Quality TVET in Asia Pacific Region:

NATIONAL VOCATIONAL QUALIFICATION SYSTEMS OF CPSC MEMBER COUNTRIES

QUALITY TVET IN ASIA PACIFIC REGION: NATIONAL VOCATIONAL QUALIFICATION SYSTEMS OF CPSC MEMBER COUNTRIES

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FOREWORD

The world's workforce presently gears towards a new era of knowledge and efficiency. This direction emphasizes the need for the education system, particularly the sector of technical vocational education and training (TVET) to generate a workforce that imbibes characteristics that can easily adopt to the demands of this rapidly changing environment. This encapsulates the necessity to develop training institutions and systems that stresses on implementing high standards of quality in their respective operations.

When policymakers discuss about quality TVET, they tend to focus on the quality of TVET infrastructure or the efficiency of TVET instructors in imparting the skills, ideas and the necessary preparations in order to ensure the trainees' readiness to face the world of work. However, this is just one aspect of "quality TVET". I believe that more often than so, it involves the adoption of standards, qualifications and certifications that ensure the trainees' readiness to not only perform the skill or task expected in his chosen qualification but also be ready for the challenges of employment.

Thus, the establishment of qualification frameworks and systems to formalize, regulate and ensure the success of learning outcomes to its intended goal should be seen as a necessary step in making TVET a relevant and gainful undertaking in education.

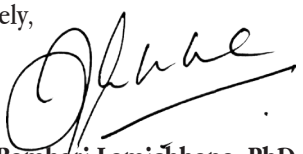
In line with this aspiration, this book is a product of the efforts brought upon by the participants of the International Program on Sharing and Learning on National Vocational Qualification Systems (NVQS). Held in Dhulikel, Nepal from March 6-10, 2017. This 5-day event invited TVET experts and policy makers from all-over the region to discuss the various practices and standards on NVQS implemented by different countries and enabled the opportunity for the participants to learn from the unique systems and frameworks implemented by different countries. Country papers from Bangladesh, Bhutan, Fiji, Korea, Malaysia, Maldives, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka and Thailand are featured in this publication which showcase different approaches adopted by TVET agencies and providers in evaluating and certifying competencies of TVET trainees in the region.

It is, therefore, a publication that hopefully lays the ground work for sustainable TVET implementation-one that emphasizes quality TVET operations while documenting the intricacies, ideas and possible challenges that will be important in identifying possibilities to further improve or enhance its operation.

The Colombo Plan Staff College, consistent in its advocacy of promoting and sustaining quality TVET in the region, places itself in the forefront of initiatives that will contribute to the success of TVET in the region through academic pursuits such as this publication. CPSC will continue to facilitate its role as a "clearinghouse" of TVET information in the region through the development of timely and relevant enterprises that captures the variety of TVET implementation in its member countries.

To the reader, we hope that this will serve its intended purpose. May your knowledge and ideas be enriched by the concepts and systems illustrated and explained in this book.

Sincerely,



Prof. Ramhari Lamichhane, PhD
Director General
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ACKNOWLEDGMENT

This valued publication entitled: "Quality TVET in Asia Pacific Region: National Vocational Qualification Systems of CPSC Member Countries" is a product of the collective efforts, thoughts and ideas of CPSC country agencies and representatives who participated in the International Program on Sharing and Learning of National Vocational Qualifications Systems (NVQS) held in the Mirabel Resort in Dhulikel, Nepal from March 6 until 10, 2017.

The compilation of country papers and presentations aims to serve as a reference material to the policy makers, academics, professionals and practitioners in their pursuits to understand the variety of qualification systems in the region.

It is a work that was made possible through the efforts of the participants and experts from Bangladesh, Bhutan, Fiji, Korea, Malaysia, Maldives, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka and Thailand who came to the venue to share their insights and ideas on NVQS implementation in their respective countries.

We are grateful to all the member governments of the Colombo Plan Staff College for providing their valuable support to its endeavors in uniting all of its members in a common venue to discuss and discern concerns, aspirations and ideas for the betterment and improvement of TVET in the region.

We extend our deep gratitude to the officials and staff of the Council for Technical Education and Vocational Training (CTEVT) Nepal, particularly to Mr. Ramesh Bakhati, the Acting Member Secretary; Dr. Kul Bahadur Basnet, the CTEVT Vice Chairperson; Mr. Tek Bahadur Malla; Director of Technical Education, CTEVT and Mr. Mohan Bahadur Karki, Senior Technical Officer of CTEVT, for ensuring the smooth implementation of the program and the provision of all logistical requirements.

We express our special thanks as well to the officials and staff of the National Skills Testing Board led by its Director, Mr. Yam Prasad Bhandari, for their invaluable contributions to the program's success.

Our deepest appreciations as well to the team behind the Nepal NVQS Project, led by the Team Leader, Mr. Devi Prasad Dahal and Swisscontact, for ensuring the program's positive accomplishment through their unwavering support.

