Large-scale Learning

Assessments in Asia-Pacific

A Mapping of Country Policies and Practices

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Foreword

Countries across the Asia-Pacific region have committed to the Sustainable Development Goals (SDGs) and Education 2030 agenda, pledging to ensure quality education for all and fulfill every child's right to education. This pledge has motioned countries in the Asia-Pacific to adopt and conduct various types of learning assessments to strengthen their education systems. In turn, those assessments have helped countries to understand the state and trends of their education systems and students' academic performance. These learning assessments also contribute to each country's approach in designing new education strategies, including: education policy review, curriculum reform, professional development for teachers, and classroom interventions.

In this regard, assessment systems are not limited to 'assessing' - they encompass different stages for improving an education system, such as conducting assessments, but also analysing assessment data, devising interventions, and monitoring the translation of the assessments in practice. The assessment system is not just an endpoint of the education implementation process, evaluating educational output; rather, it is another starting point from which new policies, plans and strategies are initiated.

This study therefore could not be more timely as many countries in the region shift their vision of education to include a more comprehensive vision of quality education. This includes moving towards a competency-based approach to equip learners with transversal and transformative competencies, or so-called '21st century skills'. And countries will need to understand and align the assessment system with this competency-based approach to ensure and monitor consistency between policies and practices, and of course, relevant learning outcomes.

To get a sense of the Asia-Pacific region's overall trend in learning assessments, this publication, *Large-scale learning assessments in Asia-Pacific: A mapping of country policies and practices,* examines a broad range of functions of learning assessments, commonalities and differences in assessment practices, data analysis, utilization, dissemination, and more. We hope that this research will contribute to the improvement of sustainable, robust, and effective assessment systems that boost the quality of education in the Asia-Pacific.

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Bangladesh	Malaysia	Papua New Guinea
Bhutan	Maldives	Philippines
Cambodia	Marshall Islands	Samoa
Cook Islands	Micronesia	Singapore
India	Mongolia	Solomon Islands
Kiribati	Myanmar	Tajikistan
Republic of Korea	Nepal	Viet Nam

Acronyms

ASER	Annual Status of Education Report
CAPSA	Central Asian Program for Student Assessment
CLA	Citizen-led Assessment
CONFEMEN	Conference of the Ministers of Education of French speaking countries
DeSeCo	Definition and Selection of Competencies
EGRA	Early Grade Reading Assessment
EQAP	Educational Quality and Assessment Program
GPE	Global Partnership for Education
IA	International Assessment
ICILS	International Computer and Information Literacy Study
ICT	Information and Communications Technology
IEA	International Association for the Evaluation of Educational Achievement
NA	National Assessment
NEQMAP	Network on Education Quality Monitoring in the Asia-Pacific
OECD	Organisation for Economic Co-operation and Development
PAL	People's Action for Learning
PASEC	Programme for the Analysis of Education Systems
PE	Public Examination
PILNA	Pacific Islands Literacy and Numeracy Assessment
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment

RA	Regional Assessment
SEA-PLM	Southeast Asia Primary Learning Metrics
SPBEA	Secretariat of the Pacific Board for Education Assessment
SPC	Pacific Community
SPFSC	South Pacific Form Seven Certificate
TIMSS	Trends in International Mathematics and Science Study
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund

Definitions

Learning assessment: The process of gathering and evaluating information on what students know, understand, and can do in order to make informed decisions about next steps in their educational process.

Assessment system: A group of policies, structures, practices, and tools for generating and using information on student learning and achievement.

International assessment (IA): Large-scale assessment studies whereby data are collected from a large number of countries around the world, allowing each country to compare the results of its students with the results achieved by students in other countries. For example: international assessments include the Programme for International Student Assessment (PISA), Trends in International Mathematics and Science Study (TIMSS), Progress in International Reading Literacy Study (PIRLS), etc.

Regional assessment (RA): Large-scale assessment studies whereby data are collected from a number of countries within certain geographic regions, allowing each country to compare the results of its students with the results achieved by students in other countries. For example: Pacific Islands Literacy and Numeracy Assessment (PILNA) and Southeast Asia Primary Learning Metrics (SEA-PLM).

National [or sub-national] assessment (NA): Large-scale assessment surveys designed to describe the achievement of students in a curriculum area and to provide an estimate of the achievement level in the education system as a whole at a particular age or grade level. This normally involves administration of tests either to a sample or population of students. Teachers and others may be asked to fill in questionnaires to provide background analytical information which might influence learning outcomes. For example: Early Grade Reading Assessment (EGRA) and Early Grade Mathematics Assessment (EGMA).

Public examination (PE): The assessment is specifically designed for the purposes of certifying or selecting students, usually covering the main subject areas in the school curriculum. Generally, all students take the examination at the designated age or grade level (usually, but not always, at the end of upper secondary schooling).

Citizen-led [household-based] assessment (CLA): The assessment is organized by civil society, not the government. It assesses the basic abilities of children in reading and arithmetic, and is based on household-based sampling (rather than school-based assessments) to ensure the inclusion of all children including those who have dropped out, have never attended school, or attend different types of schools. Citizen-led assessments include the Annual Status of Education Report (ASER) in South Asia and Uwezo in Africa.

Executive summary

In their pledge to achieve Sustainable Development Goal (SDG) 4, countries across the globe have turned their attention to improving quality education, which includes student learning assessments. For many countries, implementing learning assessments is crucial to monitoring educational outcomes by providing data for education policies and reviewing the teaching and learning process. Many countries in the Asia-Pacific region have invested significant time and energy to monitor students' learning outcomes and enhance school performances.

To support these efforts in Asia and the Pacific, UNESCO Bangkok and the Network on Education Quality Monitoring in the Asia-Pacific (NEQMAP) surveyed the region's countries to map national policies and practices of learning assessments. The analysis is based on responses from 24 countries on their assessment policies and practices from 2005 to 2015, and covers the five forms of learning assessments: international assessments (IA), regional assessments (RA), national assessments (NA), public examinations (PE), and citizen-led assessments (CLA). This report serves to provide a comprehensive understanding of the trends of learning assessments across the region, as well as the aims and methods of data analysis, utilization of data, reporting, and dissemination of results for the five types of assessments.

Key findings

The types of assessments that countries adopt or participate in are linked to their objectives in education, pertaining to monitoring education quality as a formative purpose, legitimizing demands of accreditation as a summative assessment, or ensuring education for social justice and equity.

As an overall trend, popularity of large-scale assessments is increasing, from national to international. International and regional assessments are gaining prominence despite the limited overall participation rate of countries in the region. More countries are carrying out national assessments, and while participation in international assessments is still limited across the region, more countries are interested to participate and look to international assessments for guidance and support for national level policies and practices.

At the national level, many countries in the region carry out both national assessments and public examinations. These two large-scale assessments play complementary roles in identifying the strengths and weaknesses of the national education system, from which feedback for improving teaching and learning can be given to schools, teachers and learners. As a general picture of the Asia-Pacific region, the rate at which countries carry out various learning assessments depends on their national capacity and needs.

And in a select few countries of the region, citizen-led assessments provide an innovative example of how to assess learners outside of the classroom, and capture real learning.

There are commonalities in content areas (e.g. testing students' knowledge of the curriculum), curricular subjects (e.g. literacy, numeracy, language), and data analysis, (e.g. monitoring students' outcomes and quality of national education, and enhancing teaching and learning environment). All countries choose to produce general or main reports as the most common instruments to disseminate their assessment results and target policymakers as their major audience.

Similarly, the report highlights challenges in building learning assessment systems in the following six aspects: collecting and analysing data; utilizing results; securing funding; constructing infrastructure; building capacity and continual reviewing key learning outcomes.

Implications and recommendations

Based on the findings, this report highlights several important insights for countries to strengthen their national assessment systems, from capacity building, generating more knowledge of assessments, improved coordination, and better dissemination and utilization of results.

To achieve a high level of rigour, the capacity building of the stakeholders involved in assessments is a major concern. This includes aspects of all stages of the assessment, from test development and administration to data analysis, utilization and dissemination. A strong effort in strengthening the assessment literacy of stakeholders, including educators and policymakers is key.

Another major concern is how to coordinate different parties for different types of learning assessment with an effective 'infrastructure' so that students/children will be assessed properly for their improvements over time and for a system's accountability. In order to alleviate students' and teachers' burden of managing different assessments, it is necessary to establish an integrated learning assessment system to promote coherent assessment policies among different bodies. A collaborative assessment team will need to be built consisting of professional stakeholders and frontline teachers.

Lastly, as countries shift toward incorporating a competency-based approach, more balance on cognitive and non-cognitive learning goals and outcomes needs to be addressed in assessment systems.

1 Introduction

Countries across the globe are looking to learning assessments as a way of improving educational outcomes. Through participation in national assessment programmes or 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 regional assessments such as the Pacific Islands Literacy and Numeracy Assessment (PILNA) and Southeast Asia Primary Learning Metrics (SEA-PLM), countries within the Asia-Pacific region are investing more and more resources in assessing their learners.

Learning assessment is the process of gathering and evaluating information on what learners know, understand, and can do so that their strengths and weaknesses can be identified and informed decisions can be made in both the formal and informal education systems. To establish an effective learning assessment system, appropriate policies, practices and tools need to be designed for generating and using information on learning performance so as to support a variety of decision-making activities, such as informing curriculum and instruction, designing improvement strategies, and providing data and evidence for stakeholder accountability (Clarke, 2011; Clarke, Liberman and Ramirez, 2012).

Large-scale data on learning assessments are becoming increasingly available, which has led learning assessments to become a very powerful tool in education policymaking in many parts of the world. In the Asia-Pacific, many countries have assessment mechanisms with nationwide coverage for both high-stakes and low-stakes tests. Yet in many cases, much of this data is underutilized and underreported. The use of education-related 'big data' for evidence-based policymaking is limited partly as a result of the insufficient institutional capacity

of given countries to analyse such data and link results with policymaking. 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 contexts.

This report is a follow up to a booklet on Student Learning Assessment,[1] published in a series on Education Systems in Asia and the Pacific by UNESCO Bangkok and the Hong Kong Institute of Educational Research. The NEQMAP[2] launched this mapping study in 2015 to gather updated information on learning assessment policies and practices across the region.

1.1 Research design and methodology

The main purpose of this study was to map national policies and practices of collecting, analysing, utilizing, reporting and disseminating different forms of learning assessments at the international, regional, and national levels. The study was designed to cover different types of large-scale learning assessments carried out in the region over a 10-year period from 2005 to 2015.[3] In addition to international assessments (IA), national assessments (NA) and public examinations (PE), which had been examined in the previous student learning assessment booklet, this study has included a look at regional assessments (RA) and citizen-led assessments (CLA). The report intends to show the breadth and depth of large-scale learning assessment programmes across the region and how countries intend to utilize the results.

The study gathered information on the various learning assessment programmes of the countries in the Asia-Pacific region. The NEQMAP Secretariat at UNESCO

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1 See UNESCO 2013. *Student Learning Assessment.* https://unesdoc.unesco.org/ark:/48223/pf0000217816

2 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 works with institutes across the region to improve the quality of learning and education policies and practices through strengthened student learning assessments. In order to do so, the network promotes knowledge sharing, research and capacity-building on learning assessments and other factors that contribute to better learning outcomes in the classroom, including curriculum and pedagogy. For more information on NEQMAP, please visit: https://neqmap.bangkok.unesco.org/

3 The initial surveys were distributed in 2015, with an updated survey distributed in 2016-2017. Verification process occurred throughout 2018 and 2019.

Bangkok developed the questionnaire,[4] and sent this to all the countries of the Asia-Pacific region.[5] The questionnaire was designed to collect information on international, regional, and national assessments that were conducted between 2005 and 2015. The questionnaire collected information such as target age or grade, subjects assessed, purpose of assessment, data analysis, and use of data. The questionnaire did not collect data on student performance, nor information on formative or school-based assessments. A total of 24 countries' data and information, ranging from Central Asia to the Pacific, have been verified and used for the discussion.[6]

The questionnaire was in most cases completed by a member of the Ministry of Education, such as an official working in a division responsible for learning assessments or evaluation. Some of the questionnaires were also completed by NEQMAP members who may not be directly affiliated with a government or Ministry of Education, but who are responsible for carrying out assessments and evaluations. The information was then submitted to UNESCO Bangkok/NEQMAP Secretariat, who reviewed and clarified the responses and returned the questionnaire and information back to the country for verification. This process was repeated as necessary to eliminate any inconsistencies in the information collected. This information has been used to map national practices of collecting, analysing and utilizing international and national assessment data for policy formulation and implementation. Descriptive analysis has been used to show the trends and patterns of learning assessment systems based on the verified data.

1.2 Limitations

Certain limitations have been noteworthy. First, the survey collected much information on learning assessments in the 24 verified country datasets but only part of the data are synthesized in this small booklet. For example, some respondents were not be able to provide responses for all forms of learning assessment and in some cases certain information was missing. In those cases,

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4   For the questionnaire, please see the annex.
5   As defined by UNESCO, there are 48 Member States in the Asia-Pacific region. For more details see here: https://bangkok.unesco.org/content/asia-and-pacific
6   The list of 24 countries that responded and verified the data for this report are listed in the Acknowledgements.

what they reported was analysed and then triangulated with data available from other relevant sources.

Second, the study is based on self-reported questionnaires in which the responses were also self-verified (or verified by colleagues). Therefore, subject bias and possible error owing to confusion in terminology or question phrasing is possible.

Third, the study did not collect information on student learning outcomes. No analysis on whether participation in any of these assessments has led to improved learning outcomes, or led to changes in policies or practices, was undertaken. The study also did not cover or include formative or school-based assessment practices and policies, it looked only at large-scale learning assessments. These aspects were beyond the scope of this particular study and will be useful in future analysis.

2 Overview of large-scale learning assessments in Asia-Pacific

Learning Assessment is the process of gathering and evaluating information on what learners know, understand, and can do so that their strengths and weaknesses can be identified and informed decisions can be made accordingly in the (formal and informal) education system. To establish an effective learning assessment system, appropriate policies, practices and tools need to be designed for generating and using information on learning performance so as to support a variety of decision-making activities such as informing curriculum and instruction, designing improvement strategies, and providing data and evidence for stakeholder accountability (Clarke, 2011; Clarke, Liberman and Ramirez, 2012).

2.1 International and regional assessments

International assessments are gaining prominence worldwide by providing a comparative perspective in assessing student performance and school effectiveness in a global context. International Association for the Evaluation of Educational Achievement (IEA) and the Organization for the Economic Co-operation and Development (OECD) are the two notable organizations which initiate TIMSS, PIRLS, ICILS and PISA in which seven of the 24 surveyed countries participated from 2005 to 2015.

IEA has a long history of conducting large-scale international assessments and comparative research in education dating back to 1958. The target populations of the IEA evaluation are generally students in Grade 4 and/or Grade 8. Its general survey model is mainly curriculum-based and class-related which includes information from teachers and school principals and focuses on the intended curriculum, implemented curriculum and achieved curriculum of mathematics and natural sciences (as in TIMSS) and reading (as in PIRLS). IEA also conducts surveys on learning outcomes beyond academic achievement such as civic literacy (International Civic and Citizenship Education Study, ICCS) and computer literacy (International Computer and Information Literacy Study, ICILS).

