

CHAPTER 1: INTRODUCTION

The National Education Assessment Framework (NEAF) consists of seven chapters. Chapter One provides an overview of the NEA including the objectives and features of a robust NEAF. Chapters Two to Five describes the specific domains to be assessed which includes, Reading Literacy, Writing Literacy, Listening and Speaking Literacy, Mathematical Literacy and Scientific Literacy. Chapter Six covers the contextual questionnaires which would help in providing further insights into the students' performance in the specific domains. Finally, Chapter Seven highlights the assessment design and cycle of NEA.

Overview of the Education System in Bhutan

Bhutan is a unique sovereign nation in the world – while other nations use the Gross Domestic Product (GDP) as a key indicator of their nation's progress, Bhutan uses **Gross National Happiness** (GNH) as the key indicator of national development. This defining approach of the country has undoubtedly influenced the nation's education policies as well.

The Royal Government of Bhutan understands the vital role education plays in the nation-building process and giving Bhutan its '*distinct identity as a small, peaceful, progressive and happy nation*' (MoE, 2014, p.xx).

Since the introduction of modern education in the 1960s, Bhutan has made considerable progress in achieving the objectives of enhancing the access to education, and ensuring educational quality, equity, and efficiency within the system. The current structure of Bhutanese education system is depicted in figure 1.1 along with its mapping with the International Standard Classification of Education (ISCED) 2011 classification and Key Stages of school education.

Structure of the education system in Bhutan			Education Programmes	Mapping with ISCED 2011		
Key Stages	Grades	Age of students	University/ TVET Institutes		ISCED 2011 Level	ISCED 2011 Programme code
Key Stage-5	Grade XI to XII	17 to 18 years	Higher secondary education	Upper secondary education (3)	344	344
Key Stage-4	Grade IX to X	15 to 16 years	Middle secondary education	Lower secondary education (2)	244	244
Key Stage-3	Grade VII to VIII	13 to 14 years	Lower secondary education			
Key Stage-2	Grade IV to VI	10 to 12 years	Primary education	Primary education (1)	100	100
Key Stage-1	Pre-primary to Grade III	6 to 9 years	Primary education			
--	ECCD	3 to 5 years	Early childhood care and development Pre-school programme	Early childhood education (0)	020	020

Figure 1.1. Structure of Education System in Bhutan (Adapted from MoE and UNESCO ISCED 2011)

The vision for Bhutan from the perspective of education is to create an educated and enlightened society based on the traditional values of *tha dam-tshig* and *ley gyu-drey* (Sublime values of solemn devotion and trust based on interconnectedness, relationship and bonding, and cause and effect). Hence, the outcome expected from the education system is to develop citizens with skills and abilities that are an ideal blend of modern and traditional values reflecting the unique Bhutanese identity.

The system seeks to ensure that future Bhutanese citizens are well-equipped to prosper in the 21st century and beyond, while maintaining the Bhutanese identity and valuing its ancient traditional culture and ancient wisdom. This requires an inclusive and holistic system of education that builds on its competencies while embracing the new developments in line with the vision. To leverage in realizing this vision, the Draft National Educational Policy 2018 have set to create a robust, inclusive, and holistic education system that:

- inculcates the principles and values underpinning Gross National Happiness, and upholds the nation's unique cultural and spiritual heritage and values;
- prepares citizens to become knowledgeable, skilful, creative, innovative, enterprising, and capable of responding to the national needs and emerging global trends

The Bhutan Education Blueprint 2014-24 also supports the fulfilment of this vision by strategizing critical areas respond to the challenges and changing needs of the education system more holistically. It has strategized the educational reform in three sequential waves in order to ensure that the complex interventions planned happen systematically and strategically.

The first wave focuses on ensuring that all teachers, schools, and principals achieve a minimum quality standard by up-skilling teachers, empowering principals, and providing other supportive measures. The second wave emphasises on change initiatives such as institutional work dynamics and culture. Spill over work from the first wave such as improving student learning outcomes in tune to international benchmarks will also be carried out during this period. By the end of the third wave, a self-sustaining system that is creative, innovative and enterprising should be established functioning at high levels of effectiveness and efficiency. During this wave, the Ministry will target Bhutan's participation in international assessments.