Lastly, we recognize with utmost gratitude and respect the industrious staff members of CPSC for ensuring the success of this publication through their initiative to collect, edit, layout and disseminate this publication to the readers and researchers across the region and the world. Truly, their dedication to their tasks and their excellent teamwork affirm CPSC's reputation as a model institution for continued and valued commitment towards regional partnership and development.

Editorial Team

TABLE OF CONTENTS

CHAPTER I

Concepts and Benefits in Establishing A National Vocational Qualifications Framework

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Introduction

Qualification has been defined by the Organization for Economic Co-operation and Development (OECD) (in Werquin, 2010). as "a recognition reflecting the individual's achievement of the pertinent learnings, skills and competencies to the standard specified for the qualification title". Similarly, "qualification's system" encompasses all the countries' activity in recognition of learning while the national qualification system is said to be an "instrument that classifies qualifications according to set of criteria" for the levels of learning outcomes achieved". A sustainable and inclusive Technical Vocational Education and Training (TVET) would mean a quality TVET delivery and implementation. This is the direction promoted by various educational institutions and organizations in ensuring TVET's future in the field of education and training. It has been mentioned by UNESCO (2016) in its recommendations to TVET that "member states should establish a system for quality assurance in TVET based on participation by all relevant stakeholders". The organization also mentioned that "quality assurance should include clear and measurable objectives and standards, guidelines for implementation and feedback mechanisms and widely accessible evaluation results".

Given this advocacy, it is very important that there is an effective qualification and certification systems in place. Qualifications and qualification systems thus should be oriented towards producing effective learning outcomes based on acceptable and proven industry standards that are developed by the people involved in the industry. One of the recommendations forwarded by UNESCO (2016), emphasizes that these mechanisms should always support "horizontal and vertical" progression that will include: (1) flexible learning pathways, (2) modularization and recognition of prior learning, and (3) accumulation and credit transfer. These factors will be crucial in ensuring that an individual availing of the training opportunity will be guaranteed of a job that will fully maximize his/her potential while enabling him/her to provide for himself/herself and for his/her family not only through skilled labor but also through entrepreneurship and application of lifelong learning.

The development of National Vocational Qualification Frameworks (NVQF) in each country should be of utmost concern and priority. Doolette (2001), mentioned "the role of qualifications framework is to ensure that qualifications meet the nation's economic and social needs, contribute to the quality assurance arrangements for providers and qualification delivery, improve pathways to employment, improve pathways through education (credit transfer, articulation and recognition of prior learning) and support international recognition of national qualifications." This was followed up by the description of Piyasiri

(2011), in his paper about the design and implementation of NVQFs in Sri Lanka. He outlined that NVQFs as:

a. A vocational qualification system that could assure quality and certify the competencies and offer unified qualifications across all training providers, both public and private,

b. Upward and lateral mobility within the vocational qualifications without any disadvantage to a person who has missed part of general education in the schools,

c. Progressive acquisition of competencies as a person obtains higher qualifications so that he/she would be able to perform range of activities in the chosen field.

d. Learning effort at middle technical and degree levels to be quantified through a credit system so that the comparison of vocational with other qualification systems would be possible.

The National Qualification Frameworks (NQF) is a quality assured standards of knowledge, skills and attitudes acquired by learners or workers of a certain country. This paper introduces the concepts and benefits in establishing a National Vocational Qualifications Framework.

Qualifications Framework and Its Features

A qualifications framework is a descriptive framework that organizes qualifications according to a series of specified levels of knowledge and skill. These levels are defined in terms of learning outcomes: the competences learners must have, regardless of whether they earned these competencies formally/ informally, on the job, or elsewhere. New and existing qualifications can be placed within this system of levels according to their learning outcomes. This allows qualifications to be compared more easily, and makes it clearer how learners can progress from one level of qualification to the next. By specifying the competences that qualifications of a certain level represent, it facilitates the comparison of qualifications within and between occupations and sectors. Wholly developed frameworks can bring secondary education, vocational, technical and higher education within the same set of competence levels, and qualifications are fully transferable between the different education sectors. Linked frameworks allow education sectors more independence in designing qualifications, but ensure broad comparability between different levels of qualification.

According to CPSC (2009), qualification frameworks are increasingly seen as instruments to connect different parts of a country's education system, enabling people to pursue various learning pathways. It can provide pathways to create opportunities for all learners in further education and training to have their achievements recognized (RPL). A country's National QF shall have compatibility and coherence with the Regional QF and Global QF so as to have uniformity and standardization.

