Assessment Systems in Southeast Asia:
Models, Successes and Challenges

SIREP
SEAMEO INNOTECH Regional Education Program

Assessment Systems in Southeast Asia: *Models, Successes and Challenges*

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FOREWORD

Over the past few years, the SEAMEO member countries have undertaken several education reforms which include re-thinking of curricula, re-training of teachers, and re-structuring of organizations, among others. Reforms on student learning assessment systems in these countries have been on-going, but to date, these activities have not been examined closely nor discussed thoroughly in educational meetings, seminars, or conferences.

To fill this gap in research, SEAMEO INNOTECH conducted a regional comparative study of the student learning assessment systems of SEAMEO member countries to determine the features of these systems and to identify success factors as well as examine issues and challenges that the Ministries of Education face as they assess the learning or school performance of their students.

Out of the eleven member countries, ten (10) participated in the regional research. These countries were Brunei Darussalam, Cambodia, Indonesia, Philippines, Malaysia, Myanmar, Singapore, Thailand, Timor-Leste, and Vietnam. The different Ministries of Education (MOEs) nominated a representative who then answered a survey on the student learning assessment system of their respective country and presented country reports at a regional research workshop conducted at SEAMEO INNOTECH in July 2012. The workshop also served as the avenue for the Center's Research Studies Unit (RSU) to validate the responses of the country representatives on the assessment survey instrument.

This monograph summarizes the major key findings of the study. It reviews the salient features of assessment systems of SEAMEO member countries and current practices, focusing specifically on learner assessment systems at primary and secondary school levels. It also presents the challenges being faced by each member country in implementing assessment systems as well as the innovations initiated in assessment policy making. Finally, it also provides policy recommendations for the MOEs to consider when they strengthen or improve on their student learning assessment systems.

It is hoped that this publication will support SEAMEO member countries in their efforts to further strengthen or enhance their existing assessment systems which will lead to improvements in the learning achievement of their students.

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ACRONYMS AND ABBREVIATIONS

21CC	21st Century Competencies
A&E	Accreditation and Equivalency
AaL	Assessment as Learning
AfL	Assessment for Learning
A Level	Advanced Level
AoL	Assessment of Learning
ASEAN	Association of Southeast Asian Nations
ASEP	Applied Secondary Education Programme
BALS	Bureau of Alternative Learning Systems
BCAT	Brunei Common Assessment Tasks
BC-GCE	Brunei-Cambridge General Certificate of Education
BEC	Basic Education Council
BECSTC	Basic Education Curriculum, Syllabus and Textbook Committee
BESRA	Basic Education Sector Reform Agenda
BET	Bureau of Education Testing
BNSP	Board of National Standards for Education
BTEC	Brunei Technical Education Certificate

CAT	Computer Adaptive Testing
CAT I	Certified Accounting Technician One
CEA	Center for Educational Assessment
CEFR	Common European Framework of Reference
CHED	Commission on Higher Education
CIE	Cambridge International Examination
CPDD	Curriculum Planning and Development Division
DEE	Department of Evaluation and Examination
DepEd	Department of Education
DTC	Division Testing Coordinator
EDI	Educational Development International
ES	Examination Syndicate
ESC	Examination Steering Council
GAT	General Aptitude Test
GCE	General Certificate of Education
GCE-N(A)	General Certificate of Education Normal Academic
GCE-N(T)	General Certificate of Education Normal Technical
GDETA	General Department of Education Testing and Accreditation

GFLD	Global Framework of Learning Domains
GTP	Governance Transformation Programme
HAS	Holistic Assessment System
HSC	High School Certificate
ICT	Information and Communications Technology
LMTF	Learning Metrics Task Force
LSE	Lower Secondary Education
MBE	Myanmar Board of Examinations
MCE	Malaysian Certification of Education
MDG	Millennium Development Goal
MEC	Malaysian Examination Council
MIB	Melayu Islam Beraja
MOE	Ministry of Education
MOET	Ministry of Education and Training
MOEYS	Ministry of Education, Youth and Sports
MOLVT	Ministry of Labor and Vocational Training
NAT	National Achievement Test
NCAE	National Career Assessment Examination
NEAS	National Education Assessment System
NIETS	National Institute of Education Testing Service

NT	National Tests
O Level	Ordinary Level
OIISSS	Occupational Interest Inventory of Students of Secondary Schools
O-NET	Ordinary National Education Test
OTQM	Office of Testing and Quality Management
PAAT	Professional Academic Aptitude Test
PASEC	Programme for the Analysis of Education Systems
PEMEA	Philippine Educational Measurement and Evaluation Association
PEPT	Philippine Educational Placement Test
PERI	Primary Education Review and Implementation
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
PMR	Penilaian Menengah Rendah (Lower Secondary Assessment)
PSLE	Primary School Leaving Examinations
PSR	Penilaian Secolah Rendan (same as Primary School Assessment-PSA)
PVT	Philippine Validating Test

QAAF	Quality Assurance and Accountability Framework
QSE	Quality of School Experience
SAP	Student Assessment Program
SAP	Special Applied Programme
SBA	School-based Assessment
SBA	Standards-based Assessment
SBAfL	School-based Assessment for Learning
SCGCE	Singapore-Cambridge General Certificate of Education
SDCD	Student Development Curriculum Division
SDS	Schools Division Superintendent
SEAB	Singapore Examinations and Assessment Board
SEA-PLM	Southeast Asia-Primary Learning Metrics
SPA	Student Progress Assessment
SPE	Student Progress Examination
SEAMEO	Southeast Asian Ministers of Education Organization
SEAMEO INNOTECH	Southeast Asian Ministers of Education Organization Regional Center for Educational Innovation and Technology
SPN21	Sistem Pendidikan Negara Abad ke-21 (National Education System for the 21st Century)

STAM	Sijil Tinggi Agama Malaysia (Malaysian Higher Religious Certificate)
STP	Sijil Tinggi Persekolahan (Higher School Certificate)
STPM	Sijil Tinggi Persekolahan Malaysia (Malaysian Higher School Certificate)
TESDA	Technical Education and Skills Development Authority
TIMSS	Trends in International Mathematics and Science Study
UCEE	University and College Entrance Examination
UCIE	University of Cambridge International Examinations
UCLES	University of Cambridge Local Examination Syndicate
UKNQF	United Kingdom National Qualifications Framework
UN	Ujian Nasional
UNESCO	United Nations Educational, Scientific and Cultural Organization
UPSR	Ujian Penilaian Sekolah Rendah (Primary School Achievement Test)
USE	Upper Secondary Education
USSGE	Upper Secondary School Graduating Examination

EXECUTIVE SUMMARY

This monograph discusses the education assessment systems and models of SEAMEO member countries. It also presents and reviews the salient features of these assessment systems and unpacks current practices, focusing specifically on learner assessment systems at primary and secondary school levels. It also presents the challenges being faced by each member country in implementing educational assessment systems as well as the innovations initiated in assessment policy making in SEAMEO member countries.

Data used for the preparation of this monograph were gathered through the SEAMEO SIREP 2012 Survey and from the country papers presented during a regional workshop on assessment systems (frameworks, practices, and governance) for SEAMEO member countries organized by the Research Studies Unit of SEAMEO INNOTECH from 17 to 19 July 2012. All SEAMEO member countries took part in the survey and were represented in the workshop, except for Laos which opted not to be a part of the study.

Both the survey and the workshop were undertaken to determine assessment models that are found successful and to identify challenges in learner assessment experienced by member countries in recent years. A better understanding of the strengths and weaknesses of existing learner assessment systems will help SEAMEO member countries further enhance the learning achievement of their students.

Section 1 of the monograph provides the introduction and the description of the regional workshop on assessment, including the organization of this monograph.

Section 2 provides an overview of the educational systems of SEAMEO member countries. It also discusses the recent educational reforms over the last 10 years in the areas of policy, curriculum, financing, teacher training and student assessment.

Education systems among SEAMEO member countries are focused on pre-primary, primary and secondary levels. All countries included in this survey reported to have introduced pre-primary education before formal primary education. However, most pre-primary education systems among SEAMEO member countries are non-compulsory except for Malaysia, the Philippines and Vietnam. Pre-primary education among the countries generally starts at four to five years old and generally requires a year of schooling. Primary education is usually five to six years of schooling and during these years, students are expected to acquire understanding of reading, writing, listening and speaking in their national language(s). In some countries, religious and moral development are also given emphasis as part of early grades development. On the other hand, the primary objective of secondary education among SEAMEO member countries is to prepare students either for post-secondary education on skills development or higher education. The years of schooling at the secondary education level range from five to six years.

In terms of core subjects at secondary level, the countries reported a variety of subjects at different grade levels. However, English, Science, Mathematics, and national languages are common to all the countries, but with changing emphasis indicating clearly the educational goals of the countries.

School calendar among the countries differs even if they have similar seasons in the region. School days range from 172 to 241. Additionally, the month of start of school year also varies among the countries.

While these countries have established their educational systems over the years, they have initiated and introduced various reforms in the area of governance, financing, curriculum, teacher training and assessment geared towards improving the quality of education and effectiveness and efficiency of delivery of education. These reforms underscored transparency, accountability, efficiency and effectiveness, rule of law, and participation and responsiveness in support of the Education For All (EFA) and the Millennium Development Goals (MDGs). Each country's reform programs are also anchored on national plans of action or roadmaps such as SPN21 for Brunei Darussalam, NKRA for Malaysia, "Teach Less, Learn More" of Singapore, Bureaucracy Reformation for Indonesia, and BESRA and K to 12 Reform for the Philippines, among others.

Overall, the education systems of SEAMEO member countries have both similarities and differences that are internationally benchmarked towards improving the quality of education.

Section 3 of the monograph describes and discusses the assessment systems and models of SEAMEO member countries in terms of their definition and purpose of assessment, governance and funding, national and classroom assessment, and assessment processes and procedures. The innovations and practices of non-traditional assessment as well as issues and challenges are discussed in the next section. This section also describes the assessment systems and models adhered to by SEAMEO member countries. In particular, it discusses how each country defines assessment and its purposes and scope aligned to its educational policies and goals.

Among the SEAMEO member countries, learner assessment is defined more functionally and it is anchored on their overall educational goals and strategies. The countries essentially define assessment as an integrated process in the teaching and learning activities aimed at obtaining information for educational policy and decision-making. They all regard assessment as an important tool to help students achieve the intended learning outcomes and to provide feedback to teachers in order to improve the teaching-learning process. The purposes of assessment among the countries are numerous and diverse. However, common purposes of assessment identified are as follows:

(i) to measure the level of attainment of each learner;

(ii) to measure effectiveness of teaching;

(iii) to monitor student achievement and progress in order to improve quality of teaching;

(iv) to determine the extent to which goals and objectives set are achieved in the countries' current education goals and programs;

(v) to assess readiness of learners for subsequent levels in the educational ladder;

(vi) to appropriately place students into educational and curricular programs;

(vii) to select students who will enter higher level/s of education; and

(viii) to improve schools for internal and external quality assurance.

Additionally, the purposes of assessment provided by SEAMEO member countries can also be classified in keeping with the framework espoused by Earl and Katz (2006), which classifies assessment into the following:

(i) assessment as learning (meta-cognitive process);

(ii) assessment for learning (formative assessment); and

(iii) assessment of learning (summative assessment).

In terms of scope and area, assessment systems in all the countries are implemented at all levels of education and school systems from pre-primary to higher education. The systems measure knowledge and skills defined in their curriculum frameworks and learning standards and these are assessed through School-Based Assessments (SBA) and in the national assessment examinations at various levels of the school system. The commonly assessed core subject areas are:

(i) English;

(ii) National language(s);

(iii) Mathematics;

(iv) Science; and

(v) Social Studies.

All countries included in this survey carry out large-scale national assessments aimed at either assessing completion/achievement of a grade level or entry/acceptance or placement to higher level of education. National examinations are given at the end of primary education, lower secondary education and upper secondary education. These national examinations are paper and pencil tests that are administered by the testing or examination boards of the countries.

Aside from large-scale assessments that are conducted nationally, countries in Southeast Asia are also implementing School-Based Assessment (SBA) to complement the large-scale national examinations. SBA is an assessment practice that is carried out in schools by the teachers with the foremost intention of improving students' learning process. The concept of SBA among these countries is formative and diagnostic in nature as well as continuously providing immediate feedback to improve quality of learning, teaching and assessment. SBA is implemented based on the premise that paper and pencil large-scale summative assessments cannot assess all important learning objectives and outcomes. Indeed, SBA is regarded as a complementary assessment process to the one-shot summative assessments given through national examinations.

The policy frameworks of assessment systems in all countries are based on countries' educational policy frameworks and other legislative decisions. These are normally initiated and implemented by the Ministry of Education or Department of Education of each country. The assessment frameworks are designed to assist education policy makers, assessment practitioners, test developers, teachers and the general public by clearly defining the elements in a national curriculum that are suitable for testing and examinations. The assessment frameworks are also premeditated to support countries' curriculum and not to replace it. Generally, in Southeast Asian countries, assessment frameworks are defined in either country strategic development plans, education sector development programs, or other education strategy documents.

The governance and implementation of assessment systems among SEAMEO member countries rest under the auspices of the countries' ministry or department of education. Assessment

systems are integral to the curriculum policies and frameworks of each country. The governing bodies of student learning assessment for large-scale assessments are:

(i) Brunei Darussalam – Examination Department and Department of Schools;

(ii) Cambodia – Examination Office, Department of General Secondary Education;

(iii) Indonesia – The Board of National Education Standards and Center for Educational Assessment;

(iv) Malaysia – Examination Syndicate;

(v) Myanmar – Myanmar Examination Board;

(vi) Philippines – National Educational Testing and Research Center, Department of Education;

(vii) Singapore – Singapore Examination and Assessment Board;

(viii) Thailand – Bureau of Educational Testing, Office of the Basic Education Commission and National Institute of Educational Testing Services;

(ix) Timor-Leste – National Direction of Curriculum and School Evaluation with support of district curriculum units; and

(x) Vietnam – General Department of Education Testing and Accreditation.

In terms of uses of assessment data and results, the SEAMEO member countries observe the meaningful use of assessment data and how these are interpreted to various stakeholders. In all countries, it is noticed that the main use of test data and results is to determine the achievement of defined learning outcomes, targeted standards and level of competencies. Most of the test and examination data, particularly the national examinations in all countries, are used to gauge students' readiness and aptitude to proceed to higher levels of schooling – either to select or place students appropriately. The test results can help educators, policy makers and teachers to design more appropriate and responsive instructional programs aligned with their education strategic goals and objectives.

The national assessment systems of each country demand comprehensive professional development in order to implement them effectively. Hence, by determining the classroom assessment practices of teachers, more relevant professional development interventions can be programmed. In the SEAMEO member countries, professional development programs, strategies and activities are varied. Professional development programs on assessment are implemented through system-level mechanisms as follows:

(i) Pre-service teacher training;

(ii) In-service teacher training;

(iii) Seminars, conferences and workshops;

(iv) Monitoring by supervisors; and

(v) Access to online resources.

Among the countries, pre-service and in-service teacher training programs are the primary delivery system of professional development. At the pre-service teacher training level, at least one course/subject on educational assessment is provided while teachers are still at teacher-training colleges or universities. In-service training programs are provided at least once a year, while participation in seminars, workshops and conferences are provided any time to teachers and testing staff who need them the most, which can be in-country or abroad. Another approach to level up the skills and knowledge of teachers in classroom assessment is through monitoring and mentoring by supervisors, who are principals, school head masters, or master teachers or pedagogy advisers. Lastly, more Southeast Asian countries reported that accessing to online resources is becoming more practiced.

Respondent countries revealed that resources available for teachers for professional development include:

(i) student learning competencies;

(ii) student performance standards;

(iii) textbooks, workbooks, textbooks, etc.;

(iv) use of scoring rubrics; and

(v) test item banks or test data.

Moreover, from the reports of the SEAMEO member countries, both formative and summative assessments are conducted equally. At lower primary and lower secondary level, formative assessment is dominantly carried out through School-based Assessment (SBA). Formative assessment is conducted as a tool to gather feedback

from students to inform teachers of the need to improve teaching methods and strategies. At upper primary and upper secondary levels, both formative and summative assessment are given periodically. Formative assessments are done through SBA and continuous assessment programs, while summative assessments are implemented through the provincial and national examinations administered to all students at a particular grade level, which in most countries serve as exit or entry examinations for higher grade levels.

Teachers use various strategies in conducting classroom assessment and SBA. Among the strategies being used aside from the usual paper and pencil tests are:

(i) worksheets and seatworks;

(ii) assignments and projects;

(iii) oral quizzes and recitations;

(iv) observation checklists;

(v) anecdotal records;

(vi) portfolio assessments;

(vii) performance assessments and demonstrations;

(viii) peer assessments;

(ix) self-assessments; and

(x) team assessments.

It was noted, however, that Southeast Asian countries, regardless of educational level, are still using the more traditional assessment strategies using summative assessments at the end of the year. This is also followed by the end-of-lesson assessment intended to provide a grade or mark for a specific period of the school year.

Another key element of assessment systems among SEAMEO member countries is the increasing use of ICT in various school operations, including classroom assessments. It was revealed in the survey that ICT or computer-based technologies are primarily used in developing assessment materials and in recording assessment results. It was also revealed in the survey that ICT is employed in scoring and analyzing test results, particularly in conducting item analysis. In most countries, particularly at the secondary level, ICT is used to store test items in a data bank or item bank.

SEAMEO member countries also reported some of their good practices in implementing their assessment systems. The elements of good assessment practices identified by these countries are aligned with what Suskie (2004; 2006) proposed as characteristics of good assessment practices. From their response from the survey, it was summarized that the elements of good practices among the SEAMEO member countries are:

(i) well-defined purpose of assessment strategies;

(ii) well-trained examination personnel;

(iii) credibility and integrity is in place;

(iv) provision of sufficient fund for testing; and

(v) use of reliable and valid assessments.

One of the biggest challenges of all SEAMEO member countries is ensuring credibility and integrity of national examinations. Hence, these countries have put in place mechanisms to ensure that examination malpractices are avoided and threats to security and integrity are minimized or controlled. Among the measures that these countries have initiated which are considered as good practices in assessment include:

(i) examination setters or item writers are properly trained and asked for their commitment to keep items to the highest confidentiality;

(ii) examination papers are accompanied by security officers up to the classroom where the test will take place;

(iii) students are arranged and seated wide apart to discourage glancing at each others paper or answers;

(iv) test administrators or proctors are properly trained to be vigilant in detecting cheating and/or sharing of answers among students;

(v) test materials are properly inventoried and efforts are taken to make sure that all test papers and materials are accounted for before and after examinations;

(vi) mobile and smart phones and gadgets with camera are strictly prohibited inside the testing room;

(vii) teachers who are assigned as markers are discouraged to mark their own students and/or schools; and

(viii) some schools have installed cameras or CCTV to monitor examinations.

Finally, one of the key elements of good assessment practice is ensuring that all personnel and staff involved are professionally trained. Conducting and implementing an assessment system and its related activities necessitate possession of very specific skills and proficiency, particularly in psychometrics, statistics and computer applications.

Among the training areas that SEAMEO member countries provide to all their assessment and examination personnel include:

(i) General orientation;

(ii) Administration of national examinations;

(iii) Supervision of conduct of national examinations, including related activities;

(iv) Design of assessment tools;

(v) Construction of tests – from item writing, review, pilot testing and finalization of tests;

(vi) Data analysis including analysis of pre-testing results, item analysis and analysis of scores/marking

(vii) Scoring and marking of test papers, particularly essay-type questions as well as operation of scoring machines; and

(viii) Reporting and dissemination of test results to various stakeholders.

Section 4 discusses the assessment reforms initiated by SEAMEO member countries over the past 10 years. It also describes the innovative practices and improvement strategies for assessment of students' learning outcomes, as well as the factors that facilitated successes as well as the challenges encountered in rolling out their assessment systems and initiatives. The section ends with some discussion of possible future directions in assessment in the region.

Among the SEAMEO member countries, assessment reforms were focused on embracing the paradigm shifts in the assessment purposes and approaches highlighting the shift from Assessment of Learning (AoF) to Assessment for Learning (AfL) and Assessment as Learning (AaL), realizing truly the integration of assessment system into the instructional system.

The challenge of responding to the pressures of changes in the global education scene has triggered some innovative practices and improvement strategies among the SEAMEO member countries. It was noted, however, that innovations and improvement strategies were centered around the implementation of SBA, use of more innovative techniques of assessment, introduction of ICT in assessment, and using classical and modern test theories in the analysis of test information and results.

The SEAMEO member countries have been implementing assessment systems and have instituted various reforms and improvement strategies. While they have encountered difficulties and challenges, they also identified success factors that made their assessment systems effective and made impact on their educational system as a whole. The success factors that most countries have identified are the following:

(i) Stable organizational structure that promotes sustainable programs, including research and development. All countries have a dedicated government unit within the MOE or DOE/DepEd to manage examination and assessment systems.

(ii) Supportive government and related agencies to implement national assessment systems, particularly in:

a. providing sufficient funding support including programmed subsidy to students' examination fees;

b. approval of human resource requirements; and

c. appointing strong and capable leaders in all the examination bodies and agencies.

(iii) Well-defined assessment frameworks and implementation mechanisms backed up by enabling policies, government legislation and education laws.

(iv) Well-programmed professional development programs for examination and assessment personnel at various levels – from national to school level, ensuring that all staff involved in the assessment process are well-trained and skilled professionals

(v) Commitment of teachers to implement national examinations and SBA

(vi) Strong collaboration with internal and external examination bodies, such as national and international testing agencies like the University of Cambridge Local Examination Syndicate (UCLES)

(vii) Presence of testing and examination professionals and experts who could support the government testing and examination bodies in designing, administering, scoring and analyzing test results, including conducting studies on reliability and validity of tests

(viii) Institutionalized monitoring and evaluation programs to maintain integrity of national examinations and SBA

(ix) Positive public perception and attitude and confidence towards examination systems and the implementing agencies

(x) Students' high regard for the assessment system and strong compliance to all assessment guidelines, policies and regulations.

While the countries have recognized various factors that influenced their success in implementing assessment systems, these same countries have also identified some issues and challenges that they perceived as triggers for further development. In general, issues and challenges are inherently both internal and external and these are highly related to changing mindsets and perspectives of both implementers and beneficiaries of the assessment system. Among the greatest challenges in some countries are:

(i) Threats to integrity in assessment;

(ii) Questionable validity and reliability of some measures;

(iii) Vague purposes of some assessments and school testing programs;

(iv) Poor management of some examination activities

(v) Lack of experts in the field of educational assessment; and

(vi) Over-reliance on high-stakes national examinations that sometimes results in test-driven instruction.

The assessment systems in Southeast Asian countries are evolving and catching up with the advances in the field implemented by more developed countries. The efforts to streamline the system and to implement the best practices in educational assessment are noticeable. However, the relatively poor performance of SEAMEO member countries in international assessment programs (e.g., PISA, TIMSS) with the exception of Singapore, remains a great challenge to all these countries. This can only be alleviated when better systems are in place. The disparities in the assessment practices between and among the countries are still extensive and need further attention.

The following are given as recommendations for future directions of the assessment systems in the region:

(i) **Develop a program to reduce examination pressures.** Students are oftentimes focused on passing the test and not on learning. Hence, it is recommended that a strategic program should be developed to reduce

examination pressures, particularly on passing high-stakes national examinations. The shift of emphasis from AoL to AfL might be strengthened through the SBA that is already in place. The introduction of a programmed and moderated SBA could constitute one strategy for reducing examination pressures (Mehrens, 1998).

(ii) **Create an assessment system that is responsive to the diverse needs of students.** The concerted efforts to advocate inclusive education and student-centered curricular and instructional programs call for a more responsive assessment system. Introducing more varied assessment techniques and approaches will allow students with diversified needs to appreciate the relevance of any assessment system. The assessment system must be able to provide expanded and greater opportunities to all students to gain the benefits of assessment and education system. Students who come with special abilities and/or disabilities or financial difficulties must not be denied educational access. Hence, governments should ensure that their assessment system would cater to the differing needs of students. The growing number of students with special abilities and/or disabilities (physically or economically) implies the need for better logistics and wider options of assessment methodology, including the use of ICT and other related technologies.

(iii) **Develop an assessment system that covers a wider range of curriculum objectives and learning outcomes.** One of the universal criticisms of many tests or examinations is that they include too many tasks that only measure factual information or

rote learning. Students who are good in memorization may in some instances perform better than students who are analytical and possess high critical-thinking skills. While there is a conscious effort to reduce reliance on knowledge skills or memorization, wider and higher thinking skills must be included not only in the national examinations but also in SBAs. SEAMEO member countries should learn from the experience of PISA, a test that comprehensively measures the ability of students to apply information as opposed to memorizing it. This is to ensure that critical thinking skills and higher-order thinking skills are assessed objectively. In the same manner, all tests and examinations must ascertain that they cover a wide range of subject matter contents. This can be done by developing clear and well-defined tables of specifications and/or subject prescriptions for assessments. Furthermore, countries should develop a comprehensive national assessment policy and framework, supported by a country educational and legislative agenda.

