

32 Are assessment results utilized for the following reasons? Please tick all that apply.

    a. Education policy review and reform

    b. Curriculum review and reform

    c. Intervention programmes for specific group of students

    d. Intervention programmes for specific type or cluster of schools

    e. Intervention programmes on specific theme/learning area

    f. Professional development of teachers

    g. Professional development for principals/school leaders

    h. Other, please specify:

33 How are the results disseminated? Tick all that apply.

    a. There is a report available online

    b. Copies of the report are distributed to stakeholders

    c. Results are issued in a press release (radio, television, or printed news   )

    d. Seminar/conferences for policy-makers

    e. Seminar/conferences for unions and professional bodies

    f. Feedback to students/teachers/parents, etc

    g. Other activities, please specify

    h. None of the above

34 What are the issues and challenges in utilizing assessment data? Tick all that apply.

    a. Lack of financial resources

    b. Lack of human resources

    c. Lack of technical capacity and infrastructure

    d. Other, please specify:

Annex C: Research Framework

UNESCO's Learning Enablers for Asia-Pacific (LEAP) Programme Research Framework

Introduction:

This research framework has been prepared with a view to guiding and assisting those who will be responsible for preparing case studies in respect of the LEAP project under NEQMAP. The proposed case studies will mainly be based on analysis of existing data including data from all allied research documents and datasets that are available, both in print and online. The case studies will use both education-related data as well as other socio-economic data available at the national and other levels. Since these are case studies, some additional primary data as needed may also be collected, if need be, mainly with a view to supplementing or supporting the main analysis presented in the case studies.

Objective of the Research Framework:

The main objective of this research framework is to guide the author(s) involved in the preparation of the case studies in ensuring that the country report(s) reflects the progress made by the countries concerned in achieving the objective of the LEAP programme, which is to improve the quality of learning and developing capacity of Member States in designing and implementing education policies and plans to improve learning outcomes through evidence-based decision-making. The case studies will constitute the final activity of the series of activities that are undertaken to attain the above objective, starting with the capacity development workshops held earlier.

The Concept:

The country case study is being situated within the context of the LEAP programme which aims at developing the capacity of the Member States in the Asia-Pacific region in designing and implementing policies to improve learning and checking performance in this area based on solid and empirical evidence. Such capacity development, again, has been based on the earlier exercises to map national practices of collecting, analyzing and utilizing international and national student assessment data for policy formulation and implementation as well as the technical capacity development workshop focused on handling and conducting analyses of large-scale international and national student assessments for education policy and planning (held in Bangkok in September 2015).

The Methodology Proposed:

The methodology for carrying out the case study for each country is proposed as follows. The country report will rely on several documents and datasets that may be already available for doing quality analysis. The author(s) is expected to review all the relevant documents as may be needed for preparing the report. The following is an illustrative list of such documents/data:

I Data and Research documents required:

1. National Census reports
2. National Education Policy documents
3. M&E framework/reports
4. Annual Education Statistics reports/briefs
5. Budget Documents including Notes on Demand for Education Sector
6. Data from national/international large-scale student assessments
7. Any major National Household survey reports such as DHS, LFS, LSMS, etc.
8. Any special studies/surveys conducted on the subjects concerned
9. Other ad hoc studies at sub-national level focusing on student learning.
10. Other relevant documents/studies/reports

II Primary Data (if proposed to be collected, can use the following steps):

The primary data to be collected in this context will be in the nature of supporting any analytical assumptions made or to provide further evidence to any observations or conclusions made from the data analysis.

The methods to be adopted for the purpose may consist of informal interviews, focus group discussions and field visits to schools and the community to observe and collect data from key informants. The design of data collection must be based on the preliminary analysis of the school assessment data and other datasets and reports, as previously mentioned.

Since these data will be qualitative in nature, care should be taken in carrying them out properly, following established guidelines for doing the same.

Supplementary data that may be collected must take into account the time factor for this exercise. Therefore, undertaking any survey can be avoided and instead discussions in focus groups, selected interviews, observation schedules etc. can be employed to collect further data to supplement the main analysis.

Since the report will try to tease out the enablers of learning through analysis of student assessments, certain factors that contribute to learning in different contexts (home or school) can be further investigated through other data that can be collected using the above-mentioned tools. The data that may be collected can focus on other critical players or factors such as community opinion leaders, heads of households, NGOs, teachers in a rural school, etc.

Structure of the Country Case Study Report

The following structure is recommended for the case studies.

Part One (BACKGROUND)

This section will deal with providing the background information relevant to the study and will include a situation analysis that will be made against the contextual background of the country. The following aspects should be covered in this section.