Additionally, it is important that the standards of knowledge, skill and competence should be defined in broad and inclusive terms and developed in consultation with all relevant stakeholders at National, Regional and Global Levels. A modular structure of learning units where learners can build credit at a pace that suits themselves need to be developed. A clear and navigable framework structure requiring no interpretation by an intermediary awards that have currency and recognition in the workplace and wider society is essential to provide suitable pathways. In an NQF, gaining a qualification is not bound by a place of learning (e.g. institution). This opens up the system to those who acquired skills in the workplace and through other activities. Individuals can re-enter the formal education and training system at the appropriate level by getting their skills assessed and certified thus Improving access by formally recognizing prior skills and learning. These features have implications for the approaches/s to be adopted for setting standards.

The interest in NQFs has been increasing as specific models have been adopted in countries including Mexico, Trinidad and Tobago, the Philippines, Ghana, Slovenia, Mauritius, Ireland, Singapore and some Arab countries. Some regions have begun discussion on the possible creation of a common regional qualification frameworks based on NQFs in their regions. The main difference in terms of scope of coverage is whether the framework includes only VET qualifications (e.g. Singapore, Malaysia, the Philippines, Trinidad and Tobago), or includes other qualifications such as secondary and post¬ secondary academic qualifications and higher education qualifications (e.g. South Africa, New Zealand, Australia, Scotland, Ireland). In Australia, the National Qualifications Framework (AQF) is designed to make training and regulatory arrangements simple and more flexible and allow easier movement between courses, programs and institutions.

Need for National Qualifications Framework

The scope, structure, organization and implementation of framework vary considerably from one country to another. In few countries context ensuring that vocational education is not a dead end - allowing well performing students in the vocational education track to proceed onto higher technical education will ensure that the vocational stream is not seen as an option of last resort by prospective students. The establishment of NQFs can promote vertical and horizontal learning across education and training pathways. A regional qualifications framework is seen as a means for structuring, classifying and valuing the many existing qualifi¬cations and awards from all areas of education and training within each member state and across the region.

The regional qualifications framework could therefore prove useful in facilitating the mobility of learners and skilled workers in the region. Regional as well as national qualifications frameworks must acknowledge that education and training systems are interdependent. One major advantage of the move to training standards is that it allows the participants maximum flexibility in moving between education systems.

Collett (2008) highlights the benefits of QF based on European experience that includes: Progression, Recognition of Prior Learning, Mobility within and between occupational and industrial sectors, International mobility, Involvement of employers in standard setting.

As per Piyasiri (2011), the expectations sought from the establishment of a National Vocational Qualifications Framework relate to increasing the relevance and quality of TVET, specifically there shall be the following changes:

1. Unified qualification framework which is recognized nationally and understood internationally;
2. Development of progressive qualifications for career advancement;
3. Greater alignment to national goals;
4. Strengthened linkages with industry, commerce and other external stakeholders;
5. Increased responsiveness to industry competency needs; Convenient & flexible access for potential trainees;
6. More proactive education and training strategies;
7. Improved international linkages and recognition;
8. Collaboration and rationalization among the training agencies;
9. Enhanced quality, relevance, performance, effectiveness, efficiency and transparency; and
10. An education and training culture of responsiveness and excellence.

A study of NQF of various countries (Burke and Fearnside, 2009) shows that objectives and benefits have been perceived with their different contexts of priorities in developing and implementing NQF. These objectives and benefits revolve around the following:

1. Establishing national standards of qualifications
2. Providing a model of transparency and comparison of qualifications
3. Promoting quality of education and training provision and development
4. Strengthening access to learning and progression in learning
5. Supporting lifelong learning
6. Improving recognition of prior learning
7. Creating and becoming an instrument for change in the education system
8. Expanding possibilities for international recognition of qualification
9. Increasing coherence between education output and the labour market

The contexts, in which the development and implementation of NQF fall, among others, include:

1. Anchoring with policy reforms and formulating related objectives and benefits
2. Scope and modes of implementation and management
3. Stakeholders participation and their interests
4. Development and implementation of competency based curriculum
5. Reference point for quality assurance and accreditation
6. National coherence and international benchmarking

Learner Mobility:

While the aspect of quality in NQF is one of the most important components, but to implement the concept of learner mobility" it is important that the following characteristics are kept in mind: (1) Recognition, (2) Relevance, (3) Compatibility, (4) Coherence and (5) Transparency at all levels. Through the NQF, all learners need to have access to formal recognition of their learning in the form of awards. All learning should be recognized at the appropriate level in the new framework.

The external structure of the framework presented to learners, employers and providers must be clear and navigable. Coherence will require that these come together in a unified way and that flexibility does not result in confusion for stakeholders. The framework must be durable and robust while accommodating flexibility and compatibility for learners and providers. As a net result, the time and effort needed to gain advanced qualifications should be minimized.

The Three Pillars of Qualifications Framework

The primary purpose of the National Qualifications Framework (NQF) is to create a coherent categorization for National Vocational Qualifications (NVQs) and to facilitate transfer and progression, both within areas of competence and between them.