(iv) **Balance the purposes of assessment.** There is a clear observation that SEAMEO member countries may be overly relying on summative assessment, and neglecting formative assessment. The overemphasis on national examinations and exit or certification tests encourages students to adopt the culture of schooling rather than a culture of learning. Students imbibe a culture of schooling when they study to prepare themselves to pass the exit tests or certifications without necessarily acquiring basic competencies, a practice espoused by assessment of learning or summative assessment. On

the other hand, if assessment for learning or formative assessment and assessment as learning are equally emphasized in schools, students will develop a culture of learning. That is, students are constantly provided feedback on their performance through continuous assessment and eventually learn to learn on their own. Hence, it is recommended that SEAMEO member countries take steps to develop more holistic assessment systems, similar to those being developed by Malaysia and Singapore, to ensure that they produce graduates who are competent instead of merely knowledgeable but lacking in skills.

(v) **Implement a programmed capacity building and professional development program in the region.** It is noted in all countries that there is a need for professionals who are engaged in educational assessment. The role of assessment is increasing widely due to the demand for quality assurance in schools especially in teaching and learning as well as in program development and implementation (Magno & Gonzales, 2011). At the school level, teachers need a lot of guidance from assessment experts in terms of designing creative and responsive assessment tools, administering assessment, marking and scoring, and interpretation of results. These are special skills that teachers need, even if they have undergone training in assessment formally in their preservice programs or through in-service training programs. Hence, one area that the region may start contemplating is to identify which among the SEAMEO institutions could provide professional development interventions specifically designed for

educational assessment and evaluation. The professional development programs may be in the form of short-term training programs or a full-blown degree program in collaboration with a higher education institution in the region.

(vi) **Establish a stronger network of assessment experts.** In support of programmed capacity building and professional development of testing and assessment specialists in the region, there is a need to establish a stronger network of assessment experts among SEAMEO member countries. In the Philippines, there is a professional organization of educational measurement and evaluation educators, researchers and scholars, called the Philippine Education Measurement and Evaluation Association (PEMEA). This organization may be tapped to support the establishment of a regional association of educational measurement and evaluation specialists through SEAMEO INNOTECH, which has a partnership agreement with PEMEA. The regional organization may serve as a venue to share activities, programs, learning experiences and research studies related to the assessment of learning outcomes. An annual or biannual conference and continuing professional development of assessment specialists in the region will definitely help professionalize the practice of assessment in the educational setting.

(vii) **Develop Southeast Asian metrics for assessing student achievement at the primary and secondary levels.** The establishment of learning metrics which reflect the unique context and situation of

the Southeast Asian region will help measure and reveal the status of learning sub-nationally. This exercise may also bring out collaboration in the use of appropriate metrics for formative and summative purposes and for regional benchmarking. Regional learning metrics for primary schools in the region have already been identified via the Southeast Asia - Primary Learning Metrics (SEA-PLM) project initiated by UNESCO and SEAMEO, but it is recommended to establish the counterpart learning metrics for secondary education. This is also in accordance with the articulated need of UNESCO to implement internationally or regionally comparable testing and assessment policies and practices.

(viii) **Introduce a technology-supported assessment system.** Singapore has already started introducing e-Assessment as one of the innovations to their assessment system. Other countries are encouraged to follow Singapore's move. Globally, the practice of computer-assisted testing or computer-adaptive testing is growing. Hence, countries in the Southeast Asian region should also consider infusing technologies into their assessment system and in their school system in general to facilitate the various dimensions of the assessment process – from assessment development, assessment administration, assessment data management, assessment data analysis and results dissemination. Although ICT is reportedly being used in assessment, the use of it is not yet maximized. Countries may start building on an item-banking system, a computerized scoring and marking system, online dissemination of results and online access of assessment information. However, it should be

noted that the introduction of a technology-supported assessment system requires quite a significant investment, particularly for infrastructure and training of personnel who will support the assessment system.

(ix) **Develop an assessment policy framework with assured funding support from the government.** While there are clearly defined policies and guidelines of SBA and national assessments, some countries do not currently have national assessment policy frameworks that clearly assure funding support from the government. The Philippines, for example, in its recent change in educational structure for K-12, has recently developed a national assessment framework to be implemented along with curriculum reforms. Other countries may follow this example or enhance their current assessment policy frameworks if they exist.

INTRODUCTION

SECTION 1

The Southeast Asian countries best exemplify the concept of "unity in diversity." While they have countless shared characteristics, their socio-cultural, political, economic and ecological conditions are varied and diverse. Equally, their education systems that evolved from different historical experiences and went through radical changes over time also contribute to the sense of unity in diversity in the region. Each country has faced various constraints and difficulties that affected the educational system, forging reforms and changes to overcome such challenges.

The colonial influence of European countries and influx of Chinese and Indians as well as the rapid growth of Islamic religion and culture in the region molded not only the socio-cultural landscape of the region but also the education system, with the exception of Thailand that remained free from colonial occupation. In spite of external influences and challenges brought about by economic and political conditions, each country has developed an education system that responds to the demand for new knowledge and abilities and provided opportunities for students to develop their 21st century skills which include "the abilities to find and organize information to solve problems, frame and conduct investigations, analyze and synthesize data, apply learning to new situations, self-monitor

and improve one's own learning and performance, communicate well in multiple forms, work in teams, and learn independently (Darling-Hammond & Wentworth, 2010).

The region has eleven independent countries, who are all members of the Southeast Asian Ministers of Education Organization (SEAMEO) – Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste and Vietnam – with all attempting to work together and learn from each other to improve the quality of and access to education. The past decade has seen rapid progress toward universal primary education in the region, as more children complete primary education, and the expansion of secondary education. National education reform efforts have also resulted in the expansion of education access and equity, improvement of curricula, upgrading of instruction, and institutionalizing of assessment to improve teaching and learning. Significant progress in education infrastructure and management capacities in the system has also been achieved.

While curricular reforms have been periodically undertaken and well articulated in all the countries in the region, reforms in the learner assessment system still need to be firmly established. There are still some disparities in their assessment systems for them to realize the full potential of assessment. Although these countries agree that assessment of students is crucial in maximizing learning and teaching, this is still an area that needs further attention. The region needs to learn from the experiences of consistently high-performing nations in international achievement tests such as the Trends in International Mathematics and Science Study (TIMSS), Programme for International Student Assessment (PISA), and the Progress in International Reading Literacy Study (PIRLS) that give premium to the full potential of student assessment.

Just like in other parts of the world, SEAMEO member countries have been undertaking major assessment reforms in their education systems. Success stories have emerged but some challenges still remain. As a consequence, the Research Studies Unit (RSU) of SEAMEO INNOTECH conducted a regional workshop on assessment systems (frameworks, practices, and governance) for SEAMEO member countries from 17 to 19 July 2012. Ten of the 11 SEAMEO member countries took part in the study: Brunei Darussalam, Cambodia, Indonesia, Malaysia, Philippines, Singapore, Thailand, Timor-Leste, Myanmar, and Vietnam. Lao PDR did not take part in the survey and the workshop, thus it has been excluded from the study.

The main objective was for the member countries to appreciate the gains they have achieved so far and explore new possibilities for ensuring that their assessment reforms are relevant and responsive to the demands of the 21st century. It was also hoped that through the regional workshop and study, the existing assessment will be further strengthened or enhanced and will lead to improvements in the learning achievement of Southeast Asian students.

Specifically, the objectives of the regional workshop were to:

(i) exchange information and learn from the experiences of the Southeast Asian countries in implementing learning assessment;

(ii) identify the factors that may have contributed to the successful implementation of assessment systems in Southeast Asian countries;

(iii) examine the challenges being faced in implementing assessment systems in Southeast Asian countries; and

(iv) determine innovations in assessment policy making in the region.

In view of the shared experiences that transpired during this regional workshop and the result of the survey activities conducted before the workshop, this monograph aims to summarize the country reports presented, workshop outputs, and outcomes of the assessment survey.

This monograph also reviews the salient features of assessment systems of SEAMEO member countries and reviews current practices, focusing specifically on examination systems at the primary and secondary school levels. It also presents the challenges faced by each member country in implementing assessment systems as well as the innovations initiated in assessment policy making.

This monograph is organized into four sections, as follows:

(i) Introduction

(ii) Overview of the educational systems and recent education reforms in Southeast Asia

(iii) Assessment systems and models in Southeast Asian countries

(iv) Assessment reforms, innovative practices, successes and challenges, and future direction of assessment in Southeast Asia

SECTION II

OVERVIEW OF THE EDUCATIONAL SYSTEMS AND RECENT EDUCATION REFORMS IN SOUTHEAST ASIA

This section provides an overview of the educational systems of SEAMEO member countries. It also discusses recent educational reforms in the last ten years in the areas of policy, curriculum, financing, teacher training and student assessment.

Levels of Education

Education systems among SEAMEO member countries are divided into: i) pre-primary education; ii) primary education; and iii) secondary education.

Pre-Primary Education

All countries in Southeast Asia have introduced pre-primary education. The term pre-primary or pre-school refers to the education system before formal primary school. The instruction composing pre-primary education is commonly referred to as kindergarten or nursery school. The main purpose of this level of education is to unfold the child's physical, intellectual and moral potentials with balanced emphasis on each (Ross, 1976).

Most pre-primary education among SEAMEO member countries is non-compulsory except for Malaysia, Philippines and Vietnam (SEAMEO Survey, 2012). Entry age ranges from three years old for Cambodia, Myanmar, Thailand and Vietnam to six years old for Malaysia. Pre-primary education in Brunei Darussalam and Philippines starts at five years old, while the rest of the countries start from four years old such as Singapore, Indonesia and Timor-Leste.

Names or levels attributed to pre-primary schools are either kindergarten or nursery, as is the case in Indonesia, Malaysia, Philippines, Singapore or Thailand. Brunei Darussalam and Timor-Leste simply call their pre-primary pre-school while Cambodia calls it Lower Step, Medium Step and High Step. Vietnam refers to it as Seed (small), Bud (medium) and Leave (grow).

The medium of instruction in pre-primary education is also varied among the SEAMEO member countries. Mother tongue (local language) is the primary medium of instruction in pre-primary education in Indonesia and the Philippines, being the two countries with many languages. However, all countries reported that their respective national languages are also used as the medium of instruction. English language is also used as a language of learning in Brunei Darussalam, Malaysia, the Philippines and Singapore. In Thailand, only international schools use English as a medium of instruction.

The development of basic literacy and numeracy is the main focus of the core curriculum of pre-primary education among all SEAMEO member countries. Along with this physical, social and moral development is emphasized as learning or subject areas in the curriculum. Interestingly, general methodology and technical knowledge are stressed by Timor-Leste, while gymnastics, music, and arts are introduced in Cambodian and Vietnamese pre-primary

schools. The Philippines is emphasizing "myself, my family, my school and my community" while Brunei Darussalam and Indonesia are emphasizing moral education and the development of religious values.

Primary Education

Primary education among SEAMEO member countries is five to six years of schooling wherein by and large, students must gain understanding of reading, writing, listening and speaking in their national language(s), basic arithmetic and numeracy, natural sciences and social sciences. In some countries, like Indonesia, Malaysia and Brunei Darussalam, religious and moral development is also given emphasis.

All the other countries have six years (Grade/Level 1 to 6) of primary education, except for Myanmar, Lao PDR and Vietnam that have only five years (Grade 1-5). Myanmar includes Kindergarten as part of primary education and Timor-Leste has basic education from Grades 1-6 and Grades 7-9.

In terms of entry age, the SEAMEO member countries by and large accept 6-year-old children into their primary education, except for Malaysia, Singapore, and Timor-Leste whose entry age is seven years.

The countries' national language is the main medium of instruction for Cambodia, Indonesia, Myanmar, Timor-Leste, and Vietnam, while the other countries use bilingual education. Cambodia uses Khmer language; Indonesia uses Bahasa Indonesia; Myanmar uses Myanmar language; Timor-Leste uses Portuguese; and Vietnam uses Vietnamese. Likewise, Thailand uses Thai language in national schools but English is used in international schools.

In the other countries, bilingual medium of instruction is used. Coordinate and compound bilingualism are used in Brunei Darussalam and Malaysia where the Malay language and English language are used in different contexts. Brunei Darussalam and Malaysia use Malay language in most of their subjects but use English for English, Mathematics, Science and Technical subjects. Compound bilingualism is also used in these two countries because Malay and English are learned at the same level at the same time. On the other hand, the Philippines uses mother tongue for Grades 1 to 3, then English from Grade 4 to Grade 7, adhering to transitional bilingualism, wherein the pedagogical and social value of vernacular or mother tongue education is considered best if the first years of education are conducted in the mother tongue, the language that the children bring to school.

With regard to primary education subject areas, each country has its own emphasis. However, English, Mathematics, Science and Mother Tongue/Language are the common core subjects in all countries. The table below shows the core subjects for each country:

Table 1. Summary of Core Subject Areas of Primary Education

Country	Core Subject Area
Brunei Darussalam	Malay, English language, Math, Science, Nationhood Education (MIB) and Islamic Religious Knowledge
Cambodia	Khmer, Math, Science, Social Studies, Physical & Health Education, Life Skills

Country	Core Subject Area
Indonesia	Religion and Noble Character, Citizenship/ Civic and Personality, Science and Technology, Aesthetics and Arts, Physical Education, Sport and Health
Malaysia	Malay Language, English, Math, Science, Islamic Study, Moral Education
Myanmar	Grade 1-3: Myanmar, English, Math, General Studies Grade 4-5: Myanmar, English, Math, Social Studies, Basic Science
Philippines	2002 Basic Education Curriculum: English, Math, Science, Filipino, and HEKASI (Geography, History, and Civics) New K to 12 Basic Education Program: Languages, Arts and Humanities, Science and Mathematics, Technology and Livelihood Education
Singapore	P1-P2: English, Math, Mother Tongue P3-P6: English, Math, Mother Tongue and Science
Thailand	Thai Language, Math, Science, Social Studies, Religion and Culture, Health and Physical Education, Arts, Occupations and Technology, Foreign Languages

Country	Core Subject Area
Timor-Leste	Grades 1-6: Natural and Social Science, Math, Portuguese, Religion, Physical Training, Artistic Education, Grades 7-9: Tetun, Portuguese, English, Math, Natural Science, Social Science, Geography, History, Economics, Religion, Physical Training, Artistic Education
Vietnam	Grade 1-2: Vietnamese, Math, Writing, Nature and Society, Morality, Drawing, Music Grade 3: Vietnamese, Math, Writing, Nature and Society, Morality, Drawing, Music, English, Informatics Grade 4-5: Vietnamese, Math, Morality, Drawing, Music, English, Informatics, Science, Painting, History and Geography, Technology

Sources: SEAMEO INNOTECH SIREP Survey, 2012;
SEAMEO INNOTECH, 2012, K to 12 Toolkit

Secondary Education

Secondary education among SEAMEO member countries is the second level of formal schooling. It comes after primary education, usually after 5 to 6 years of formal schooling. The main objective of secondary education is to prepare students either for post-secondary education focused on skills development or for higher education or university studies. Generally, secondary education entry age among SEAMEO member countries is 12 or 13, except for Myanmar, which accepts students for secondary level at age 10.

The years of schooling at this level ranges from 5 years to 6 years, except for Singapore that has only 4 years (S1 to S4). Secondary education in Cambodia, Indonesia, Malaysia, Philippines, and Thailand is from Grade/Year 7 to 12, while Brunei Darussalam and Myanmar have it up to Grade/Year 11. Some countries such as Malaysia, Philippines and Vietnam have categorized secondary education into Lower Secondary and Upper Secondary, while Timor-Leste has classified secondary level into General Secondary or Vocational-Technical.

In terms of medium of instruction, except for the English subject and English-based subjects, the national language is generally used in Brunei Darussalam, Cambodia, Indonesia, Malaysia, Myanmar, Thailand, Timor-Leste and Vietnam. English is used as the medium of instruction in the Philippines and Singapore, and in Thailand's international schools.

Core subject areas at secondary level vary among the SEAMEO member countries. Variations are also reported at year/grade levels. However, English, Science, and Mathematics are common among all of them but with varying emphasis, indicating clearly that each country prepares their students for either higher education and/or vocational training or employment differently based on their educational goals and economic manpower development targets. Table 2 below shows the core subject areas of secondary education of the different countries:

Table 2. Summary of Core Subject Areas of Secondary Education

Country	Core Subject Area
Brunei Darussalam	Year 7-8: English Language, Math, Science, Nationhood Education (MIB), Islamic Religious Knowledge (IRK) General Subjects: PE/CCA/Social Studies/Business, Arts and Technology Optional: Arabic/French/Mandarin/Drama/Music Year 9-11: Malay/English Language/ Math, IRK, MIB, Science (Biology/ Chemistry/Physics/Computer Science)

Country	Core Subject Area
Cambodia	Grade 7-10: Khmer Language, Math, Social Studies, Sciences, English/French, Physical Education and Sports, Local Life Skills Grade 11-12: Khmer Literature, Sports, English/French, Basic/Advanced Math, Science electives, Social Sciences electives, Vocational Education
Indonesia	Religion and Noble Character, Civic and Personality, Science and Technology, Aesthetics, Physical Education, Sport and Health

Country	Core Subject Area
Malaysia	Lower Secondary: Malay Language, Science, English, Chinese/Tamil Language, Math, History, Geography, Religious Knowledge, Living Skills, Moral Education Upper Secondary: Malay Language, English, Math, Science, History, Islamic Education, Moral Education
Myanmar	Grade 6-9: Myanmar Language, English, Math, Geography, History, General Science Grade 10-11: Biology, History, Geography, Economics Optional: Myanmar Language

Country	Core Subject Area
Philippines	2010 Secondary Education Curriculum: 1st-3rd Year: English, Filipino, History, Science, Math 4th Year: English, Filipino, Math, Science, Economics, Statistics New K to 12 Basic Education Program: Languages, Arts and Humanities, Science and Mathematics, Technology and Livelihood Education
Singapore	S1-S2: English, Math, Mother Tongue, Science, Design and Technology, Home Economics, Geography, History, Literature, Visual Arts, Music S3-S4: English, Math, Mother Tongue, Science, Combined Humanities, and other Upper Secondary Electives
Thailand	Thai Language, Math, Science, Social Studies, Religion and Culture, Health and Physical Education, Art, Occupations and Technology, Foreign Languages

Country	Core Subject Area
Timor-Leste	General Secondary: 1. Science Area: Tetum, Portuguese, English, Math, Civil Education, Religion, Physical Training, Physical Science, Chemistry, Biology 2. Social Area: Tetum, Portuguese, English, Math, Civic Education, Religion, Physical Training, Geography, History, Sociology, Economics, Anthropology Vocational Technical 3. Technical School Area: Portuguese, Tetum, English, Math, Electricity, Electronic, Mechanic of Automobile, Informatics, Civil Constructions, Technical Design, Civic Education, Religion, Physical Training 4. Hospitality and Tourism School Area: Portuguese, Tetum, English, Math, Fashion Design, Cookery, Reception, Beauty, Civic Education, Religion, Physical Training 5. Commerce and Industry School Area: Portuguese, Tetum, English, Math, Accountancy, Management of Commerce, Management and Administration, Commerce and Industry, Civic Education, Religion, Physical Training

Country	Core Subject Area
Vietnam	Grade 6: Literature, Math, Physics, Biology, History, Geography, Civic Education, Painting and Music, Technology, English, Informatics Grade 7-9: Literature, Math, Physics, Biology, History, Geography, Civic Education, Painting and Music, Technology, English, Informatics, Chemistry Grade 10-12: Geography, Civic Education, Painting and Music, Technology, English, Informatics, Chemistry, Algebra and Analysis, Geometry

Sources: SEAMEO INNOTECH SIREP Survey, 2012;
SEAMEO INNOTECH, 2012, K to 12 Toolkit

School Calendar

The School Calendar among SEAMEO member countries varies in spite of the similar climatic seasons in the region. School days range from 172 days, such as in Myanmar, to 241 days as in the case of Timor-Leste.

Brunei Darussalam, Malaysia, Singapore and Timor-Leste start their school in January and end in November, while the rest of the countries start school mid-year and end in the middle of the following year. Cambodia is the last one to start and end among all the countries. The table below shows the start and end of the school year in the 10 countries covered in this report.

Table 3. Start and End of School Year per Country

Country	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J
Brunei Darussalam	■	■	■	■	■	■	■	■	■	■	■								
Cambodia										■	■	■	■	■	■	■	■	■	■
Indonesia							■	■	■	■	■	■	■	■	■	■	■	■	
Malaysia	■	■	■	■	■	■	■	■	■	■	■								
Myanmar						■	■	■	■	■	■	■	■	■					
Philippines						■	■	■	■	■	■	■	■	■	■				
Singapore	■	■	■	■	■	■	■	■	■	■	■								
Thailand					■	■	■	■	■	■	■	■	■	■	■				
Timor-Leste	■	■	■	■	■	■	■	■	■	■	■								
Vietnam									■	■	■	■	■	■	■	■	■		

(Source: SEAMEO INNOTECH SIREP Survey, 2012)

Education Reforms for the Past 10 Years

Over the past 10 years, education reforms among the SEAMEO member countries have been evolving as countries strive to catch up with the demands of the times, particularly in terms of aligning the relevance of their education goals with 21st century skills. This sub-section provides an overview of some of the major education reforms that have been implemented in the governance, financing, teacher, curriculum, and assessment areas.

Governance Reforms

The term "governance" originated from the Greek word "*kybernan*" which means to steer a ship and later used loosely to describe the process by which decisions are made and carried out on behalf of the members of an organization, the stockholders of a corporation, or citizens of a nation. Crounch and Winkler (2008) define governance in education as the process by which governments make and implement policy decisions that affect the finance and delivery of schooling to citizens. They considered that the processes are sometimes called the explicit rules (laws and decrees) and implicit rules (cultural norms and values) of the game. Moreover, they stressed that good governance is an ideal in which political processes translate the will of the people into public policies and established rules that efficiently and effectively deliver services to all members of society (p.3).

The SEAMEO member countries have undertaken educational governance reforms guided by the core concepts of good governance identified by the Department of International Development (DID, 2006) which include:

(i) rule of law;

(ii) transparency;

(iii) accountability;

(iv) efficiency and effectiveness; and

(v) participation and responsiveness.

Five out of 11 member countries have initiated significant governance reforms in education for the past 10 years, all in support of the Education for All (EFA) and Millennium Development Goals (MDGs).

In Brunei Darussalam, a key governance reform ensured that every child has access to quality education. A Compulsory Education Order was promulgated in 2007 that emphasizes the right of every child to receive compulsory education for at least nine years; the 2009 National Education System enhanced this for the 21st Century (*Sistem Pendidikan Negara Adad ke-21* – SPN21). The SPN21 is a strategic plan that envisages the need for change through the provision of a sound education system that is meaningful and ultimately more effective in preparing students for learning in a complex digital society. The plan also includes a provision that defines how students are prepared for their future adult role as capable, creative, thinking citizens who can contribute to and benefit their families, community and society.

Similarly, Malaysia's 2009 Government Transformation Programme (GTP) focused on supporting the identified priority areas known as the National Key Results Areas or NKRA. These included:

(i) reducing crime

(ii) fighting corruption;

(iii) improving student outcomes;

(iv) raising the living standards of low-income households; and

(v) improving urban and public transport.

Malaysia's Ministry of Education (MOE) is particularly accountable for the delivery of their third NKRA that was focused on increasing pre-school enrollment, literacy and numeracy, developing high-performing schools and improving the performance of head teachers and principals. Banking on the success of GTP, the Vocational Transformation Programme (VTP) was introduced in 2012. This reform focused on the alignment of Form 1 to 3 for Basic Vocational Education and Form 4 and 5 for Diploma in Vocational Education. The National Education Assessment System (NEAS) was introduced to Form 1 in 2012. The NEAS consists of five components:

(i) centralized examination;

(ii) centralized assessment;

(iii) school-based assessment;

(iv) psychometric tests; and

(v) sports, physical activities and health assessment.

More recently, Malaysia promulgated the Malaysia Education Blueprint (2013-2025), which outlined its Ministry of Education's plan to strengthen its delivery systems and improve resources

productivity in order to enhance its capacity to support schools and their students. One of the factors that fueled this major reform initiative was concern at the performance level of Malaysian students in international assessments such as PISA and TIMSS. The blueprint has identified 11 shifts that have to take place in order to transform the Malaysian education system:

(i) Provide equal access to quality education of an international standard.

(ii) Ensure every child is proficient in Bahasa Malaysia and English language.

(iii) Develop values-driven Malaysians.

(iv) Transform teaching into the profession of choice.

(v) Ensure high-performing school leaders in every school.