The OECD has initiated a number of international educational assessment projects: Programme for International Student Assessment (PISA), Programme for the International Assessment Adult Competencies (PIAAC), and Assessment of Higher Education Learning Outcomes (AHELO), with different sampling targets, assessment approaches and purposes. The sampling age ranges from 15-year-olds to 64-year-olds and school level ranges from secondary to higher education (Schleicher, 2010). OECD/PISA started in the year 2000 with the target population of 15-year-old students at secondary school level. The subjects cover reading, mathematics and scientific literacy and students are assessed every three years. PISA also covered collaborative problem-solving and global competencies assessment in 2015 and 2018, respectively.

In an information and digital age, it is inevitable that the processes of education will need to accommodate the growing reliance on information and communication technologies (ICT). Both the OECD and IEA recognize that the assessment process will have to cope with the trend and will need to develop ICT-based assessment. For instance, OECD/PISA started the electronic assessment in mathematics in PISA 2003, in science in PISA 2006 and in reading in PISA 2009. It has changed the major format of assessment in all of these domains to electronic form in 2015.

In addition, IAs used to collect data on socio-economic, cultural, and educational factors that associate with students' performance. For instance, PISA designs surveys of students, parents, teachers, school administrators and sometimes policymakers so as to identify multi-level factors related to students' performance. The current concern of the IEA surveys also extends to learning processes inside and outside the classroom.

Examples of regional assessments

Ten of the countries surveyed indicated they had participated in some form of RA during the time period. The following is a brief description of the RAs that are or were available in the region.

The Programme for the Analysis of Education Systems (PASEC)[7] is managed by CONFEMEN (La Conférence des Ministres de l'Éducation des États et gouvernements de la Francophonie) and has been in place since 1993. It has been administered mainly in countries in Francophone West Africa; however, Cambodia, Lao PDR and Viet Nam participated in the 2011/2012 round.[8] PASEC is designed to assess student abilities in mathematics and reading (in the language of instruction) in Grades 2 and 6 at the beginning and end of the same school year, and measures students' progress over the course of that year. Assessment results are intended for use primarily as a diagnostic tool. Since 2014 the Programme has been implementing regional comparative and cyclic assessment in the Sub-Saharan Africa region.

The Pacific Islands Literacy and Numeracy Assessment (PILNA)[9] measures and monitors the achievement of Grade/Year 4 and Grade/Year 6 students in literacy and numeracy. The Assessment is carried out in select schools across 15 Pacific Island Countries: Fiji, Niue, Nauru, Cook Islands, Tonga, Vanuatu, Palau, Papua New Guinea, Solomon Islands, Tuvalu, Samoa, Tokelau, Kiribati, Federated States of Micronesia and Marshall Islands. PILNA is one part of the work carried out by the Educational Quality and Assessment Program (EQAP) of the Secretariat of the Pacific Community (SPC). PILNA results are to be provided to the Ministry of Education of the 15 countries to help improve rates of student literacy and numeracy. The results are not used to judge schools or pupils as the reporting is done at the country level.

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7   Information about PASEC was collected in June 2019 from the website: http://www.pasec.confemen.org/.

8   Cambodia, Lao PDR and Viet Nam have not participated in PASEC since this time and now are partners in the SEA-PLM regional assessment.

9   Information about PILNA was collected in June 2019 from the website: https://www.spc.int/updates/blog/2018/08/pilna-2018-roll-out-across-15-pacific-island-countries.

South Pacific Form Seven Certificate (SPFSC)[10] is a regional Form 7 (Grade 13) qualification also managed by the EQAP of the SPC. It is administered by the Secretariat of the Pacific Board for Education Assessment (SPBEA) and has been available since 2004. It is administered in Kiribati, Samoa, Solomon Islands, Tuvalu and Vanuatu. Subjects tested include accounting, agriculture, biology, chemistry, economics, English, geography, history, information technology, mathematics (calculus and statistics), physics, and tourism & hospitality. Students generally take the qualification at the end of Form 7 (Year 13) although some may be able to take some subjects at the end of Form 6. The qualification serves a number of purposes: (1) certification at the end of secondary education (i.e. as a secondary school leaving certificate); (2) entry qualification to university and other tertiary institutions; (3) use by employers for employment selection. The main objective of the SPFSC is for the region to have a qualification framework that is regionally and internationally recognized and accepted, and more importantly appropriate for students of the region.

Central Asian Program for Student Assessment (CAPSA)[11] came forth from a regional education dialogue among four Central Asian countries (Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan) and is supported by the German Society for International Cooperation (GIZ). It aims to: (1) support ongoing reform processes in the region; (2) establish a network between educational institutions and educational experts in Central Asia and Germany; (3) build capacity. CAPSA is administered to Grade 4 students and is designed to measure their abilities in mathematics and reading comprehension. It was conducted once in 2015.

Southeast Asia Primary Learning Metrics (SEA-PLM) is a regional initiative to improve the relevance and cultural sensitivity of learning assessments in primary education in the region, with the same high standards as those found in international large-scale assessments. Six countries (Cambodia, Lao PDR, Malaysia, Myanmar, Philippines and Viet Nam) participated in the first round of SEA-PLM data collection in 2019, which looked at Grade 5 students learning in reading, mathematics, writing and global citizenship. Data is expected at the end of 2020. As this is a new assessment programme and did not occur while this report was collecting evidence (i.e. 2005-2015) data was not included in the report. However,

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10 Information about SPFSC was collected in June 2019 from the website: https://eqap.spc.int/ The purpose of the SPFSC may be more akin to an examination than an assessment, as defined earlier in this report. However, owing to its regional nature, it has been included under regional assessments.

11 Information about CAPSA was collected in June 2019 from: http://conferences.nis.edu.kz/wp-content/uploads/2017/01/01_NIS_Levin_eng.pdf

this assessment programme is a promising initiative in the SEA region, and will provide valuable data in coming years.

2.2 National assessments and public examinations

National assessment is a survey of schools and students that is designed to provide evidence about the levels of student performance in core curriculum areas for the whole education system or for a clearly defined part of the system, such as certain grade levels or particular age groups (Postlethwaite and Kellaghan, 2008).

Assessment at the national level typically takes two forms: National Assessments and Public Examinations. NAs are generally low-stakes to individual students and the findings are used to monitor the progress of national education system and sometimes to provide feedback for school improvement (Ho, 2012). Public examinations are generally high-stakes to students and are administered at certain transition points of schooling for selection and certification purposes and sometimes might be high-stakes to schools for accountability of school performance (Froumin, 2007). A majority of respondents in the present study stated that they have both NAs and PEs; only two countries, Samoa and Singapore, reported not undertaking a NA, while all carried out a PE. In all surveyed countries, the results of pubic examinations are utilized for selection or certification purposes, while some of them use PEs to evaluate school systems in addition.

National authorities within the government and/or independent of the government are usually responsible for developing standards and the operational system for NAs. The major purposes of NAs are quite similar in all societies regardless of the stage of their development. The first purpose is to evaluate the overall learning achievement levels of students at certain grade levels and to monitor the overall quality of basic education. The second purpose is to inquire and transform the information for the improvement of the curriculum and teaching and learning practices in order to achieve better outcomes for students. The third purpose is to use assessment information to inform and formulate specific education policies and intervention programmes.

Approaches and methods of NAs vary substantially from one country to another. Yet, there are certain similarities across the surveyed countries in terms of the target population of students and the curricula assessed. The target groups of NAs are usually sampled from the middle to the end of primary education and the end of compulsory education at the secondary level. Curricular subjects assessed are

usually the first language, second language, mathematics and natural and social sciences.

Similarly to target groups, subject domains in NAs vary among countries. For example, in the Republic of Korea, students are assessed in Korean, social sciences, natural sciences, mathematics and English. In Cambodia, basic Khmer and mathematics skills are assessed. In overall terms, the trend in NAs is to mainly assess languages and mathematics: i.e. the foundational skills of literacy and numeracy. However, given the importance and association of education to the achievement of development goals (e.g. economic growth), other subjects such as natural sciences are crucial to supporting innovation and enhancing knowledge and skills required at a competitive global market. For that reason, the assessment of other subject domains is needed in order to evaluate the curriculum and the needs of students and to align them with development goals.

Vis-a-vis national assessments, public examinations involve higher stakes for students and schools and play a crucial role in directing students' learning, determining their future careers and assessing schools' effectiveness, however there has been a long-standing and fierce debate around the negative impacts of examination pressure (Ho, 2012; UNESCO, 2018). In many countries in the region, high-stakes public examinations have long been criticized for the high pressures that they place on students and how they distort the teaching and learning process by promoting 'teaching to the test' and narrowing of the curriculum and learning objectives.

2.3 Citizen-led assessments

There are two citizen-led assessments in which three of the surveyed countries participated: Education Watch and ASER. The **Education Watch** study has been conducted by the Campaign for Popular Education (CAMPE) on different themes in Bangladesh since 1999. The competency-based test instrument was used in the 2000, 2008 and 2014 studies. As reported by Bangladesh, Grade 3 and Grade 5 students are sampled to take the competency test on Bangla, English, mathematics, as well as domestic and global studies.

The Annual Status of Education Report (ASER)[12] is an annual survey that aims to provide reliable annual estimates of children's schooling status and basic learning levels for each state and rural district in India. It has been conducted every year since 2005 in almost all rural districts of India. ASER tools and procedures are designed by ASER Centre, the autonomous research and assessment unit of Pratham, a local non-governmental organization that works towards the provision of quality education for underprivileged children.[13] The survey itself is coordinated by ASER Centre and facilitated by the Pratham network. It is conducted by volunteers from partner organizations in each district.

ASER is designed as a household-based survey in order to ensure that all children are included: children who have never been to school, those who have dropped out, and those who attend different types of schools (government, private, religious and others). All children aged from 3 to 16 who are residents in sampled households are included in the survey. Enrolment information is recorded for all such children, while children at age from 5 to 16 are tested in basic reading and basic arithmetic. Some additional tests are also administered; for example, in basic English. In addition, basic household information such as household size, parents' education and household assets is also collected. In 2005, 2007, and every year since 2009, ASER has included a visit to one government primary school in each sampled village. Basic information is collected on school infrastructure, enrolment, attendance, teachers and fund flows.

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12 Information about ASER was collected in June 2019 from the website: http://www.asercentre.org.

13 Established in 1995, Pratham focuses on high-quality, low-cost, and replicable interventions to address gaps in the education system.

3 Trends in learning assessment policies and practices

The subsequent discussion explores the trends in the policies and practices of learning assessment in the Asia-Pacific region. To unravel the trend, the survey data of 24 participant countries were examined with regard to their participation in five types of learning assessments which have varied purposes and contents areas, policies and planning to carry out the assessment, and ways to analysing and utilizing assessment results. Overall, Ministries of Education have spearheaded to implement assessments at various levels of governance and utilized the analysis of the results to comprehensively monitor and enhance student academic achievement and school performance. The final part of section uncovers remaining challenges which the region needs to tackle for betterment and sustainability of the learning assessment systems.

3.1 Participation in learning assessments

Since 2000 there has been growing interest in measuring students' learning outcomes and their achievement levels through assessments of various forms (Froumin, 2007; Van der Gaag and Adams, 2010). The focus of monitoring has shifted from system input (i.e. infrastructure and learning materials, teacher supply and qualifications, etc.) to system output (i.e. the concrete learning outcomes of students, which comprise the knowledge, skills, behaviour and attitudes needed to succeed in adult life). The outcome-based or competence-based approach to education expands the scope of assessments beyond the hard skills of knowing 'what' and knowing 'how' to soft skills; some examples of which are

Table 1: Participation by types of learning assessments by country

Countries	Learning Assessments			
	IA	RA	NA	PE
Australia	●		●	●
Bangladesh			●	●
Bhutan			●	●
Cambodia		●	●	●
Cook Islands		●	●	●
India*			●	●
Kiribati		●	●	●
Republic of Korea	●		●	●
Kyrgyzstan	●	●	●	●
Malaysia	●		●	●
Maldives			●	●
Marshall Islands		●	●	●
Micronesia		●	●	●
Mongolia	●		●	●
Myanmar			●	●
Nepal			●	●
Pakistan			●	●
Papua New Guinea		●	●	●
Philippines			●	●
Samoa		●		●
Singapore	●			●
Solomon Islands		●	●	●
Tajikistan			●	●
Viet Nam	●	●	●	●

Note: Based on the respondents to the NEQMAP survey. *India – This information came from external sources, not the NEQMAP survey. The respondent from India represented ASER, and provided information on citizen-led assessments. Their responses did not include information on the four types of assessments listed here.

clear communication, critical thinking, problem-solving in real life, collaboration within heterogeneous groups, creativity and innovation, information literacy and technology literacy (ATC21S, 2012; DeSeCo, 2003; Froumin, 2007). Moreover, many countries have made strenuous efforts to build a system where assessment of learning (AOL), which is used for reporting, selection and accountability, can be balanced with assessment for learning (AFL), which is mainly used for educational improvements (James, 2010).

Many countries, including the 24 countries that participated in the present study, try to adopt a more comprehensive approach to monitoring students' learning outcomes and improving school performance with different forms of assessment This section discusses the trend of learning assessments as well as the implications for policymakers and practitioners in the field of education. In particular, it will discuss the trend towards a systematic approach to learning assessments, the lessons learned from international, regional and national assessments, public examinations and CLAs in the Asia-Pacific region. It is hoped that the following analysis can shed light on the current status of learning assessments in the Asia-Pacific region and directions for policy and practice.

International and regional assessments

From 2005 to 2015, 15 out of the 24 countries in the present study participated in IAs and/or RAs. Figure 1 shows that the number of countries that participated in these international or regional assessments had grown over the past 10 years. Regarding the four international assessments (i.e. PISA, PIRLS, TIMSS and ICILS), PISA and TIMSS, which target age 15 or Grade 4 and 8 and test on reading, mathematics and science, appear to be most widespread. As for the four regional assessments (i.e. CAPSA, PILNA, PASEC and SPFSC), PILNA, which targets primary school levels and tests on literacy and numeracy, is most commonly found. For the remaining three RAs, Viet Nam and Cambodia are the only two countries participating in PASEC; Solomon Islands is the only country participating in SPFSC every year since 2005; and Kyrgyzstan is the only country which participated in CAPSA in 2015.

Figure 1: Participation in international or regional assessment programmes (2005−2015)
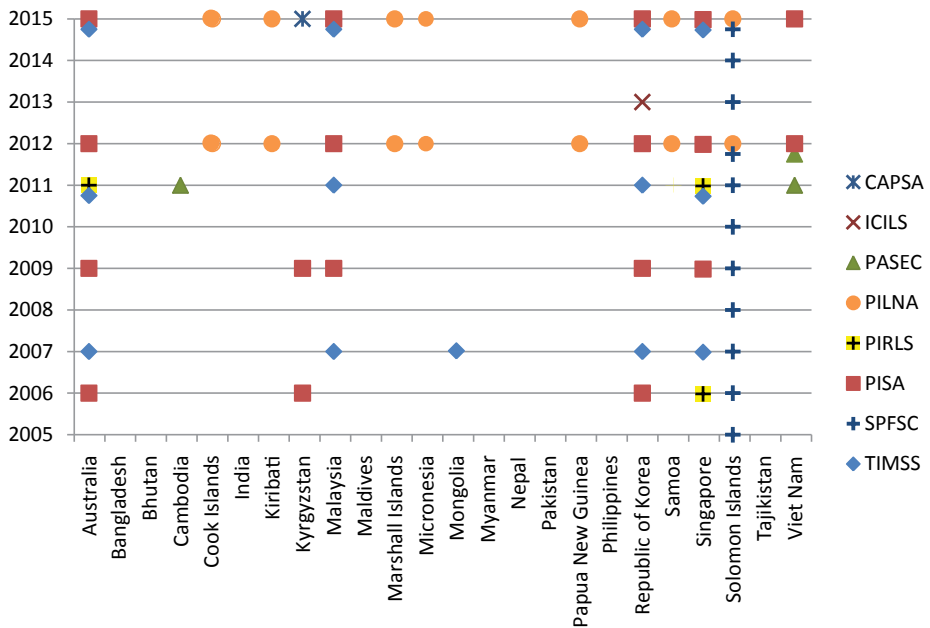
Note: This is based on survey results of 24 countries. Some data may be missing on particular countries. This survey was conducted before SEA-PLM did its first round in 2019.