The areas of competence within the NVQ framework result from an analysis of work roles and provide the initial organizing structure for competence-based qualifications. Further refinements to the system

are being made as the qualifications are developed and routes for progression/transfer are identified. NVQ's are accredited for a period of three to five years (maximum), as a result, new and revised NVQ's are constantly becoming available.

The three pillars of the Qualifications Framework for TVET are characterized by its being (1) skills-based and work-related, (2) competence-based or outcome-based qualifications, and (3) quality assurance. These are further elaborated below:

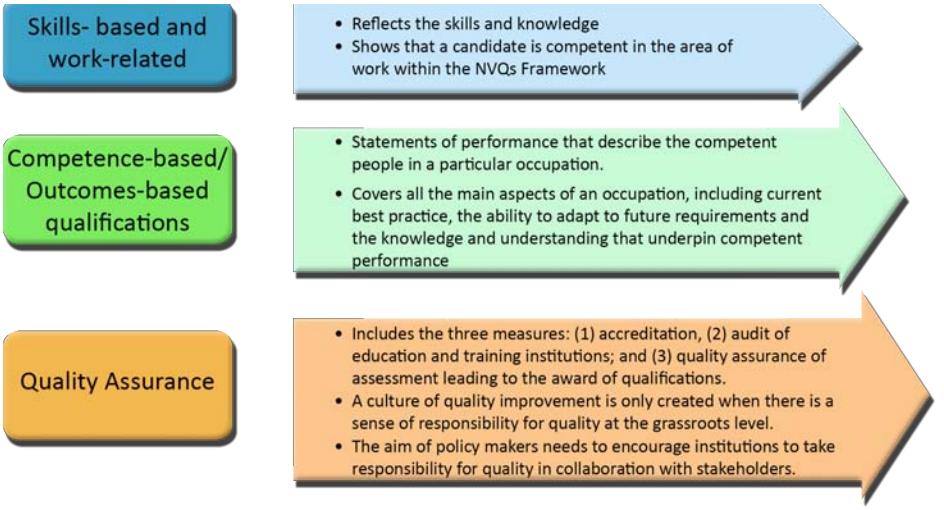

Figure 1: The Three Pillars of Qualifications Framework

Status of Qualification Framework

QFs are being developed worldwide. QFs are shaped by their context and objectives and the result of consultation and consent between stakeholders. All existing QFs are different. Internal and external drivers are what distinguish diverse qualifications frameworks.

Internal drivers:

- Improved access and social inclusion
- Demographic change
- Diversification of pathways and progression
- More adult learners, competitiveness, and productivity
- Skills gaps and skill shortages
- More coherent
- Improved relevance
- Quality enhancement and assurance

External drivers:

- Need for more transparency
- International labour and student mobility
- Migration
- International careers
- Need to recognize foreign qualification

Table 1 shows the different type of Qualifications Frameworks and their relevant distinctiveness:

Table. 1 Different type of Qualifications Framework (Paryono, 2009)

Types of Frameworks	Characteristics
Implicit	No explicit expression of a framework (diagram, levels, description). However, citizens know qualification levels (e.g. what qualification is needed for university, to enter the labour market as a skilled worker. Obviously no links between different education and training sectors
Sector	Defined series of qualification levels for one or more education and training sectors (general, VET, HE, Adult) some sector frameworks will have level descriptors. No explicit links between the sector frameworks of different education and training sectors
Bridging	In its weakest form, there is a set of common levels covering all education sectors, which is the basis for relating to each training sector framework. In its strongest form, these common levels have a set of descriptors that are different to those of the sector frameworks they relate to.
Integrating	A single set of levels and descriptors covering all education and training sectors, each sector uses this set of levels and descriptors as its own framework. No separate sector framework exists. The integrating framework forms a formal link between different education and training sectors.

One notable step in implementing quality assurance is the APEC (Asia Pacific Economic Cooperation) ministers' agreement to collaborate on maintaining quality assurance frameworks, recognition of educational and professional qualification, promotion of competency-based standards in the education sector and the development of a common recognition of technical skills across the region.

NQF is considered to be a "recent phenomenon" led by Australia and New Zealand in the 1990s. Since the next decade, a number of Asian countries have already implemented this in their respective TVET systems, with more countries to follow. Usually, it comes with an extensive reform of the existing TVET practices and the introduction of innovations like the development of competency-based training. Asian. NQFs are basically patterned after models from more advanced economies including England and Wales like the Malaysian NQF.

In the Philippines (Isaac, 2009) the idea of a National Qualification Framework was initiated by the Technical Education and Skills Development Authority in 2004 but is implemented on separate educational sectors, which was then falls under the coordination of an established agency called the Presidential Task Force in Education (PTFE).

In the Republic of Korea, the Korean Research Institute for Vocational Education and Training (KRIVET) is the agency that manages the Korean NQF and is seen to be based on the National Technical Qualification Framework.