(vi) Empower schools to customize solutions based on need.

(vii) Leverage ICT to scale up quality learning across Malaysia.

(viii) Transform Ministry delivery capabilities and capacity.

(ix) Partner with parents, community, and private sector at scale.

(x) Maximize student outcomes for every ringgit.

(xi) Increase transparency for direct public accountability.

Singapore governance reform, on the other hand, was focused on refining the streamlining of its Primary Schools in 2004 in order to more effectively and efficiently deliver primary middle education (EMI-EM3). Prior to 2004, students were channeled into three streams at the end of Primary 4. In 2004, EM1 and EM2 were merged into one stream while EM3 remained. Schools were given autonomy to decide how best to band their pupils' ability, in ways that add the most educational value. This government initiative also resulted in installing school autonomy as schools were encouraged to develop their own niches and specialized areas up to secondary education, in consideration of the diverse abilities and talents of their students. Consequently, there are now various types of secondary schools:

(i) Integrated Programme Schools (IPS) that allow academically strong students to skip the Grade 10 national examinations and go straight to the Grade 12 national examinations, so as to free up the time for them to develop other dimensions, such as creativity and instinct to serve the community; and

(ii) Specialized Independent Schools (SIS) that cater to students who are talented in specialized areas such as sports, arts, mathematics and sciences, and applied learning.

Hence, this approach initiated by the Ministry of Education has created pathways for students to achieve success according to their abilities and talents. Related to the streamlining of Primary Schools, "*Teach Less, Learn More*" was introduced in 2005 to call on all educators in Singapore to focus on fundamentals such as teaching effectively, improving quality of interaction between teachers and students, and equipping students with the knowledge, skills and values that prepare them for life. Lastly, the Subject-based Banding replaced the EM3 stream for the P5 cohort in 2008. With the Subject-based Banding, students can take a mix of Standard or Foundation subjects depending on their aptitude in each subject.

This programme also allowed students to customize their learning – learning at a faster pace the subjects that they are good at, while learning at a slower pace the subjects that they are weaker in.

Indonesia's governance reforms in education have focused on building a high-integrity, efficient, transparent and public-oriented bureaucratic system, hence the name "Bureaucracy Reformation (BR)". The governance reforms under the BR which was introduced in 2009 included

(i) re-organizing education regulations, administration, and human resources management system;

(ii) strengthening supervision, performance accountability; and

(iii) improving the quality of service.

The Ministry of Education (MOE) in Myanmar was primarily responsible for implementing reforms in the education system for the past 10 years. The Basic Education Sub-Sector Reforms were introduced in 2000-2001 in accordance with the Basic Education Law. The reforms stressed national-level coordination and decision making which was delegated to the National Education Committee (NEC) chaired by the Union's Ministry of Education. The NEC was organized by the new government to take the place of the MOE. The committee was tasked to facilitate the development of the education system and laid down policies and administrative guidance. Through the NEC, the governing structure of the education structure was defined with properly delineated functions. The administration and management is undertaken by the three departments of Basic Education and the Department of Educational Planning and Training in accordance with the directives of the three statutory bodies:

(i) Basic Education Council (BEC);

(ii) Basic Education Curriculum, Syllabus and Textbook Committee (BECSTC); and

(iii) Teacher Education Supervisory Committee (TESC).

The Department of Education Research Bureau is responsible for the review and assessment of basic education status, while the Myanmar Education Board (MEC) oversees the national-level examination.

Finally, the Philippines has introduced the Basic Education Sector Reform Agenda (BESRA) in 2011 that resulted in issuance of the BESRA Implementation and Accountability Plan (BIAP) for 2010-2012, the guide of the Department of Education (DepEd) in carrying out a multiyear program of institutional actions meant to improve operations in basic education in order to achieve the overall goal of the Philippine EFA 2015 Plan, which is to achieve functional literacy for all Filipinos. Another major structural reform was the introduction of a K to 12 curricular structure in the country. The basic education system of the Philippines, which was considered shortest among the SEAMEO member countries, has been significantly reformed through the introduction of the K to 12 education structure. The Philippines has gone from 10 years of basic education to 12 years of education plus compulsory kindergarten for five-year-olds, with options for students to choose from different pathways: arts, business, technology and engineering, and sciences.

Financing Reforms

Common to all the SEAMEO member countries is the challenge to ensure that the education sector is given sufficient budget and financial allocation to deliver its mandate. The weakening of global and local economies and the increasing demand to achieve the goals of Education for All (EFA) prompted some of the SEAMEO member countries to strategically introduce financing reforms in order to support the national and local operational needs of the sector. One of the biggest challenges of all the countries is to ensure there is sufficient budget and that it is efficiently managed to support education reforms and commitment to EFA targets.

In the case of Timor-Leste, its system of financial governance underwent radical reform in 2008. The financing system was changed from a very centralized process to a decentralized one, giving more responsibilities to the ministry level. This change required the ministry level to have more control over and at the same time, be more accountable for ensuring that finances are used on more relevant programs and managed in the most efficient way. Likewise, in order to ensure efficient financing in the education sector, Malaysia introduced Outcome-Based Budgeting in 2010, the main goal of which is to bring in the concept and practice of value for money. Given the restricted budget, all education programs are measured by quality of human capital that can contribute to the nation and its economic development.

Myanmar's financing reform is demonstrated in the realignment of budget within the Ministry of Education. In SY 2011-2012, because of the on-going commitment of the MOE of Union of Myanmar to EFA and to ensuring that all school age-children have access to and complete free and compulsory basic education of good quality, it has realigned its annual budget for education to be spent on school

textbooks, workbooks, and school uniforms so that all students at primary level are supported. Thereafter, the annual budget for education has been substantially increased (almost double the amount for the previous years).

The financial reform positioned by Singapore is also focused on enhancing financial assistance and learning support. In 2012, the MOE of Singapore has invested in enhancing financial assistance and learning support across all schools in order to guarantee that all children can benefit from the best opportunities in education regardless of their background.

The case of Indonesia is slightly different. While the 1945 Constitution of the country was amended in 2002 and provided that at least 20 percent of national budget shall be allocated for education, the country was only able to implement this provision in 2009 due to the financial constraints that it faced during those years.

The Philippine Constitution mandates that the education sector receives the biggest share of government budget. Among government agencies responsible for education, it is the basic education (DepEd) that received the biggest share of total National Government (NG) spending on education (84 percent of total NG education spending on the average in 1990-2011) while higher education (CHED) got 14% on the average and TVET (TESDA) was allocated just 2 percent.[1] The Philippine Government has recently taken efforts to significantly increase the budget of the Department of Education. The DepEd budget in 2014 is PhP 337 billion which is about 14.86% of the PhP 2.268-trillion

1 Manasan, 2013

National Budget for that year.[2] Government spending per pupil fluctuated from a high of PhP 6,486 in 1997 to a low of PhP 5,141 in 2005. With the increase in the DepEd budget, the per capita cost per pupil increased to PhP 12,335 for elementary and PhP 18,023 for high school in 2014.

Teacher Reforms

Teacher reforms are initiatives that are geared towards improving teachers' qualifications, employment system, school life, and career path. Reforms for teachers have taken on many faces throughout the years and under the different socioeconomic and political context of each country. Reforms in the past 10 years are focused on teachers' certification, minimum service standards, teacher training, and performance management. One of the common reforms implemented for the past 10 years is on improving qualifications of teachers and providing maximum avenues for their professional development.

Indonesia's major reforms related to teachers is focused on its Teacher Certification. Act No. 20 of 2003, known as the National Education System Act, and Act No. 14 of 2005 provided the framework of Teacher Certification in 2006. The acts defined the minimum qualifications of teachers to get certified in accordance with their level of teaching responsibility. The minimum standards indicate that a teacher must possess a healthy body and mind and must acquire abilities to work in order to achieve the goals of national standard education. The certification process started in 2006 and should be completed in 2015.

2 http://www.gov.ph/2013/07/23/2014-budget-message-of-president-aquino/

In the same way, the Philippines has initiated a more pronounced teacher reform through its Teacher Education and Development Program (TEDP) introduced in 2009. The TEDP roadmap for the Department of Education (DepEd) became the landmark for Philippine teacher education and development. At its core is the National Competency-Based Teacher Standards (NCBTS) that serves as a guiding post for every point in a Filipino teacher's career path. The NCBTS consists of seven domains of competencies as dimensions of good teaching that lead to better student learning. The intention of BESRA is to use the NCBTS as basis for instituting standards-driven and inclusive reforms in pre-service and in the selection, hiring, deployment, teacher performance appraisal, and training and development during the in-service.

Myanmar and Timor-Leste focused their efforts on improving the quality of teacher education and teacher training. Myanmar defined the programmes for its pre-service and in-service training programs. At present, there are 19 education colleges and two universities of education offering teacher training in Myanmar and these institutions are beefing up their degree programs, both at bachelors and post-graduate diploma in teacher (PGDT) and post-graduate diploma in multimedia arts (PGDMA) in order to meet the qualitative and quantitative demands of teaching staff in all schools all over the country. Timor-Leste, whose education policy has been focused on teacher training since 2006, has initiated programs to bring the students to the center of teaching and learning process through rigorous teacher training programs.

Similarly, Singapore had introduced a program called GROW 2.0 in 2008. This program provided an improved package to provide teachers with more attractive remuneration packages, more career and development opportunities, and greater flexibility to balance the demands of work and family. The improvement of

teacher recruitment and salary system, and career tracking are the main goals of GROW 2.0. Teachers are offered attractive terms, not only tuition for undergraduate and teacher training, but also being paid full-time while studying. New entrants are offered a starting salary that is benchmarked above the average starting salaries of graduates with similar qualifications in the job market, with the hope that teachers for primary schools in 2015 are all graduate teachers. Likewise, to provide Singaporean teachers with a long-term career path, three career tracks are offered – school leaders, master teachers and senior specialists. These cater to different aspirations – those who aspire for management positions, those who enjoy teaching above all else, and those who want to do research to improve education for Singaporean children.

Malaysia's teacher reform program is also defined in its GTP 2009. The reform emphasizes improving the performance of head teachers and principals, while Vietnam's teacher reform program is centered in making sure that all teachers are updated with new knowledge, methods of instruction and assessment reforms.

Curriculum Reforms

Curriculum reforms have been initiated by all countries included in this study in order to make sure that they are responsive to the demands of the times, particularly in meeting the 21st century skills and development of lifelong learning. In general, the curriculum reforms made over the past 10 years are geared towards providing students multiple pathways – both for career and further studies- and in installing a more learner-centered curricular program alongside emerging learning-teaching technologies. Another focus of curriculum reforms is the adherence to a standards-based

curriculum, as in the case of Malaysia, and a total re-engineering of the curriculum to align with a new basic education structure, particularly in the case of the Philippines.

Brunei Darussalam introduced curriculum reforms via its SPN21 Curriculum that was designed to provide learners with broad, balanced, relevant, and differentiated learning experiences taking into account each learner's needs while making provisions for progression and continuity. The curriculum reform was intended to be more responsive to the changes in society and the economy and will lead learners towards life-long learning. Hence, essentially, the SPN21 of Brunei Darussalam allowed the creation of multiple learning pathways for students and advocated the practice of learning-oriented curriculum. Similarly, Singapore introduced curriculum reforms in 2011 through the comprehensive development of the 21st Century Competencies (21CC). This reform aims to prepare Singaporean students to face the challenges brought about by globalization, changing demographics and technological advancements so that they will be able to seize the opportunities brought about by these forces. Singapore's MOE has identified competencies that have become important in the globalized world. The emerging 21CCs are:

(i) civil literacy, global awareness and cross-cultural skills;

(ii) critical and inventive thinking; and

(iii) information and communication skills.

Indonesia's curriculum reforms were directed toward curricular decentralization. Schools in Indonesia are encouraged to develop and implement their own curriculum based on the

national education standards, particularly in terms of content and competence standards. The decentralization of curriculum demanded taking into consideration the learners' potential, developmental stage, needs, interest, and environment. This is a radical change from schools' previous practice of simply following the prescribed national curriculum.

In the case of Cambodia, a revised curriculum was introduced nationwide in SY 2007-2008 for basic education. The focus of the curricular reform at the Upper Secondary Education (USE) was the introduction of a tracking system, where students are given the option to specialize either in Science or Social Science subjects. Through this reform, students were able to focus on a particular area of interest and deepen their knowledge through expanded lesson times and practices.

In the Philippines, DepEd and allied stakeholders are responding to the urgent and critical need to improve the quality of basic education through a major education reform known as K to 12, which means kindergarten and the six years of the elementary and six years of secondary education. The reform includes decongesting and enhancing the basic education curriculum for learners to master basic competencies, lengthening the cycle of basic education to cover kindergarten through year 12. Expanding the basic education by adding kindergarten and two years in high school ensures that graduates earn the necessary skills and reach the employable age to qualify for entrance into the world of work, if they desire or need to do so. On the other hand, graduates who opt to go to tertiary education are deemed better prepared for college or work.

Assessment Reforms

Assessment reforms among the SEAMEO member countries are characterized by integrating the assessment process into the instructional program, instituting quality assurance and efficiency in the educational system, and developing holistic assessment systems and frameworks including the introduction of peer- and self-assessments. In the same way, assessment reforms in all countries are proposed as a mutual responsibility between students and teachers in order to achieve a quality learning process. Also notable is the conscious effort to rethink and effect a paradigm shift from Assessment of Learning (AoF) to Assessment for Learning (AfL) and Assessment as Learning (AaL).

In this report, the assessment reforms are discussed more comprehensively in Section 4.

Other Reforms in the Education System

Aside from the reforms presented, several reforms in the education system have also been introduced in the last 10 years. Significant reforms can be observed in the education structure, academic standards and teacher professional development.

In Brunei Darussalam, the reform in Education Structure was introduced in 2009. The main objectives of the reform, better known as SPN21, are to

(i) provide every student with at least 12 years of education; and

(ii) reduce attrition and provide more time to nurture students to become more mature individuals before they leave the school system.

The SPN21 Structure provides multiple pathways for students to choose programmes that suit their capabilities, interests, growth and development by catering to their specific needs. A similar structural reform was also introduced very recently in the Philippines in the form of the K to 12 program which now offers different pathways: arts, business, technology and engineering, and sciences. In the case of Myanmar, other significant reforms were stressed in Grades 10 and 11. Apart from three core subjects (Myanmar, English and Mathematics), students were given the option to study three additional subjects of their choice form Physics, Chemistry, Biology, History, Geography, Economics and Optional Myanmar language.

Indonesia's other reform programs in education include the implementation of the 2005 National Education Standards. Eight National Educational Standards were set (Education Law No. 20, 2003; Government Regulation No. 19, 2005):

(i) content;

(ii) process;

(iii) graduate competencies;

(iv) educational personnel;

(v) facilities and equipment;

(vi) management;

(vii) funding; and

(viii) educational assessment.

These standards were used as bases for planning, implementing and monitoring education to achieve high quality national education.

In Singapore and Malaysia, education reforms were focused on achieving improvement and excellence. Singapore launched the Academy of Singapore Teachers (AST) in 2010 with the goal of having a stronger body to champion professional development and to build a teacher-led culture of professional excellence. On the other hand, Malaysia introduced a School Improvement Programme (SIP) to assist underperforming schools to gradually improve their performance and raise their schools standards over time. Through this programme, schools in Malaysia are expected to meet international benchmarks and maintain high performance and quality school programmes.

Summary

Southeast Asian countries included in this survey reported to have introduced pre-primary education before formal primary education. However, most pre-primary education in SEAMEO member countries is non-compulsory except for Malaysia, Philippines and Vietnam. Pre-primary education among the countries generally starts at four to five years old and generally entails a year of schooling. Primary education is usually five to six years of schooling and during these years, students are expected to acquire understanding of reading, writing, listening and speaking in their national language(s). In some countries, religious and moral development is also given emphasis as part of early grades development. On the other hand, the primary objective of secondary education among SEAMEO member countries is to prepare students for either post-secondary education on skills development or higher education or university studies. The years of schooling at secondary education level ranges from five to six years.

In terms of core subjects at secondary level, the countries reported a variety of subjects at different grade levels. However, English, Science, Mathematics, and national languages are common to all the countries, but with changing emphasis indicating clearly the educational goals of the countries.

School calendar among the countries differs even if they have similar climatic seasons in the region. School days range from 172 to 241. Additionally, the month when the school year starts also varies among the counties.

While these countries have established their systems over the years, they have initiated and introduced various reforms in the area of governance, financing, curriculum, teacher training and assessment — all of which are geared towards improving not only the quality of education but also its effective and efficient delivery. These reforms underscored transparency, accountability, efficiency and effectiveness, rule of law, and participation and responsiveness in support of the EFA and MDGs. Each country's reforms are also anchored on a major program such as SPN21 for Brunei Darussalam, NKRA for Malaysia, "Teach Less, Learn More" for Singapore, Bureaucracy Reformation for Indonesia, and BESRA and K to 12 Curriculum for Philippines, among others.

Overall, the education systems of SEAMEO member countries have both similarities and differences that are internationally benchmarked towards improving the quality of education.

SECTION III

ASSESSMENT SYSTEMS AND MODELS IN SOUTHEAST ASIA

Assessment and examinations play a very crucial role in all education systems and societies as well. The assessment systems in Southeast Asian countries can be accurately understood only with some comprehension of the underlying history of their education systems.

In this report, the assessment systems and models of SEAMEO member countries are discussed in terms of their definition and purpose of assessment, governance and funding, national and classroom assessment, assessment processes and procedures. The innovations and practices of non-traditional assessment as well as issues and challenges are discussed in the next section.

Definition, Purpose and Scope of Learners' Assessment

The education literature provides diverse definitions for the word "assessment" within the educational setting (Ammes, 1992; Popham, 2008; Stiggins, 1997). Assessment can be defined as the process that teachers use to assign grades to students in particular subject assignments

(Harlen, 2008; Mertler, 2009). It also refers to standardized testing imposed in schools (Manzano, 2006; Stiggins & Chappus, 2005). Finally, it may be described as any activity intended to gather and use information to provide feedback in order to modify teaching and learning activities in the schools (Black & William, 1998) or to improve instruction and students' performance (Cohen & Hill, 2000; Gullickson, 1986). The diverse use of student assessments has, in some way, shifted assessment away from its most important role in educational institutions: to gather information to improve learning and instructional practices.

Definition of Assessment

In the SEAMEO member countries, assessment is generally defined more functionally and is anchored on their overall educational goals and strategies. While Southeast Asian countries may have defined assessment differently, they agree that essentially, assessment is a process integrated in the teaching-learning activities geared towards gathering information for educational policy and decision-making. The table below summarizes the key elements of the countries' definition of "assessment" as used in their respective assessment systems.

Table 4. Definition of Assessment

Country	Definition
Brunei Darussalam	A process of gathering information used to provide feedback and report learner's progress (both cognitive and non-cognitive such as motivation, etc.)

Country	Definition
Cambodia	A fair and transparent process of getting information in order to make judgment of a student's knowledge level
Indonesia	A process of collecting and analyzing information to assess level of learners' achievement conducted by educators, a unit of education (schools) and government
Malaysia	A procedure aligned with the content of the curriculum intended to measure the development of holistic individual and maturity of students; the procedure to collect information on students' progress and make judgment on students' achievement
Myanmar	A process of gathering and analyzing data on students' progress, failures, weaknesses and strengths and achievement of expected learning outcomes
Philippines	A means to improve students' performance in developing their abilities to transcend beyond knowledge of concepts and towards the capability to perform tasks efficiently and ultimately use these knowledge and skills to solve real-life problems and generate new ideas

Country	Definition
Singapore	A process that is integrated and aligned with learning process and curricular objectives, content and pedagogy. It must be balanced, serving various purposes to assess pupils' knowledge, skills, and values aligned with the curricular objectives (learning outcomes) in the syllabi
Thailand	A process that teachers use to collect students' data from on-going instructional program in order to provide feedback to improve students' learning and grade students at the end of the course
Timor-Leste	A process of determining all aspects of learning – cognitive, affective, relational, social and psychomotor; used to evaluate the formative learning process
Vietnam	A process of gathering data to provide information to teachers and educational managers to supervise and adjust teaching-learning activities and to inform students' family so they can assist in the learning process

Source: SEAMEO INNOTECH SIREP Survey, 2012

From the various definitions provided by each country, it can be generalized that all countries agree that assessment is the process and procedure of collecting and understanding data or information from students in a range of activities aimed at improving teaching-learning processes and making decision and judgment on students' learning outcomes. Each country has conceptualized and defined

assessment according to their intended use in the overall delivery of their educational system and their purposes of conducting assessment in the schools.

From their definitions, it can be seen that assessment among Southeast Asian countries is regarded as a tool to help students achieve the intended outcomes and provide information to teachers in order to improve the teaching-learning process. The definitions also adhere to the argument of Vandar (2010) and Bennet and Gitomer (2009) that assessment is critical for both teachers and education policy makers involved when it comes to both accountability (*how well students have learned)* and instruction (*how to promote higher levels of learning*). Assessment systems are designed and implemented by all countries because of their desire to provide quality education and to ensure accountability in the implementation of education programs.

Purposes of Assessment

Gipps and Cummings (2003) underscored that the key issue in any assessment process revolves around fitness for purpose. They argued that no assessment is considered good or bad, but rather, it should be judged on how well it satisfies its intended purpose.

It is clear among the SEAMEO member countries, their assessment systems are premised on the belief that assessment has numerous and diverse purposes, and that it is very essential to strategically plan, develop and implement assessment programs and employ methods to fulfill the intended purposes. In the process of defining the purpose of assessment, students, teachers, administrators and even parents are collectively involved in order to implement an assessment system that is relevant, responsive and useful to all stakeholders.

Table 5. Purposes of Assessment

Country	Purpose/s of Assessment
Brunei Darussalam	• To measure the level of attainment of each learner • To measure the effectiveness of teaching • To identify strengths and needs of learners • To assist teachers to plan and facilitate enrichment and remedial programmes • To measure the level of achievement of each school • To measure learners' level of progress nationally
Cambodia	• To monitor student achievement and improve quality by "feeding back" the results into the system
Indonesia	• To monitor process and progress of students' learning • To improve process and outcomes of students' learning continually
Malaysia	• To gather information (formative and summative) on students' process in attaining learning standards and improving teaching and instruction
Myanmar	• To determine the extent to which goals and objectives are achieved in the current education programs • To generate information that can be used to improve on-going education programs

Country	Purpose/s of Assessment
Philippines	• To assess readiness of learners for subsequent levels in the education ladder • To assess the appropriateness, adequacy and timeliness of inputs and processes at each stage/phase of the system • To identify strengths and weaknesses of a program with focus on its components – inputs, process and transactions • To continuously monitor progress or positive change and improvement in a program • To identify gaps and/or duplication in the processes, activities and efforts toward attaining the program goals • To reduce duplication of efforts and investments in material and human resources inputs and processes in the implementation of the program • To ensure that quality of learning is being affected by the system • To provide basis for feedback to all the stakeholders – policy makers, educators, teachers, et al. • To provide basis for decision and policy toward sustenance and/or improvement to adapt to emerging needs of the program

Country	Purpose/s of Assessment
Singapore	• At the school level, to provide stakeholders, such as teachers, parents and pupils, with meaningful information about how well pupils have progressed by highlighting their strengths and areas of improvements • At the national level, to assess outcomes in order to allow informed decisions to be made, e.g., placement of pupils into schools and tracking pupils' academic outcomes at the school level
Thailand	• To improve and develop students' achievement • To improve students' learning and give them appropriate grade/marks • To improve schools for internal and external quality assurance
Timor-Leste	• To check the achievement of the learning curriculum • To inform students and those in-charge of education about the progress of existing learning difficulties, as well as outline strategies to overcome difficulties encountered • To ensure the knowledge and competencies acquired • To contribute to improving the quality of the education system

Country	Purpose/s of Assessment
Vietnam	• To contribute to the achievement of the defined objectives, curricula, teaching methods, and activities of each educational level • To encourage students to be hardworking, promote the positiveness, activeness, creativity, self-study capacity of the learner, develop trust, and exercise morality following Vietnamese tradition

(Source: SEAMEO INNOTECH SIREP Survey, 2012)

The purposes of assessment of each country are evidently anchored on their country's education strategic plan and/or agenda, like BESRA and K to 12 reform for the Philippines, SPN21 for Brunei Darussalam and Singapore's "Teach Less, Learn More" and Subject-based Branding initiatives. Hence, from the purposes enumerated, the assessment programs of SEAMEO member countries, particularly those at the school level, are targeted on improving

(i) processes of learning;

(ii) processes of instruction;

(iii) outcomes of learning; and

(iv) outcomes of instruction.