The reforms carried out through eight shifts are thematically linked to the four important outcomes – access, quality, equity, and efficiency. However, quality is considered the most important aspect and therefore, it is an underlying theme across all the eight shifts.

Examinations and Assessment System in Bhutan

Examinations and Assessment system has been an integral part of education system from the growth of monastic and now modern education in Bhutan. This has grown with the development and advancement of education system in terms of measurement approaches and assessing educational outcomes. Education system in the country are assessed at school level and national level in line with the national and international standards. The *Bhutan Council for School Examinations and Assessment* (BCSEA), established in 2011, with a mandate to be the watchdog of the education system in the country. BCSEA currently carries out various types of national-level examinations and assessment at four key stages of student learning – Grades III, VI, X and XII. At the end of grade III and VI, students appear for a year-end Competency Based Assessment Test (CBAT). In this case, the question papers, model answers, and marking schemes are provided

by BCSEA, while the administration and evaluation are carried out by the respective schools as per the examination standards set by BCSEA. The consolidated results and selected answer sheets are sent by the schools to BCSEA for further analysis and feedback.

BCSEA also conducts Council examinations at the Secondary and Higher Secondary levels. These are considered high stakes examinations and are administered to the students at the end of grades X and XII.

The NEA is a periodic assessment carried out by BCSEA. The first NEA was completed in 2004 for grade VI students were assessed on literacy (English) and numeracy (Mathematics). In 2006, Grade VI Dzongkha was assessed, followed by Grade X in English and Mathematics in 2007. The second round of NEA for grade VI on literacy and numeracy was conducted in 2011. Subsequently, grade X underwent the second round of the NEA in English and Mathematics in 2013. The test items in the NEA were developed in line with national and international standards to cover learning standards as well as competencies as per the curriculum.

The school level examinations and assessment across the country are conducted as per the subject curriculum framework developed by Royal Education Council (REC). Scores of these examinations and assessment are used to determine students' learning achievements, and provide timely interventions for improvement.

The Need for National Education Assessment in Bhutan

While access to education has expanded significantly in recent years, the quality of learning still remains a major challenge. The study on the quality of education¹ carried out by the Royal Education Council (2009) revealed the following findings.

- Students learning outcomes are below the minimum expectations of their grade levels, and that they are unable to perform basic numeracy and literacy tasks.
- Majority of students are unable to understand core concepts and are also unable to apply knowledge to real-life situation across grades and subjects.
- Students perform better in questions related to recall.

¹ The quality of school education in Bhutan: realities and opportunities'

- Gaps exist even in case of procedural learning as students make simple mistakes in questions related to procedural applications.
- Students across grades performed poorly in questions related to work visual problem, indicating that students have poor comprehension ability.
- Employers perceived graduates as lacking the academic preparation and professional skills to succeed in entry level jobs.

The results of the NEA 2013-14 and results from the PISA-D assessment survey conducted in 2017 showed similar concerns on the quality of educational outcomes. The PISA-D findings revealed that the average solution rate in Bhutan for Reading Literacy is 45.3 percent, for Mathematical Literacy it is 38.8 percent, while it stands at 45.1 percent for Scientific Literacy (BCSEA & OECD, 2019). When compared to other seven PISA-D countries, the performance of Bhutan's students is ranked between the two highest-performing PISA-D countries (Ecuador and Paraguay); however, the report further expounds that a reliable estimate based on the percent correct scores shows that this performance is significantly below the OECD average. It is, therefore, evident that the education system needs urgent intervention to upscale the standard of quality education in Bhutan. One of the immediate measures is to review the current practice of examinations and assessment systems to address the gap between the current and expected learning levels of the students. The other interventions such as teaching learning materials, professional development and other support systems will still remain critical area that requires periodical review and appropriate interventions.

International experiences and researches indicate that learning assessments are a critical tool to promote equity, accountability and improve the quality of education systems by providing much-needed information to improve teaching and learning processes at the classroom level (UNESCO, IEP, 2019). At the system level, good standardised learning assessments can inform policy-making, monitor progress towards system targets, identify marginalised and disadvantaged groups for targeted interventions, and ensure appropriate resource allocation.