National assessments and public examinations

In addition to participating in international or regional assessments, almost all of the countries (21 out of 24) in the study have national assessments and public examinations (see Figure 2). Five countries — namely Australia, Cook Islands, the Republic of Korea, Marshall Islands and the Philippines — conducted their NA every year from 2005 to 2015, while the others conducted the assessment at different intervals. Some countries, such as Micronesia and Nepal, have started to conduct NA every year since 2009 and 2011, respectively. Only Singapore and Samoa reported not conducting NAs. Since 2005, all of the respondent countries indicated that they have carried out public examinations, at least once. Micronesia reported it had only carried out one public examination during the time-frame, but did not specify which year it was administered.

Figure 2: Countries with national assessments (2005–2015)
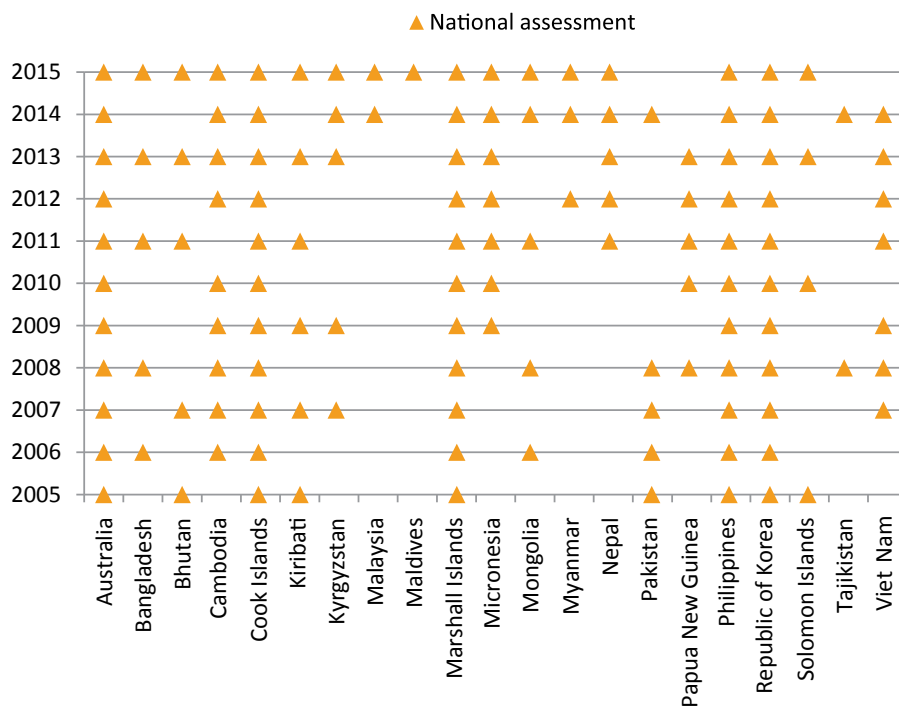
Note: Results are based on responses to the NEQMAP survey.

In short, the region has shown increasing attention in measuring students' learning outcomes with almost all of the surveyed countries carrying out NA and PE with an upward trend in the participation of IA and RA.

3.2 Purposes of learning assessments

At different levels of the education system learning assessment takes different forms for different purposes. At the global level, IAs — such as PISA, PIRLS, TIMSS, and ICILS — have become important and regular sources of data and evidence for assessing student outcomes. In particular, these assessments allow cross-country comparisons based on international benchmarks, which help countries to evaluate the strengths and weaknesses of education systems within a broader

context. Although growing, the number of countries participating in such IAs is still limited.

Of the 24 countries with verified data in from the survey, only seven (namely, Australia, Republic of Korea, Kyrgyzstan, Malaysia, Mongolia, Singapore and Viet Nam) participated in IAs. By counting the instances of participation in IAs, the two major purposes reported by these countries are for 'education policy review and reform' and 'monitoring and evaluating education quality' (14/14 = 100 per cent; see Figure 3).[14] The third major purpose reported is to review and reform curriculum (13/14 = 93 per cent). In addition, respondents indicated that they participate in IA for cross-national comparisons (11/14 = 79 per cent) and policy or programme evaluations (10/14 = 71 per cent). Only 36 per cent of the respondents indicated that IAs are used to measure inequalities in education.

Figure 3: Purposes of international assessments
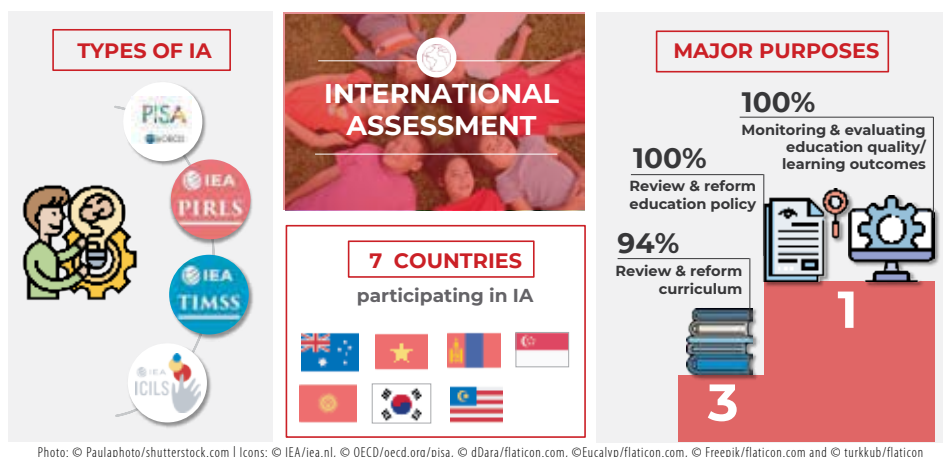
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At the regional level, only 10 countries[15] reported that they had participated in four RAs: namely, Central Asian Program for Student Assessment (CAPSA), Pacific Islands Literacy and Numeracy Assessment (PILNA), Programme for the Analysis of Education Systems (PASEC) and South Pacific Form Seven Certificate (SPFSC) (see Figure 4). Of those 10 countries, 90 per cent of the respondents indicated

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14 Note: There are a total of four IAs mentioned in this survey. As some countries have participated in more than one IA, there is a total count of participation in 14 IAs. All the 14 IA participation aims for "education policy review and reform" and "monitoring and evaluating education quality", which amounts to 14/14 or 100 per cent. The count of participation is also used to illustrate the purposes of RA, NA and PE in the paragraphs that follow.

15 List of 10 countries: Cambodia, Cook Islands, Kiribati, Kyrgyzstan, Marshall Islands, Micronesia, Papua New Guinea, Samoa, Solomon Islands, and Viet Nam.

that RAs are used for monitoring and evaluating education quality. Nearly 65 per cent reported that RAs are used for the review and reform of curriculum and education policy. Slightly more than a half (55 per cent) reported that RAs are used for cross-national comparisons and measuring inequalities in education, while fewer than 10 per cent reported that RAs are used for student and teacher accountability and assessing the abilities of children who are outside the formal education system.

Figure 4: Purposes of regional assessments

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At the national level, learning assessments are conducted in two forms, national assessments (NA) and public examinations (PE). NAs are usually designed to describe the achievements of students in a curriculum area and provide an estimate of aggregate achievement levels in the education system as a whole at a particular age or grade level. For the 21 countries having NAs, the majority of NA participation is used to monitor and evaluate education quality (98 per cent) and to review and reform education policy (90 per cent) (see Figure 5). Almost 80 per cent is used for curriculum review and reform. Slightly over 60 per cent of the participation is used for cross-national comparison (64 per cent) and measuring inequalities in education (62 per cent). As with to RAs, NA participation is rarely used for student and teacher accountability (12 per cent and 14 per cent, respectively) and for assessing the abilities of children who are outside the formal education system (10 per cent).

Figure 5: Purposes of national assessments
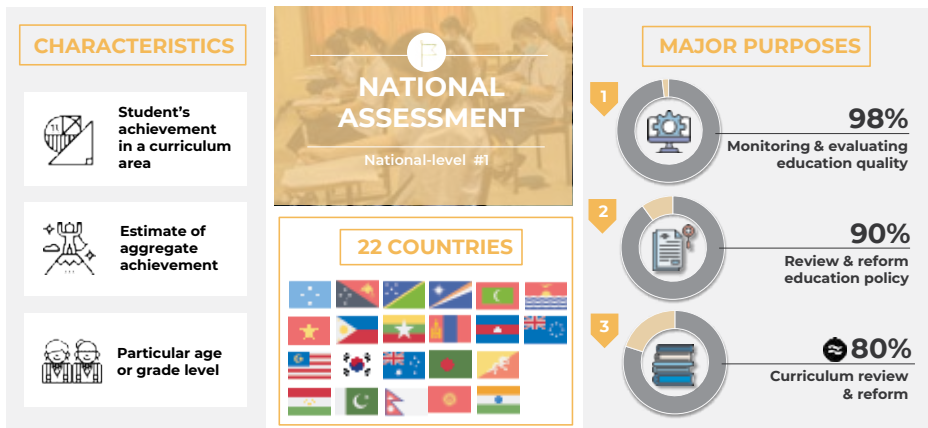
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Public examination is the most common among the five forms of assessment. Twenty-three countries have PE which is specifically designed for the purpose of certifying or selecting students for the next stage of learning or higher education. Unlike IAs, RAs, and NAs, 85 per cent of public examination participation by the surveyed countries is used for student accountability (e.g. certification, promotion to higher level of education, etc.), 52 per cent is used to monitor and evaluate education quality, 43 per cent is used for curriculum review and reform, 41 per cent is used for school accountability, 31 per cent is used for policy or programme evaluation, 30 per cent is used for measuring inequalities in education, and 28 per cent is used for education policy review and reform respectively.

Figure 6: Purposes of public examinations

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Overall, three types of large-scale learning assessments (IA, RA, and NA) shared a common objective in 'monitoring and evaluating education policy', with 'review and reform curriculum and education policy' as a secondary purpose. Not surprisingly, 'student accountability' to certify or select students for a high level of schooling is recognized as the primary function of PE.

Previous studies (Clarke, 2011; Clarke, Liberman and Ramirez, 2012; Tobin et al., 2015; UNESCO, 2017) have indicated that learning assessment results can be used to inform policies at the system level, or provide direction for resource allocation policies and teaching and learning policies. Results of the present study indicated that 22 out of the 24 surveyed countries with verified data reported that system level education policies are informed by learning assessments. In addition, 20 of them indicated that education policies related to resource allocation and teaching and learning policies are informed by learning assessments. However, more in-depth analysis of how these policies are informed or shaped due to learning assessments was not within the scope of the current study.

3.3 Content and subject areas

There are certain convergent and divergent perceptions across the 24 surveyed countries in terms of the types of content areas, subject domains and target groups that are assessed. Specifically, content areas include: knowledge of curriculum (collection of facts); foundational skills (i.e. literacy and numeracy skills); application of knowledge in practice (transferring what is learned in one context to a new context); non-cognitive abilities (e.g. socio-emotional skills, including perseverance, creativity, resilience, etc.); and interest and attitudes towards subject areas and school (i.e. expressing high motivation as positive attitudes, anxiety as negative attitudes). Figure 7 shows the variation of content areas assessed through the different types of assessments.

For content areas being assessed, respondents indicated that **IAs** focus mainly on testing students' application of their knowledge in practice (79 per cent)[16] and

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16 Note: There are a total of four IAs (PISA, PIRLS, TIMSS and ICILS). As some countries have participated in more than one IA, there is a total count of 14 IAs participation. Application of knowledge in practice is assessed in 11 of these assessment participation, which amounts to 11 out of 14 or 79 per cent. The count of participation is also used to illustrate the content areas assessed and background surveys administered in RA, NA and PE in the paragraphs that follow.

measuring students' interest in and attitudes towards subject areas (79 per cent). Respondents indicated that students' foundational literacy and numeracy skills (43 per cent) and non-cognitive abilities (43 per cent) were secondary objectives in IAs. In the four IAs in which the seven countries participated the most frequently tested subjects are reading, mathematics and science. Grade 4 and Grade 8 are the commonly tested grades in the international assessments carried out in the 24 surveyed countries. Note, some international assessments do not sample students by grade (e.g. PISA samples students by age).

Figure 7: Content areas assessed by type of learning assessment
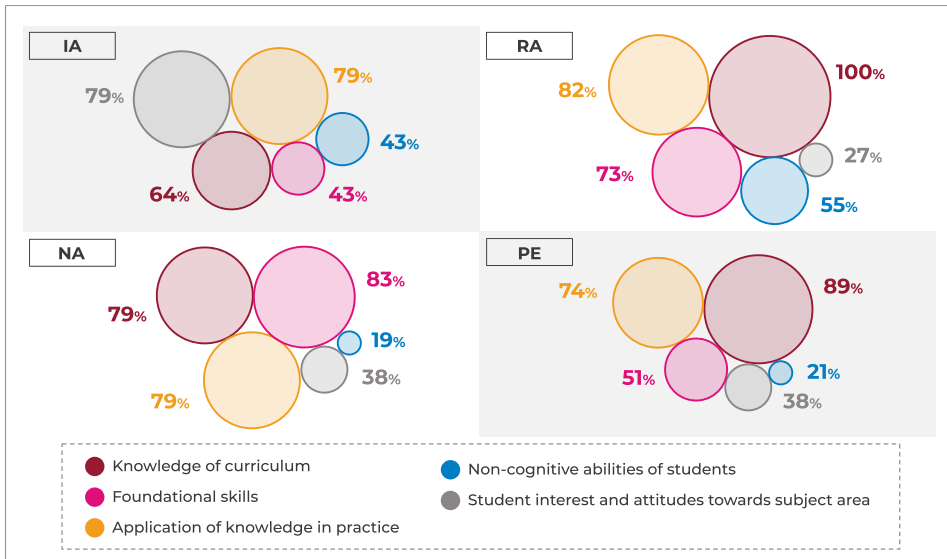
Note: The percentage indicates the percentage of country respondents.

Of the 10 countries participating in **RAs,** all respondents reported that they test how much knowledge students obtain from the implemented curriculum (100 per cent). This was followed by how students applied their knowledge in practice (82 per cent) and how much students acquired the foundational skills (73 per cent). Respondents indicated that regional assessments did not necessarily measure students' interest in and attitudes towards subject area (27 per cent). In the four previously mentioned RAs these countries participated in, the most frequently tested subject is mathematics, which is followed by the first/local language and second language (e.g. English). RAs are mainly carried out at the primary education level where more focus is on Grade 4 to 6.