To improve processes of learning, the Southeast Asian countries do not only conduct summative assessment but also implement formative assessment in order to continually determine the quality of students' efforts to learn. To improve processes of instruction, teachers use assessment results to define appropriate instructional processes and plan and adjust how to improve the effectiveness of instructional processes. To assess outcomes of learning, teachers and school administrators use assessment data to determine achievement of curriculum standards. Finally, to measure outcomes of instruction, assessments are used to determine the effectiveness of instruction by measuring whether the instructional program actually motivated students to strive to learn above and beyond their usual level (Johnson & Johnson, 2002).

The purposes provided by SEAMEO member countries can also be classified in keeping with the framework espoused by Earl and Katz (2006) in their book entitled "Rethinking Classroom Assessment with Purpose in Mind", prepared for the Western and Northern Canadian Protocol for Collaboration in Education. The framework proposed by Earl and Katz (2006) presents three distinct but interrelated purposes of classroom assessment and alternative forms of assessment:

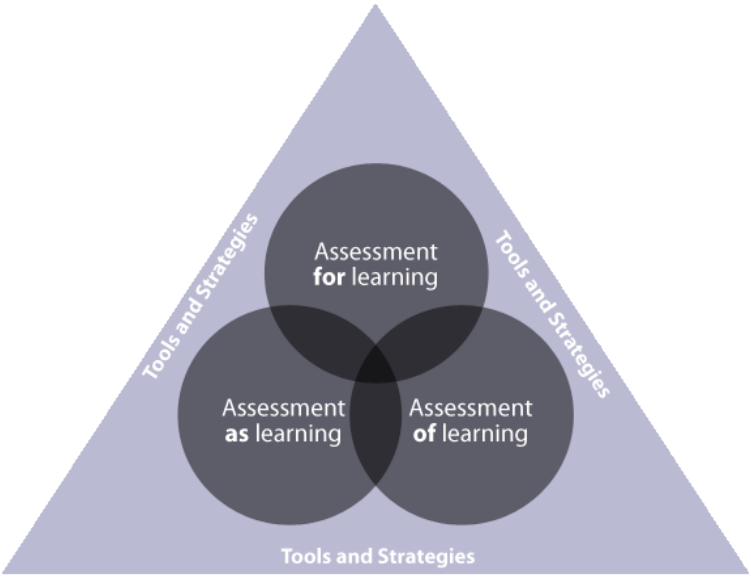
(i) Assessment as Learning;

(ii) Assessment for Learning; and

(iii) Assessment of Learning.

Gonzales and Aliponga (2012) further re-conceptualized the purposes of assessment to bind and balance these three purposes by using specific tools and strategies that teachers use in their assessment activities as illustrated in Figure 1.

Figure 1. Conceptual Paradigm of Assessment: Balancing Assessment Purposes



(Source: Gonzales & Aliponga, 2012, Classroom Assessment)

Assessment for Learning (AfL) refers to the practices of teachers and education to carry out assessment aimed to determine the progress in learning by giving tests and other tools to measure learning while the instructional program or process is going on (Murray, 2006; Sparks, 2005). Countries such as Brunei Darussalam, Cambodia, Indonesia, Malaysia, Philippines, and Singapore stress AfL as their purposes of assessment are geared towards identifying the strengths and weakness of their students and they are implementing assessment systems that are carefully designed to give teachers information to modify and differentiate teaching and learning activities. These countries are increasingly giving premium to formative assessment that intends to further improve student learning by performing assessment activities

while instructional processes are going on. Continuous assessment, particularly School-based Assessment (SBA), is emphasized by these countries because they want to ensure that students will get the most from their instructional programs. Generally, these countries report the use of formative tests, practice tests, quizzes, and unit tests to assess a predetermined segment of instruction. According to Earl and Katz (2006), assessment for learning requires careful design on the part of the teachers so that they can use the resulting information to determine not only what students know but also gain insights into how, when and whether students can apply what they know.

Assessment of Learning (AoL) pertains to the assessment practices of teachers and school systems aimed at determining the current standing of students against learning outcomes defined in the curriculum and in some cases, how they are performing in relation to their peers (Earl, 2005; Gonzales, 1999; Harlen, 2007). Countries such as Brunei Darussalam, Indonesia, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam pronounce in their respective purposes that they are focused on AoL, which is also referred to as summative assessment. The goal of these countries in focusing on AoL is not to improve learning while instruction is going on, but to improve instructional progress and processes based on how students have learned as reflected by various assessment measures given at the end of the instructional program. These are realized in the annual national examinations such as the GCE of Brunei Darussalam, Malaysia, Singapore, and the certification exams of Thailand and Vietnam. More notably, Malaysia used examinations under AoL for certification and selection.

Although not clearly articulated in the purposes of assessment among all the SEAMEO member countries, ***Assessment as Learning*** (AaL) is also observed by some of them. The

Philippines, Singapore, and Thailand have purposes of assessment that are subsumed under AaL. Teachers manifest the AaL when they give assessments that are intended to develop and support metacognition of students – the knowledge of students' thought processes. According to Earl and Katz (2006), AaL emerges from the idea that learning is not just a matter of transferring ideas from someone who is knowledgeable (in this case, the teacher) to someone who is not (the learners or students), but is an active process of cognitive restructuring that occurs when students interact with new ideas. With this view of the learning process, learners or students are the critical connectors between assessment and learning (p. 41). This purpose is clearly reflected in Singapore's "Teach Less, Learn More."

Another classification that emerged from the purposes of assessment is related to ***Assessment to Inform*** (AtI) proposed by Gonzales and Callueng (2012). According to them, this purpose of assessment deals with the communicative function of assessment: reporting and utilizing results for various stakeholders (Jones & Tanner, 2008). This is also related to AoL since the intention of assessment is to be able to provide information to parents about the performance of their children in the school at the end of an instructional program (Harlen, 2008). Countries like Cambodia, Indonesia, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Timor-Leste have expressed these in their purposes of assessment.

Scope and Areas of Assessment

Assessment is implemented in all the levels of education and school system from pre-primary to higher education. Table 6 shows the knowledge and skills measured through classroom assessment and in the national assessment examinations of the SEAMEO member countries.

Table 6. Knowledge/Skills Measured through Assessment Programs

Countries	Pre-Primary			Primary			Secondary		
	Core	Non-Core	Non-Cognitive	Core	Non-Core	Non-Cognitive	Core	Non-Core	Non-Cognitive
Brunei Darussalam				✓	✓	✓	✓	✓	✓
Cambodia	✓	✓	✓	✓		✓	✓		✓
Indonesia	✓	✓	✓	✓	✓	✓	✓	✓	✓
Malaysia	✓	✓	✓	✓	✓	✓	✓	✓	✓
Myanmar	✓	✓	✓	✓	✓	✓	✓	✓	✓
Philippines	✓	✓	✓	✓	✓	✓	✓	✓	✓
Singapore				✓	✓	✓	✓	✓	✓
Thailand			✓	✓	✓	✓	✓	✓	✓
Timor-Leste	✓	✓		✓		✓	✓	✓	✓
Vietnam	✓	✓	✓	✓	✓	✓	✓	✓	✓

[Core: Knowledge and Skills in Core Curriculum Areas; Non-Core: Knowledge and Skills in Non-core curriculum areas; Non-Cognitive: Behavioral Skills – Attitude, Teamwork, Persistence, Discipline, etc.]

(Source: SEAMEO INNOTECH SIREP Survey, 2012)

The scope of assessment in this report is divided into Core, Non-Core and Non-cognitive areas that are assessed, measured and evaluated by the various tools and examinations given by the different SEAMEO member countries. These areas are assessed using either school-based or national examinations. The scope of assessment is also defined based on the curriculum and standards set in each country. They are also called learning areas or subject areas that vary from year or grade level, especially in national examinations. Likewise, various countries also consider Quality Assurance and Qualifications Frameworks in defining the scope and contents of their assessment systems.

In Brunei Darussalam, where formal assessment starts at primary level, the core learning areas are –

(i) Islamic Religious Education;

(ii) Nationhood Education;

(iii) Languages;

(iv) Mathematics; and Science.

The non-core (also referred to as General Subjects) are –

(i) Physical and Health Education;

(ii) Social Sciences and Humanities; and

(iii) Technology, Arts and Culture.

Under each learning area, there are specific subjects that are measured either through SBA or through the Primary School Assessment (PSA), Student Progress Examinations (SPE), and GCE 'O' or 'A' Level. Refer to Appendix 1 for more detailed subjects under each learning area at the primary level.

For Cambodia, the core learning areas being assessed are –

(i) Khmer Language;

(ii) Mathematics;

(iii) Social Studies; and

(iv) Sciences.

Foreign languages in Cambodia such as English and French are classified as non-core areas, including Physical and Health Education and Art Education. Refer to Appendices 1 and 2 for detailed listings of subjects for every year/grade level being assessed.

Indonesia has five core subjects in basic and secondary education that are included in their assessment program. These are

(i) Religion and Noble Character;

(ii) Civics and Personality;

(iii) Science and Technology;

(iv) Aesthetics or Arts; and

(v) Physical Education, Sports and Health.

Assessments on Religion and Noble character, as well as Civics and Personality are conducted in two modes:

(i) observation of behavior change and attitudes to assessment to assess the affective aspect and personality; and

(ii) tests or assignments to assess the cognitive aspect. For Science and Technology subject areas,

the assessment is by means of tests (performance and written) and assignments and other means that match the requirements of the subject.

For Aesthetics or Arts, observation of behavior and attitude change is made to assess the development of affective aspect and psychomotor expression. For PE, Sports and Health subject areas, observation of behavior and attitude change is also used to assess psychomotor development and affective aspect, while tests and or assignments are used to assess the cognitive aspect of these subject areas.

In the case of Malaysia, since more examinations and assessments are achievement tests, the scope and development of these measures are aligned with the curriculum content of all subjects areas. At present, there are five examinations conducted in Malaysia. These are:

(i) Primary School Achieve Test or Ujian Penilaian Sekolah Rendah (UPSR);

(ii) Lower Secondary Evaluation (PMR);

(iii) Malaysian Certificate of Education (MCE or STM);

(iv) Malaysian Higher School Certificate or Sijil Tinggi Persokilahan Malaysia (STPM); and

(v) Malaysia High Certificate for Religious Study (STAM).

Appendices 1 and 2 list the subjects assessed by these various examinations. Interestingly, since Malaysia is working on getting international recognition for MCE, the Common European Framework of Reference (CEFR) and the UK National Qualifications

Framework (UKMQF) are also considered in defining the scope and contents of the Malaysian assessment system.

Myanmar's assessment system covers all subjects defined by the Basic Education, Curriculum Syllabus and Textbook Committee (BECSTC). In Grades 1 and 2, all students are regularly assessed in all subjects whenever lessons are completed at the end of the year for promotion purposes the following year. In Grades 3, 4, and 5 of primary school and Grades 6, 7, and 8 of middle school, chapter-end tests are administered in all subjects. For Grade 9, students are required to sit both chapter-end tests and semester-end tests that cover all subjects for year-end promotion. In secondary or high school level, Grade 10 and 11 students are also required to take chapter-end tests in all subjects but semester-end test is given during the first semester period only. Matriculation examination for university entrance is a large-scale assessment examination. All the subjects and tasks for examinations are centralized and directly controlled by the Ministry of Education, through the examination holding body referred to as Myanmar Board of Examination (MBE).

The Philippines which has just re-engineered its Basic Education curriculum is pursuing reforms in assessment focusing on AfL and AoL that will rationalize, streamline and unify all testing and assessment activities at all levels, all of which are described in a new draft of the National Assessment Framework. End-of-stage assessments at Grades 3, 6, 10 and 12 will cover subject areas and skills relevant to each stage anchored on the K to 12 curriculum. Appendices 1 and 2 present the core subjects which were considered in drafting the Basic Education Assessment Framework of the Philippines.

In Singapore, two forms of assessment are practiced:

(i) national examinations; and

(ii) School Based Assessment (SBA).

The National Examinations in Singapore are designed in alignment with the objectives of the MOE curriculum. The Primary School Leaving Examination (PSLE) core subjects include

(i) English;

(ii) Mother Tongue; and

(iii) Mathematics.

In addition, Singaporean students learn Science, Social Studies, Civics and Moral Education, Music, Arts & Crafts, Health Education and Physical Education, that are considered non-core but essential to determine the suitability of student to proceed to secondary education and place them in the appropriate secondary school courses that will match their learning pace, ability and inclinations.

At the secondary education level in Singapore, the students undergo one of the three courses designed to match their learning abilities and interests. These courses are –

(i) Express Course, a four year course leading to the Singapore-Cambridge CGE 'O' Level Examination and students are expected to study and pass subjects such as English, Mother Tongue as well as Mathematics, Science and Humanities;

(ii) Normal Academic Course, a four year course leading to the GCE N(A) Level Examination that will determine whether students qualify for

an additional year to prepare for the GCE 'O' Level Examination, or progress to Higher NITEC courses at the Institute of Technical Education (ITE);

(iii) Normal Technical Course, a four year course leading to the GCE N(T) Level Examination, where students need to learn English, Mother Tongue, Mathematics and subjects with technical and practical emphases.

After Secondary 4 or Secondary 5, most Singaporean students proceed to post-secondary institutions for further education and training. Students who are academically inclined and have the necessary GCE 'O' Level qualifications may apply for pre-university education at junior colleges (two-year course) and in centralized institutes (three-year course). This course of studies leads to the GCE 'A' Level examinations, where results are used for admission into universities.

The Board of Educational Testing in Thailand designs and conducts all national tests for Grade 3 and 6 students throughout the country. The scope of the national test for Grade 3 includes Thai language, Mathematics and Science, while the Grade 6 National Test covers Fluent Reading, Fluent Writing, and Verbal Problem Solving (Mathematics). The National Institute of Education Testing Service (NIETS) conducts the Ordinary National Educational Tests (O-NET) for Grade 6, 9 and 12 to assess their academic proficiency in eight areas:

(i) Thai Language;

(ii) Mathematics;

(iii) Science;

(iv) Social Studies, Religion and Culture;

(v) Health and PE;

(vi) Art;

(vii) Career and Technology; and

(viii) Foreign languages.

The details of areas and skills assessed and amount of time spent for each subject are presented in Appendix 3.

Timor-Leste's scope of assessment system is based on the subjects included in the curriculum defined by the Department of Curriculum and Department of Evaluation and National Examination (DENE), particularly for Grade 9's Basic Education and Grade 12's General Secondary Education and Technical and Vocational Education. Furthermore, the General Secondary Education has two tracks:

(i) Natural Science; and

(ii) Social Science.

Timor-Leste's Technical and Vocational Education has three areas:

(i) Technical School area;

(ii) Hospitality and Tourism School area; and

(iii) Commerce and Industry School area.

Finally, in Vietnam, there are currently four national examinations, namely:

(i) National Olympic Examination;

(ii) Selection Test for talented students to participate in Regional and International Olympic Competitions;

(iii) Upper Secondary School Graduating Examination (USSGE); and

(iv) University and College Entrance Examination (UCEE)

The National Olympic Examination is given to Grade 11 and 12 students with the main purpose of finding excellent students. The subjects included are:

(i) Literature;

(ii) Mathematics;

(iii) Physics;

(iv) Chemistry;

(v) Biology;

(vi) History;

(vii) Geography;

(viii) Informatics; and

(ix) Foreign languages.

The selection examination for students to represent Vietnam in regional and international Olympics includes Mathematics, Physics, Chemistry, Biology, Informatics and Russian. The USSGE requires students to take up six subjects: three core subjects and three other subjects selected from Physics, Chemistry, Biology, History and Geography. Meanwhile, UCEE examinations feature five fixed subject groups. Students choose the set they prefer and proceed to take the three exams falling under their chosen subject group.

Large-Scale National Assessment and Examinations

National assessment and examinations that are large-scale in nature are given strategically in all countries in Southeast Asia. Most of these examinations are measures of completion and/or exit from one level to another and entry to a higher level, such as from Primary to Secondary and/or from Secondary to Higher Education. Table 7 presents the summary of large assessment and examinations in SEAMEO member countries.

Table 7. Summary of Large- Scale Assessment in SEAMEO Member Countries

Country	Examination	Purpose	Participants and Users	Examination Body
Brunei Darussalam	Primary Certificate of Examination (PCE)	Entry to LSE	Year 6 students	Department of Examination, MOE
	Lower Secondary (Penilaian Menengah Bawah)	Entry to USE	Year 9 students	
	General Certificate of Education (BCGCE O Level)	Entry to Year 12 of USE	Year 11 students	
	GCE (BCGCE A Level)	Entry to Higher Education	Year 13 students	
Cambodia	National Examination for LSE Certificate	Completion of LSE and entry to USE	Year 9 students	Examination Office of the General Secondary Education Department, MOEYS
	National Examination for USE Certificate	Completion of USE and entry to Higher Education	Year 12 students	

Country	Examination	Purpose	Participants and Users	Examination Body
Indonesia	School Final National Examination (UASBN)	Completion of Primary and entry to LSE	Year 6 students	National Education Standards Agency
	National Examination (UN-Ujian Nasional)	Completion of Year 9 and entry to Upper Secondary	Year 9 students	
	National Examination (UAN-Ujian Akhir Nasional)	Completion of USE and entry to higher education	Year 12 students	

Country	Examination	Purpose	Participants and Users	Examination Body
Lao PDR	LSE Achievement Examination	Completion of Year 8 and entry to USE	Year 8 students	Ministry of Education
	USE Achievement Examination	Completion of USE and entry to quota places in higher education	Year 12 students	
	National Entrance Examination	Entry to non-quota places in higher education and post-secondary non-tertiary	Year 12 students	

Country	Examination	Purpose	Participants and Users	Examination Body
Malaysia	Lower Certificate of Education (PMR)	Selection to certain programs in USE	Year 9 students	Malaysian Examination Syndicate, MOE
	Malaysian Certification of Education (SPM or MCE)	Completion of USE and entry to post-secondary	Year 11 students	
	Malaysian Higher School Certification (STPM)	Entry to higher education	Year 13 students	Malaysian Examination Council, MOE

Country	Examination	Purpose	Participants and Users	Examination Body
Philippines	School Readiness Assessment in Mother Tongue	Pre-primary readiness test	Kindergarten students	National Educational Testing and Research Center, Department of Education
	Phil-IRI School Level	Readiness test	Grade 1 students	
	National Achievement Test	End of stage 1 and 2 assessments	Students of Grade 3 for Stage 1 and Grade 6 for Stage 2	
	Functional Literacy Test for Junior High School with Certificate	End of Stage 3 assessment	Grade 10 students	
	Functional Literacy Test for Senior High School with Certificate	End of Stage 4 assessment	Grade 12 students	
	Occupational Interest Inventory of Students in Secondary Schools	Career guidance	Grade 7	
	National Career Assessment Examination	Assessment of career choice for higher education	Year 10 students	

Country	Examination	Purpose	Participants and Users	Examination Body
Singapore	Primary School Leaving Examination	Completion of Primary and entry to secondary education	Year 6 students	Singapore Examination and Assessment Board
	General Certificate of Education "N" and "O" Level of Examination	Entry to post-secondary	Year 10 students	
	General Certificate of Education "A" Level Examination	Completion of post-secondary and entry to higher education	Grade 12 students	
Thailand	Ordinary National Education Test (O-NET)	National assessment at primary, LSE, USE levels	Grade 6, 9 and 12 students	National Institute of Educational Testing Service

Country	Examination	Purpose	Participants and Users	Examination Body
Timor-Leste	Basic Education Examination	Exit examinations for Cycle of Basic Education	Year 9 students	Department of Evaluation and Examination
	General Secondary Education Examination	Exit examination for General Secondary	Year 12 students from General Secondary Schools	
	Technical Vocational Education (TVE) Examination	Exit examination for TVE	Year 12 students from TVE Schools	
Vietnam	National High School Graduation Exam or Vietnam Baccalaureate – VB Exam	Completion of USE	Year 12 students	Ministry of Education and Training
	University and College Entrance Examination (UCEE)	Entry to higher education	Year 12 students	

(Source: Partly taken from Hill, P. (2010). Examination Systems. Asia-Pacific Secondary Education System Review Series. Bangkok: UNESCO and from SEAMEO-INNOTECH SIREP Survey (2012)

School-Based Assessment

Apart from large-scale assessments that are conducted nationally or nationwide, countries in Southeast Asia are also into School-based Assessment (SBA) systems to complement the large-scale national assessments.

SBA is an assessment practice that is carried out in schools by students or learners' own teachers with the foremost intention of improving students' learning process. SBA is formative and diagnostic in nature and it also aims to continuously provide immediate feedback to improve quality of learning, teaching and assessment. SBA is also based on the premise that large-scale summative assessments, particularly written tests, cannot assess important learning objectives and outcomes defined in any curriculum. Moreover, since SBA is designed and implemented by students' own teachers, it is considered a highly valid form of assessment, since teachers know exactly what and how to measure their students given their close and continuous interaction inside the classroom.

Among the selected SEAMEO member countries, SBA is regarded as complementary assessment to the one-shot summative examinations. SBA is treated as an integral part of daily classroom instruction since it allows teachers to conduct various forms of assessment repeatedly or continuously. Hence, SBA is generally used to ensure that assessment is valid and reliable. Through SBA, the inclusion of assessment outcomes that cannot be readily assessed within the context of large-scale paper and pencil examinations enhances the validity of assessment, and reliability is ensured by taking into account assessment based on student performance over an extended period of time. The countries that are implementing SBA envisage that SBA will contribute to improving learning, teaching and evaluation processes in classrooms and schools.

Brunei Darussalam is one of the countries in Southeast Asia that has a very clear policy on SBA. Under the SPN21 curriculum, SBA plays a major role because schools, particularly the teachers, are given autonomy to conduct quality continuous assessment to determine the learning outcomes of students. The teachers use SBA for diagnostic and intervention purposes and also to plan for more effective teaching. SBA also allows teachers to know the weaknesses of their students in order to prepare for and implement early intervention to individual pupils. The information obtained from continuous assessment can be used as a basis for planning extensive teaching strategies in each unit or in subsequent lessons. SBA is used primarily in Years 1 to 8. In Years 4 to 8, SBA supplements PSR in Year 6 and SPA in Year 8. SBA is used in Core, General and Optional Subjects in these year levels. Ultimately, SBA is viewed as a tool to support student-centered approaches because it is activity-based and it prioritizes the learning process, thereby reducing the stress on exam-oriented instruction.

In Malaysia, SBA is one of the identified components of the National Education Assessment System (NEAS), wherein the system is holistic and assesses cognitive, affective and psychomotor capacities. SBA in Malaysia requires teachers to practice formative assessment to improve learning. The rationale for including SBA in the NEAS are as follows:

(i) the assessment is authentic and is able to assess skills that cannot be assessed by paper and pencil tests;

(ii) it promotes teaching and learning processes;

(iii) it focuses on on-going assessment from primary education to secondary education; and

(iv) it is in line with curriculum specifications and the assessor is the person most familiar with the student and is therefore better informed of the student's actual abilities.

The introduction of SBA in Malaysia created more balance in the assessment system because SBA emphasizes performance ability in authentic situations, and schools are accountable for students' achievement. The types of assessment instruments developed for SBA are as follows:

(i) Performance Assessment

(ii) Coursework.

Another country that has SBA in place in its system is Singapore. In Singapore, SBA is regarded as a powerful tool to capture a wide range of learning outcomes that teachers want to see in their students because the types, modes, and frequency of SBA are more varied and diverse than the usual paper and pencil assessment. They include performance assessment (e.g., role play, project work, journals, practical, etc.), teacher conferences, and portfolios. Self-assessment and peer assessment are also recommended for all subjects as means of helping students understand desired learning outcomes and find ways to improve their learning. Besides adopting a variety of assessment modes in SBA, teachers are also exploring various assessment tools such as rubrics to assess and provide students with richer feedback on their knowledge, skills and values that are part of the learning outcomes in all subjects. Furthermore, SBA is implemented under the Primary Education Review and Implementation (PERI) on Holistic Assessment (HA). One of the aims of PERI is to get teachers to become more conscious of using assessments as part of their teaching practices and to support

students' learning so that assessment is used in a more balanced manner and quality assessments are developed.

Assessment Frameworks and Legal Bases of Assessment Systems

Assessment Frameworks are legal documents usually prepared by the Ministry of Education or Department of Education. They are designed to assist educators, policy makers, assessment practitioners, test developers, teachers and the general public in clearly defining the elements in the national curriculum that are suitable to testing and examination. They are meant to support a curriculum and not replace it. Among the Southeast Asian countries, assessment frameworks are defined in either country strategic development plans or education strategy documents.

Brunei Darussalam's assessment framework is introduced through SPN21 which supports the achievement of Brunei Darussalam's Vision 2034 to prepare the country for 21CC. One of the major changes initiated and clearly stated pertains to curriculum and assessment. In this document, where key design and strategies were defined, the quality of education is to be achieved through a credible quality assurance and assessment system that meets international standards. The assessment system of the country takes into account the substantial role of SBA along with central and public examinations. It is a system of assessment characterized by the measurement of student progress and achievement in order to identify strengths and weaknesses as well as take appropriate steps towards intervention and remediation. The key result areas and indicators listed in the assessment system are:

(i) assessment on Brunei Darussalam's achievement is benchmarked with international standards;

(ii) improve teaching standards;

(iii) achieve collaboration with renowned examination bodies, e.g., UCIE;

(iv) establish partnership/collaboration with local industries and international bodies on technical skills development and competency; and

(v) develop National Quality Framework (NQF).