Standardised assessments for diagnostic purposes are intended to evaluate the system rather than the students, teachers or schools at an individual level. Hence, they are designed based on these requirements, and are different from other assessments such as high-stakes public examinations. The standardized assessments identifies knowledge, skills, abilities as well as values and attitudes

that students possess and those they lack, and close the information loop by recommending courses of action to improve the system. On the other hand, high stakes examinations are designed to capture individual students' performance. Consequently, reporting of standardised assessments is done at the system level (e.g., at national level) whereas public examinations report a snapshot of performance at the individual students' level.

National Assessments are used by countries for informing specific policy and system-level interventions. For example, Vietnam used its national assessments to monitor students' learning progression over time and to evaluate the effectiveness of policy initiatives focused on educational quality to help schools meet new school-based standards (Attfield & Vu, 2013). While in Australia, the national assessment was used to target in-service professional development programmes for improving teacher and school quality in identified schools. The programmes provided literacy and numeracy coaches to work with identified school staff for an improvement in pedagogy (Council of Australian Governments, 2012 as cited in Tobin, Lietz, Nugroho & Vivekanandan, 2015).

Realising the gaps in the current education examinations and assessment system. The Bhutan Education Blueprint 2014-24 highlights the need to revamp of the assessment system to attain the desired competencies at various levels, while acknowledging that the assessment system in Bhutan has only enabled Bhutanese students to reproduce content knowledge. In order to effectively achieve this objective, there is a need for a nationwide low-stakes diagnostic assessment that is standardised.

As per the Strategic Framework of BCSEA, 2013, BCSEA requires 'Conducting empirical studies that provide diagnostic information on examinations and assessment' and conducting the NEA has been identified as an integral objective to achieve this goal. However, faced with its own challenges and issues with the current form of the NEA (BCSEA, 2015), this document has been developed not only to address its challenges but also to align education with the vision of education system in Bhutan. Following are some of the changes that the NEAF shall address in order to meet these challenges:

- The earlier NEA implementations from 2002 to 2013 did not have the advantage of an Assessment Framework. As a result of this, the test items were based on the traditional curriculum. This document presents an assessment framework that gives clear guidelines to

test developers and other stakeholders in conducting valid and reliable assessment cycles based on measurable learning outcomes at key stages.

- Technical Standards being developed alongside will assure adherence to international quality standards through the NEA cycles.
- BCSEA's capacity building in the test item design, scientific sampling, data analysis and reporting will ensure that the NEA follows robust assessment cycle.
- A sampling plan will be developed to take out scientifically valid samples for the assessment.
- The Assessment Framework will not only guide test developers in developing test items in each domain but will also aid in developing valid background questionnaire for the students, teachers, and schools.
- Assessment design has been reimagined in the assessment framework to again identify the key stages as well as frequency of testing required in the NEA. Grades III, VI and IX have been identified to be tested every three years in the NEA for several reasons. Firstly, testing the students at the end of key stages. For example, grade III at the end of Key Stage -1 and grade VI at the end of key stage-2, will give critical information about the students' learning development (See Figure 1.1). Secondly, this model will allow tracking the development of the same cohort of students from grade III through grade IX. Thirdly, grade IX has been selected over grade X because the gap between grade VI and X is too large to provide meaningful vertical linking of test items. Lastly, grade X students also have board exams and an additional NEA at that stage will not be suitable. Therefore, a preference has been given to grade IX to be included in the NEA. This re-design allows for providing comparable analysis of key development stages at regular intervals, generating timely and effective policy recommendations for evaluating old programmes and designing new programmes. More detail about this model has been covered in chapter 7.
- A proficiency scale will be developed for each domain across grades to provide progress and growth analysis.
- The proficiency scale will have proficiency descriptors to facilitate a system-level understanding of student performance and growth over time in terms of skills, knowledge,

and understanding in each domain. This information can be used at multiple levels for effective policy formulation or curricular reforms.

- An inclusive NEAF is being developed to ascertain that students from all backgrounds are able to participate and benefit from the assessment. Assessments will be made accessible for children with special education needs through proper accommodations.
- 21st century competencies are being addressed for the first time in the NEA. However, some background spadework is required before the NEA is able to comprehensively assess and report on 21st century competencies in the future cycles. Therefore the first cycle will help through that and will largely report on the state of implementation of 21st century competencies in the education system across Bhutan.