Respondents indicated that **NAs** largely focus on testing students' foundational skills (83 per cent), knowledge obtained from the implemented curriculum (79 per cent) and application of their knowledge in practice (79 per cent). Fewer national assessments measure students' interest in and attitudes towards subject area (38 per cent) and their non-cognitive abilities (19 per cent). The most frequently tested subjects in national assessments carried out in the surveyed countries are mathematics, local language, and English, which are followed by science, social science and numeracy. NAs are implemented at different grade levels, some covering Grade 1 to Grade 12 with some others focusing on primary or secondary level. For instance, in Australia, national assessments are conducted at both primary and secondary grades, while in the Republic of Korea, national assessments only take place at secondary grades.

Not surprisingly, respondents indicated that **PEs** largely focus on testing students' knowledge obtained from the implemented curriculum (89 per cent) and the application of their knowledge in practice (74 per cent). Most public examinations did not measure students' interest in and attitudes towards subject area (38 per cent) and their non-cognitive abilities (21 per cent), according to the responses. In the 23 countries which have public examinations, the most frequently tested subjects are mathematics, English and the local language, followed by science and other traditional school subjects like physics, chemistry, and biology. PEs are mainly carried out at the secondary education level, especially Grade 12. A small number of countries carry out public examinations at the primary level, specifically Grade 5 and 6, as students transition from primary to secondary.

In sum, the majority of the countries reported that assessments focused on cognitive domains, including testing students' application of their knowledge in practice; foundational skills; and knowledge of curriculum (mainly reading, mathematics and science).

Background surveys

Some countries indicated that they also assess non-cognitive abilities and/or affective outcomes through student questionnaires and other background factors from surveys of different stakeholders. Those background surveys might provide further information to identify determinants of school effectiveness and student performance, which might help for school improvement plans. Figure 8 shows the background surveys administered in various types of assessment, the percentage of assessments that have administered the corresponding survey and the rank of the percentage. Student, teacher and school background surveys are commonly

administered in international, regional, and national assessments, while a majority of the public examinations do not include any background survey.

Figure 8: Background surveys administered across types of learning assessments

IA		RA		NA		PE	
STUDENT	93%	STUDENT	73%	STUDENT	67%	NO BACKGROUND SURVEY	62%
SCHOOL	93%	TEACHER	73%	TEACHER	60%	STUDENT	13%
TEACHER	71%	SCHOOL	55%	SCHOOL	43%	SCHOOL	7%
PARENT	50%	NO BACKGROUND SURVEY	27%	PARENT	29%	TEACHER	3%
NO BACKGROUND SURVEY	7%	PARENT	18%	NO BACKGROUND SURVEY	29%	PARENT	0%
OTHERS	0%	OTHERS	0%	OTHERS	12%	OTHERS	0%
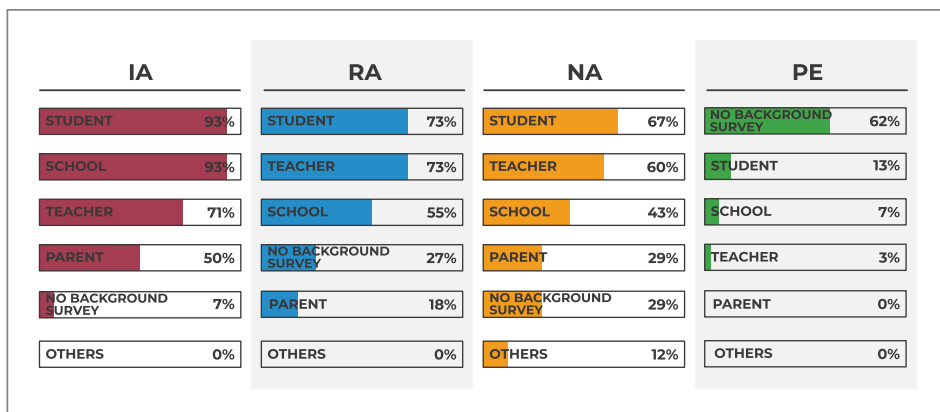
With the exception of PE, learning assessments utilize background surveys with students, teachers and schools to identify factors that affect student performance and school climate.

3.4 Data analysis and dissemination practices

The data collected from learning assessments can be analysed in many different ways for different aims at different levels of the education system. At the system level the data could be used to inform education policy development and to provide evidence for monitoring the progress of the implementation of policies related to learning outcomes and education quality. At the school level the data may be analysed for improving the teaching-learning environment and providing recommendations for curriculum design and pedagogy enhancement. Policymakers, educators and researchers may use the data to examine students' performance and the trend of student performance over time. For addressing the issue of equality, comparisons could be made among the datasets to see how performance varies among different sub-groups in a country. If a learning assessment integrates properly with surveys of students, their parents, teachers and schools, the dataset could be used to identify significant factors related to student performance.

In the present study respondents were asked to select from the following aims of data collection and analysis from learning assessments:

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

As for the methodology of data analysis, most countries conduct basic descriptive analysis and correlational analysis, while some countries use more advanced multilevel and causal analysis. Basic descriptive analysis is adequate for understanding the strengths and weaknesses of student performance. When comparing data over time, countries can identify the trend of student performance. When comparing data among different sub-groups (e.g. males and females; local and immigrant students; high- vs low-socioeconomic status students), countries can address the equality issues and target particular groups of students for remedial or enhancement interventions. Correlational analysis and more advanced analysis could help identify potential factors related to student performance and inform the effects of policies and practices at different levels. For instance, findings about actionable factors such as parental involvement, teacher participation, and school decentralization could be reported to parents, teachers and policymakers for discussion and dissemination.

This section summarizes the responses to this, as well as to questions on the methods of data analysis, utilization of data, reporting and dissemination of results for the five types of assessments.

International assessments

Figure 9 shows that for the seven surveyed countries which have international assessments the two most common purposes of data analysis are to understand the variations among students' cognitive abilities and to provide information for

education policy development. They are followed by the other five common purposes (six out of seven): identifying factors which affect student performance, providing recommendations for improving the design or development of curricula, examining changes in student performance, monitoring the progress of education programmes, and providing recommendations for improvement to teaching, learning and curricula.

Figure 9: Aims of data analysis — international assessments
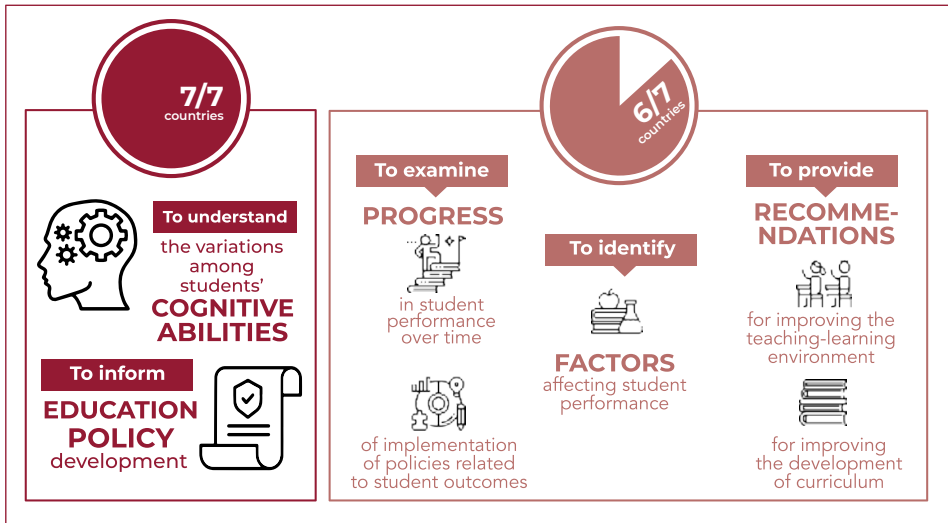
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Note: Total number of countries that participated in international assessment is seven.

As for the methodology for data analysis, all seven countries reported that they conduct descriptive analysis on international assessment data. Six of them conduct correlational analysis whereas four of them conduct causal analysis.

As for the usage of IA results (see Figure 10), respondents were asked if the results are used for education policy review and reform, curriculum review and reform, intervention programmes for specific group of students/specific type or cluster of schools, intervention programmes on specific theme/learning area, professional development for teachers/principals/school leaders, research or other usage. Results indicated that all the seven countries said that they use the assessment results to review and reform curriculum. The next two highest usages are education policy review and research (6 out of 7). Some countries (4 out of 7) use the assessment results for the professional development of teachers, school leaders or principals. Kyrgyzstan reported that IA results are used to inform intervention programmes for schools.

Figure 10: Utilization of results — international assessments
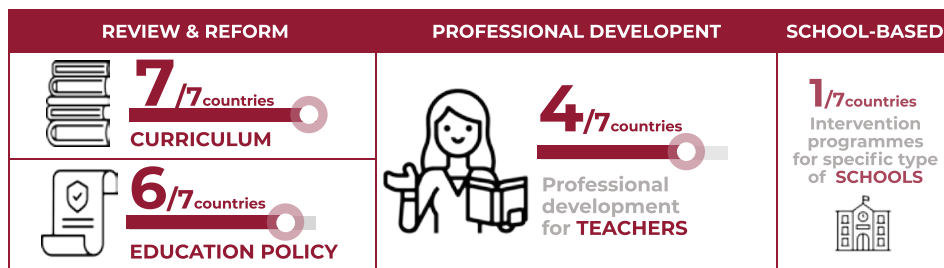
REVIEW & REFORM	PROFESSIONAL DEVELOPENT	SCHOOL-BASED

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Note: Total number of countries that participated in international assessment is seven.

Regarding the dissemination of IA results, Figure 11 shows that most of the countries (6 out of 7) share the assessment results with relevant stakeholders by publishing hard copies or online versions of reports and providing feedback to students, parents and teachers. In addition, five of them publish the results on the internet or via press releases and hold seminars, workshops or conferences for different stakeholders. Only a few countries (2 out of 7) make results available through social media.

Figure 11: Methods of dissemination — international assessments

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Note: Total number of countries that participated in international assessment is seven.

As for the target audience for reporting the IA results, all the seven countries report to policymakers, school principals and teachers (see Figure 12). A majority of them also report the results to academicians and researchers (6 out of 7) and local government officials (five out of seven). Some countries (3 out of 7) report the assessment results to donors/partners, students and parents.

Figure 12: Target audience for reporting — international assessments

Icons: © Eucalyp/flaticon.com, © monkik/flaticon.com and © Becrisc/flaticon.com
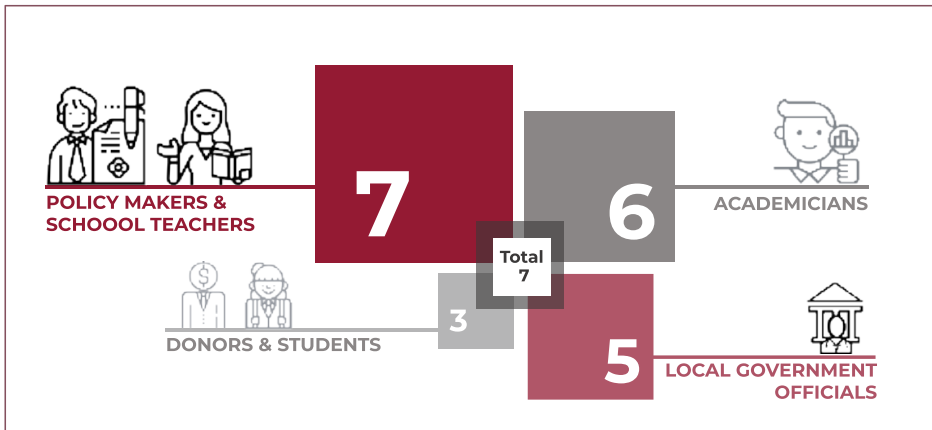
Note: Total number of countries that participated in international assessment is seven.

Overall, IA are conducted for countries to comprehend the students' cognitive abilities and to acquire information useful for education policy reform. The assessment results serve as important empirical evidence which countries utilize to review and reform the curriculum.

Regional assessments

Seven of the 10 countries having RAs noted that they conduct data analysis in order to understand variations among students' cognitive abilities, and six of them conducted data analysis to identify the factors affecting student performance and to provide information for education policy development (see Figure 13). Fewer than half (4 out of 10) of the countries reported that data analysis is used for examining changes in student performance over time, monitoring the progress of the implementation of education policies or programmes, and providing recommendations for improving the teaching-learning environment and the design or development of curriculum.

Figure 13: Aims of data analysis — regional assessments
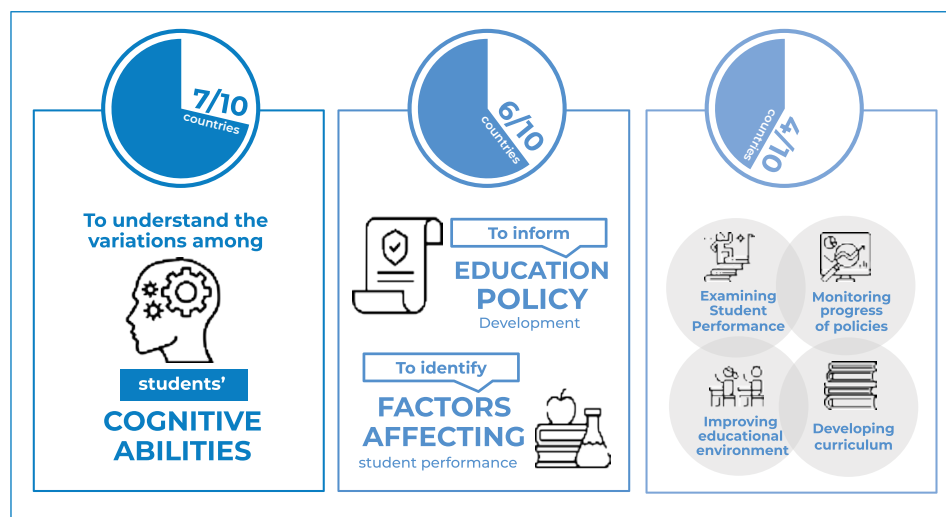
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Note: Total number of countries that participated in regional assessments is ten.

Similar to the countries having international assessments, descriptive analysis is conducted by most (7 out of 10) of the countries that have regional assessments. It is followed by correlational analysis (6 out of 10) and causal analysis (three out of 10) on regional assessment data.

As for the use of regional assessment data, eight out of the 10 countries reported that they use the assessment results for the professional development of teachers (see Figure 14). Seven of them use the assessment results to review and reform education policy and to implement intervention programmes for students or on specific theme/learning area. Slightly more than half of them (6 out of 10) use the results for the review and reform of curriculum, for professional development for school leaders and for research; whereas five of them said that regional assessment results are used for the implementation of intervention programmes for schools.