The assessment framework of Cambodia that is incorporated into the general policies of the MOEYS articulates the strengthening of formative assessment along with summative assessment, particularly the two national examinations set and administered by the Department of General Secondary Education for Grades 9 and 12. Another feature of the assessment system of Cambodia is the integration of ICT, which was initiated in 1997 through the Cambodia-Australia National Examinations Project (CANEP). Through this project, the assessment system framework emphasized the need to improve the reliability and validity of examinations in the education system, particularly the final school-leaving examination administered at Grade 12.

In the case of Indonesia, the country's Education Law sets forth eight National Education Standards as references for the quality of education, namely –

(i) learning content;

(ii) learning process;

(iii) competency of graduates;

(iv) educational personnel;

(v) facilities and equipment;

(vi) management;

(vii) funding; and

(viii) educational assessment.

Along with the Education Law, Government Regulation No. 19, Year 2005 stipulates the standards of assessment in Indonesia. Additionally, the Regulation of the Minister of National Education (MONE) No. 20, Year 2007 specifically prescribed the standards for educational assessment. According to the standards, student assessment can be conducted by educators, a unit of education (school) and the government. Assessment conducted by educators aims to monitor and continuously improve the process and progress of students' learning. Assessment administered by schools is to measure the achievement of graduates' competency in all subjects. Meanwhile, the government conducts assessment to determine graduates' competency achievement in several science and technology subjects at the national level. This is the *Ujian National* (UN) or National Examination.

In Malaysia, where national examinations are high-stakes tests, the use of assessment for the purposes of certification and selection is clearly defined in the National Philosophy of Education. The Education Curriculum is based on the National Philosophy of Education and as a result, the practice of examination in the country has taken a new direction. The many drawbacks of summative evaluation resulted in a worldwide paradigm shift towards formative assessment, an assessment that is continuous and ongoing, and is administered as SBA. In making the assessment system responsive, the Ministry of Education of Malaysia has put

an increased emphasis on formative evaluation and has prescribed that this be carried out as SBA. This is in line with global trends of testing measurement and the ministry is now looking towards using SBA as a catalyst for educational reform. Hence, new forms are now being introduced in the examination system in the country.

In the Philippines, the DepEd, through the implementation of BESRA in 2008, started pursuing a program aimed at attaining quality education for Filipinos. To mainstream this effort, the Quality Assurance and Accountability Framework (QAAF) that embodies the role of assessment as a necessary component of every program was formulated. This is particularly the case for education programs aimed at the improvement, reform and eventual standardizations set as goals by the BESRA for the DepEd. The assessment framework of the Philippines is anchored on the objectives and statement of purposes of assessment that are enumerated earlier in this report. The evolving K to 12 National Assessment Framework of the Philippines anchored on the new K to 12 curriculum pursues reforms in assessment (AfL and AoL) that will rationalize, streamline and unify all testing and assessment activities at levels. In the NAF, the assessment efforts are designed in keeping with the implementation of the K to 12 Program. The whole stretch of Basic Education has two streams of pedagogies:

(i) the Formal Delivery; and

(ii) Alternative Delivery Systems.

There are identified national assessments at each stage of the basic education cycle starting with the School Readiness Year-end Assessment (SReYA) in mother tongue at the end of kindergarten and the Philippine Informal Reading Inventory (Phil-IRI) in the early grades of primary school. At the end of primary and secondary levels of education, there is the National Assessment Test (NAT)

designed to measure the quality of learning outcomes for system with quality assurance. Finally, for secondary students, there are also nationally administered assessments focused on career guidance such as the National Career Assessment Examination (NCAE) and Occupational Interest Inventory of Students of Secondary Schools (OIISSS). The assessment framework of the Philippines also includes tests administered for those learners outside the formal school system such as the Philippine Educational Placement Test (PEPT), the Philippine Validating Test (PVT), and the Accreditation and Equivalency (A&E) Test.

Singapore has a unique assessment framework that is referred to as the Holistic Assessment (HA), recommended in 2009 as a result of the Primary Education Review and Implementation (PERI). The HA refers to the on-going gathering of information on different facets of a child from various sources, with the aim of providing quantitative and qualitative feedback to support and guide the child's development. HA informs teachers on their practices and guides them in the design and delivery of learning. It also enables more parents to support their child's development and growth at home. Broadly, the HA emphasizes four aspects that help to meet diverse students needs and develop skills and mindsets to prepare them for life and work in the 21st century. The philosophy behind PERI HA is very much aligned with the MOE Assessment Philosophy:

(i) Assessment is an important aspect of teaching and learning which should be effectively used to support the holistic development of our pupils;

(ii) HA is an approach to assessment that encapsulates the desire to nurture the whole child. It includes both summative and formative

forms of assessments that are used in a balanced way to develop the child to be the best that he or she can be. It places the child at the center of learning and is guided by the principle that the approach to educating the child has to be developmentally appropriate; and

(iii) SBA systems should be balanced to place greater emphasis on skills development and provide constructive feedback.

The four aspects of PERI HA are:

(i) focusing on the development of the whole child;

(ii) striking a balance between AoL and AfL;

(iii) using appropriate methods and modes of assessment; and

(iv) guiding teachers in the design and delivery of their assessment practices.

The national policies and frameworks for educational assessment in Vietnam have been regulated in legal documents and promulgated by Ministry of Education and Training (MOET). At present, there are assessment regulations for all educational levels:

(i) Regulations of Primary School Children Assessment and Classification (Circular 32/2009/TT-BGDDT dated 27 October 2009)

(ii) Regulations of Lower Secondary and Upper Secondary School Students Assessment and Classification (Circular 58/2011/TT-BGDDT dated 12 December 2011)

(iii) Regulations of Upper Secondary School Graduating Examination (Circular 10/2011/TT-BGDDT dated 6 March 2012)

(iv) Regulations of Entrance University and College Examination (Circular 9/2012/TT-BGDDT dated 5 March 2012)

(v) Regulations of National Olympic Examinations (Circular 56/2011/TT-BGDDT dated 25 November 2011.

The Regulations of Primary School Children Assessment and Classification identify the assessment and classification of primary school children, including assessment and classification of children's behavior, knowledge and skills, uses of assessments and classifications results, and implementation. On the other hand, the Regulations of Lower Secondary and Upper Secondary School Assessment and Classification identify the assessment and classification of LSE and USE students, including assessment and classification of students' behavior, knowledge and skills, use of assessment and classification results, responsibilities of teachers, educational managers, and educational organizations. In addition, MOET also developed legal documents for national assessment programs as well as promulgated guidelines on participating in international assessment programs such as TIMSS, PISA, PASEC, etc.

Governance and Implementation of Assessment

Governance and implementation of assessment systems among SEAMEO member countries rest under the auspices of the countries' ministry or department of education. Assessment systems are an integral part of the curriculum of each country.

In every country, a mandated unit or agency under the Ministry of Education or Department of Education is tasked to oversee the planning, management and supervision of assessment systems – both SBA and national examinations. While SBA is designed and planned at the school level by classroom teachers, national examinations and assessment systems are governed by responsible units/agencies under the education ministry or departments. Below is a table that shows the governing bodies of large-scale assessment activities of each country.

Table 8. Governing Body of Student Learning Assessment for Large-Scale Assessments

Country	Office in Charge
Brunei Darussalam	Examination Department and Department of Schools
Cambodia	Examinations Office, Department of General Secondary Education
Indonesia	The Board of National Education Standards and Center for Educational Assessment
Malaysia	Examination Syndicate
Myanmar	Myanmar Examination Board
Philippines	National Educational Testing and Research Center
Singapore	Singapore Examinations and Assessment Board
Thailand	Bureau of Educational Testing, Office of the Basic Education Commission, and National Institute of Educational Testing Services
Timor-Leste	National Direction of Curriculum and School Evaluation with support of district curriculum staff.
Vietnam	General Department of Education Testing and Accreditation

(Source: SEAMEO INNOTECH SIREP Survey, 2012)

Governance and implementation of assessment in Brunei Darussalam are both centralized and decentralized in terms of governance and implementation. The national examinations are managed and administered by the Examinations Department, while SBA activities are supervised by the Department of Schools but teachers have full autonomy over design and implementation. The Student Progress Assessment (SPA) for Years 1 to 6 is composed of two components: SBA and Primary School Assessment (PSA) or *Penilaian Sekolah Rendah* (PSR). SBA is conducted internally as a formative assessment in schools for Years 1 to 6. Classroom teachers have the autonomy to prepare, administer and mark tests based on well-defined standards, while the PSR, which is a written examination that assesses the main core subjects under the control of the Examination Department of the Ministry of Education, is conducted at the end of Year 6. The SPA for Years 7 and 8 is also composed of SBA and Student Progress Examination (SPE). SBA is an internally assessed formative assessment which is school-based, while SPE is conducted at the end of Year 8. It is a written examination prepared and administered by the Examination Department of MOE. The SBA is formative while the SPE is summative in nature. The assessment conducted at these levels comprised of the Brunei Darussalam Common Assessment Tasks (BCAT), SBA Assessment for Learning (SBAAfL) and SPE. The SPA intends to: (i) shift a totally summative orientation to a system of assessment characterized by the measurement of student progress and achievement; (ii) serve as basis for selection to the 4-year or 5-year programme after students sit the SPE at the end of Year 8 and SBA throughout Years 7 and 8 with certain weightage; and (iii) facilitate in the selection of school, students and parents of subject combinations to be offered in the General Secondary Education Programme (GSEP) or the Applied Secondary Education Programme (ASEP).

In Cambodia, the MOEYS provides overall directives in both the formative and summative assessment systems. Assessment is divided into two main types – primarily formative and summative. Formative assessments include homework, quizzes, tests and portfolios that school and teachers set regularly in a lesson, chapter, week or month. Summative assessment entails two semestral examinations conducted by schools or school clusters for Grades 7, 8, 10 and 11. Grades 9 and 12 students must take two semestral examinations and one national examination. Student promotion from a lower grade to higher grade in secondary education, except for Grades 9 and 12, is based on results of a series of assessment conducted throughout the year. With regards to admission to USE, students are required to take national examinations. Through the Department of General Secondary Education, two national examinations are set and administered to Grade 9 and 12. The contents of the examination papers and the schedule are decided at the Ministry level, and the provincial offices make the necessary arrangement, including the preparation of examination rooms, administration and marking of the examination. The Provincial Offices of Education (POE) are also responsible for making pass/fail decisions based on MOEYS criteria. In order to make sure that examination of the Grade 9 National Examination is taken transparently and fairly, the MOEYS has prepared standard mechanisms for the examination process:

(i) Provincial Office of Education (POE)/Municipal Office of Education (MOE) manages the examination process.

(ii) MOEYS prepares the examination papers.

(iii) Each POE/MOE prepares permission letters for all examiners and investigators.

(iv) All examiners and invigilators are educational staff in each province and municipality. They are assigned to a district where it is easy for them to travel.

(v) Paper correcting/marking process is undertaken in the center of each province or the municipality under the supervision of Chief Country Examiner.

(vi) The Chief of Examination Committee is responsible for transporting examination papers to examination centers.

(vii) Country Examiners are responsible for observing the implementation of the examination in each province or municipality.

In Indonesia, two organizations are responsible for developing and implementing educational assessment policies. The first is the Center for Educational Assessment (CEA) in the Office of Research and Development of the Ministry of Education and Culture (MEC). The CEA is responsible for designing technical policies on educational assessment and research, as well as developing systems and methodologies for educational assessments. Three divisions in the CEA perform support functions, namely –

(i) Academic Assessment;

(ii) Non-Academic Assessment; and

(iii) Analysis and Information System.

The second organization in Indonesia is the Board of National Standards for Education, known as BSNP. It is an independent and professional body tasked with developing, monitoring, and controlling national education standards. The board answers to the Minister of Education and Culture. In terms of educational assessment, BSNP is responsible for implementing the National Examination and determining the criteria of graduation for basic and secondary level education. In its operation, the BSNP is supported and coordinates with related ministries (Education and Culture, Ministry of Religious Affairs), universities and local governments. To ensure the National Examinations run well, BSNP established a Memorandum of Understanding (MoU) with governors, state universities, district mayors, and heads of education offices in province and district levels.

Similarly, there are also two organizations overseeing the assessment system in Malaysia. Public examinations are conducted by two centralized bodies:

(i) the Examination Syndicate (ES);

(ii) Malaysian Examinations Council (MEC).

The ES is responsible for developing all national examinations, including UPSR, PMR, SPM, and the Malaysia High Religious Certificate (STAM).[3] The ES is also responsible for developing all directives and guidelines of the test, marking schemes, and SBA. It manages activities such as conducting panel meetings and developing item banks. As for STPM, there are two approaches of assessments. They are centralized assessment and SBA. Centralized assessment consists of written examination with essay and multiple-choice questions, oral tests, and projects, whereas SBA is in the

[3] The STAM is a collaboration effort with Al-Azhar University of Cairo, Egypt.

form of course work and practical work. All testing guidelines, marking schemes, and SBA are developed by MEC. MEC also manages activities such as developing the curriculum, conducting panel meetings, developing item banking, and administering the STPM examinations.

In Myanmar, large-scale assessment, such as the Matriculation Examination for University Entrance held at the national level, is centrally governed and directly controlled by the Ministry of Education (MOE). The examination holding body in the country is the Myanmar Board of Examination (MBE). It was set up with a Chairperson and a Secretary, who implement national examinations. In implementing national examinations, the MBE organizes the Steering Committee and assigns Examination Centers throughout the country with the cooperation of the three Basic Education Departments and two Higher Education Departments. The MBE is also responsible for preparing the list of students registering for the examinations and issuing examination timetables. The Departments of Higher Education (Upper and Lower) also participate and take responsibility for major examination tasks, including question preparation, printing and distribution, answer book corrections, and processing of final examination results. Likewise, in doing so, the 10 universities in Myanmar under the two Higher Education Departments are also involved in the examination process and each university represents their state and region. The Rectors of these universities are also tasked with overseeing examination programs carried out in their respective universities.

In the Philippines, the National Educational Testing and Research Center (NETRC) is responsible for developing continuing program assessment, research and evaluation geared towards the country's program on "*Raising Learning Outcomes and Providing Access to Basic Education.*" The NETRC is a functional unit under the Department

of Education (DepEd) and headed by a Director who directs, manages, and supervises the technical and support staff. The NETRC designs and administers national examinations such as:

(i) National Career Assessment Examination (NCAE);

(ii) Occupational Interest Inventory of Students in Secondary Schools (OIISSS);

(iii) National Achievement Tests (for Grade 3, 6, 10 and 12);

(iv) Philippine Educational Placement Test (PEPT); and

(v) Philippine Validating Test (PVT).

Meanwhile, the Nonformal Education Accreditation and Equivalency (A&E) test is managed by the department's Bureau of Alternative Learning Systems (BALS).

The NETRC is also responsible for all assessment activities such as:

(i) test development;

(ii) test administration;

(iii) test results generation; and

(iv) test results dissemination.

In Singapore, the national examinations are conducted by the Singapore Examinations and Assessment Board (SEAB) and they include:

(i) Primary School Leaving Examination (PSLE);

(ii) GCE N(T) – Level Examination;

(iii) GCE N(A) – Level Examination;

(iv) GCE O Level Examination; and

(v) GCE A Level Examination.

The SEAB is a statutory board formed from the Examinations Division of the MOE of Singapore. It oversees national examination matters that include developing reliable and valid instruments and ensuring that the award of qualifications is based on accurate assessment and rigorous standards, while the MOE advises on queries related to education policies and the national curriculum. Moreover, to ensure alignment of curriculum and assessment, MOE works closely with SEAB in the development of subject syllabi that involve national examinations. While the work of MOE's Curriculum Planning and Development Division (CPDD) and Student Development Curriculum Division (SDCD) relates more to curriculum content, pedagogy and use of formative assessment in teaching learning, the SEAB's work in assessment focuses on the use of summative assessment for certification and placement purposes. Both roles complement each other as formative and summative assessment both support teaching and learning of various subjects. It is noteworthy to mention that in Singapore, the GCE Examination Certificate is jointly awarded by UCLES and MOE.

Governance of Thailand's assessment and evaluation is shared between the Bureau of Education Testing (BET) of the Office of the Basic Education Commission and the National Institute of Education Testing Service (NIETS). The BET conducts National Tests (NT) for Grade 3 and 8 students throughout the country, while NIETS conducts the O-NET for Grades 6, 9 and 12 students to assess their academic proficiency. Since 2009, the NIETS also conducts tests for university admission called the General

Aptitude Test (GAT) and the Professional and Academic Aptitude Test (PAAT) for Grade 12 throughout the country.

In Timor-Leste, all assessment activities are shared by the Department of Curriculum and Department of Evaluation and Examinations (DEE), which are separate but coordinated units under the MOE. The main mandates of these two departments of the MOE are to provide activities and programs in order to measure the ability of students at the end of each school cycle and identify students for promotion to the next cycle. The main functions of the DEE include:

(i) elaboration of assessment matrices;

(ii) preparation of test items;

(iii) selection of items;

(iv) conduct of examinations;

(v) marking and correction of items;

(vi) reporting of results to MOE;

(vii) announcement of the results by MOE at national level; and

(viii) announcement of results at school level.

In the case of Vietnam, the MOET supervises and manages all national examinations and education assessment programs. At the Central Government, the educational assessment authority is the General Department of Education Testing and Accreditation (GDETA), a unit of MOET with major responsibility in undertaking state management functions and services in the areas of testing and accreditation.

The GDETA has three divisions responsible for testing and assessment:

(i) Division of University and College Entrance Examination Management;

(ii) Division of Testing; and

(iii) Center for Educational Assessment (CEA).

The functions of GDETA in Vietnam in terms of testing and assessment include:

(i) development of legal documents and guidelines in testing and assessment;

(ii) providing guidance in organizing examination and assessment programs;

(iii) supervision of examinations;

(iv) building and managing of item bank center;

(v) development of tests for national examinations and assessment tools for national assessment programs;

(vi) organizing international Olympics in Vietnam;

(vii) providing assistance for local units to develop and score tests, manage examinations; and

(viii) conducting research and implementing educational assessment activities, national and international assessment programs.

Locally, in each Vietnam's Provincial Department of Education and Training (DOET), there is a unit specializing in testing and assessment activities at the provincial or city level. This unit is normally called the Office of Testing and Quality Management (OTQM). The main responsibilities of this unit in every province include:

(i) preparing examinations;

(ii) developing tests for local examinations;

(iii) organizing marking of students' papers;

(iv) approving the results of USE graduating students and some local examination (e.g., entrance to USE, selection of talented students in the province or city); and

(v) assisting District Office of Education and schools to follow all the mandated regulations of testing and assessment.

Moreover, there is an Office of Education in each district in Vietnam. This office is responsible for organizing and managing testing and assessment activities at pre-primary, primary and LSE levels. Additionally, before conducting any national examination, the MOET sets up an Examination Steering Council (ESC) in which there are Standing Unit, Test Development Committee and Inspection Groups. Each unit of the ESC is responsible for specific tasks of organizing examinations. Finally, the MOET also established the National Steering Council on Educational Assessment to guide national and international assessment activities and programs. An Assessment Management Committee is also set up for each specific national and international assessment program.

Uses of Assessment Data and Results

Earl and Katz (2006) stressed that meaningful assessment, particularly classroom assessment, is achieved if one has a clear purpose in mind. While it is true that each country included in this report has clearly defined their purposes for assessing learning outcomes, practices of using assessment data and test results are varied. Each assessment system defines a specific role and use of the results of the assessment process. Each assessment system also indicates different roles for the government, the school, the teachers, the students as well as the parents. However, it is underscored in the survey among the SEAMEO member countries that the meaningful use of assessment data and how these are interpreted to various stakeholders is the most important function of any assessment system. Noticeably in all countries, the main use of test data is to determine the achievement of defined learning outcomes, targeted standards and level of competencies. Most test data, particularly the national examinations in all the countries, are used to gauge students' readiness and aptitude to proceed to higher levels of schooling so that they can be selected or placed appropriately. Test results can help educators, policy makers, and teachers design more appropriate and responsive instructional programs.

In Brunei Darussalam, assessment data and results are reported and shared to teachers, learners themselves, parents/guardians, employers and even the community in order for them to know the performance of students and as well as their level of achievement in terms of knowledge, skills and desired attitudes and values expected to be acquired and gained from schools. The test results are also provided to teachers and students themselves as a regular feedback mechanism to improve both learning and teaching.

In Cambodia, assessment data and results are used as evidence both for formative and summative decision-making. Results from formative assessment are used to provide evidence to understand students' learning needs in order to adjust teaching appropriately. Teachers use formative assessment results to better prepare themselves to respond to the diverse needs of their students through differentiation and adaptation of teaching to raise levels of student achievement and to achieve a greater equity of student outcomes. Conversely, summative assessment results are used to evaluate whether standards are met in order to make decisions pertaining to promoting students, awarding certifications, and selecting students for entry into further education.

Among Indonesian teachers, results of assessment conducted at the end of each learning unit are used to inform students of their performance, letting them know whether they meet the minimum criteria required to attend remedial learning. They provide feedback to students of their scores along with a short description of their performance. National Examinations results, on the other hand, are used to determine students' eligibility for graduation. In Indonesia, to graduate from a unit of education, students should pass the school examinations, the National Examinations or *Ujian Nasional* (UN) as well as complete the prescribed learning program and achieve at least a score of B (Good or Satisfactory) for all subjects in non-science and technology subject areas (Religion and Noble Character, Civics and Personality, Aesthetics or Arts, and PE, Sports and Health). In addition, to determine students' graduation, the National Examinations results are considered in selecting students for higher levels of education. At the school level, the UN results are used as one of the considerations in providing assistance to education units in order to improve the quality of education.

The promotion of students from one grade level to a higher grade is one of the uses of assessment results in Myanmar. The results are used to gauge students' achievement of learning outcomes prescribed by the curriculum and also to design remedial teaching programs and additional teaching measures for low performing students in order to prepare them for the Matriculation Examination. The results of the Matriculation Examination that are being held at the national level by MOE are used primarily to select students wishing to attend the universities of the country.

In the Philippines, school-based assessment results are used to:

(i) place students appropriately based on their readiness level;

(ii) promote students to a higher level of education based on their achievement and general school performance;

(iii) guide students into suitable career options based on their inclinations, career preferences and self-assessments;

(iv) assist students with special needs and cases such as over-aged or out-of-school children who dropped from the formal school system; and

(v) accredit previous learning and training undertaken using alternative learning systems or modules.

In addition, National Assessment Test (NAT) results are also currently being used to identify high-performing schools, tap performing schools for information and capacity building support, and determine system-wide performance and efficiency.

There are three primary uses of assessment results in Singapore:

(i) Feedback on quality of school instruction – results of assessment provide feedback to teacher on how to improve instruction.

(ii) Rewards and incentives – with accurate assessment information, systematic rewards and recognition of students' performance are possible. Through the results of assessment, learners and schools are recognized by giving:

   a. Reward for individual efforts towards learning progress; and

   b. Incentive for school improvement towards instructional programs.

(iii) International benchmarking – assessment results from international studies, such as PISA, PIRLS and TIMSS, provide objective and useful data to inform policy decisions, research, and educational practice.

Finally, in Vietnam, the uses of national examination results are quite clear. In the USSGE, students use the results for graduation, and only with the certificate from this level would they be eligible to take the UCEE. Moreover, the policy makers and the public can use these results for school ranking and/or for system accountability. In the UCEE, students use the results to apply for studies in universities or colleges. Of course, like the USSGE, the policy makers and the public can use the results for school ranking and/or for system accountability. The uses of the National Olympic Examinations and the examinations to select talented students to participate in regional and international Olympic competitions are

mainly for diagnostics, school (province/city) ranking, and policy making. Furthermore, the uses of national assessment program results are normally for the investigation and evaluation of the quality of teaching and learning of a certain level. Another very important purpose of these programs is for curriculum review and policy making. With regard to international assessment programs, Vietnam uses such results for international benchmarking. Like Singapore, Vietnam utilizes international assessment to determine where Vietnamese education stands against other countries, in order to develop more appropriate capacity building for assessment staff and experts and on revising/updating the curricula and assessment methods.