Burke and Fearnside (2009). identified that NQF structures in the region are different, as reflected on the varying educational systems of the country. These diverse characteristics are:

- The coverage of all sectors of education, with a separate modality in the vocational and in higher education

- Located under the same type of national agency but resources, functions, independence from agencies and specific functions vary
- Some have qualification type descriptors
- Has the capacity to measure and/or align the volume of learning
- Designed to support credit systems
- Supports the prior learning/informal learning instead of the conventional one.

Benefits of Qualification Frameworks

The users of the QF span each education and training sector: schools, vocational education and training and higher education and include the accrediting authorities and institutions providing education and training (Hoeckel, 2008). The goals can be achieved by developing national qualification frameworks and by using a learning outcomes based approach. Learning outcomes are advanced as a key basis for developing national qualification frameworks and in so doing achieving a number of benefits for the qualification systems of member states.

These are:

- Increased consistency of qualifications
- Better transparency for individuals and employers
- Increased currency of single qualifications
- A broader range of learning forms are recognized
- A national/external reference point for qualifications standards
- Clarification of learning pathways and progression
- Increased portability of qualifications
- Acting as a platform for stakeholders for strengthening cooperation and commitment
- Greater coherence of national reform policies
- A stronger basis for international co-operation, understanding and comparison

The benefits for other stakeholders are as follows:

For students:

- the QF encourages lifelong learning and assists students to plan their careers and learning at whatever stage they are within their lives and wherever they live
- QF qualifications allow students to start at the level that suits them and then build up their qualifications as their needs and interests develop and change over time
- the QF supports national standards in education and training
- QF qualifications are recognised across the country
- the QF ensures understanding of what each qualification name and level means
- the registers of registered education and training providers and accredited courses provide assurance that courses and providers are approved by government

- the registers of registered education and training providers and accredited courses provide assurance that courses and providers are approved by government

For education and training providers:

- The QF includes policies and guidelines for credit transfer, articulation and recognition of prior learning.
- It also incliudes policies for issuing qualifications ensures consistency and protection of qualification titles
- The registers of registered education and training providers and accredited courses provide assurance that courses and providers are approved by government

For accrediting authorities:

- The QF provides the standard for each qualification ensuring consistency for qualification accreditation
- The QF applies to all States and Territories

For employers:

- the QF supports national standards in education and training
- QF qualifications are recognised across the country
- the QF ensures understanding of what each qualification name and level means
- the registers of registered education and training providers and accredited courses provide assurance that courses and providers are approved by government

Future Directions for CPSC

a. Create a qualifications framework matrix that describes the policies that were implemented by the member governments as far as TVET is concerned

b. Create an indicators data that will give an overview about the status of the member countries based on the indicators measured

c. Initiate a training that will aim in reviewing quality assurance frameworks implemented and adopted by the member governments.

d. Acknowledge the diversity of the member countries in terms of quality assurance requirements and derive the niche areas from these diverse requirements.

e. Form a committee that will further develop regional initiatives towards harmonizing quality frameworks in the region.

Conclusions

Globalization is speeding up competition in Asia-Pacific region. The strategic issue is how to support the rapid build-up of high quality education and training in order to guarantee long-term success in the chosen employment. The findings from the different sources on training and development reveals that the key in producing employable graduates is the possession of a good national vocational qualification system. It is essential therefore to have the dialogue between stakeholders of TVET and representatives of students, in order to explain and build up the NQF together. In order to achieve all its goals the NQF will have to

be characterized by flexibility, Developing the NVQS shall ensure that all current and newly emerging technical and vocational education and training (TVET) activities are well coordinated.

Competency-Based Training (CBT) curricula complemented by appropriate teaching learning and assessment materials is recommended to be included in the framework, together with requirements for registration and accreditation for training providers and courses respectively. The whole system shall be underpinned on acquisition of competencies with an emphasis on quality. The close link between quality assurance and qualifications frameworks mean that there is a role for quality assurance agencies in the development of national qualifications frameworks. Development of the NSQF in the context of its skills development policy has underlined the importance of continually improving both the quality of education and training and its relevance to the labour market and population.

The road ahead is to understand the NQF as a useful tool among a range of policies, instruments and activities, rather than to see it as a stand-alone policy. The shift from learning input to learning outcomes in training delivery will be an important move towards quality assurance. . It is a timely approach to assess whether or not this mechanism in TVET actually improved enrollment, retention and employability of the trainees. With these in mind, it is important for the region to seek for a common understanding and gauging of qualification standards. It is important as well that the member countries should share the best practices in designing, implementing and monitoring a national qualification framework initiative

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Role of APACC for Total Quality Management (TQM) in TVET

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Introduction

Quality principles, concepts and initiatives as drivers for improving services and products have proven to be very valuable to individuals, groups of people and organizations. Many organizations have also discovered a strong relationship between quality, profitability and productivity.