Figure 14: Utilization of results — regional assessments
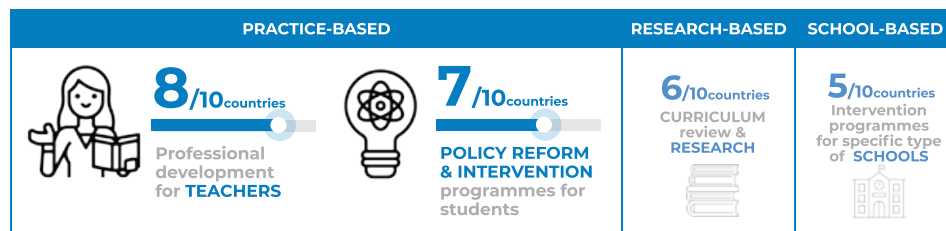
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Note: Total number of countries that participated in regional assessments is ten.

For reporting and dissemination, all 10 countries that have participated in RAs share the assessment results through organizing seminars, workshops or conferences and publishing hard copies of reports to the relevant stakeholders (see Figure 15). More than half of them issue the results (not reports) on the internet or via a press release and provide feedback to students, parents and teachers. Fewer countries (4 out of 10) make the reports available online or share the results through social media.

Figure 15: Methods of disseminating results — regional assessments
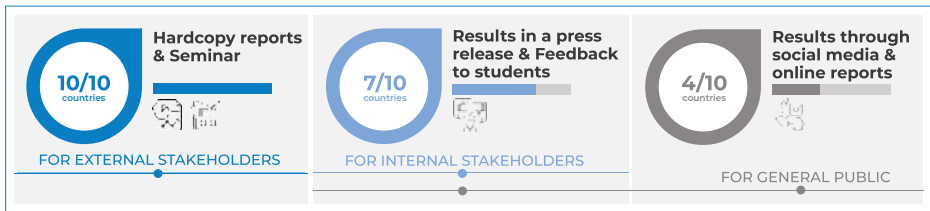
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Note: Total number of countries that participated in regional assessments is ten.

As for target audience of RA reporting, all the 10 countries report the assessment results to policymakers, donors/partners, school principals and teachers. In addition, nine of them report the results to local government officials. Somewhat fewer countries said that academicians and researchers (7 out of 10) or students and parents (6 out of 10) are included in the target audiences for reporting the assessment results (see Figure 16).

Figure 16: Target audience for reporting — regional assessments
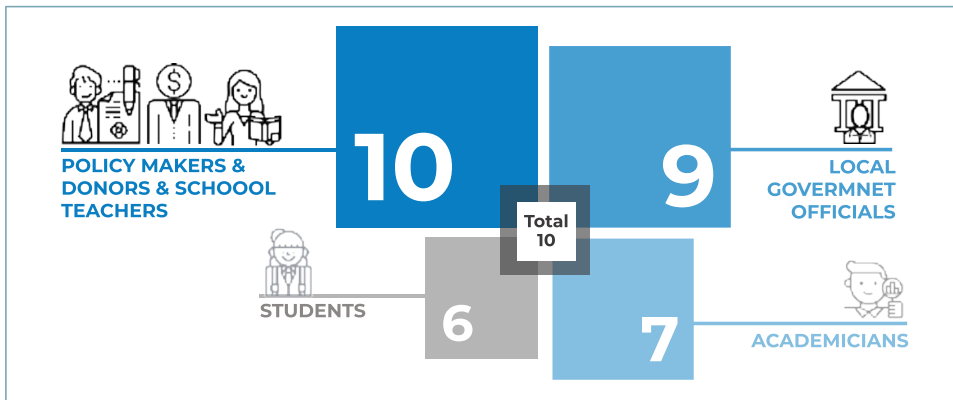
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Note: Total number of countries that participated in regional assessments is ten.

Similar to IA, data of RA is analysed to identify the variations among students' cognitive abilities and factors affecting their abilities. Majority of countries used RA data to strengthen professional capacity building of teachers as the primary reason, but the use of data was significant for multifaceted education intervention, including for education policy reform and implementing programmes for students or specific learning areas.

National assessments

For the 21 countries that indicated they undertake national assessments (NA), 19 of them conduct data analysis to obtain information for education policy development (see Figure 17). Eighteen of them perform data analysis to understand variations among students' cognitive abilities, to examine changes in student performance over time, and to provide recommendations for improving the teaching-learning environment. A less common purpose of data analysis is to provide recommendations for improving the design or development of curriculum (15 out of 21).

Figure 17: Aims of data analysis — national assessments
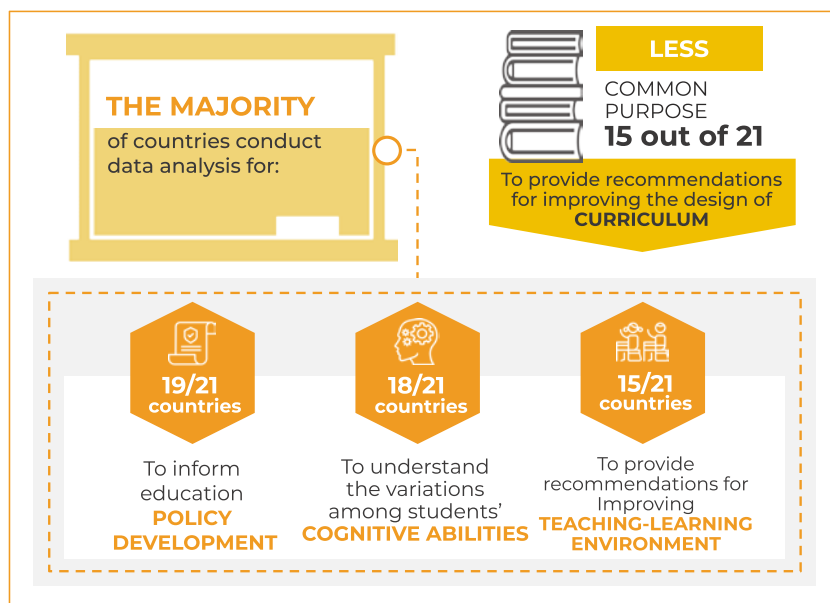
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Note: Total number of countries responded to this question is 21 out of 24.

Regarding data analysis methods, a majority of surveyed countries reported that they conduct descriptive analysis on national assessment data (19 out of 21 – see Figure 18). Two thirds of them have conducted correlational analysis (14 out of 21) and only a third of them have conducted causal analysis (7 out of 21). In addition, for the methodology used for item analysis of NAs, the mostly used (16 out of 21) method is item response theory, which is followed by Rasch measurement (11 out of 21) and classical test theory (8 out of 21).

Figure 18: Data analysis methods — national assessments

Methodology for data analysis	Methodology for item analysis
19/21 Descriptive analysis	**16/21** Item response theory
14/21 Correlational analysis	**11/21** Rasch measurement
7/21 Casual analysis	**8/21** Classical test theory
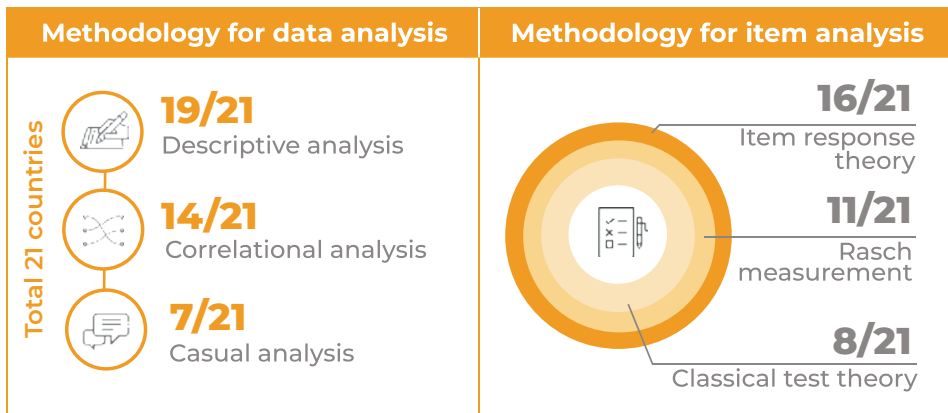
Total 21 countries

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Note: Total number of countries responded to this question is 21 out of 24.

For the utilization of NA results, Figure 19 shows most of the surveyed countries reported that they use the assessment results to review and reform education policy and curricula (19 out of 21) and the professional development of teachers (17 out of 21). Two-thirds of them said that assessment results are used for the implementation of intervention programmes for students or schools on specific themes or learning areas (14 out of 21).

Similarly to RA, most countries share the results of NA through organizing seminar or workshop (17 out of 21) and publishing hard copies of reports (16 out of 21) to different stakeholders. About half of them make the results (11 out of 21) or reports (10 out of 21) available online. Similarly, NA results are not commonly disseminated through social media (6 out of 21) (see Figure 20).

Figure 19: Use of national assessment results

REVIEWING & REFORMING education policy and curriculum

PROFESSIONAL DEVELOPMENT of teachers

INTERVENTION PROGRAMMES for students/ schools/ on specific theme

PROFESSIONAL DEVELOPMENT For principals

USE OF RESULTS
Total 21 countries

19
17
14
13

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Note: Total number of countries responded to this question is 21 out of 24.

Figure 20: National assessment results dissemination

Reports available through **SOCIAL MEDIA**

Reports available **ONLINE**

FEEDBACK to students, teachers, parents

HARD COPIES of reports to stakeholders

SEMINAR/ CONFERENCES for policy-makers

6   10   14   16   17

GENERAL PUBLIC | INTERNAL STAKEHOLDERS | EXTERNAL STAKEHOLDERS

Total 21 countries

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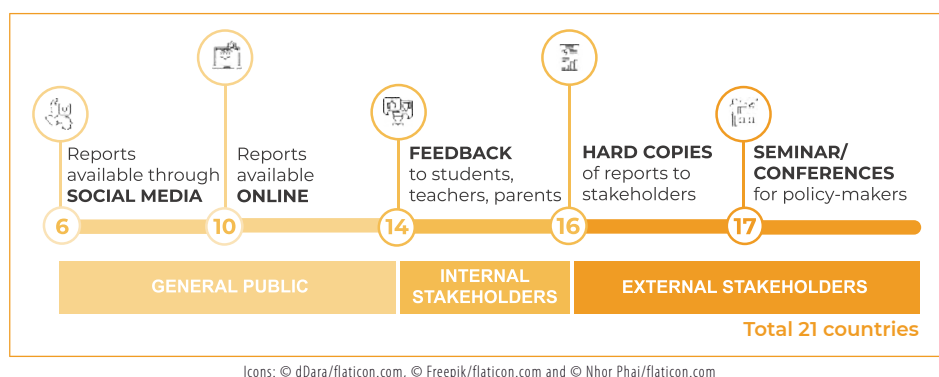
Note: Total number of countries responded to this question is 21 out of 24.

Results also indicated that the target audiences for reporting national assessment results are policymakers (20 out of 21) and school principals and teachers (19 out of 21) for most of the countries that participate in national assessment. This pattern is similar to that of IA and RA. In addition, over 80 per cent of these countries report the results to academicians and researchers (17 out of 21).

Figure 21: Target audience for national assessment reporting

POLICYMAKERS

ACADEMICIANS

STUDENTS

20 countries

17 countries

12 countries

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Note: Total number of countries responded to this question is 21 out of 24.

Overall features of NA data with regard to aims, usage, dissemination methods, and target audiences are almost identical to IA and RA. Majority of countries analyse NA data ultimately for the development of national education policies by examining students' cognitive abilities and the change in their performance over time. Thus, NA results are used for reviewing and reforming education curriculum and capacity building of teachers, with less focus on organizing intervention programmes on a specific theme or learning area.

Public examinations

Regarding data analysis of PEs, 16 countries out of the 23 surveyed countries conduct analysis to obtain information for education policy development (see Figure 22). Fifteen of them use the results to monitor the progress of implementation of policies or programmes related to student outcomes and education quality. Fewer than half of them (11 out of 23) use data analysis to identify the factors affecting student performance and to provide recommendations for improving the teaching-learning environment.
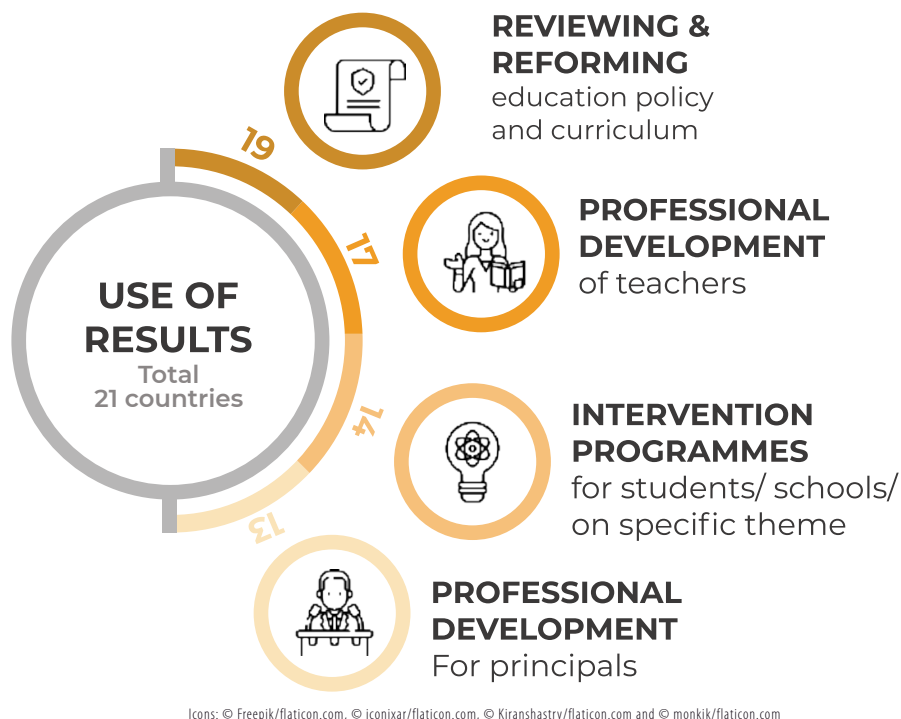
Figure 22: Aims of data analysis — public examinations

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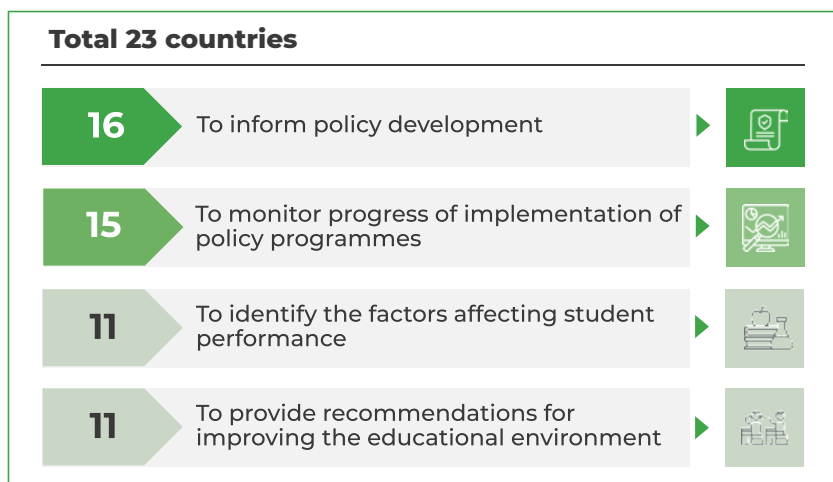
Note: Total number of countries responded to this question is 23 out of 24.