Classroom Assessment Practices and Professional Development

Classroom assessment practices refer to an array of tasks or activities accomplished by a teacher that include developing paper and pencil and performance measures, scoring and marking, assigning grades, interpreting standardized test scores, communicating test results, and using assessment results in decision-making (Gonzales & Fuggan, 2012; Zhang & Burry-Stock, 2003). These activities are basically performed in the context of SBA. On the other hand, professional development is commonly viewed as a comprehensive, sustained and intensive approach to improving teachers' and school administrators' effectiveness in improving students' achievement (Gonzales & Callueng, 2012). According to Stiggins (2002), in North America, there is relatively little emphasis on assessment in the professional development of teachers. For instance, out of 50 US states and 10 Canadian provinces, only Nebraska and Hawaii allocated a significant amount of funds that is specifically appropriated for the improvement of assessment and

evaluation practices within schools (Volante & Fazio, 2007). In the Philippines, Magno and Gonzales (2011) have noted that systematic educational assessment has been increasingly institutionalized within schools. Evidently, however, there is still strong eagerness among SEAMEO member countries for professional development programs to address the evolving assessment systems instituted by their ministries of education.

According to Dilworth and Imig (1995), effective professional development is considered to be the center of educational reforms, but only a few studies have documented its cost and effectiveness (Lowden, 2005). Stakeholders which include policy makers, governments' boards of education, legislators, funding agencies and even taxpayers all want to know what professional development teachers undergo and whether these are effective in improving learning and teaching processes.

Among SEAMEO member countries, professional development programs, strategies and activities related to assessment are varied. In this sub-section, results of SEAMEO Survey on SIREP are presented to support the models and successful case studies of student learning assessment in the region.

Table 9. System-Level Mechanisms for the Development of Teachers' Skills and Expertise on Classroom Assessment and Frequency

Country	Pre-Service Teacher Training	In-Service Teacher Training	Participation in Seminars Conferences & Workshops	Monitoring by Supervisors	Accessibility of Online Resources
Brunei Darussalam	Being practiced	Being practiced	-	-	Somewhat likely
Cambodia	-	-	-	-	-
Indonesia	Mostly 1 course	Frequency in varied	-	At least twice a year	Somewhat likely
Malaysia	2 courses	Once a year	Once a year	4 times or more a year	Most likely
Myanmar	1 course	Once a year	Once a year	3 times a year	Somewhat likely
Philippines	2 courses	Twice a year	Once a year	2 times a years	Most likely
Singapore	2 courses	Once a year	Once a year	2 times a year	Most likely
Thailand	Being practiced	More than once a year but online	-	2 times a year	Somewhat likely
Timor-Leste	1 course	Once a year	Once a year	Once a year	
Vietnam	1 course	Once a year	Once a year	2 times a year	Somewhat likely

Among SEAMEO member countries, pre-service and in-service training programs on teachers' professional development are dominant, except for Cambodia which did not report information on this aspect. All countries provide professional development on assessment at both pre-service and in-service training.

At the pre-service level, at least one course on education assessment is provided while the teachers are still at teacher-training colleges or universities. Malaysia, the Philippines, and Singapore offer two professional courses on educational assessment, measurement, and evaluation. Although the contents of these courses are not reported, it is assumed that these courses provide basic and fundamental knowledge and skills in implementing classroom assessment. Programmed in-service training programs providing professional development for teachers on classroom assessment are provided at least once a year, except for the Philippines which provides two in-service training programs within a year.

Participation in seminars, workshops and conferences outside the programmed in-service training is another way of developing teachers' skills and expertise in classroom assessment. Seminars, workshops and conferences range from three hours to a week, depending on the structured program and availability of resources of the country.

Another approach to level up the skills and knowledge of teachers in classroom assessment is through monitoring by supervisors, who are most likely principals, school head masters, or master teachers or pedagogy advisers. Lastly, more countries report that access to the internet is a possible avenue for acquiring knowledge and skills in educational assessment. However, the greatest challenge of most countries is the availability of computers and internet connection for teachers.

Respondent countries were also asked about the resources that are readily available for teachers to improve their professional competence and knowledge in classroom assessment. It was revealed that, except for Timor-Leste, most countries provide their teachers with a clear guide to student learning competencies. Students' performance standards are also provided to teachers of SEAMEO member countries, except in Brunei Darussalam, Singapore and Timor-Leste. Other resources available to teachers are textbooks, workbooks, toolkits on classroom assessment as well as scoring rubrics, particularly for the core subjects at the primary and secondary levels. Only three countries – Myanmar, the Philippines and Thailand – reported that item banks and test data are made available to their teachers. Myanmar added that students' monthly report cards are provided to teachers so that the teachers will be able to respond to the specific needs of their students based on the assessment data as presented in Table 10.

Table 10. Resources Readily Available for Teachers for Professional Development

Country	Student Learning Competencies	Student Performance Standards	Textbooks, Workbooks, Toolkits, etc.	Scoring Rubrics	Test Item Banks or Test Data
Brunei Darussalam	✓		✓	✓	
Cambodia	✓	✓		✓	
Indonesia	✓	✓	✓		
Malaysia	✓	✓	✓	✓	
Myanmar	✓	✓	✓	✓	✓
Philippines	✓	✓	✓	✓	✓
Singapore	✓		✓	✓	
Thailand	✓	✓	✓	✓	✓
Timor-Leste	✓	✓	✓		
Vietnam	✓	✓	✓	✓	

(Source: SEAMEO INNOTECH SIREP Survey, 2012)

Reports of the SEAMEO member countries that participated in the survey revealed that both formative and summative assessment are conducted equally well, as presented in Table 11.

At the pre-primary level of education, most countries in Southeast Asia conduct assessment for formative purposes. They conduct assessment before any lesson ends to determine the level of students' understanding of a lesson and adjust teaching strategies if necessary. That is, formative assessment is conducted as a tool to gather feedback from students and inform teachers of the need to improve teaching methods and strategies. On the other hand, only four countries – Cambodia, Malaysia, the Philippines and Vietnam – perform assessment at the end of the lessons for summative purposes. These countries conduct assessment with the goal of determining the knowledge and skills that students have acquired at the end of pre-primary education.

At the primary and secondary education levels, teachers are conducting both formative and summative assessments. Formative assessments are done through SBA and continuous assessment programs, while summative assessment is implemented through the provincial and national examinations administered to all students at particular grade levels. The main objective of these national examinations is to determine promotion to a higher grade level.

Table 11. When do teachers use classroom assessment strategies?

Country	Pre-Primary		Primary		Secondary	
	Before the end of a lesson (Formative)	At the end of a lesson (Summative)	Before the end of a lesson (Formative)	At the end of a lesson (Summative)	Before the end of a lesson (Formative)	At the end of a lesson (Summative)
Brunei Darussalam			✓	✓	✓	✓
Cambodia	✓	✓	✓	✓	✓	✓
Indonesia	✓		✓	✓	✓	✓
Malaysia	✓	✓	✓	✓	✓	✓
Myanmar	✓			✓	✓	✓
Philippines	✓	✓	✓	✓	✓	✓
Singapore			✓	✓	✓	✓
Thailand		✓	✓	✓	✓	✓
Timor-Leste	✓		✓			✓
Vietnam	✓	✓	✓	✓	✓	✓

(Source: SEAMEO INNOTECH SIREP Survey, 2012)

The succeeding tables, Tables 12a to 12c, show the strategies usually used by pre-primary, primary and secondary education level teachers when they conduct formative assessments.

The survey included the following strategies, among others:

(i) anecdotal records;

(ii) written quizzes;

(iii) worksheets/seatworks;

(iv) assignments/projects;

(v) oral quizzes/recitations;

(vi) observation checklists;

(vii) portfolio assessments;

(viii) performance assessments/demonstrations;

(ix) peer assessment;

(x) self-assessment; and

(xi) team assessments.

In all levels, the most commonly used formative strategies are written quizzes, worksheets/seatworks, assignments/projects, oral quizzes/recitations and observation checklists. The results indicate that teachers of Southeast Asia, regardless of education level, are still using the more traditional assessment strategies. Self-assessment, peer-assessment and team assessment are not often used, except in primary and secondary education levels, where self-assessment is seemingly used in some countries.

Portfolio is another assessment strategy that is not widely used. However, it can be seen that it is gaining popularity especially in the secondary education level.

Table 12a. Classroom-Based Formative Assessment Strategies Usually Used by Pre-Primary Education Level Teachers

Country	Anecdotal Records	Written Quizzes	Worksheets/Seatwork	Assignment/Project	Oral Quizzes/Recitations	Observation Checklist	Portfolio Assessment	Performance/Demonstrations	Peer Assessment	Self-Assessment	Team Assessment
Brunei Darussalam											
Cambodia		✓			✓		✓	✓			
Indonesia	✓			✓		✓	✓	✓			
Malaysia	✓	✓	✓		✓	✓	✓	✓			
Myanmar	✓	✓	✓			✓	✓	✓	✓		✓
Philippines		✓	✓	✓	✓		✓				
Singapore											
Thailand	✓					✓	✓	✓			
Timor-Leste					✓	✓	✓	✓		✓	✓
Vietnam		✓	✓	✓	✓	✓		✓	✓	✓	✓

(Source: SEAMEO INNOTECH SIREP Survey, 2012)

Table 12b. Classroom-Based Formative Assessment Strategies Usually Used by Primary Education Level Teachers

Country	Anecdotal Records	Written Quizzes	Worksheets/Seatworks	Assignment/Project	Oral Quizzes/Recitations	Observation Checklist	Portfolio Assessment	Performance/ Demonstrations	Peer Assessment	Self-Assessment	Team Assessment
Brunei Darussalam	✓	✓	✓	✓		✓		✓	✓	✓	
Cambodia		✓			✓		✓	✓			
Indonesia	✓	✓	✓	✓	✓	✓	✓				
Malaysia		✓	✓	✓			✓	✓			
Myanmar		✓	✓	✓	✓	✓		✓			
Philippines		✓	✓	✓	✓		✓				
Singapore	✓	✓	✓	✓	✓	✓		✓	✓	✓	
Thailand	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Timor-Leste		✓	✓	✓	✓	✓		✓	✓	✓	✓
Vietnam		✓	✓	✓	✓	✓		✓	✓	✓	

(Source: SEAMEO INNOTECH SIREP Survey, 2012)

Table 12c. Classroom-Based Formative Assessment Strategies Usually Used by Secondary Education Level Teachers

Country	Anecdotal Records	Written Quizzes	Worksheets/ Seatwork	Assignment/ Project	Oral Quizzes/ Recitations	Observation Checklist	Portfolio Assessment	Performance/Demonstrations	Peer Assessment	Self-Assessment	Team Assessment
Brunei Darussalam			✓	✓		✓	✓	✓	✓	✓	
Cambodia		✓	✓		✓						
Indonesia	✓	✓	✓	✓	✓	✓	✓				
Malaysia		✓	✓	✓	✓		✓	✓			
Myanmar		✓	✓	✓	✓		✓	✓	✓		
Philippines		✓	✓	✓	✓		✓		✓		
Singapore		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Thailand	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Timor-Leste		✓	✓	✓	✓	✓		✓	✓	✓	✓
Vietnam		✓	✓	✓	✓	✓	✓	✓	✓	✓	

(Source: SEAMEO INNOTECH SIREP Survey, 2012)

For conducting summative assessments, the survey revealed that the following are the commonly used strategies:

(i) end-of-lesson tests;

(ii) end-of-year tests;

(iii) worksheets/seatwork;

(iv) assignment/projects;

(v) portfolio assessments;

(vi) performance assessments/demonstrations;

(vii) peer assessment;

(viii) self-assessment; and

(ix) team assessment.

Results showed that in terms of summative assessment, the end-of-year test is the most commonly used strategy across all the three levels of education. This is followed by end-of-lesson assessment intended to provide a grade or mark for a specific period of the school year. Worksheets/seatwork that show mastery of the subject matter or lessons are also commonly used forms of summative assessment. Surprisingly, performance assessment and demonstration is also mentioned as one of the commonly used summative assessment strategies, particularly for primary and secondary education levels.

Table 13a. Classroom-Based Summative Assessment Strategies Usually Used by Pre-Primary Education Level Teachers

Country	End-of-Lesson Tests	End-of-Year Tests	Worksheets/Seatwork	Assignment/ Projects	Portfolio Assessment	Performance/Demonstrations	Peer Assessment	Self-Assessment	Team Assessment
Brunei Darussalam									
Cambodia	✓	✓				✓			
Indonesia									
Malaysia	✓	✓	✓			✓			
Myanmar									
Philippines	✓	✓	✓	✓	✓				
Singapore									
Thailand									
Timor-Leste	✓	✓	✓		✓	✓		✓	✓
Vietnam	✓	✓	✓	✓		✓	✓	✓	✓

(Source: SEAMEO INNOTECH SIREP Survey, 2012)

Table 13b. Classroom-Based Summative Assessment Strategies Usually Used by Primary Education Level Teachers

Country	End-of-Lesson Tests	End-of-Year Tests	Worksheets/Seatwork	Assignment/Projects	Portfolio Assessment	Performance/Demonstrations	Peer Assessment	Self-Assessment	Team Assessment
Brunei Darussalam	✓	✓	✓	✓		✓	✓	✓	✓
Cambodia	✓	✓	✓		✓	✓			
Indonesia		✓	✓			✓			
Malaysia		✓	✓		✓	✓			
Myanmar	✓	✓		✓				✓	✓
Philippines	✓	✓	✓	✓	✓	✓		✓	✓
Singapore	✓	✓	✓	✓		✓	✓	✓	✓
Thailand	✓	✓	✓	✓	✓	✓	✓	✓	✓
Timor-Leste	✓	✓	✓	✓		✓	✓	✓	✓
Vietnam	✓	✓	✓	✓		✓	✓	✓	✓

(Source: SEAMEO INNOTECH SIREP Survey, 2012)

Table 13c. Classroom-Based Summative Assessment Strategies Usually Used by Secondary Education Level Teachers

Country	End-of-Lesson Tests	End-of- Year Tests	Worksheets/Seatwork	Assignment/Projects	Portfolio Assessment	Performance/Demonstrations	Peer Assessment	Self-Assessment	Team Assessment
Brunei Darussalam	✓	✓		✓	✓	✓	✓	✓	
Cambodia	✓	✓	✓						
Indonesia	✓	✓	✓			✓			
Malaysia		✓	✓	✓	✓	✓			
Myanmar	✓	✓		✓			✓	✓	✓
Philippines	✓	✓	✓	✓	✓	✓			
Singapore	✓	✓	✓	✓	✓	✓	✓	✓	✓
Thailand	✓	✓	✓	✓	✓	✓	✓	✓	✓
Timor-Leste	✓	✓	✓	✓	✓		✓	✓	✓
Vietnam	✓	✓	✓	✓	✓	✓	✓	✓	✓

(Source: SEAMEO INNOTECH SIREP Survey, 2012)

The use of ICT in various school operations, particularly in the classroom, is becoming more practiced. Tables 14a and 14b present the use of ICT in classroom assessment at primary and secondary education levels. In Singapore, Malaysia and Vietnam, for instance, they have integrated ICT not only in their instructional programs but also in their assessment activities to some extent. Interestingly, ICT is part of the learning competencies that are assessed in Brunei Darussalam, Malaysia, Myanmar, Singapore, Thailand and Vietnam. Furthermore, only Vietnam reported that ICT is used in classroom assessment activities at pre-primary education level, particularly in developing and encoding assessment tools, recording assessment results, and regarding ICT as a learning competency for pre-primary school children.

The SEAMEO SIREP Survey included seven uses of ICT in classroom activities as presented in the following tables. It was noted that ICT or any computer technology is primarily used in developing assessment and recording assessment results. The survey also showed that ICT is used in scoring and analyzing test results and conducting item analysis. Most countries, particularly at the secondary level, also use ICT to store test items in a data bank. However, there is no further description of any item banking system among SEAMEO member countries.

Only Malaysia and Myanmar reported that they use ICT in administering tests at the primary level, while the Philippines and Thailand are the only countries that reported use of ICT in administering tests at the secondary education level. In the case of the Philippines, some teachers who are computer literate are developing programs that can compute grades of students and analyze test results.

However, all countries reported that they use ICT extensively in their national or countrywide examination and testing activities. They use ICT from developing tests to organizing testing activities, issuing testing permits, scoring through scanning machines, analysing item analysis results and individual examinee results, and school/provincial and national profiling. Results are disseminated with the aid of ICT in order to ensure accuracy, efficiency and ease of distributing test results for individuals and schools.

Table 14a. Uses of ICT in Classroom Assessment at Primary Education Level

Country	Development and encoding of assessment tools	Recording of assessment results	Administration of tests	Scoring and analysis of test results	Conducting item analysis	Storing items or item banking	ICT is parts of learning competencies
Brunei Darussalam	✓	✓		✓	✓	✓	✓
Cambodia							
Indonesia	✓	✓					
Malaysia	✓	✓					
Myanmar	✓	✓	✓				
Philippines	✓	✓	✓				
Singapore	✓	✓		✓	✓	✓	✓
Thailand				✓	✓	✓	
Timor-Leste							
Vietnam	✓	✓					✓

(Source: SEAMEO INNOTECH SIREP Survey, 2012)

Table 14b. Uses of ICT in Classroom Assessment at Secondary Education Level

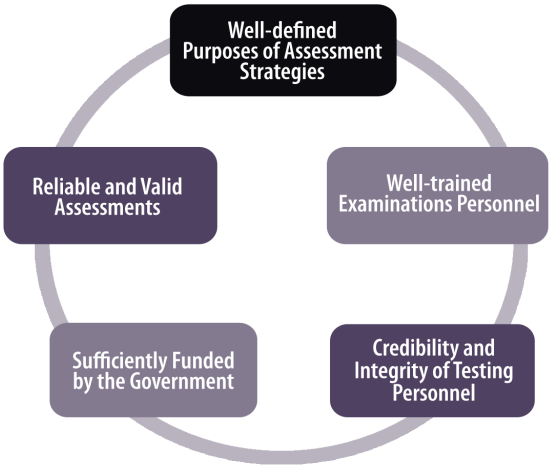
Country	Development and encoding of assessment tools	Recording of assessment results	Administration of tests	Scoring and analysis of test results	Conducting item analysis	Storing items or item banking	ICT is part of learning competencies
Brunei Darussalam	✓	✓		✓	✓	✓	✓
Cambodia	✓	✓					
Indonesia	✓	✓					
Malaysia							✓
Myanmar	✓	✓					✓
Philippines			✓	✓	✓	✓	
Singapore	✓	✓	✓	✓	✓	✓	✓
Thailand	✓	✓	✓	✓	✓	✓	✓
Timor-Leste							
Vietnam	✓	✓		✓		✓	✓

(Source: SEAMEO INNOTECH SIREP Survey, 2012)

Good Assessment Practices

A systematic assessment system requires good practices in assessment. That is, ensuring that standard assessment procedures are in place from conceptualization of tests (test specifications) to item writing, administration, scoring and marking, and dissemination of test results. It is also inherent in a good assessment system that implementers like the teachers have clear reasons for using assessment strategies. This gives an assurance that assessment is anchored on guidelines and goals of the education system and meets the requirements of both the teachers and the learners as well as the schools and the education system. Figure 2 illustrates the elements of good assessment practices as revealed by the country respondents. Essentially, there are five elements of good assessment practices, as illustrated below:

Figure 2. Elements of Good Assessment Practices



(summarized from SEAMEO SIREP Survey, 2012)

The elements of good assessment practices identified by the SEAMEO member countries are consistent with what Suskie (2004; 2006) proposed as characteristics of good assessment practices:

(i) give useful information;

(ii) give reasonable, accurate, and truthful information;

(iii) is fair to all students;

(iv) is ethical and protects the privacy and dignity of all those involved;

(v) is systematized; and

(vi) is cost effective, yielding value that justifies the time and expenses put into them.

Well-Defined Purposes of Assessment Strategies

There are six identified major reasons or purposes why teachers use assessment strategies in the classroom. These are:

(i) Compliance with MOE directives;

(ii) Meeting information needs of schools;

(iii) Informing teachers of their own teaching;

(iv) Informing teachers of their students' learning;

(v) Helping teachers determine instructional strategies to be used; and

(vi) Helping students to monitor their own learning processes.

The purposes identified clearly adhere to the basic purposes of assessment: assessment for learning, assessment of learning, assessment as learning, and assessment to inform.

From Table 15, it is very clear that the main purpose for using assessment strategies in schools is to meet the information needs of schools. Assessment strategies are valued by all countries to allow them to gather useful evidence of the entire teaching-learning process, because they regard assessment as an opportunity to provide feedback to their teaching strategies as well as feedback on how students are learning at the classroom level. The data also reflect that assessment strategies are used to obtain information useful to improve the teaching process as well as student learning development and progression.

Another good assessment practice is using assessment to help teachers and students. Students gain from the results of any assessment strategies because they are able to monitor their own learning, noted as assessment as learning. Teachers also benefit from assessment activities because they are also able to determine the instructional strategies that contribute the most to the learning process of students.

Lastly, assessment strategies are used to comply with the goals and directives of the education ministry or department. As noted earlier, all countries give premium to assessment systems because they could provide useful information to any major policy decision that will be beneficial to students, teachers and the entire education and school system.

Table 15. Major Purposes of Teachers for Using Assessment Strategies

Country	Compliance with MOE Directives	Meet Information Needs of Schools	Inform Teachers of their own Teaching	Inform Teachers of their Students' Learning	Help teachers determine instructional strategies to be used	Help Students monitor their own learning
Brunei Darussalam	✓	✓	✓	✓	✓	✓
Cambodia		✓	✓	✓	✓	✓
Indonesia	✓	✓	✓	✓	✓	✓
Malaysia	✓	✓	✓	✓	✓	✓
Myanmar	✓	✓	✓	✓	✓	✓
Philippines	✓	✓	✓	✓	✓	✓
Singapore	✓	✓	✓	✓	✓	✓
Thailand		✓	✓	✓	✓	✓
Timor-Leste		✓				
Vietnam	✓	✓	✓	✓	✓	✓

(Source: SEAMEO INNOTECH SIREP Survey, 2012)

Well-established Reliability and Validity of Large-Scale Examinations

Oftentimes, tests and their results create public criticism when they are perceived not to have reliability and validity. Both internal reliability and validity indicators are essential in all test materials and assessment tools. These are the two basic criteria for good assessment procedures, aside from ensuring that tests are objective, practical, discriminant, and referenced (Johnson & Johnson, 2002). Reliability exists when a test shows that students' performance in it remains the same on repeated measures, while validity means that the test or measure truly measures what it was intended to measure, all of what it was designed to measure and nothing but what it was designed to measure (Johnson & Johnson, 2002). On the other hand, objectivity, which is another important criteria for a good assessment tool, refers to the agreement of experts on the correct answers to test items and different scores on what score should be assigned to a test paper or examination.

All SEAMEO member countries, strive to ensure reliability, validity and objectivity in all national examination and classroom assessments at all times. Table 16 presents the process of how this is observed. Basically, it involves regular review of test-learning competency alignment and regular conduct of item analysis done by internal and external experts. Internal experts are those who are employed by government testing units under MOE or DepEd, while external experts are subject matter experts and psychometric experts, normally from private institutions and from universities. In some cases, foreign external experts are tapped to perform any of these tasks to ensure reliability and validity.

Table 16. Reliability and Validity of Large-Scale Examinations

Country	Regular Review of Test- Learning Competency Alignment		Regular Conduct of Item Analysis	
	By External Experts	By Internal Experts	By External Experts	By Internal Experts
Brunei Darussalam		✓		✓
Cambodia		✓		✓
Indonesia	✓	✓		✓
Malaysia	✓	✓	✓	✓
Myanmar		✓		✓
Philippines	✓	✓	✓	✓
Singapore	✓	✓	✓	✓
Thailand		✓		✓
Timor-Leste				✓
Vietnam	✓	✓	✓	✓

(Source: SEAMEO INNOTECH SIREP Survey, 2012)

Ensuring Credibility and Integrity in National Examinations

Another good practice that is evident among SEAMEO member countries is the desire to ensure credibility and integrity in all the national examinations. National examinations are considered high-stakes tests; hence, the integrity of the entire system is threatened if cheating and other fraudulent practices are found to exist on a significant scale. Malpractices in conducting assessment at all levels need to be strictly monitored and minimized if not completely eliminated. Due to its high-stakes nature, national examinations require the highest integrity. The tests must also be valid and administered following standard secure procedures.