Quality as value for the money paid has emerged as the managerial imperative of the decade. The slogans such as 'quality counts', 'do it right first time', 'TQM', 'zero defect', 'customer satisfaction', 'quality awards', and 'commitment to quality are talk of the street in production and service circles. Leaders could point to improved internal efficiencies resulting from their quality improvement efforts and assign cost savings to those efficiencies. They could point to process improvements that resulted in shorter development cycles and faster delivery that they intuitively knew contributed to increased customer satisfaction. Business results in terms of enhanced sale and profitability are improved.

Riding on the wagon for change/ improvement in quality of products and services has resulted in subscribing to a variety of systems and frameworks i.e. Total Quality Management, ISO-9000 quality standards series, National Quality Awards after Malcolm Baldrige quality awards and accreditation and certification frameworks. These systems for quality improvement have been adopted according to the nature of organizations i.e. manufacturing/production units, service organizations, educational institutions etc.

The wave towards quality improvement in TVET activities, projects and programs has been taken with due importance by different TVET systems and has initiated different projects for quality improvement to produce highly employable and globally accepted skilled workforce. These initiatives are producing positive results. However, quality improvement will require a consistent commitment to stay conforming to the satisfaction level of the customers on a dynamic basis.

Definition of TQM

Quality is a relative term. For a marketplace definition, Juran (1974) describes it a' fitness for use.' The ISO defines quality as the degree to which a set of inherent/embedded characteristics meets the needs, wants and expectations of a given customer. It is evident that quality must be worked at and consciously achieved. Paying attention to the whole transformation process such as suitability of inputs, the manner

in which input are processed into the finished product or service and the manner in which the product or service is delivered to the customer's satisfaction- all these or quality.

Total Quality Management (TQM) is an enhancement to the traditional way of doing business. It is a proven technique to guarantee survival in world-class competition. TQM is for the most part common sense. Analyzing the three words, we have:

Total—Made-up of the whole.

Quality—Degree of Excellence a product or service provides.

Management-- act, art, or manner of handling, controlling, directing etc.

Therefore, TQM is the art of managing the whole to achieve excellence. The Golden rule is simple but is an effective way to explain it. TQM is defined as both a philosophy and a set of guiding principles that represent the foundation of a continuously improving organization. It is the application of the quantitative methods and the human resources to improve all the processes within an organization and exceed the customer's needs now and within the future. TQM integrates fundamental management techniques, existing improvement effort and technical tools under a disciplined approach.

The American National Standards Institute (ANSI) and the American Society of Quality Control (ASQC) define quality as: "the totality of features and characteristics of a product or service that bears on its ability to satisfy given needs." In highly competitive markets, however, merely, satisfying customer needs will not achieve success and excellence. To beat the competition, organizations often must exceed customer expectations by providing products and/or services that delight and excite customers. They have to satisfy the 'latent' needs and expectations of the customers (both internal and external). Quality is a means to an end. The end is continued viability. Organizations will increasingly find themselves competing not on one front, but four critical fronts, namely: quality, cost, flexibility and delivery.

When the business is booming, quality appeared to be working. But, when business went down, the inevitable questions were asked: "why are we spending all this money on quality? Is our quality initiative paying off?" Many organizations have made the mistake of taking each element of a total quality initiative, and trying to implement each one as a separate intervention. Whenever an organization looks at total quality as a series of techniques that can be independently introduced, the organization runs the risk of not viewing the organic interconnectedness of the elements of an organization. After all, each intervention that impacts one aspect of the enterprise has a bearing on many other as well.

What is needed is a holistic approach to quality. Quality Management System (QMS) is a systematic approach to linking quality initiatives to each and every element of the organization and its culture. It is not just the implementation of an ISO 9000 Standard and Certification or just getting an accreditation. The underlying principle of this total quality view and its basic difference from all other concepts is that, to provide genuine effectiveness. Control must start with the design of the product or service and end only when the product or service has been placed in the hands of the customer who is satisfied.

The Meaning of Quality

Quality is a relative term and it is generally used with reference to die end use of the product. It depends on the die perception of the person in a situation. The situation can be use oriented, cost oriented or supplier oriented. The word "quality" can be taken in the following meanings:-

Table 1: Meaning of Quality (Akrani, 2010)

	Meaning	Description		Meaning	Description
1	Fitness for Purpose	Possess good quality, work well for purpose for which it is meant	8	Durability	It should give efficient and consistent performance.
2	Conformance to requirements	Customers' needs are assessed and translated into product design for specific applications.	9	Safety	Safe and Foolproof workability
3	Grade/Quality Characteristics	Distinguished from others in features, appearance, performance, life and reliability, taste, odor, maintainability	10	Affordability	Should be economical
4	Degree of preference	Preferred over products of similar grade based on comparative tests, customers' feedback analysis	11	Maintainability	Easy to maintain
5	Degree of Excellence	Fulfill Promises made to customers	12	Aesthetic look	Look attractive
6	Suitability	Specific application	13	Economical	Reasonable price
7	Reliability	Give Efficient and consistent performance	14	Versatility	Serve number of purposes

TQM Concepts

Organizations everywhere are increasingly and invariably aware of the competitive capability of quality. Many social services must now compete for work in a way not conceivable only a decade ago. Today, rivalry focuses not on price but quality. Educational institutions, for example, are ranked according to their graduates' employability, performance or productivity. Such is the climate that today; ever-higher standards are demanded in the face of decreased or decreasing resources and amidst the impact of modernization and globalization. This situation calls for not merely quality but something even beyond quality. Something like taking quality as a means to an end, where the end is continued viability. What is referred to now as Total Quality Management is a new management approach?