Objectives of Bhutan's National Education Assessment

The objectives of Bhutan's NEA are:

- Monitor the health and quality of school education by providing timely feedback to its key stakeholders.
- Provide information about achievement levels of students at key stages of learning.
- Monitor educational standards over time with respect to the change in students' learning achievement and progression in grades, and differences between sub-populations.
- Monitor learning outcomes over time and how they relate to improvements in education inputs and educational initiatives which were implemented.
- Guide educational policy developments and interventions to improve learning outcomes and to address inequalities in learning outcomes such as due to differences in socio-economic status.
- Make decisions about resource allocations based on the impact of education inputs on learning outcomes.
- Provide an independent review of students' achievement in relation to curriculum standards.
- Identify areas that need support in terms of curriculum revisions, 21st century teaching and learning strategies and professional development of teachers.
- Create reliable data that can be used to identify trends in educational achievement and growth over a period of time.

Features of a Robust National Assessment Framework

An assessment framework is a public document that briefly outlines the assessment programme and explicitly states its characteristics and the principles upon which the assessment is built. As stated below, the framework serves a number of purposes for the individuals and organisations working on a national assessment as well as for the broader public interested in understanding the assessment and how to interpret its outcomes:

- **Consistency** – An assessment framework helps achieve and maintain uniformity in an assessment.
- **Quality Assurance** – It guides test developers in writing test items according to given specifications that help in targeting a test to the appropriate group by covering suitable content areas in the right proportions. It also guides the development of contextual questionnaires by defining the framework and identifying the areas of focus for answering relevant policy questions.
- **Reliability** – A reliable assessment ensures that repeated or equivalent assessments will produce consistent results. An assessment framework guides the team working on developing assessment tools in developing reliable test items, test forms and processes.
- **Validity**– Validity is one of the most important aspects of assessment that ensures that the assessment measures what it was designed to measure. Hence, an assessment framework helps in removing measurement bias as well as distortions ²from the assessment.
- **Transparency** – The details stated in the assessment framework provide a clear picture of the features and purposes of the testing programme to a wide audience.
- **Comparability** – An assessment framework also documents an assessment plan to ensure consistency from one assessment cycle to the next. As a result, any change in the programme in the future cycles can be compared, recorded and evaluated.

² Distortions can seep in the assessment in many ways that can have a negative effect on validity. For example, having a literacy item that requires numeracy skills, or an item that gives advantage to a certain group of students due to background knowledge.

- **Acceptability** – An assessment framework also plays a role in ensuring acceptance from a wide range of stakeholders to ensure that any information gathered by the assessment and the recommendations are actually utilised.

A robust assessment framework assists in building a valid and reliable test instrument. It also serves as an effective planning tool for monitoring trends in education and comparing the results from different assessment cycles over time to identify areas that need deeper investigation.

The assessment framework is also the document where any **change and deviation** from the specified plan are documented along with the reason for the change. The assessment framework thus tracks any variations, changes and recommendations made in a particular testing cycle so that testing is consistent across cycles and students' performance can be tracked over time.

The **key features** of a national assessment framework include:

- a clear description of the aims and objectives of the assessment
- a clear definition of what the students should achieve at the end of an educational programme, such as, *defining reading, writing, listening and speaking literacy, mathematical literacy or scientific literacy*
- a clear definition of the different skills, competencies and essential learning attributes
- the learning outcomes to be assessed
- the subject domains, sub-domains and its content proportions to be assessed
- the types and proportion of skills or competencies to be assessed
- the target population or grade to be assessed
- the difficulty level of the items
- a description of the test design including the item formats, the duration of the test, the number of booklets to be used, the number of items in each test booklet and the number of link items to be used across grades and within a grade
- the contextual factors that correlate with student achievement and the aim of the analysis

Development Process for Bhutan's National Education Assessment

Framework

Considering the need for a standardized National Education Assessment Framework (NEAF), this document has been developed in consultation with teachers and education experts within the country with technical support from ACER. The framework is built based on the existing education policies, guidelines, strategic documents, research studies and curriculum. The NEAF comprehensively incorporates curricular, cross-curricular knowledge, understanding and competencies that can be used as indicators of students' achievement levels, as formulated within the policy goals.