Among the countries that have PE, a majority reported that they conduct descriptive analysis on public examination data (19 out of 23). Fewer than half of them have conducted correlational analysis (10 out of 23) and causal analysis (six out of 23).

Regarding the usage of PE data, Figure 23 shows that the most common usages are review and reform of curriculum (16 out of 23) and education policy (15 out of 23). These are followed by the professional development of teachers (14 out of 23) and research (13 out of 23). Fewer countries use the results to inform intervention programmes on a specific theme or learning area (11 out of 23), for students (9 out of 23) and schools (5 out of 23).

As for reporting and disseminating PE results, results from the present study shows that most of the surveyed countries share the results by sending feedback to students, parents and teachers (16 out of 23). More than half of the countries release the results to the press (13 out of 23) and/or on the internet (12 out of 23). Fewer countries (5 out of 23) share the results through social media or make the reports available online (see Figure 24).

Figure 23: Use of results — public examinations

Curriculum review & reform — 16
Education policy review & reform — 15
Teacher professional development — 14
Research — 13
Intervention programmes for specific type of schools — 5

USE OF RESULTS
Total 23 countries

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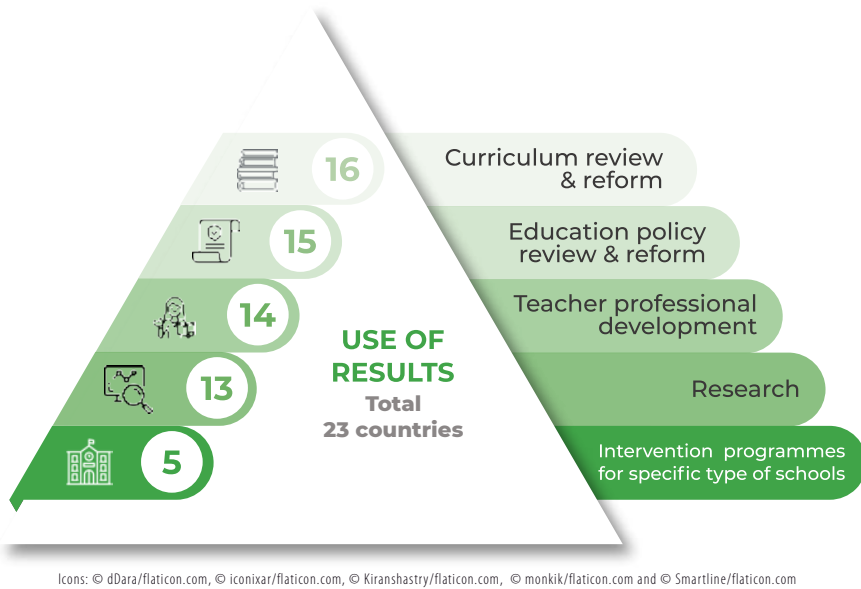
Note: Total number of countries responded to this question is 23 out of 24.

Figure 24: Methods of disseminating results — public examinations

Total 23 countries

- Feedback to students /parents/teachers — 16
- Results issued in a press — 13
- Hardcopy reports — 11
- Results through social media — 5

- Internal stakeholders
- General public
- External stakeholders
- General public

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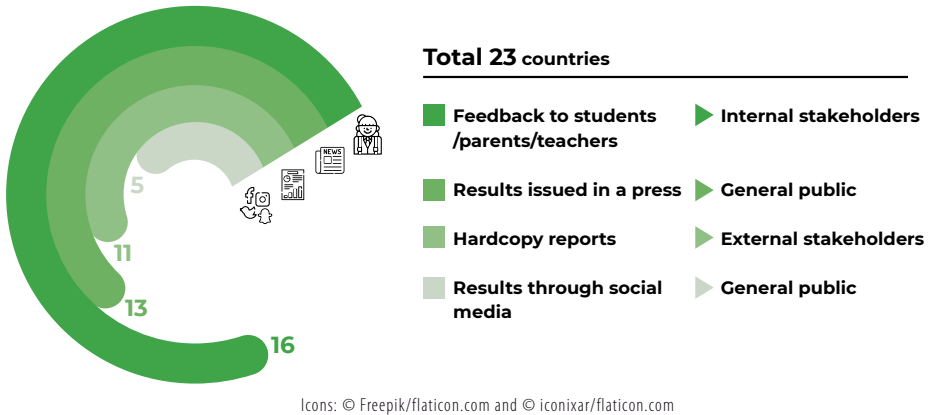
Note: Total number of countries responded to this question is 23 out of 24.

Regarding the target audience of PE, results indicates that most of the surveyed countries report the examination results to school principals and teachers (22 out of 23), students and parents (21 out of 23) and policymakers (17 out of 23). Fewer than half of them report the results to local government officials

(11 out of 23), donors/partners (nine out of 23) and academicians and researchers (9 out of 23).

Countries analyse PE results for education policy development as the primary aim. Countries utilize the results for reviewing and reforming curriculum and education policy. However, the primary target audiences are different (e.g. students, teachers, and parents), owing to the different nature of the test.

Citizen-led assessments

Only three of the surveyed countries with verified data reported that they have a citizen-led assessment (CLA) which aims to assess the basic abilities of children in reading and arithmetic, and some adopt household-based (rather than school-based) sampling to ensure the inclusion of all children, including those who have been to school and those who are outside the formal schooling system. All the three countries that have CLAs reported that the assessment is used to monitor and evaluate education quality. Two countries reported that the assessment is conducted for the purposes of assessing the abilities of children who are outside the formal education system, in addition to assessing teacher accountability, and measuring inequalities in education. One country reported that the assessment is used for school accountability, policy or programme evaluation and the review and reform of both curriculum and education policy.

The three countries implementing CLAs reported that the assessment only measured the foundational skills of students. Among them, two countries reported that they both test students' basic abilities in English, the local language, and numeracy or mathematics for children between five and 16 years old. One country, Bangladesh, reported in the survey that it tests students of Grade 3 and 5. Similarly to other forms of learning assessments, student, teacher and school background surveys are commonly administered in CLA.

Regarding the aims of data analysis on CLA, two of the three countries reported that they conduct data analysis on citizen-led assessment (CLA) for six various purposes, which include identifying factors affecting student performance; understanding variations among students' cognitive abilities; examining changes in student performance over time; informing education policy; monitoring the progress of policy/programme implementation; and providing recommendations for the improvement of curricula. Only one of them said that data analysis of CLA is used for providing recommendations to improve the teaching-learning environment.

Two out of the three countries that have citizen-led assessments conduct descriptive analysis, correlational analysis and causal analysis on the assessment data. As for the use of CLA results, all three countries reported using the assessment results for education policy review and reform, intervention programmes for students, and research. Two of them use the results for curriculum review and reform, intervention programmes on specific theme/learning area and the professional development of teachers. Only one of them reported that it uses the assessment results for intervention programmes for schools.

As for reporting and dissemination, all three countries reported using the following methods: make data or reports available online; disseminate results through social media and press release, seminar, workshop or conference; and distribute hard copies to stakeholders. Two countries reported sending feedback to students, parents and teachers to share the CLA results. All three countries claimed that they report to all the listed target audiences in the survey which include: policymakers, donors/partners, academicians and researchers, school principals, teachers, parents and students. Two countries report to local government officials.

In sum, CLA are designed for ensuring equitable and quality education for all children in that it is administered to measure children's foundational literacy and numeracy skills. The analysis of CLA data aims to examine comprehensive facets of education, pertaining to students' learning status (e.g. academic performance, cognitive abilities), progress of education policy, and curriculum. The results are disseminated through a multitude of channels for a big target audience encompassing both internal stakeholders (e.g. teachers, parents, students) and external stakeholders (e.g. policymakers, donors, academicians).

3.5 Administration of learning assessments

National authorities such as Ministries of Education are usually responsible for developing assessment policies and planning for different forms of assessments. Some countries set up a national institution of assessment/examination within the Ministry of Education. Some governments delegate the responsibility to independent institutes with government funding. Other developing countries collaborate with international agencies to gain financial and technical support for the development of their learning assessment system. Different stakeholders might be involved in different stages and different forms of learning assessment.

This section examines the composition of stakeholders involved in the design, development, administration and funding of learning assessment policies and programmes.

Stakeholders involved in the design and development of learning assessment policy

Respondents were asked if the following stakeholders are involved: Ministry of Education, institution in charge of assessment programmes, school staff, higher education institutions, and research or training institutions. Of the 24 verified country data, all reported that the Ministry of Education is responsible for the design and development of learning assessment policy. More than half of them indicated that institutions in charge of assessment programmes (15 out of 24) and school staff (e.g. teachers, principals) (14 out of 24) are involved in the design and development of learning assessment policy. About half of them (11 out of 24) said that higher education institutions or research/training institutions are also involved as stakeholders in designing learning assessment policies.

Funding sources of assessment programmes

Funding sources for learning assessments might be regular or irregular and they might be provided by the government or international agencies. Regarding the funding sources available for various types of assessments, 19 of the 24 countries with verified data reported that 'regular' funding is allocated by the 'government'. Four countries — namely, India, Maldives, Marshall Islands and Cambodia — reported that they receive financial support 'regularly' from non-government sources (such as the World Bank, and GPE).[17] Three countries reported that 'irregular' funding is allocated by the government whereas five countries — namely, Kiribati, Kyrgyzstan, Solomon Islands, Viet Nam and Tajikistan — receive financial support 'irregularly' from 'non-government sources'.

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17 For instance, National Assessment of Learning Outcomes (NALO) of Maldives is funded by the World Bank. PILNA of the Marshall Islands is funded by Australian Agency for International Development (AusAID). EGRA of Cambodia is funded by GPE. Technical support might be provided by other international agents beyond those listed above.

Activities covered by learning assessment funding

Funding of assessments could be used for various activities, which include assessment administration, data reporting and dissemination, assessment design, data analysis, staff training, long- or medium-term planning of programme milestones, research and development. Results of the present study suggested that most of the surveyed countries reported that they spend their learning assessment funding on assessment administration (23 out of 24), data reporting and dissemination (23 out of 24), assessment design (22 out of 24) and data analysis (22 out of 24). Seventy-five per cent (18 out of 24) of the countries surveyed spend the funding on staff training, whereas only half (12 out of 24) of them spend the funding on research and development (see Figure 25).

Figure 25: Activities covered by learning assessment funding

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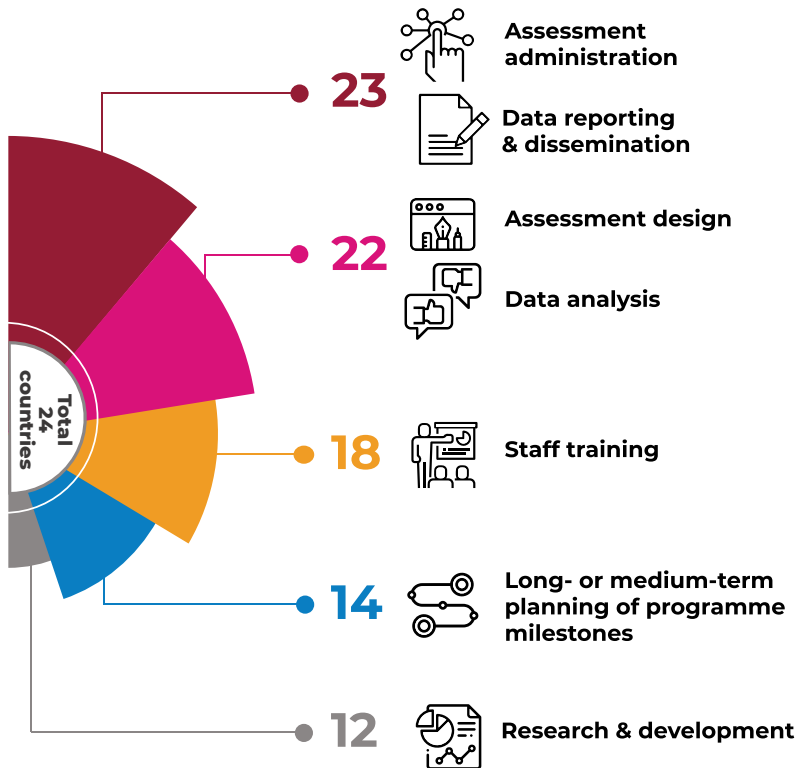
Note: Total number of surveyed countries is 24.

Three countries specified 'other uses' of learning assessment funding; however, most of the specific responses provided can be included among the previous categories, such as assessment administration, data reporting and dissemination, assessment design and staff training. For example, Myanmar reported that the funding is used for 'training how to use ICT for assessment programmes'. Pakistan reported that the funding is used for 'printing of assessment tools, marking, coding and information dissemination'. Solomon Islands stated that its funding is used for developing 'assessment resource tools for teaching and learning (ARTTLe) for teacher classroom based assessment – diagnostic'; 'internal assessment sample moderation'; and for 'purchase of data analysis software'. All of the respondent countries indicated that funding covers these various activities to some extent, and the differences shown are likely the result of different interpretations or perceptions of the survey items.

Findings, lessons learned and implications

4

This section highlights the major findings in this report, the issues and challenges the countries indicated they have in carrying out learning assessments, and discusses the implications for policies and practices for the development of comprehensive learning assessment systems at the national level.

Commonalities and differences across the region

Among the 10 purposes of learning assessment surveyed in this study, the top three purposes for IAs and NAs are similar: (1) to support the review and reform of education policy; (2) to monitor and evaluate education quality and student learning outcomes; and (3) to provide evidence for curriculum review and reform. RAs show a similar pattern as international and national assessments except that the second major purpose is for policy or programme evaluation. PE is mainly for accountability; that is, for certification and promoting students to the next stage of education.

Certain convergences and divergences of data analysis has been identified for different types of assessment. Both IAs and RAs are concerned more with educational quality and the equality of the sub-groups of students. Participating countries usually use the data of IAs and RAs to compare the learning outcomes of students with different socio-economic backgrounds, genders and geographical places of origin; they also focus more on the changes in student performance and educational quality over time. At the international level, a unique data usage of IAs is 'research', which is made possible by comparing results among countries, especially those at similar developmental stages or located in similar regions.

Dissemination of assessment results is conducted in both static and dynamics ways, including distributing hard copies of reports; making the reports available online; and holding seminars, workshops or conferences. This is consistent with the finding that the most common instruments used for reporting are general/main reports. Given that governments are the largest funding sources of assessments in most surveyed countries, the most common target for reporting assessment results is policymakers. They are followed by other education stakeholders, including school principals, teachers, students and parents.

4.1 Issues and challenges

Countries trying to establish a sustainable assessment system need to manage four major issues: the stability of funding sources, capacity building in management and technical skills, institutionalization of an assessment system and dissemination of assessment results (Ho, 2012). This study found similar challenges in building learning assessment systems in the following six aspects: collecting and analysing data; utilizing results; securing funding; constructing infrastructure; building capacity and continual reviewing key learning outcomes.

Challenges for analysing assessment data

Out of the 24 countries with verified data, 22 of them reported possible issues and technical challenges in conducting analysis on learning assessment results. Most of them reported that they lack human resources (18 out of 22) and/or technical capacity and infrastructure (18 out of22), while half of them reported a lack of financial resources (11 out of 22) (see Figure 26).

Human resources and technical capacity are major challenges for many countries as they attempt to build capacity for engineering their assessment system that can meet national needs and fit the national context. In addition, a lack of proper infrastructure (such as well-functioning and connected Educational Management Information System (EMIS), database capabilities and analytical software, etc.) is another major challenge which affects the sustainability of a learning assessment system.