Among the issues pertaining to ensuring integrity, cheating by students is one of the main challenges among SEAMEO member countries in their national examinations. This problem is not only prevalent in the region, but is a universal problem that all examinations systems have to contend with (Hill, 2010). Cheating is considered the main threat of a good assessment system and is initiated by either the examination personnel managing the system or by the students themselves. According to Hill (2010), examples commonly alluded to in and by media and on the web include leaking or selling of examination questions, providing students with hints and answers, and turning a blind eye to cheating during examinations (p. 9). Hence, imposing appropriate penalties for these misdeeds and malpractices is a major security concern among SEAMEO member countries in order to guarantee the highest integrity in their assessment systems. Among the implemented measures that are considered good practices in assessment are the following:

(i) examination setters or items writers are properly trained and asked for their commitment to keep items in the highest confidence;

(ii) examination papers are accompanied by security officers up to the classroom where the test will take place;

(iii) students are arranged and seated wide apart to discourage glancing at each other's paper or answers;

(iv) test administrators or proctors are properly trained to be vigilant against cheating and/or sharing of answers among students;

(v) test materials are properly inventoried and steps are taken to ensure that all test papers and materials are all accounted for before and after examinations;

(vi) mobile and smart phones and gadgets with a camera are strictly prohibited inside the testing room;

(vii) teachers who are assigned as markers are discouraged from marking their own students and/or schools;

(viii) some schools have installed closed circuit television or CCTV;

(ix) standardized test administration manuals are prepared and used for high-stakes examination; and

(x) policies instituting stiff penalties for violations, such as cheating and test item leakage, are in place.

Another way to ensure integrity of assessment is through proper training of all personnel and staff involved in the assessment activities – from item writing to dissemination of test results. Internal psychometric validation of the national examinations is guaranteed when item writers and test setters are trained properly and the development of the tests are professionally done. This element of ensuring security is being adhered to by all countries participating in the survey, except for Timor-Leste which is still in the process of developing its national examinations. Aside from training examination staff and test administrators properly, all the countries have prepared standardized manuals for their national examinations. Using a standardized test manual will help minimize disparities in the administration, scoring and reporting process. Hence, issues of test reliability and validity are ultimately addressed. Oftentimes, it is reported that complaints on the results of test results are triggered by non-observance of uniform test procedures. It was revealed in the survey that one of the security mechanisms to instill credibility and integrity of national assessment is the test manual. Having such a document will allow examination managers to respond to any questions and issues arising from not following instructions and implementing procedures during national examinations.

Table 17 shows the summary of security mechanisms that Southeast Asian countries have implemented in making their national examinations credible and with high integrity.

Table 17. Security Mechanisms to Ensure Credibility and Integrity of National Examinations

Country	Test administrators and proctors are properly trained	Standardized manuals are made available	Formal recording of test discrepancy	Textbooks are numbered	Scorers are trained for inter-rater reliability	Double processing of data for accuracy	Strict security measures are in place at all times
Brunei Darussalam	✓	✓	✓	✓	✓	✓	✓
Cambodia	✓	✓	✓	✓	✓	✓	✓
Indonesia	✓		✓	✓		✓	✓
Malaysia	✓	✓	✓	✓	✓	✓	✓
Myanmar	✓	✓	✓	✓	✓	✓	✓
Philippines	✓	✓	✓	✓	✓	✓	✓
Singapore	✓	✓	✓	✓	✓	✓	✓
Thailand	✓	✓	✓		✓	✓	✓
Timor-Leste		✓					✓
Vietnam	✓	✓	✓		✓		✓

(Source: SEAMEO INNOTECH SIREP Survey, 2012)

Good assessment practices among SEAMEO member countries also include development of an Item Test Banking System (ITBS) and having measures to ensure the systematic security of test materials and related documents. In most countries, test administrators practice the process of numbering test booklets, answers sheets and even other testing materials in order to have a systematic inventory of test materials. In this process, leakage and possible reproduction of unauthorized copies of test materials are minimized or completely prevented.

The good practice of providing training to test markers and scorers is also observed by most of the countries. There are national examinations being given by these countries that require manual scoring, particularly for items that are not in multiple-choice type, like essay or composition. In such situations, inter-rater reliability must be ascertained at all times in order to avoid questions of subjective marking. Related to this practice is the double processing of test data. Again, this is to ensure that before results are given out to students and to the general public, erroneous marking, incorrect reporting of scores, and misinterpretation of scores are prevented. This way, the confidence of all test stakeholders is assured.

Providing Sufficient Funding Support to Large-Scale Assessments

Another good practice in large-scale assessment activities is ensuring that sufficient funding support is provided in all activities of the assessment system. From the survey, it was revealed that all countries included are providing sufficient funding support on national examination and assessment systems as mandated by their laws.

All countries reported that they financially support their assessment systems from design down to dissemination of results as well as continuing research and evaluation. Table 18 shows the funding support provided by each government for the assessment activities of their countries. The survey results revealed that governments of SEAMEO member countries provide funding support for the following activities:

(i) Design of assessment system and national examinations and its measures;

(ii) Administration of national examinations;

(iii) Data analysis including provisions for computer infrastructure and related facilities including internet connectivity;

(iv) Reporting of test results to various stakeholders – students, teachers, principals, parents and employers;

(v) Dissemination of results to concerned stakeholders;

(vi) Training of staff on various assessment procedures and methods, including test development;

(vii) Annual review of the assessment systems and its related tools and technologies; and

(viii) Research and development including establishing reliability and validity of the tests.

Table 18. Large Scale Assessment Activities Supported by Government Funding

Country	Design	Administration	Data Analysis	Reporting	Results Dissemination	Staff Training	Review	Research & Development
Brunei Darussalam		✓	✓	✓	✓	✓	✓	✓
Cambodia	✓	✓	✓	✓	✓			
Indonesia	✓	✓	✓	✓	✓	✓	✓	✓
Malaysia	✓	✓	✓	✓	✓	✓	✓	✓
Myanmar			✓		✓	✓	✓	✓
Philippines	✓	✓	✓	✓	✓	✓	✓	✓
Singapore	✓	✓	✓	✓	✓	✓	✓	✓
Thailand	✓	✓	✓	✓	✓	✓	✓	✓
Timor-Leste	✓	✓				✓		✓
Vietnam	✓	✓			✓	✓		✓

(Source: SEAMEO INNOTECH SIREP Survey, 2012)

Training Examination Staff Comprehensively

One of the key elements of good assessment is ensuring that all personnel and staff involved are professionally trained. Conducting and implementing an assessment system and its related activities necessitates possession of very specific skills and proficiency, particularly in psychometrics, statistics, and computer applications.

Among the training areas that most SEAMEO member countries provide to their assessment and examination personnel include:

(i) General orientation;

(ii) Administration of national examinations;

(iii) Supervision of conduct of national examinations, including related activities;

(iv) Design of assessment tools;

(v) Construction of tests – from item writing, review, pilot testing and finalization of tests;

(vi) Data analysis including analysis of pre-testing results, item analysis and analysis of scores/marking

(vii) Scoring and marking of test papers, particularly essay-type questions as well as operation of scoring machines; and

(viii) Reporting and dissemination of test results to various stakeholders.

Table 19 shows the topics included in the various staff training and professional development of assessment staff and personnel. Except for Myanmar, all countries provide programmatic training for their assessment and examination staff and personnel who are involved in the assessment procedures in implementing large-scale assessments, particularly the mandated national examinations.

Table 19. Staff Training on Large-Scale Assessment

Country	General Orientation	Administration	Supervision	Design	Test Construction	Data Analysis	Scoring and Marking	Report of Results
Brunei Darussalam	✓	✓	✓	✓	✓	✓	✓	✓
Cambodia				✓	✓	✓	✓	✓
Indonesia					✓	✓	✓	
Malaysia	✓	✓	✓	✓	✓	✓	✓	✓
Myanmar								
Philippines	✓	✓	✓		✓			
Singapore	✓	✓	✓	✓	✓	✓	✓	✓
Thailand		✓	✓	✓	✓	✓		
Timor-Leste	✓		✓					
Vietnam		✓	✓	✓	✓		✓	

(Source: SEAMEO INNOTECH SIREP Survey, 2012)

Summary

This section described the assessment systems and models adhered to by SEAMEO member countries. In particular, it discusses how each country defines assessment and its purposes and scope aligned to its educational policies and goals.

Among the SEAMEO member countries, assessment is defined more functionally and is anchored on their overall educational goals and strategies. Countries essentially define assessment as a process integrated into the teaching and learning activities and is aimed at obtaining information for educational policy and decision-making. They all regard assessment as an important tool to support students to achieve the intended learning outcomes and to provide feedback to teachers in order to improve the teaching-learning process. The purposes of assessment among the countries are numerous and diverse. However, common purposes of assessment are identified as follows:

(i) to measure the level of attainment of each learner;

(ii) to measure effectiveness of teaching;

(iii) to monitor student achievement and progress in order to improve quality of teaching;

(iv) to determine the extent to which goals and objectives set are achieved in the countries' current education goals and programs;

(v) to assess the readiness of learners for subsequent levels in the educational ladder;

(vi) to place students appropriately to educational programs and curricular programs;

(vii) to select students who will proceed to higher levels of education; and

(viii) to improve schools for external and external quality assurance.

Additionally, the purposes provided by SEAMEO member countries can also be classified in keeping with the purposes of assessment identified in the framework espoused by Earl and Katz (2006):

(i) assessment as learning (meta-cognitive process);

(ii) assessment for learning (formative assessment); and

(iii) assessment of learning (summative assessment).

In terms of scope and area, assessment systems in all surveyed countries are implemented at all levels of education and school systems from pre-primary to higher education. The systems measure knowledge and skills defined in their curriculum frameworks and learning standards and these are assessed through classroom assessments or SBA and in the national assessment examinations at various stages of the school system. The commonly assessed core subject areas are:

(i) English;

(ii) National language(s);

(iii) Mathematics;

(iv) Science; and

(v) Social Studies.

All countries included in this survey carry out large-scale national assessments aimed at either assessing completion/achievement of a grade level or entry/acceptance to higher level of education. National examinations are given at the end of primary education, lower secondary education and upper secondary education. These national examinations are paper and pencil tests that are administered by the testing or examination boards of the countries.

Aside from large-scale assessments that are conducted nationally or nationwide, countries in Southeast Asia are also implementing School Based Assessment (SBA) to complement the large-scale national examinations. The SBA is an assessment practice that is carried out in schools by the students' own teachers with the foremost intention of improving student learning. SBA among these countries is formative and diagnostic in nature, and it also continuously provides immediate feedback to improve the quality of learning, teaching and assessment. The SBA is implemented based on the premise that paper and pencil large-scale summative assessments cannot assess all important learning objectives and outcomes. Indeed, SBA is regarded as complementary to the one-shot summative assessments given through national examinations.

The policy frameworks of assessment systems in all countries are based on countries' educational policy frameworks and other legislative decisions. These are normally initiated and implemented by the Ministry of Education or Department of Education of each country. The assessment frameworks are designed to assist education policy makers, assessment practitioners, test developers, teachers and the general public by clearly defining the elements in a national curriculum that are suitable to testing and examinations. The assessment frameworks are also premeditated to support countries' curriculum and not to replace it. Among the Southeast

Asian countries, assessment frameworks are defined in either country strategic development plans, education sector development programs, and in their other education strategy documents.

The governance and implementation of assessment systems among SEAMEO member countries rests under the auspices of countries' ministry or department of education. Assessment systems are an integral part of the curriculum policy and framework of each country. The governing bodies of student learning assessment for large-scale assessments are:

(i) **Brunei Darussalam** – Examination Department and Department of Schools;

(ii) **Cambodia** – Examination Office, Department of General Secondary Education;

(iii) **Indonesia** – The Board of National Education Standards and Center for Educational Assessment;

(iv) **Malaysia** – Examination Syndicate

(v) **Myanmar** – Myanmar Examination Board

(vi) **Philippines** – National Educational Testing and Research Center, Department of Education

(vii) **Singapore** – Singapore Examination and Assessment Board

(viii) **Thailand** – Bureau of Educational Testing, Office of the Basic Education Commission and National Institute of Educational Testing Services;

(ix) **Timor-Leste** – National Direction of Curriculum and School Evaluation with support of district curriculum units; and

(x) **Vietnam** – General Department of Education Testing and Accreditation.

In terms of uses of assessment data and results, the SEAMEO member countries observe the meaningful use of assessment data and how these are interpreted to various stakeholders. In all countries, it is noticeable that the main use of test data and results is to determine the achievement of defined learning outcomes, targeted standards and level of competencies. Most of the test and examination data, particularly the national examinations in all countries, are used to gauge students' readiness and aptitude to proceed to higher level of schooling – either to select or place students appropriately. The test results can help educators, policy makers and teachers design more appropriate and responsive instructional programs aligned with their education strategic goals and objectives.

The national assessment system of each country demands comprehensive professional development so that they can be implemented effectively. Hence, by determining the classroom assessment practices of teachers, a more relevant professional development program can be programmed. Among SEAMEO member countries, professional development programs, strategies, and activities are varied. Professional development programs on assessment are implemented through system-level mechanisms as follows:

(i) Pre-service teacher training;

(ii) In-service teacher training;

(iii) Seminars, conference and workshops;

(iv) Monitoring by supervisors; and

(v) Access to online resources.

Among the countries, pre-service and in-service teacher training programs are the dominant delivery systems of professional development. At pre-service teacher training, at least one course/ subject on educational assessment is provided while teachers are still at teacher-training colleges or universities. Programmed in-service training programs are provided at least once a year, while participation in seminars, workshops and conferences are provided anytime of the year to teachers and testing staff who need them the most, which can be in-country or abroad. Another approach to level up the skills and knowledge of teachers in classroom assessment is through monitoring by supervisors, who are probably principals, school headmasters, or master teachers or pedagogy advisers. Lastly, more countries reported that access to online resources is becoming more practiced.

Respondent countries revealed that resources made available to teachers for their professional development include:

(i) student learning competencies;

(ii) student performance standards;

(iii) textbooks, workbooks, textbooks, etc.;

(iv) scoring rubrics; and

(v) test item banks or test data.

Moreover, from the reports of the SEAMEO member countries, both formative and summative assessments are conducted equally. At lower primary and lower secondary, formative assessment is dominantly carried out through SBA. Formative assessment is conducted as a tool to gather feedback from students to inform teachers of the need to improve teaching methods and strategies. At upper primary and upper secondary, both formative and summative assessments are given periodically. Formative assessment is done through SBA and continuous assessment programs, while summative assessments are implemented through the provincial and national examinations administered to all students at a particular grade level serve which, in turn, as basis for promotion to higher grade levels.

Teachers use various strategies in conducting classroom assessment and SBA. Aside from the usual paper and pencil tests, the following strategies are also used:

(i) worksheets and seatwork;

(ii) assignments and projects;

(iii) oral quizzes and recitations;

(iv) observation checklists;

(v) anecdotal records;

(vi) portfolio assessments;

(vii) performance assessments and demonstrations;

(viii) peer assessments;

(ix) self-assessments; and

(x) team assessments.

It was however noted that Southeast Asian countries, regardless of educational level, are still relying predominantly on the more traditional assessment strategies.

In terms of summative assessments, the end-of-year test is most commonly used across all the three levels of education. This is followed by the end-of-lesson assessment intended to provide a grade or mark for a specific period of the school year.

Another key element of assessment systems among SEAMEO member countries is the use of ICT in various school operations, including classroom assessments. It was revealed in the survey that ICT or any computer technology is used primarily in developing assessment materials and recording assessment results. It was also revealed in the survey that ICT is employed in scoring and analyzing test results, particularly in conducting item analysis. In most countries, particularly at the secondary level, ICT is used to store test items in a data bank or item bank.

SEAMEO member countries also reported some of their good practices in implementing their assessment systems. The elements of good assessment practices identified by these countries are aligned with what Suskie (2004; 2006) proposed as characteristics of good assessment practices. From their responses from the survey, it was summarized that the good elements of good practices among the SEAMEO member countries are

(i) well-defined purpose of assessment strategies;

(ii) well-trained examination personnel;

(iii) credibility and integrity is in place;

(iv) sufficiently funded;

(v) reliable and valid assessments; and

(vi) enabling policy environments.

One of the biggest challenges of all countries is ensuring credibility and integrity of national examinations. Hence, these countries have put in place some mechanisms to ensure that examination malpractices are avoided and threats to security and integrity are minimized or totally controlled. Among the initiated measures which have been considered to be good practices in assessment include:

(i) examination setters or item writers are properly trained and asked for their commitment to keep items in the highest confidence;

(ii) examination papers are accompanied by security officers up to the classroom where the test will take place;

(iii) students are arranged and seated wide apart to discourage glancing at each other's paper or answers;

(iv) test administrators or proctors are properly trained to be vigilant against cheating and/or sharing of answers among students;

(v) test materials are properly inventoried and steps are taken to ensure that all test papers and materials are all accounted for before and after examinations;

(vi) mobile and smart phones and gadgets with a camera are strictly prohibited inside the testing room;

(vii) teachers who are assigned as markers are discouraged from marking their own students and/or schools;

(viii) some schools installed cameras or CCTV;

(ix) standardized test administration manuals are prepared and used for high-stakes examinations; and

(x) policies instituting stiff penalties for violations, such as cheating and test item leakage, are in place.

Finally, one of the key elements to good assessment practice is ensuring that all personnel and staff involved are professionally trained. Conducting and implementing an assessment system and its related activities necessitate possession of very specific skills and proficiency, particularly in psychometrics, statistics and computer applications.

Among the training areas that SEAMEO member countries provide to all their assessment and examination personnel include:

(i) General orientation;

(ii) Administration of national examinations;

(iii) Supervision of conduct of national examinations, including related activities;

(iv) Design of assessment tools;

(v) Construction of tests – from item writing, review, pilot testing and finalization of tests;

(vi) Data analysis including analysis of pre-testing results, item analysis and analysis of scores/marking

(vii) Scoring and marking of test papers, particularly essay-type questions as well as operation of scoring machines; and

(viii) Reporting and dissemination of test results to various stakeholders.

SECTION IV

ASSESSMENT REFORMS, INNOVATIVE PRACTICES, SUCCESSES AND CHALLENGES AND FUTURE DIRECTIONS FOR ASSESSMENT

This section discusses the major assessment reforms initiated by SEAMEO member countries over the past 10 years. It also describes the innovative practices and/or improvement strategies for assessing student learning outcomes, as well as the factors that brought successes and the challenges encountered in rolling out assessment systems and initiatives. The section ends with some discussion of possible future directions for assessment in the region.

Assessment Reforms

Among the SEAMEO member countries, assessment reforms are increasingly being focused on embracing the paradigm shifts from Assessment of Learning (AoF) to Assessment for Learning (AfL) and Assessment as Learning (AaL), realizing truly the integration of assessment into the instructional system.

In Brunei Darussalam, an improved assessment system was put in place by strengthening its integration into the teaching and learning process. Assessment reforms were introduced with the goal of highlighting the crucial role of assessment in the systematic continuous assessment to monitor learner's performance in the classroom and through national examinations. Aside from strengthening its SBA, assessment approaches, particularly Assessment as Learning, was introduced through institutionalization of peer and self-assessment. This way, assessment guides students to learn from the evidence from the assessment process to improve their own learning process. Another key reform of assessment in the country was the conscious effort to balance AoL and AfL with enhanced summative tests and programmed formative assessment procedures.

The focus of assessment reform in Cambodia has been on supporting the achievement of quality and efficiency in the delivery of education in the country. Through the new assessment system that has been introduced, the systematization of integrating assessment results into the grading system was put into operation. The change of standards, particularly passing criteria, was also adapted including the use of percentile ranks in the certificates of completion and/or passing. More recently, the assessment system introduced provided a basis for adjusting and aligning subject examination papers with the new school curriculum.

In Indonesia, the introduction of internal and external assessment in 2005 marked the reform of their assessment system. For primary and secondary schools, in addition to internal assessment (also referred to as SBA), external assessment was introduced to assess students' achievement on national education standards. The external assessment is referred to as the National Examination, the results of which are used to:

(i) map the quality of a program or a unit of education (school);

(ii) select students for further education;

(iii) decide on students' graduation from a program or a unit of education; and

(iv) develop and assist schools in improving quality of education.

The Holistic Assessment System (HAS) was introduced in 2011 in Malaysia, which is referred to as the National Education Assessment System for Primary and Lower Secondary Students. In the same year, the MOE introduced the National Education Assessment System (NEAS) to Year 1 students and in 2012, to Form 1 students. NEAS consists of five components, namely:

(i) central examination;

(ii) SBA;

(iii) centralized assessment;

(iv) assessment of sports and co-curricular activities; and

(v) psychometric tests.

The HAS, which is consistent with NEAS, ensures that the total development of students is assessed at strategic periods of schooling. This system will provide useful information to support learning for students and teaching improvement for teachers.

Assessment reform in Myanmar is focused on quality assurance, or on enhancing quality of teachers and ensuring quality of education for students through improvements in the administrative processes.

Administrative procedures were streamlined such that strict inspections of schools were put in place. Inspections of schools have been scheduled periodically, such that education officers of different levels, townships, state/division, and headquarters are expected to inspect schools at least three times a year. Schools are assessed and graded based on the following criteria:

(i) accomplishments of the school principal;

(ii) increase in the level of school attendance;

(iii) teaching is based on approved lesson plans;

(iv) level of achievement of students;

(v) use of teaching aids, multimedia facilities, and laboratories in teaching and practice;

(vi) level of school morale and discipline;

(vii) capacity of the teaching staff;

(viii) adequacy and cleanliness of classroom;

(ix) maintenance of sanitation and cleanliness;

(x) adequacy of teaching aids and multimedia facilities;

(xi) school greening initiatives; and

(xii) overall image of the school.

The Philippines, which is currently implementing a radical change in its curriculum, also introduced a new National Assessment and Grading System Framework. The national assessment framework highlights the changes in the national examinations at each strategic

stage of schooling. It also defines the national-level examinations and the school-based examinations anchored on the identified skills and knowledge articulated in the new K-12 curriculum. Another major reform in the country is a plan of action for the government of the Philippines to strengthen its assessment system. The DepEd rationalization has resulted in the establishment of the Bureau of Education Assessment and the two offices under it: Education Assessment Division and Education Research Division.

The Primary Education Review and Implementation (PERI) Holistic Assessment has been introduced in 2010 by Singapore's MOE. The PERI Holistic Assessment is a significant assessment reform in the country which aims to recognize and underscore the importance of good assessment practices as a means to improve the quality of learning and teaching in schools. The initiative also seeks to shift the focus of assessment towards building pupils' confidence and the desire to learn in both the academic and non-academic areas of schooling and total human development.

For Thailand, Timor-Leste and Vietnam, reforms in the assessment system have centered on strengthening existing systems and ensuring that assessment systems of the highest quality will be put in place.

Innovative Practices and Improvement Strategies

The challenge of responding to the pressure of changes in the global education scene triggered some innovative practices and improvement strategies among the SEAMEO member countries. It was noted that innovations and improvement strategies were centered around the implementation of SBA, the use of more innovative assessment techniques, the introduction of ICT in

assessment, and the use of classical and modern test theories in analysing test information and results.

Among the innovative practices of non-traditional assessment in Brunei Darussalam is the use of SBA for Learning (SBAAfL) to measure students' achievement over time by the classroom teachers. The implementation of SBAAfL is defined at various levels of education and at some levels, the Primary School Assessment (PSR) and Student Progress Assessment (SPA) are integrated to obtain the amalgamated evaluation of students' performance. Another improvement strategy is in the BTEC. Brunei Darussalam's BTEC anchored on the SPN21 is one of the innovative assessment models among Southeast Asian countries. It is a system that provides multiple/flexible pathways for students to proceed to the different levels of education. The so called broad-based curriculum is designed to meet students' inclination, interests, abilities and their potentials. One of such is the secondary education Special Applied Program (SAP) for Years 9, 10 and 11. Students in Year 10 under the SAP are undergoing BTEC Introductory Certificate course with subjects which are mostly technology- and business-oriented such as Arts, Design and Media IT, Hospitality, Travel and Tourism, Business Retail and Administration, and Sports and Leisure. The BTEC programmmes are focusing on the study of real-life, work-based case studies, and complete projects and assessments. They are internally assessed with internal verification process focusing on the quality of the delivery of the curriculum and assessment. An external examiner is tasked to verify the final validity of the assessment before the qualifications could be awarded to the students.

In Cambodia, innovative strategies to improve the assessment system were introduced through the National Educational Assessment conducted for Grades 3, 6, and 9 from 2005 to

2010. The application of both classical and modern test theories analysis in the national examinations is considered the highlight of innovation in the assessment system in the country.

The National Education Standards in Assessment in Indonesia is regarded as the country's major innovation in assessment. The standards mandated that teachers must use various techniques of assessment in assessing students, including the use of performance and portfolio assessments. These are considered relatively new techniques that are currently put in place in the country's national assessment system.

In Malaysia, the clearer definition of the tasks of teachers and the central assessment body in implementing SBA is considered an improvement strategy that is operationally beneficial to the system. Teachers conduct SBA but the central body is charged to develop tasks to ensure that they are based on national standards. The new types of tasks or assessments introduced are:

(i) projects for Social Science subjects;

(ii) oral tests for language subjects; and

(iii) performance assessments for Visual Arts, Fine Arts, Vocational and Science subjects.