The development of NEAF is also based upon sound principles and best practices of large-scale assessments conducted by experienced global leaders such as OECD, World Bank, and Australian Council for Educational Research (ACER & UNESCO, 2017). The development process began with a thorough review of the documents, curriculum and textbooks from Pre-primary to grade XII in the subject areas of English, Mathematics, and Science. Findings from these studies were shared with a wider subject expert group for selecting measurable LOs. A series of orientation, familiarization and consultation workshops were conducted for the development of NEAF and technical standards. The initial draft of NEAF was shared with relevant stakeholders. The National Core Review Team was constituted to review and finalized the NEAF.

Bhutan's education policies explicitly state the need to prepare students for the 21st century and embrace changes that meet international standards. The aim is to incorporate **21st century competencies** such as analysing, creating, evaluating information, critical thinking, problem solving, collaborating, communicating, in addition to inherent national values, to prepare students to be nationally rooted and globally competent. These competencies are **cross-curricular** and go beyond the textbooks in testing a students' ability to apply knowledge and skills in unfamiliar complex situations. The NEAF explicitly states how the different components of LOs will be comprehensively assessed to identify the gaps in educational achievements.

Reporting and Dissemination of the National Education Assessment

The NEA serves a range of stakeholders, hence reporting of the NEA needs to be customised to serve the requirements of diversified audiences. Generally, the key stakeholders interested in reporting of the NEA include policymakers, curriculum developers, education officials, state and district/thromde educational officers, school leaders, teachers, parents, students, general public and mass media. Each of these stakeholders wants to see different levels of details. Likewise, reporting can be done at different levels. However, tentatively the NEA will be reported in Bhutan at the national and district levels.

All assessment tasks will be mapped to specific learning outcomes and competencies during the item development phase. During the data analysis phase, the tasks will further be arranged along a proficiency scale using Item Response Theory (IRT) indicating their level of difficulty and the level of skill required to answer each item. At the end of the assessment cycle, the results will be reported quantifying the proportion of students at various levels of proficiency along with a description of the skills and knowledge associated to each level. Students' performance and information drawn from contextual questionnaires will be incorporated into reports and disseminated for use by a wide range of stakeholders.

During the implementation of the first cycle, only grade III students will be assessed, and report generated accordingly. In subsequent cycles, grades VI and IX are to be assessed as thus the successive reports will contain comparable information pertaining to performance across the grades participating in an assessment cycle as well as across the assessment cycles. Monitoring of each cohort participating in assessment cycles across years shall be achieved using a set of techniques such as scale building, horizontal linking as well as vertical linking of test forms etc. For example, the cohort of grade III students assessed in the first cycle will be again assessed when they reach grades VI and IX subsequently in the assessment cycles two and three. This tracking of each cohort will enable reporting of an progression of student learning outcomes as a result of a new policy or intervention.

Key Considerations Regarding the Bhutan’s National Education Assessment Framework and its Reporting

1.1.1 *Assessing cognitive skills*

In Grade III, Reading Literacy and Mathematical Literacy shall be assessed. For Grades VI and IX, additional domains such as Writing Literacy and Scientific Literacy shall also be assessed. When necessary arrangements (time, human capacity and other resources) are in place, Listening and Speaking Literacy shall be assessed.

Table 1.1: Grade wise cognitive domains included in the NEAF

Grade	Cognitive domains
Grade III	Reading Literacy, Listening and Speaking Literacy, Mathematical Literacy
Grade VI	Reading Literacy, Writing Literacy, Listening and Speaking Literacy, Mathematical Literacy, Scientific Literacy
Grade IX	Reading Literacy, Writing Literacy, Listening and Speaking Literacy, Mathematical Literacy, Scientific Literacy

1.1.2 *Assessing 21st century competencies*

The definition of the competency varies slightly in different countries and languages. However for Bhutan, BCSEA defines competency as the essential skills, knowledge, and attitudes and behaviours required for effective performance of a real-world task or activity (BCSEA, 2016, p.iv).