Figure 26: Issues and challenges in analysing assessment results

Total 22 countries

18 — Lack of human resources

18 — Lack of technical capacity & infrastructure

11 — Lack of financial resources

2 — Other

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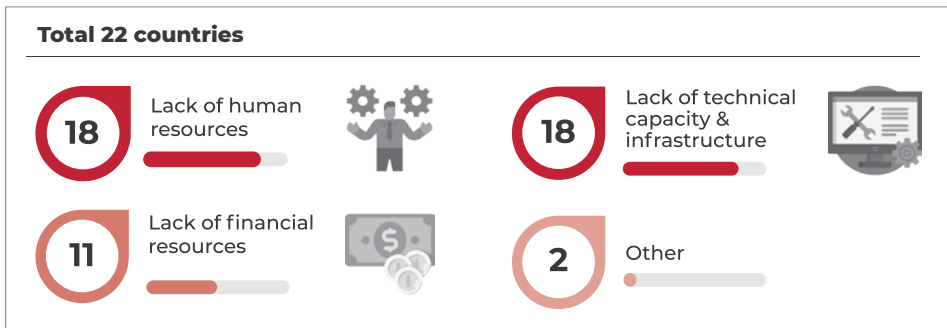
Note: 22 out of 24 countries reported on this item.

Challenges for utilizing assessment results

The second major challenge is how to make good use of assessment results to inform different stakeholders and plan for improvements. Findings from the present study indicate that the most reported issue or challenge in using assessment results is the lack of human resources (20 out of 24), which is followed by the lack of technical capacity and infrastructure (17 out of 24); and the lack of financial resources (15 out of 24 – see Figure 27). In fact, results from assessments at the international, regional and national levels should be used more effectively by decision-makers to inform policies on the one hand, and by stakeholders, including parents, teachers and school administrators, to improve their practices on the other. The results of learning assessments should also be disseminated to the general public in a comprehensive manner so that they may provide feedback to policymakers.

In brief, the findings suggest that a lack of adequate human resources and technical capacity in utilizing the data comprise the most important challenges for data dissemination, which is similar to data analysis. As stated in previous studies (Ho, 2012), countries need to train national experts and professionals not only for operating the assessment processes but also for reviewing and critiquing the design of assessments, for improving test instruments and for using technical skills in basic and advanced statistical analysis so that the learning assessment results can be used to enhance the quality of education, improve the efficiency of the education system, track the trend of student performance and school effectiveness, and identify key areas for intervention.

Figure 27: Issues and challenges in utilizing assessment results

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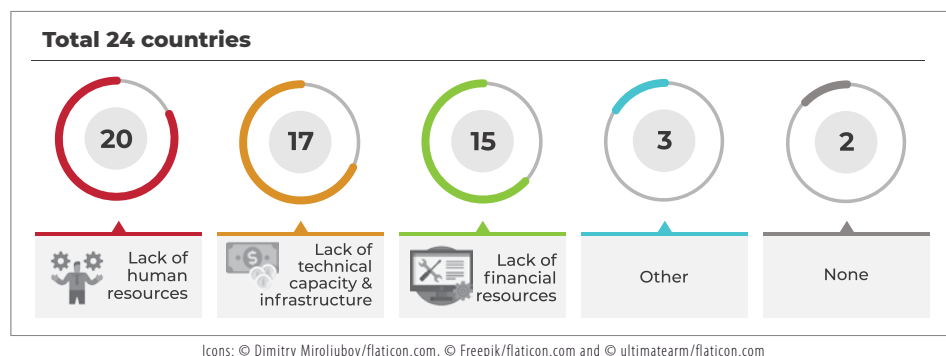
Note: There are a total number of 24 countries with verified data.

Challenges for sustainability of the assessment programmes

Some surveyed countries expressed their need for sufficient and stable funding for developing their own learning assessment system, which has been a consistent concern in previous studies (Ho, 2012). Even if funds are regularly secured, the lack of human resources and technical capacity still provide a significant barrier. These three issues affect the continuity and the development of comprehensive assessment systems. Although most surveyed countries have regular funding sources from the government for learning assessments, there are still about one-third which have no regular funding and rely on international agencies such as the World Bank and UNESCO.

While joining IA and RA projects inevitably has financial implications, countries in the Asia-Pacific region may seek assistance from international funding agencies to support at least the initial stages of their development of a learning assessment system. Table 2 shows a summary of the 16 donors as reported by the surveyed countries. With financial aid from these international agencies, many of the surveyed countries might be able to initiate their own assessment system. However, countries should be cautious about the stability of these funding sources, the possible effects on the sustainability of the assessment system, and other implications arising from seeking external financial aid. They should also consider exploring funding sources from their own government rather than relying on external sources so as to develop an autonomous and sustainable assessment system.

Table 2: Donors providing financial support for assessment programmes, 2005–2015

Donors	IA	RA	NA
Asian Development Bank (ADB)	●		●
Australian Agency for International Development (AusAID)		●	●
CONFEMEN		●	
Department for International Development (DFID) UK			●
Education Development Center (EDC)			●
Educational Quality and Assessment Programme (EQAP)		●	
Germany Society for International Cooperation (GIZ)		●	
Global Partnership for Education (GPE)			●
New Zealand		●	
Pacific Community (SPC)		●	
Russian Federation			●
Save the Children			●
Secretariat of the Pacific Board of Education Assessment (SPBEA)		●	
UNICEF			●
United States Agency for International Development (USAID)			●
World Bank	●		●

Note: As reported by the surveyed countries. EQAP, SPC and SPBEA are part of the same regional organization in the Pacific.

In summary, countries have long faced common challenges in analysing and utilizing assessment results, including insufficient human resources, lack of technical capacity building and unsecured funding. Among all, the lack of human resources is the biggest challenge, which has hindered countries from fostering and operating an assessment tailored to the national context and reviewing quality education and effectiveness of the education system. Furthermore, despite over half the respondent countries' securing regular funding from the government, many countries still rely on external sources of funding. This dependency has prevented the countries from building their own autonomous and sustainable assessment systems.

4.2 Implications for national assessment systems

Popularity of assessment programmes

IAs and RAs are gaining prominence in the Asia-Pacific region since they provide international and regional standards for benchmarking and opportunities for assessment technology transfer. They facilitate the review and reform of national education systems provided that the assessment data are put to good use. Findings from the present study indicate that although IAs and RAs are becoming more popular, no more than 10 countries have participated in any of them. While the participation is rather limited, their influence goes beyond this. Many countries still look to these sources for evidence and for guidance and often seek assistance from the large players in assessment programmes, such as OECD and IEA.

In brief, countries show a tendency towards adopting IAs, RAs and NAs for a formative purpose to monitor education quality and to evaluate whether education policy and curriculum reform are on the right track. Further, many countries utilize these assessments to see whether learning outcomes meet international or regional standards and whether outcomes have improved over time. NAs can also be used to investigate whether the implemented curriculum aligns with the intended curriculum. PE, the most common form of assessment, is a summative assessment for legitimate demands of accreditation, accountability and improvement.

Countries should always take into consideration their own needs and contexts when interpreting and using the assessment data, and be cautious not to borrow or copy policies and practices directly into their education systems without regard to the local contexts. Countries should also consider whether their goal of

education is to pursue a seemingly universal set of skills and competencies and whether such pursuit may promote homogenization or diversity of knowledge. By reflecting on and triangulating the results from both IAs and NAs, a country may gain a comprehensive understanding of its own strengths and weaknesses in education, and formulate policy and customize practices to meet its own needs accordingly.

Complementary roles of national assessment and public examination

Being the most common types of learning assessment, NAs and PEs complement each other in monitoring the quality of education at the national level. Both NAs and PEs assist in diagnosing the strengths and weaknesses of an education system at the national level. Both are useful for monitoring the overall quality of education. Both assess attainment in core subjects, notably the national language, specific second languages, mathematics, natural sciences and social sciences. Different from NA, PE covers more specific subjects for the selection and sorting of students for the next stage of their study and career. Yet, NAs assess beyond cognitive outcomes and extend to student, teacher, and school factors that have contributed to the learning outcomes.

In coordinating NA and PE, one could consider them as complementary in the improvement and accountability of education. NA is used for formative purposes, or in other words for understanding and diagnosing the education system for system-level improvement; whereas PE is used for summative purposes, that is, primarily for the selection and certification of students. PE are therefore high-stakes and put significant pressure on students, while NA are comparatively low-stakes to students and schools. With advanced analytic methods such as multilevel analysis and value-added measurement, a valid comparison of school performance can be obtained for school accountability. With sufficient feedback of NA and PE to the stakeholders of a school, NA and PE can be informative for teachers and school administrators to improve their teaching and learning methods.

Coordination at the national level

Results from the present study indicated that the Ministry of Education of all surveyed countries takes a key role in the design and development of learning assessment policy. Yet more than half of the countries also involved institutions

in charge of assessment programmes, research or training institutions, higher education institutions and even school stakeholders.

One major concern is how to coordinate different parties for different types of learning assessment with an effective 'infrastructure' so that students/children will be assessed properly for their improvements over time and for a system's accountability. Countries may need to establish an integrated learning assessment system while ensuring not to overburden either teachers or students with too many assessments. The infrastructure depends not only on the establishment of a professional and autonomous body of assessment but also on the degree of integration between this body and the existing national and sub-national assessment centres and systems with clear and coherent policies at different levels of assessments so that the results can be sufficiently used to inform and regulate curriculum reform policies and practices and to align them with national and international standards.

The assessment team of the infrastructure must be collaborative and cannot rely solely on the government, international agencies or academics. A genuine collaboration between assessment experts, curriculum specialists, and frontline educators is far more important than relying only on measurement experts. Take the case of Hong Kong as an example: PISA was put into good use for enriching the assessment literacy of research team members, policymakers, teachers, parents and the general public. The personnel directly responsible for implementing the assessment project team up with the professional stakeholders. Specifically, the assessment team was composed of competent frontline teachers, teacher educators, assessment experts, and curriculum specialists (Ho, 2016).

Building capacity of policymakers, educators and researchers

The validity, reliability and usefulness of data collected from different types of learning assessments and examinations would depend greatly on the technical rigour of their operational design. To achieve a high level of rigour, the capacity building of the assessment team is a major concern. As reported in the present study, the top dissemination methods for RA and NA are seminar, workshop and conference for policymakers and professional bodies.

It is the right direction to nurture the assessment literacy of educators and other relevant practitioners through participating in various kinds of assessment result dissemination activities. For instance, the national assessment team could

collaborate with other professional stakeholders, including researchers, curriculum developers, and professional associations, to look deeply into curricular aspects such as the relevancy of the assessment framework and the released test items in IAs or RAs to the local curriculum. The national assessment team could also extend professional training for policy analysts from basic descriptive analysis to advanced multilevel/causal analysis, which could help researchers to identify important actionable factors to inform school improvement policies and design intervention practices.

Seminars and workshops for teacher professional development could also be organized, which could be at the national or regional level. In Hong Kong SAR, China, for example, the assessment team published the 'Assessment Framework and Pedagogical Practice Series' of PISA (HKCISA Centre, 2010a, 2010b, 2012) to support the professional training of teachers and experts in curriculum and instruction.

In addition, the Network on Education Quality Monitoring in Asia-Pacific (NEQMAP) regularly carries out capacity building initiatives at the regional and national level, to assist countries in the region to strengthen their learning assessment systems, as well as to strengthen the alignment of curriculum, instruction and assessment.[18]

Knowledge generated from IAs and RAs - Benchmarking and assessment literacy

IAs and RAs are gaining prominence worldwide for their roles in benchmarking since they provide a comparative perspective in assessing student performance in a global and regional context. Countries used to benchmark themselves against the international standards or strong performing countries (Schleicher, 2009). The present study indicates that from 2005-2006 to 2014-2015, the number of countries participating in IA and/or RA had a threefold increase from five to 15.

As indicated earlier in the report, IA and RA assessment programmes focus on different subject matters and target different grades and age groups. The knowledge gained (in terms of technical capacity as well as assessment literacy) from IAs and RAs could be a good reference for the development of national assessments. The data from IAs or RAs may provide a baseline profile of

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18 For more information on NEQMAP activities, please see here: https://neqmap.bangkok.unesco. org/activities/

the knowledge and skills of students from an international and regional perspective. Thus, countries may benefit from participating in IAs or RAs by reviewing the current educational monitoring system according to international or regional standards and developing more comprehensive and sophisticated reform measures.

Yet, when utilizing concepts and approaches in IAs or RAs, countries should rethink the relevancy of a seemingly universal set of skills and competencies to their own needs and contexts. In addition, for knowledge transfer to take root in the local system, learning should not be confined to the few experts working directly on a specific project, but involve professionals at all levels of the education system. Countries should also avoid the direct borrowing of experiences from successful countries, but instead adapt good practices according to their local contexts.

Innovative ideas in learning assessment beyond the school system

Citizen-led assessments are the only assessment among the five learning assessments that assess the abilities of children *outside* of a formal education system. CLA is particularly important for developing countries with a considerable number of children who are out of school or without universal compulsory basic education. CLA is unique and tailored to the specific needs and contexts of these countries and plays a measurable role in assessing and promoting educational quality and equality. For instance, the CLAs have been adapted for use in several countries around the world, which has led to the formation of the People's Action for Learning Network (PAL Network). The PAL Network is a community of 14 countries (India, Pakistan, Kenya, Uganda, Tanzania, Mali, Senegal, Mexico, Nigeria, Bangladesh, Ghana, Mozambique, Cameroon and Nepal) working across three continents to assess the basic reading and numeracy competencies of all children in their homes through annual CLAs.

However, this type of assessment has been met with some criticism, mainly by governments, especially on the methodology employed, which makes it difficult to translate findings into actions that promote learning (Wilson, 2018). In response to these criticisms, organizations conducting CLA need to consider not only how to maintain data validity and reliability, but also how to present evidence of data validity and reliability in a convincing way. In this regard, lessons may be learned from other countries which have expertise in disseminating assessment results, and the involvement of the international community may be beneficial in translating results and evidence into feasible actions.

The lessons learned from these types of assessments are twofold. One, by reaching learners in their home and outside of the formal classroom setting, countries can get a more complete picture on the competencies and abilities of learners beyond cognitive and academic subjects, and see how learners are able to apply knowledge. These assessments can also provide important evidence on factors that impact learning *outside* of schools, such as socioeconomic status, parental involvement, distance to school, or languages spoken in the home.

Citizen-led assessments have an indispensable role in promoting educational quality and equality among populations who are vulnerable and often the most neglected in the education system. But the methodology used may also be used for all learners to get a better sense of overall capacities and the application of knowledge. However, it remains to be seen whether governments may work hand-in-hand with community organizers and non-governmental organizations so that this type of assessment will be to the benefit of the society as a whole.

4.3 Balancing cognitive and non-cognitive learning outcomes

Regarding the content areas and curricular subjects in different types of assessment practices, the surveyed countries, indicated that all assessments focus on foundational and cognitive skills (literacy and numeracy). In addition to these foundational skills, IAs largely focus on testing students' key competency in the application of acquired knowledge and also measure students' interest in and attitudes towards certain subject areas. However, RAs, NAs and PEs mainly focus on testing how much knowledge students obtain from the implemented curriculum. Curricular subjects assessed in these range from local languages, mathematics, to natural and social sciences. Some countries also test a second language such as English. Public examinations, due to its nature in certification, tested many more subjects at the end of basic education or secondary education. Respondents also reported that these three types of assessment likewise assess how students apply their knowledge in practice.