Background Information:

1. Socio-economic and demographic profile of the country

2. The data should be mainly based from Population Census data and National Demographic Health Survey data (if available) or other National Health Surveys

3. National targets and progress achieved

Part Two (STUDENT LEARNING ASSESSMENT- CRITICAL REVIEW)

This section will focus on understanding the assessments available in the country (both national and international), methodology used, sample size, administration of the assessment, type of data collected, and dissemination of data.

A part of this section will contain an in-depth analysis based on existing national/international assessments in order to identify effective learning enablers and contextual issues that enable or hinder the learning at school and the role of learning environment both in the school and in the community. The analysis will link test data and information from background questionnaire(s) along with socio-economic and other relevant data to draw more meaningful correlations and comparisons at national/sub-national level to bring out the factors and issues that enable learning or impede quality learning by students.

The data analysis will make use of various statistical techniques and methods which will be provided and discussed during the technical workshop in September 2015.

I **Overview:**

1. Short overview of student learning assessment in the country, including the historical background of it

2. Description of the policies related to improving learning achievement and education quality

3. Student Assessments- a brief summary of the current National Assessment (a short note on the international assessment the country has participated in, if any)

II **Analysis:**

1. Presentation of analytical questions/issues Note: the list of analytical questions and issues to be explored will be discussed and agreed upon during the September 2015 workshop. The idea is to have a common set of analytical questions/issues to be addressed among all the participating countries of LEAP so that a comparative analysis between countries on the status and impact of National and International Assessments in the countries, and in the region, can be envisaged.

2. Socio-economic, health and other contextual influence on student performance: this section will explore the background questionnaires from the student assessment and will make use of other datasets from other household surveys and primary data collected (if necessary) to discuss and identify other factors and issues that enable learning.

3. Main findings from the analysis of student assessment: strengths and weaknesses, areas/ issues that need improvement with specifics on why and how.

Part Three (POLICY IMPLICATIONS)

This section will make use of the analysis of student assessment to raise policy relevant issues and discuss the possible impact of current policies on student learning outcomes and possible areas for future policy level changes or frameworks to be adopted for more effective use of such assessments. It would be helpful if the narrative under this section is written with logic and precision with supporting evidences for the statements made. As a rule, subjective impressions and vague statements may be avoided. It may also be helpful in this connection if the policy issues are written clearly avoiding possible room for ambiguities and repetitions. These suggestions are made with a view to helping the achievement of the overall objective of harmonization of the findings and recommendations made across the countries. Hence, they may be treated as very important.

Part Four (CHALLENGES FOR EVIDENCE-BASED POLICY-MAKING)

This section should focus on the challenges and issues involved in conducting assessments, collection of other education data, analysis and dissemination of such data, challenges in using evidence to influence policy decisions and the role of data collected under M&E of education outcomes and education quality in this context.

1. Challenges and constraints in conducting assessments: analysis of capacities available in designing and conducting of large-scale assessments of MoE officials or other agencies responsible for conducting such assessments.

2. Issues related to effective use of evidence in the policy-making process: capacity available in highlighting evidences on key issues and concerns in carrying out further policy research and for the preparation of further papers and notes to help advocacy efforts to bring about the needed policy changes in such key areas

3. Challenges related to dissemination of data to the community at large and the media

4. Analysis of the use of data for measuring monitoring outcomes

5. Coordination issues related to use of wide ranging data for assessments between line ministries and other stakeholders.

6. Any socio-political or economic factors that may play a critical role in quality of learning.

Part Five (RECOMMENDATIONS AND WAY FORWARD)

This will be in the form of a brief section providing a short but important list of recommendations for improving the standards of student assessments and for better utilization of assessment results for policy and planning purposes. Key implementation issues may also be considered for inclusion under this section. The recommendations made as the way forward may address following issues:

- Why they are considered important?
- What needs to be done to implement them?
- How cost effective they are?
- How sustainable they are, viewed from the country context?
- What are the likely risks in implementing them and how they could be managed?

General rule

While it is difficult to lay down any limits on the size of the documents to be prepared, a general rule should be to limit it to the extent needed to convey the main points under each section as discussed above. Another guideline would be to be brief and precise and avoid repetitions.

Annexes

Relevant annexures may be added and listed under this section.

References

All relevant references as used for the discussions of the report may be listed here using the referencing style used in all EFA Global Monitoring Reports. (http://en.unesco.org/gem-report/)

Box Items

Where necessary brief box items may be incorporated in the main report in supplementation of a point discussed in the section concerned. This may be done selectively and only if deemed relevant and important.