The explanation given by the US Department of Defense appears to be most comprehensive:

> Total Quality Management is both a philosophy and a set of guiding principles that represent the foundation of a continuously improving organization. TQM is the application of quantitative methods and human resources to improve the materials and services supplied to an organization, all the processes within an organization, and the degree to which needs of customers are met, now and in future. TQM integrates fundamental management techniques, improving existing efforts and technical tools under a disciplined approach focused on continuous improvement.

TQM therefore involves designing organizations to satisfy customers and it has two strands, namely:

- Careful design of products or services
- Ensuring that the organization's systems can consistently produce the design.

TQM is a new way of thinking about organizations. It is said to be the most significant shift in American management thought and practice. A great deal of attention has been given in recent years to the TQM process as an important quality and productivity improvement strategy. With TQM concepts, companies have learned that quality improvement truly goes beyond the product or service specifications required by the customer (Depew, 1993).

TQM requires a cultural change. The typical quality elements have changed meaning now and are shown on the table (1) given below. Small companies will be able to make the transformation in a much faster time period than large companies.

Table 2: The changing meaning

Quality elements	Previous State	TQM
Definitions	Product oriented	Customer's oriented
Priorities	Second to service and cost	First among equals of service and cost
Decisions	Short term	Long term
Emphasis	Detection	Prevention
Errors	Operation	System
Responsibilities	Quality control	Everyone
Problem solving	Managers	Teams
Procurement	Price	Life cycle costs
Manager's role	Plan, assign, control, and enforce	Delegate, coach, facilitate and mentors

Popular Concepts/Guidelines and Techniques in TQM

Different concepts and framework that are used for quality enhancement is service delivery and production of goods.

1. The Basics of Quality Management System
2. TEAMS for TQM
3. Dr. Deming's PDCA cycle

The Basics of Quality Management System

Creech (1994) has mentioned about the five pillars of quality that are worth highlighting as it provides a strong foundation for TQ Managed organizations (Figure 2). This can become the focus of improvement in technical education and training in its transformation.

Figure 1: The changing meaning of TQM

As an explanation of the five pillars, the product (or service) is the focal point for organizational purpose and achievement. Quality in the product (or service) is impossible without quality in the process. Quality in the process is impossible without the right organization. The right organization is meaningless without the proper leadership. Strong, bottom-up commitment is the support for all the rest. Each pillar depends upon the other four, and if one is weak, all are weak.

Besterfield (2003) et.al has suggested the following as key component of any quality management system and.

1. Leadership: a committed and involved management to provide long-term top to bottom organizational support
2. Customer satisfaction: an unwavering focus on the customer, both internally and externally
3. Employee's Involvement: effective involvement and utilization of the entire workforce
4. Continuous improvement: continuous improvement of the business and production processes
5. Supplier Partnership: Treating suppliers as partners
6. Performance measures: establishing performance measurements for the processes

The PDCA Cycle:

Shewhart (in Schmidt and Finnigan, 1993) proposed a process, known as the PDCA cycle, to drive down process variation so SPC would become more and more effective with any given process. To this day, his variation reduction cycle is known as the Shewhart cycle, or the Deming cycle. The PDCA cycle stands for PLAN - DO - CHECK - ACT. To reduce the variation in any process, the analyst must PLAN--decide what action might reduce process variation, DO-try out the idea, CHECK-determine determine that the process variation idea was effective in reducing variation based on the gathered data. idea was effective in reducing variation, ACT-implement the idea permanently. Upon conclusion of the cycle, another idea would be tried, and the cycle repeated. This variance reduction process would continue. The repeated application of the PDCA cycle to a process is known as Continuous Quality Improvement. (CQI).

Deming's contribution to the TQM/CQI philosophy was to expand upon Shewhart's SPC and PDCA ideas and develop a philosophy of management and management practices that would make this idea work in

the real world. We must notice at this point, that the focus of TQM/CQI is on individual processes, one by one, not entire systems. The PDCA cycle has become the hallmark of ISO-standards for measuring organization's continuous improvement strategy.