The inclusion of non-cognitive abilities of students is not very common at the national level, yet are increasingly being assessed in IAs and RAs. For instance, the Southeast Asian Ministers of Education Organization (SEAMEO) and UNICEF initiated the Southeast Asia Primary Learning Metrics (SEA-PLM) in an effort to assess and monitor students' acquisition of knowledge and skills and to further

improve the quality of primary education in Southeast Asia, namely SEA-PLM 2019 as the first round. This newly developed RA assesses both cognitive and non-cognitive outcomes, which cover competencies of Grade 5 students in mathematics, reading, writing and global citizenship. Similarly in another IA, OECD's PISA 2018, global citizenship is one of the major domains newly assessed in addition to the regular reading, mathematical and scientific literacy.

Impacts of the culture of testing

High-stakes exams often determine the future of learners, acting as gatekeepers at the key stages of education (i.e. transition from primary to secondary and entrance to higher education), and controlling access to better schools or to better jobs. With such high-stakes comes significant pressure for learners to perform and to focus all their efforts on studying for exams. This in turn narrows the objectives of learning, narrows the curriculum and forces both students and teachers to prepare for the content of the exams or assessments, without focusing on a more holistic, comprehensive education (UNESCO, 2018).

Asian societies such as the Republic of Korea, Singapore and China show both positive and negative impacts of learning assessment on curricula, student life, and school climate (Ho, 2012). These societies' successful experience and even their mistakes of learning assessment are worthy of study by other countries. Previous international assessment studies indicated that most students in these high-performing societies are similar in that they are strong in cognitive domains but weak in non-cognitive domains (Ho, 2017).

Being aware of such weaknesses in non-cognitive outcomes, both Singapore and the Republic of Korea are moving towards reducing high-stakes examinations[19] and cultivating more student engagement and happiness in their education system.[20] These countries are trying to stop measuring students' success only in terms of academic performance so as to allow them to pursue development in other non-academic areas.

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19 Singapore abolished a school examination ranking system in primary and secondary classes and removed all P1 and P2 examinations from 2019/2020. Information retrieved on 28 June 2019 from the website: https://www.educationworld.in/singapore-abolishes-school-exam-rankings/.

20 New education policies and practices with emphasis on non-academic areas and happy education can be retrieved from the website: https://bangkok.unesco.org/content/new-education-policies-and-practices-south-korea.

Although most schools in East Asian societies apparently have an orderly and disciplinary climate, students often experience a relatively low level of self-confidence, life satisfaction, and sense of belonging to a school, while they suffer from a high level of test anxiety, bullying and so on (OECD, 2017; Ho et al., 2017; UNESCO, 2018). The pressure associated with academic achievement and 'high scores' may be undermining other fundamental aspects of learning that are often not captured in tests and examinations. Many assessments and examinations concentrate on 'hard' competencies as opposed to 'soft' skills, such as communication skills and critical thinking. This calls into question whether education systems have lost sight of the true value and purpose of education.

These findings remind us that many of these countries or economies are only successful in certain parts of the key competencies of the 21st century. Therefore, assessment systems should go beyond cognitive assessments and include 'transformative' or 'transversal' competencies as proposed by OECD (2019) and UNESCO (2015), respectively. In other words, it is important for countries to re-define their own key cognitive and non-cognitive outcomes and keep reviewing the relevancy when developing their own learning assessment system.

Re-conceptualizing learning and learning outcomes

One of the major issues of learning assessment is how to define the key 'learning outcomes' to be assessed. From an international level, project Definition and Selection of Competencies (DeSeCo) from OECD proposed the concept of 'key competencies' to define the key learning outcomes with three broad categories (DeSeCo, 2003):

1 *Using tools interactively:* Individuals need to be able to use a wide range of tools for interacting effectively with the environment. They need to understand such tools well enough to adapt them for their own purposes — to use tools interactively;

2 *Interacting in heterogeneous groups:* Individuals need to be able to engage with others in an increasingly interdependent world, and it is important that they are able to interact with others in heterogeneous groups;

3 *Acting autonomously:* Individuals need to be able to take responsibility for managing their own lives, situate their lives in the broader social context and act autonomously.

In brief, the first competency concerns mainly the 'cognitive' outcomes, which emphasize the application of knowledge and skills to solve daily live problems; the second and third competencies concern mainly the 'non-cognitive' outcomes, which emphasize inter-personal and intra-personal capability, respectively. Building on the ground work of DeSeCo, the OECD further operationalized the assessment of these key competencies in PISA, which has become one of the most influential international student assessments with over 70 OECD and non-OECD societies participating in the 7th cycle of PISA.

In 2018, as a response to the United Nations Sustainable Development Goals for 2030, the OECD Education 2030 project has identified three further categories of competencies under the new name 'transformative competencies'. These three further categories of competencies include (OECD, 2019: P.3-5):

1 *Creating new value:* adaptability, creativity, curiosity and open-mindedness;

2 *Reconciling tensions and dilemmas:* think and act in a more integrated way, taking into account the interconnections and inter-relations between contradictory or incompatible ideas, logics and positions, from both short- and long-term perspectives;

3 *Taking responsibility:* self-regulation (involves self-control and self-efficacy), responsibility, problem solving and adaptability.

In brief, these specific competencies are transformative because they enable students to develop and reflect on their own perspectives, as well as to transform our societies and shape our future.

In the context of the Asia-Pacific region, 'transversal competencies' are increasingly viewed as being an essential component of the education system (UNESCO, 2015). Transversal competencies cover six domains: (i) critical and innovative thinking; (ii) inter-personal skills; (iii) intra-personal skills; (iv) global citizenship; (v) media and information literacy; and (vi) other skills as identified by countries/economies (see Figure 28). UNESCO Bangkok has conducted several studies on transversal competencies, the most recent of which have examined the assessment of the transversal competencies in the Asian region (Care & Luo, 2016; Care, Vista & Kim, 2019).

Figure 28: Transversal competencies
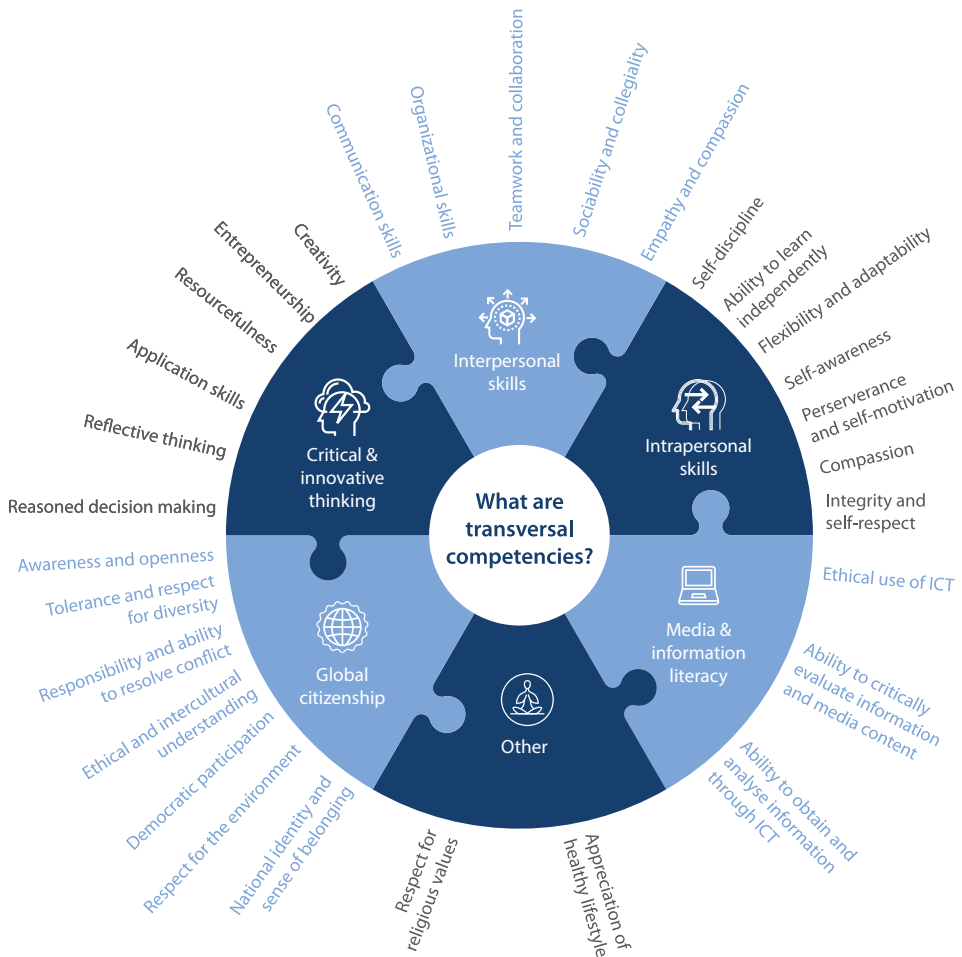
Source: Adapted from UNESCO, 2015.

The findings from the 2019 study of eight countries/jurisdictions confirmed that for a majority of the participating countries in the study, the teaching and learning of transversal competencies are indeed a component of their educational aspirations but there is only slight evidence of tools that aim specifically to measure or assess transversal competencies. The research suggested that a large proportion of existing national- or school-based tools for assessments may have the capacity to be adapted to capture a more comprehensive model of transversal competencies (Care, Vista & Kim, 2019).

Table 3 compares the constructs of transformative and transversal competencies and shows that more convergences than divergences can be identified.

These convergences emphasize inter-personal skills (or in OECD's term, interacting in heterogeneous groups and reconcile tensions and dilemmas) and intrapersonal skills (such as acting autonomously and taking responsibility). Both emphasize application of knowledge (such as using reading, mathematics, scientific, media and information literacy) and beyond (such as critical and innovative thinking, global citizenship, etc.) as tools for problem-solving in learners' daily live. As for divergences, the former focus is on the 'transformative' effect of the six domains of competencies on individuals and societies whereas the latter focuses on the 'transferable' process of those skills in different contexts.

Table 3: Comparison of transformative and transversal competencies

OECD DeSeCo 2003	OECD 2019 Transformative Competencies	UNESCO 2016 Transversal Competencies
1. Using tools interactively	**1.** Creating new value	**1.** Critical and innovative thinking
2. Interacting in heterogeneous groups	**2.** Reconciling tensions and dilemmas	**2.** Inter-personal skills
3. Acting autonomously	**3.** Taking responsibility	**3.** Intra-personal skills
		4. Global citizenship
		5. Media and information literacy
		6. Other skills as defined by countries/ economies

Both transformative competencies and transversal competencies consistently emphasize the mobilization of *knowledge, attitude, skills and values* through a process of *reflection, anticipation and action* in order to develop the interrelated competencies needed to *engage with the world* (OECD, 2019; UNESCO, 2016). The six domains of competencies or learning outcomes proposed by OECD and UNESCO are indeed encapsulated by a complicated concept of learning outcomes which need to be operationalized carefully in an empirical study of learning assessment. Although both competencies have value, not all domains are measurable or assessable at this stage of their development.

In fact, the findings of this report disclosed that learning assessments in the Asia-Pacific region continue to mainly focus on cognitive domains and foundational skills, with limited evaluation on the expanded notion of skills and competencies. This indicates that despite some countries' notable efforts to integrate non-cognitive skills into assessments and examinations, there remains a large gap between the reality and what the region and the international organizations (i.e. OECD and UNESCO) have promoted, namely the education culture integrating transformative and transversal competencies. The fact is that many countries are at a preliminary phase of introducing comprehensive competency-based education systems and the contents areas for evaluation are mainly subject areas to maintain the gap.

5 Conclusion

The present study has reviewed how countries in the region carry out and utilize their learning assessment programmes. The five different forms of learning assessments that have varied functions in different stages of student learning in the Asia-Pacific region. For countries in the region, learning assessments are an instrumental backbone of their education system due to its various functions, including monitoring education quality, reviewing education policy, evaluating student learning outcomes, certifying students for academic advancement, and more. The data of learning assessment are also an enabler for the countries to implement evidence-based education policymaking, which in turn amplifies accountability of different stakeholders (especially, policymakers and school professionals) in making persistent efforts on improving education quality.

At the global level, IAs and RAs contribute to the monitoring of education systems in significant ways, such as delineating the relationships between inputs, processes and outcomes, and informing educational target setting. They may inspire the development of NAs, PEs and even CLAs, which have higher relevance to the local context. Yet, countries which are at various stages of socio-economic development should think carefully about the relevance of a seemingly universal set of skills and competencies to their own needs when adopting the concepts and approaches in international and regional assessments in their development of learning assessment at the national level.

Participating in relevant international and regional assessment projects and referring to practices of high-performing developed countries could be effective ways to learn how to improve a national system of learning assessment. Yet, caution needs to be taken to prevent these international and regional assessment exercises from dominating local assessment practices, particularly in the case of

developing countries in which the context of 'daily life' might be very different from the international context (Ho, 2016).

Policymakers also need to be aware of the side-effects of the many different kinds of high-stake and low-stake assessments in education. The most common negative side-effects include: high testing anxiety and low self-confidence; high competitive but low collaborative learning environments; distorting education through 'teaching to the test' and narrowing the curriculum; exacerbating inequity through private tutoring and shadow education; the demoralization of the teaching profession; ethical corruption; and the stifling of innovation in education in many high-performing countries in many previous cycles of international assessments (Ho, 2006; 2017; Trina, et al., 2019; UNESCO, 2018) .

More mature assessment systems need to streamline the many different forms of assessments that are carried out, for example limiting the total number of assessments in order to alleviate the workload given to teachers and students. In particular, policymakers and educators should balance system-level assessments (including IAs, RAs, NAs) and student/school-level assessments (including PEs and CLAs) so that legitimate demands of improvement, accountability and accreditation can be met.

Lastly, many countries are still struggling to realize a comprehensive learning assessment system mainly due to insufficient human resources, lack of technical capacity and infrastructures, and insecure financial resources. These barriers thereby have deterred countries from forging their own autonomous assessment systems tailored to the national context and utilizing the assessment data for enhancing quality of education. In the meantime, countries continue to rely on high-stakes examinations to monitor learning outcomes, and progress at integrating competency-based learning (particularly the assessment of competencies) is slow and incomplete.

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Annex: NEQMAP questionnaire

Part I. Information on Assessment Programmes

1 Acronyms and full names of the assessment(s) (list all from International, regional, national and public examinations):

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/persons 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 names of international agencies/donors/NGOs/INGOs that provided financial/technical support (if applicable):

8 Years of assessment (please list all years assessment has been 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. Schools

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				

*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 programme

23 What percentage 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 programme 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.

a.   To identify the factors affecting student performance

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

c.   To support education policy development

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

e.   To provide recommendations for improving the teaching-learning environment

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

g.   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:

Education Sector
United Nations
Educational, Scientific and
Cultural Organization

In the partnership with

HKCISA

Hong Kong Centre for
International Student Assessment
The Chinese University of Hong Kong

4 QUALITY EDUCATION

Sustainable Development Goals