Assessment reform in Myanmar is integrated in the on-going commitment to the Education for All (EFA) goals of the country. Comprehensive assessment surveys on education outcomes of EFA, focusing on pre-school and the extent of completion of primary education, were conducted in 2002-2003 and again in 2008-2009. In this assessment program, using a purposive sampling based on geographical differences of conditions, five townships out of 324 in the whole country were selected for EFA assessments using focus

group discussions. A Review Exercise Report for 2008-2009 was published to show the reforms implemented and their levels of achievement.

In the Philippines, major innovations and improvement strategies were in the area of testing procedure. Composition writing, performance test and portfolio assessment were introduced in the assessment system. Composition writing was used in assessing proficiency in English and Filipino languages. A set of criteria was also introduced. A written composition must reflect five elements and these include:

(i) relatedness to the topic;

(ii) has a main topic;

(iii) has supporting details;

(iv) proper sequencing; and

(v) correct usage of grammar.

Performance tests are administered individually or in small groups. This approach offers learners the opportunity to demonstrate their skills. Lastly, the use of portfolio assessment involves compiling evidence of students' achievements including pieces of their work, feedback and reflective analysis.

For Singapore, the innovative programs on assessment support the implementation of the holistic development of students geared towards providing Singaporean students with a holistic education, and equipping them with 21st century competencies and further developing their proficiency in mother tongue languages. The improvement strategy that Singapore has put forward in its assessment system is the E-assessment. In the 2015 PISA, Singapore

will be taking part in computer-based assessment. Currently, the area of focus on the use of ICT is in the assessment of mother tongue languages (MTL). This is intended to nurture students to be active learners and proficient users of mother tongue languages. In particular, this program is reflected in the changes to the examination and assessment formats that include the use of video clips, instead of line drawings, as stimuli for oral examinations. This will support the emphasis of students using MTL as living languages in the 21st century.

Thailand's innovative practices and improvement strategies related to assessment were focused on the professional development of teachers. Four major training programs were implemented to support the ongoing enhancement of its national assessment systems:

(i) training on techniques of classroom assessment;

(ii) training on techniques of diagnostic assessment;

(iii) training on techniques on thinking ability/critical thinking assessment; and

(iv) training on techniques on desirable characteristics/non-cognitive assessments.

In Timor-Leste, assessment reform and innovative practices are evident at basic school levels. Timor-Leste has initiated the implementation of Early Grade Math Assessment (EGMA). This program provides important baseline information for Mathematics and numerical abilities in the early grades.

Lastly, in Vietnam, innovative practices and improvement strategies in assessments are in the areas of national assessment programs, participation in international assessment programs, and use of

television game shows. Innovations were implemented using the data gathered from Grade 5, 6, 9, and 11 students during the years in 2001, 2007, and 2011. Information from these sample data were used to identify changes in the format, structure, and even procedures of national examination programs. Participation in international assessment programs such as PISA and *Programme d'analyse des systemaes educatif de la confemen* (PASEC X) has triggered the entire education system in Vietnam to enhance its existing SBA and national examinations. The participation in international assessment programs will provide the country information on its leverage against other countries. Lastly, assessment innovations are also manifested by MOET's support to television game shows like "Are You Smarter Than a 5th Grader?" and "Vietnamese Genius" for primary and LSE and "Road to Olympiad" for USE.

Success Factors

The SEAMEO member countries have been implementing assessment systems and have instituted various reforms and improvement strategies. While they have encountered difficulties and challenges, they also identified success factors that made their assessment systems effective and made an impact on their educational systems as a whole.

The success factors that they have identified are the following:

(i) Stable organizational structure that promotes sustainable programs, including research and development. All countries have dedicated a government unit within MOE or DOE/DepEd to manage examination and assessment systems.

(ii) Supportive government and related agencies to implement national assessment systems, particularly in:

a. providing funding support including programmed subsidy to students' examination fees;

b. approval of human resources requirements; and

c. appointing strong and capable leaders in all the examination bodies and agencies.

(iii) Well-defined assessment framework and implementation mechanisms are backed up by enabling policies, government legislations, and education laws.

(iv) Well-programmed professional development programs for examination and assessment personnel at various levels – from national to school level, ensuring that all staff involved in the assessment process are well-trained and skilled professionals

(v) Commitment of teachers to implement national examinations and SBA

(vi) Strong collaboration with internal and external examination bodies, such as national and international testing agencies like UCLES

(vii) Presence of testing and examination professionals and experts who could support the government

and examination bodies in designing, administering, scoring, and analyzing test results, including conducting studies on test reliability and validity

(viii) Institutionalized monitoring and evaluation programs to maintain integrity of national examinations and SBA

(ix) Positive public perception and attitude and confidence towards examination systems and the implementing agencies

(x) Students' high regard for the assessment system and strong compliance to all assessment guidelines, policies and regulations.

Issues and Challenges

While the countries have recognized various factors that influenced their success in implementing assessment systems, these same countries have also identified some issues and challenges that they perceived as areas for further development. In general, issues and challenges are inherently both internal and external and these are highly related to changing mindsets and perspectives of both implementers and beneficiaries of the assessment system.

Threats to the Integrity in Assessments

In Brunei Darussalam, it is still a big challenge to ensure that implementers and beneficiaries have stable and flexible mindsets towards learner assessment systems. This is also true for Indonesia, Myanmar, Philippines and Singapore. The curriculum innovations of these countries require alignment with their assessment systems, which sometimes draw negative public reaction, particularly because stakes are usually high for national exams. Hence, it is a challenge to establish the integrity of the assessment system in order to achieve positive acceptance of all examination stakeholders.

Another big challenge faced by all countries is how to curb cheating among students during examinations, especially in high-stakes national examinations. Students have been discovered to be not only cheating during examination per se, but before examinations as well. This practice is compounded and encouraged by corrupt staff and teachers who accept bribes during these examinations. At the school level, "subjective decision" and "favoritism" exist to some extent. These malpractices in the assessment process threaten to undermine the integrity of the system.

Related to this is the fact that all educational assessments in the region are not widely understood by the public, especially the parents. It is imperative for all examination bodies to initiate a public campaign, social marketing, or social mobilization programs to ensure that the public clearly understands the assessment system. This is especially necessary when changes in the assessment system are introduced, like in the cases of the Philippines, Singapore and Timor-Leste, where planned changes are being implemented.

Questionable Validity and Reliability of Measures

Sometimes, the public questions the integrity of an examination and how it is conducted. This is another challenge that confronts all learner assessment systems in the region. Hence, it is important that all countries adhere to the highest level of quality in regard to their various assessment materials and assessment administration procedures. All examination tools, especially those that are used for national examinations, should posses internal consistency or reliability and validity. Examination materials should not be administered unless their psychometric properties are assured and tested. The psychometric properties of any test or examination rest on how it is designed, administered, scored and interpreted. All examination materials must be able to measure a wide array of skills and knowledge that represent the entire coverage of a school curriculum.

Vague Purposes of Some Assessments and School Testing Programs

With such a wide variety of assessment programs and activities, one challenge in the implementation of any assessment program is to let all users know the purpose of each assessment activity. Students must clearly understand why SBA is conducted and on top of it, why summative assessment is given either at the district/regional or national level. Likewise, to encourage parents' participation and support, the purposes of assessment and any school testing program must be made clear to them. Rules and regulations as well as schedule of testing activities must be publicly known, or else, the perception that national examinations are but a duplicate of SBA may persist.

Over-reliance on High-stakes Examinations

Since SEAMEO member countries are increasingly utilizing standardized and national high-stakes examinations, there is growing concern that this has sometimes resulted in test-driven classroom instruction. Teachers sometimes overly focus on subject content areas and topics which will be covered by such exams instead of ensuring that genuine student learning takes place. In addition, students and parents are increasingly concerned that high-stakes test results will be used as the primary basis for major decisions regarding student progression, particularly when it comes to accepting a student for entry to the next education level. Not only does this limit the scope of classroom instruction and student learning, but it can also lead to test anxiety among students.

In most countries as well, there is perception that too much attention is given to national examination while inadequate attention is given to SBA, or that there is too much emphasis on AoL and less on AfL and AaL.

Poor Management of Examination Activities

Having an efficient and cost-effective assessment system is another challenge in implementing an assessment system. While functions of all examination bodies are well-defined, oftentimes there is a bottleneck when it comes to actual implementation of national examinations. A lot of SEAMEO member countries identified that poor management of examination activities has time and again contributed to wastage of resources, mishandling of test materials resulting in leakage, and miscommunication that may put the validity of test results at risk. Delay in the disbursements of funds needed to print and distribute test materials is also mentioned as

a big challenge in the implementation of any assessment system in the region. Hence, a better assessment management system must be in place to ensure that the highest level of efficiency and cost-effectiveness is achieved.

Lack of Experts in the Field of Educational Assessment

Educational assessment is considered a highly specialized field. While teachers and examination staff are trained, there is still a dearth of highly trained professionals in the field of educational assessment. It is a recurring issue mentioned by most countries in the region that it is difficult to find experts who could provide examination bodies with professional and technical advice in terms of design, administration, analysis and conducting research on educational assessments. Hence, this is considered a big challenge in the region to ensure that assessment practices are internationally acceptable and grounded on the theories of educational assessment and psychometrics.

Future Directions and Recommendations

The assessment systems in Southeast Asian countries are evolving and are catching up with the advances in the field implemented by more developed countries. The efforts to streamline the system and to implement the best practices in educational assessment are noticeable. However, the poor performance of SEAMEO member countries in international assessment programs (e.g., PISA, TIMSS), with the exception of Singapore and recently Vietnam, remains a great challenge to all these countries. This can only be alleviated when better systems are in place. However, the great disparities in assessment practices within and among countries are still extensive and are in need of further attention.

The following are given as recommendations for future directions of the assessment systems in the region:

(i) **Develop a program to reduce examination pressures.** Students are oftentimes focused on passing the test and not on learning. Hence, it is recommended that a strategic program should be developed to reduce examination pressures, particularly on passing high-stakes national examinations. The shift of emphasis from AoL to AfL might be strengthened through the SBA that is already in place. The introduction of a programmed and moderated SBA could constitute one strategy for reducing examination pressures (Mehrens, 1998).

(ii) **Create an assessment system that is responsive to the diverse needs of students.** The concerted efforts to advocate inclusive education and student-centered curricular and instructional programs call for a more responsive assessment system. Introducing more varied assessment techniques and approaches will allow students with diversified needs to appreciate the relevance of any assessment system. The assessment system must be able to provide expanded and greater opportunities to all students to gain the benefits of assessment and education system. Students who come with special abilities and/or disabilities or financial difficulties must not be denied educational access. Hence, governments should ensure that their assessment system would cater to the differing needs of students. The growing number of students with special abilities and/or disabilities (physically or economically) implies the need for better logistics and wider options of assessment methodology, including the use of ICT and other related technologies.

(iii) **Develop an assessment system that covers a wider range of curriculum objectives and learning outcomes.** One of the universal criticisms of many tests or examinations is that they include too many tasks that only measure factual information or rote learning. Students who are good in memorization may in some instances perform better than students who are analytical and possess high critical-thinking skills. While there is a conscious effort to reduce reliance on knowledge skills or memorization, wider and higher thinking skills must be included not only in the national examinations but also in SBAs. SEAMEO member countries should learn from the experience of PISA, a test that comprehensively measures the ability of students to apply information as opposed to memorizing it. This is to ensure that critical thinking skills and higher-order thinking skills are assessed objectively. In the same manner, all tests and examinations must ascertain that they cover a wide range of subject matter contents. This can be done by developing clear and well-defined tables of specifications and/or subject prescriptions for assessments. Furthermore, countries should develop a comprehensive national assessment policy and framework, supported by a country educational and legislative agenda.

(iv) **Balance the purposes of assessment.** There is a clear observation that SEAMEO member countries may be overly relying on summative assessment, and neglecting formative assessment. The overemphasis on national examinations and exit or certification tests encourages students to adopt the culture of schooling rather than a

culture of learning. Students imbibe a culture of schooling when they study to prepare themselves to pass the exit tests or certifications without necessarily acquiring basic competencies, a practice espoused by assessment of learning or summative assessment. On the other hand, if assessment for learning or formative assessment and assessment as learning are equally emphasized in schools, students will develop a culture of learning. That is, students are constantly provided feedback on their performance through continuous assessment and eventually learn to learn on their own. Hence, it is recommended that SEAMEO member countries take steps to develop more holistic assessment systems, similar to those being developed by Malaysia and Singapore, to ensure that they produce graduates who are competent instead of merely knowledgeable but lacking in skills.

(v) **Implement a programmed capacity building and professional development program in the region.** It is noted in all countries that there is a need for professionals who are engaged in educational assessment. The role of assessment is widely increasing due to the demand for quality assurance in schools especially in teaching and learning as well as in program development and implementation (Magno & Gonzales, 2011). At the school level, teachers need a lot of guidance from assessment experts in terms of designing creative and responsive assessment tools, administering assessment, marking and scoring, and interpretation of results. These are special skills that teachers need, even if they have undergone training in assessment formally in their preservice programs or through in-service

training programs. Hence, one area that the region may start contemplating is to identify which among the SEAMEO institutions could provide professional development interventions specifically designed for educational assessment and evaluation. The professional development programs may be in the form of short-term training programs or a full-blown degree program in collaboration with a higher education institution in the region.

(vi) **Establish a stronger network of assessment experts.** In support of programmed capacity building and professional development of testing and assessment specialists in the region, there is a need to establish a stronger network of assessment experts among SEAMEO member countries. In the Philippines, there is a professional organization of educational measurement and evaluation educators, researchers and scholars, called the Philippine Education Measurement and Evaluation Association (PEMEA). This organization may be tapped to support the establishment of a regional association of educational measurement and evaluation specialists through SEAMEO INNOTECH, which has a partnership agreement with PEMEA. The regional organization may serve as a venue to share activities, programs, learning experiences and research studies related to the assessment of learning outcomes. An annual or biannual conference and continuing professional development of assessment specialists in the region will definitely help professionalize the practice of assessment in the educational setting.

(vii) **Develop Southeast Asian metrics for assessing student achievement at the primary and secondary levels.** The establishment of learning metrics which reflect the unique context and situation of the Southeast Asian region will help measure and reveal the status of learning sub-nationally. This exercise may also bring out collaboration in the use of appropriate metrics for formative and summative purposes and for regional benchmarking. Regional learning metrics for primary schools in the region have already been identified via the Southeast Asia - Primary Learning Metrics (SEA PLM) project initiated by UNESCO and SEAMEO, but it is recommended that steps also be taken to establish the counterpart learning metrics for secondary education. This is also in accordance with the articulated need of UNESCO to implement international or regionally comparable testing and assessment policies and practices.

(viii) **Introduce a technology-supported assessment system.** Singapore has already started introducing e-Assessment as one of the innovations to their assessment system. Other countries are encouraged to follow Singapore's move. Globally, the practice of computer-assisted testing or computer-adaptive testing is growing. Hence, countries in the Southeast Asian region should also consider infusing technologies into their assessment system and in their school system in general to facilitate the various dimensions of the assessment process – from assessment development, assessment administration, assessment data management, assessment data analysis and results dissemination.

Although ICT is reportedly being used in assessment, its use is not yet maximized. Countries may start building on an item-banking system, a computerized scoring and marking system, online dissemination of results, and online access of assessment information. However, it should be noted that the introduction of a technology-supported assessment system requires quite a significant investment, particularly for infrastructure and training of personnel who will support the assessment system.

(ix) **Develop an assessment policy framework with assured funding support from the government.** While there are clearly defined policies and guidelines of SBA and national assessments, some countries currently do not have national assessment policy frameworks that clearly assure funding support from the government. The Philippines, for example, in its recent change in educational structure for K-12, has recently developed a national assessment framework to be implemented along with curriculum reforms. Other countries may follow this example or enhance their current assessment policy frameworks if they exist.

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Appendix 1. Listing of Subjects Assessed under Learning Areas in Southeast Asian Countries at the Primary Level

Country	Levels	Entry Age	Medium of Instruction	Core Subject Areas
Brunei	Year 1-6	6 to 11	• Malay • English for English-based subjects (English/ Math/Science)	Malay, English Language, Math, Science, Nationhood Education (MIB), Islamic Religious Knowledge (IRK)
Cambodia	Grade 1-6	6 to 11	• Khmer	Khmer, Math, Science, Social Studies, Physical & Health Education, Life Skills
Indonesia	Grade 1-6	6 to 12	• Indonesian	Religion and Noble Character; Citizenship/Civic and Personality; Science and Technology; Aesthetics or Arts; Physical Education, Sport, and Health
Malaysia	Grade 1-6	7 to 12	• Malay • English for Math, Science and Technical subjects	Malay Language, English, Math, Science, Islamic Study, Moreal Education

Country	Levels	Entry Age	Medium of Instruction	Core Subject Areas
Myanmar	Grade 1 (Kinder-garten) to Grade 5	5 to 9	• Myanmar	Grade 1-3: Myanmar, English, Math, General Studies Grade 4-5: Myanmar, English, Math, Social Studies, Basic Science
Philippines	Grade I-VI	6 to 11	• Grade I to Grade II: • Mother Tongue • Grade III to Grade VI: • English	English, Math, Science, Filipino, HeKaSi
Singapore	Primary 1-6	7 to 12	• English	Primary 1-2: English, Math, Mother Tongue Primary 3-6: English, Math, Mother Tongue, Science

Country	Levels	Entry Age	Medium of Instruction	Core Subject Areas
Thailand	Grade 1-6	6 to 11	• Thai • English in International Schools	Thai Language, Math, Science, Social Studies, Religion and Culture, Health and Physical Education, Art, Occupations and Technology, Foreign Languages
Timor Leste	Basic School: Grade 1-6 Grade 7-9	• 7 to 12 for Grade 1-6 • 13 to 15 for Grade 7-9	• Portuguese	Grade 1-6: Natural and Social Science, Math, Portuguese, Religion, Physical Training, Artistic Education Grade 7-9: Tetun, Portuguese, English, Math, Natural Science, Social Science, Geography, History, Economy, Religion, Physical Training, Artistic Education

Country	Levels	Entry Age	Medium of Instruction	Core Subject Areas
Vietnam	Grade 1-5	6 to 10	• Vietnamese	Grade 1-2:Vietnamese, Math, Writing, Natures and Society, Morality, Drawing, Music Grade 3-:Vietnamese, Math, Writing, Natures and Society, Morality, Drawing, Music, English, Informatics Grade 4-5:Vietnamese, Math, Morality, Drawing, Music, English, Informatics, Sciences, Painting, History and Geography, Technology

Appendix II. Listing of Subjects Assessed by Various Examinations in Southeast Asian Countries at the Secondary Level

Country	Levels	Entry Age	Medium of Instruction	Core Subject Areas
Brunei	Year 7-11	12 to 16	• English for English-based subjects • Malay for Bahasa Melayu/IRK/MIB	Year 7-8: Malay, English Language, Math, Science, Nationhood Edcation (MIB), Islamic Religious Knowledge (IRK) General Subjects: PE/CCA/ Social Studies/Business, Art, & Technology Optional: Arabic/French/Mandarin/Drama/Music Year 9-11: Malay/English Language/Math/IRK/MIB/Science (Biology/Chemistry/Physics/ Computer/Science)

Country	Levels	Entry Age	Medium of Instruction	Core Subject Areas
Cambodia	Grade 7-12	12 to 17	Khmer	Grade 7-10: Khmer Language, Math, Social Studies, Sciences, English/French, Physical Education and Sport, Local Life Skills Grade 11-12: Khmer Literature, Sport, English/French,, Basic/Advanced Math, Science Electives, Social Sciences Elective, Vocational Education
Indonesia	Grade 7-12	12 to 18	Indonesian	Religion and Noble Character; Civic and Personality; Science and Technology; Aesthetics; Physical Education, Sport, and Health

Country	Levels	Entry Age	Medium of Instruction	Core Subject Areas
Malaysia	• Lower Secondary (Grade 7-9) • Upper Secondary • (Grade 10-12)	13 to 17	• Malay • English for Math, Science, and Technical Subjects	Lower Secondary: Malay Language, Science, English, Chinese/Tamil Language, Math, History, Geography, Religious Knowledge, Living Skills, Moral Education Upper Secondary: Malay Language, English, Math, Science, History, Islamic Education, Moral Education
Myanmar	Grade 6-11	10 to 15	Grade 6-9: Myanmar Grade 10-11: Bilingual (Myanmar/English)	Grade 6-9: Myanmar, English, Math, Geography, History, General Science Grade 10-11: Myanmar, English, Math, Physics, Chemistry, Biology, History, Geography, Economics, Optional Myanmar

Country	Levels	Entry Age	Medium of Instruction	Core Subject Areas
Philippines	1st-4th Year	12 to 15	English	1st Year: English, Filipino, Philippine History, General Science, Elementary Algebra 2nd Year: English, Filipino, Asian History, Biology, Intermediate Algebra 3rd Year: English, Filipino, World History, Chemistry, Geometry 4th Year: English, Filipino, Advance Algebra, Trigonometry, Statistics, Economics, Physics

Country	Levels	Entry Age	Medium of Instruction	Core Subject Areas
Singapore	S1-S4	13 to 16	English	S1-S2: English, Math, Mother Tongue, Science, Design & Technology, Home Economics, Geography, History, Literature, Visual Arts, Music S3-S4: English, Math, Mother Tongue, Science, Combined Humanities, and other Upper Secondary Electives
Thailand	Grade 7-12	12 to 18	• Thai • English in International Schools	Thai Language, Math, Science, Social Studies, Religion and Culture, Health and Physical Education, Art, Occupations & Technology, Foreign Languages

Country	Levels	Entry Age	Medium of Instruction	Core Subject Areas
Timor Leste	General Secondary or Vocational Technical	16 to 18	• Portuguese for General Secondary • Portuguese and Tetun for Vocational Technical	General Secondary: 1. Science Area: Tetun, Portuguese, English, Math, Civic Education, Religion, Physical Training, Physical Science, Chemistry, Biology 2. Social Area: Tetun, Portuguese, English, Math, Civic Education, Religion, Physical Training, Geography, History, Sociology, Economy, Anthropology

Country	Levels	Entry Age	Medium of Instruction	Core Subject Areas
Timor Leste				Vocational Technical 1. Technical School Area: Portuguese, Tetun, English, Math, Electricity, Electronic, Mechanic of Automobile, Informatics, Civil Constructions, Technical Designer, Civic Education, Religion, Physical Training 2. Hospitality and Tourism School Area: Portuguese, Tetun, English, Math, Fashion Designer, Cookery, Reception, Beauty, Civic Education, Religion, Physical Training 3. Commerce and Industry School Area: Portuguese, Tetun, English, Math, Accountancy, Management and Administration, Commerce and Industry, Civic Education, Religion, Physical Training

Country	Levels	Entry Age	Medium of Instruction	Core Subject Areas
Vietnam	• Lower Secondary (Grade 6-9) • Upper Secondary (Grade 10-12)	11 to 17	Vietnamese	Grade 6: Literature, Math, Physics, Biology, History, Geography, Civic Education, Painting and Music, Technology, English, Informatics Grade 7-9: Literature, Math, Physics, Biology, History, Geography, Civic Education, Painting and Music, Technology, English, Informatics, Chemistry Grade 10-12: Literature, Math, Physics, Biology, History, Geography, Civic Education, Painting and Music, Technology, English, Informatics, Chemistry, Algebra & Analysis, Geometry

Appendix III. Structure of Ordinary National Educational Test (O-NET)

Subject Areas:	Areas and skills assessed:	Time spent		
		Grade 6	Grade 9	Grade 12
Thai Language	Reading	45 minutes	1 hour	2 hours
	Writing			
	Listening, observation, and speaking			
	Principles on language appreciation			
	Literature and literary outputs			
Mathematics	Numbers and numerical works	45 minutes	1 hour	2 hours
	Measurement			
	Geometry			
	Algebra			
	Data analysis and probability			
	Mathematic skills and procedures			
Science	Living beings and life existence processes	45 minutes	1 hour	2 hours
	Life and environment			
	Properties and matter			
	Force and mobility			
	Energy			
	Evaluation of earth			
	Astronomy and space			
	Nature of science and technology			

Subject Areas:	Areas and skills assessed:	Time spent		
		Grade 6	Grade 9	Grade 12
Social Science, Religion, and Culture	Religion, morality, and righteousness	45 minutes	1 hour	2 hours
	Civil responsibility, culture, and life in society			
	Economics			
	History			
	Geography			
Foreign Languages	Language for communication	30 minutes	1 hour	2 hours
	Language and cultural			
	Language and other subject groups relationship			
	Language, community and work relationship			
Health and Physical Education	Human growth and development	30 minutes	40 minutes	40 minutes
	Life and family			
	Movements, physical exercises, games, Thai and international sports			
	Building up health capacity and sickness prevention			
	Safety			
Art	Visual arts	30 minutes	40 minutes	40 minutes
	Music			
	Performing arts			
Career and Technology	Living and family life	30 minutes	40 minutes	40 minutes
	Career			
	Design and technology			
	Information technology			
	Work and career technology			

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