In the context of the NEA, assessing 21st century competencies according to the sound principles of assessment is also required so that the real scenario of students learning outcome is revealed for appropriate interventions by stakeholders such as teachers, student, administrators, and parents. Based on the information provided by such an assessment, teachers, school leaders and policy-makers would be able to make improvements in the learning opportunities available to the students.

The assessment must be aligned with the defined goals of 21st century competencies, that the students are expected to meet. However there are no internationally agreed definition of assessing the 21st century competencies, and many countries define them as per their context. Most often, the skills listed under the umbrella of 21st century include critical thinking, problem solving, creativity, analysis, collaboration, and global citizenship. Thus, it is essential to assess these skills

through tasks requiring the students to apply their content knowledge in various situations. The core capability at the heart of 21st century competencies is the ability of lifelong learning and being able to synthesise and apply the content knowledge in different or novel situations.

Taking this into account, the Bhutan Education Blueprint 2014-24 elaborates on the 21st century competencies by anchoring students' aspirations in the four imperatives of learning and achievement, namely Knowledge, Competencies, Values, and Attitudes. The Blueprint further describes the nine Essential Learning Attributes (ELA) that indicate the quality of learning in one or more of the imperatives. Hence, one of the objectives of the NEA is to assess 21st century competencies enshrined in the nine students' attributes. These attributes and values can be assessed through various cognitive and/or contextual tools in the NEA. A snapshot of the instruments and domains covering each of the nine ELAs is given below in Table 1.2 to the Bhutan Education Blueprint 2014-24, student aspirations are anchored in the four imperatives of learning and achievement, namely Knowledge, Competencies, Values, and Attitudes.

Table 1.2: Coverage of the nine essential learning attributes in the NEA

Essential Learning Attributes (ELA)	Coverage in the NEA	Assessment domains covering the ELA*
Knowledge and understanding	Cognitive instruments	Reading Literacy, Writing Literacy, Listening and Speaking Literacy, Mathematical Literacy, Scientific Literacy
Intellectual competence	Cognitive instruments	Reading Literacy, Writing Literacy, Listening and Speaking Literacy, Mathematical Literacy, Scientific Literacy
Communicative competence	Cognitive instruments	Reading Literacy, Writing Literacy, Listening and Speaking Literacy, Mathematical Literacy, Scientific Literacy
Enduring habits of lifelong learning	Cannot be explicitly covered in NEAF. Will be implicitly reflected in the texts selected in cognitive instruments and contextual questionnaires	Implicitly covered through texts in English Reading, Writing tasks, Listening and Speaking Literacy
Family, community and national values	Cognitive and Contextual instruments	Scientific Literacy, Contextual questionnaire, implicitly covered through texts in English Reading,

		Writing tasks, Listening and Speaking Literacy
Spirituality and character	Cannot be explicitly covered in NEAF. Will be implicitly reflected in the texts selected in cognitive instruments and contextual questionnaires	Implicitly covered through texts in English Reading, Writing tasks, Listening and Speaking Literacy
Physical wellbeing	Cannot be explicitly covered in NEAF. Will be implicitly reflected in the texts selected in cognitive instruments and contextual questionnaires	Implicitly covered through texts in English Reading, Writing tasks, Listening and Speaking Literacy
Leadership competence	Partially covered in cognitive instruments	Mathematical Literacy
World readiness	Cognitive instruments	Mathematical Literacy, Scientific Literacy

1.1.3 *Children with special education needs*

Successful inclusion is not only about accepting the differences (differently able) but it is also a considering the importance of including them in the provision of access to and quality education. An inclusive NEA will thus assure and ensure that children from diverse backgrounds are not only included but are given equitable opportunity to participate in the assessments without any bias built in the tools and processes for appropriate support and interventions. To this effect, the NEAF aims to not only ensure that every child has an equal opportunity to be included in the NEA but also that the assessment is fair to every child. This approach of universal inclusion will be met through various means such as making appropriate accommodations in the tools, such as allocation of extra time, seating, presentation and response format, administration and assessment, while the right sampling technique would provide a valid chance to every child to participate in the assessment.