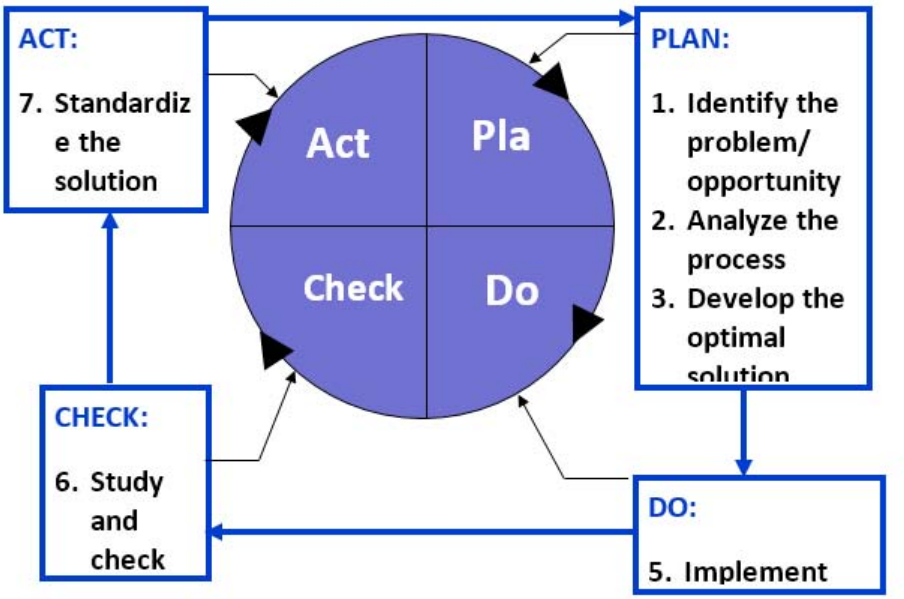

Table 2: The changing meaning

TQM and TVET

TQM started penetrating in education mostly in USA Universities and Schools after 1985. The reasons being that educational institutions in USA were thought and considered to be having many perennial problems for producing quality output such as the following:

- Inadequate emphasis on academic subjects
- Lack of standards
- Poor teaching
- Absence of teaching staff

In order to resolve these problems, it was realized that quality should be assured to produce the desired output and we need it because of the following reasons:

- Education needs to respond to the dynamic changing environments.
- Expectations of stakeholders impress upon education to undergo continual assessment and improvement.
- Education has to respond to the real fear of career obsolescence and career inadequacy.
- Financial constraints and cost cutting with cutting quality

In the Asia-Pacific region, the human capital (skilled people) is the country's most important asset. Being the most productive asset of a country, the people should be given quality skills and competencies in order for them to meaningfully participate in economic and social development. Despite being a fundamental

concept (quality and relevance) within the Technical and Vocational Education and Training System, it is only recently that quality concerns have increased within the system in most of the developing countries. Many countries in the region are reviewing the quality of participation, administration and outcomes in TVET system. At present, a heavy emphasis is placed and discussed on the registration and compliance of training requirements under a national and regional recognition framework.

Emphasis is also placed on consistency in the awarding of quality endorsed training programs. Generally it is also observed that a heavy emphasis is placed on 'front-end' quality assurance measures such as the endorsement of training packages, registration of training institutions and approval of training arrangements.

Very little emphasis is placed on ongoing monitoring and evaluation of quality and training outcomes of trainees. In managing the system there has been a tendency to react to quality concerns as they arise, rather than taking a strategic quality assurance approach. Audit or assessment is largely limited to compliance assessment of registered training organizations. Assurance of quality of training and accreditation of training institutions and programs are clearly one of the major challenges for the TVET system.

The quality assurance system can be applied at both the system and TVET provider levels and can therefore be used to assess the effectiveness of TVET. It gives a particular emphasis to the improvement and evaluation of the 'outputs' and 'outcomes' of VET in terms of increasing employability, improving the match between demand and supply, and promoting better access to lifelong training, in particular for disadvantaged people.

The following are the main questions while TQM or quality assurance system may be introduced into a TVET system:

- What is the main business of TVET institutions?
- What processes are essential to accomplish the institutional business or functions efficiently and effectively?
- Who are the customers of the educational institutions?
- What is the final product of the institutions?

The main processes that can be defined for educational institutions are:

- Needs Identification
- Curriculum design and development
- Student admission and other services
- Teaching - Learning process
- Institutional facilities such as classrooms, laboratories, workshops, library, hostels, sports facilities and their maintenance
- Students Assessment , Examination and Certification
- Staff recruitment, appraisal, promotion and development
- Industrial liaison and placement
- Skill Standards Development
- Marketing and Publicity of TVET programs
- Corporate Social Responsibility i.e. extension services to community.
- Research work i.e. Tracer studies and other innovative activities.

One can define more processes which would depend upon the size and the type of the institutions. After identification of processes that educational institutions may perform they must focus on its customers to understand their current and future needs/, requirements and strive to either come up or to exceed their satisfaction. For educational institutions as well as for other organizations, a customer can be an organization or person that receives a product/service. For an educational institute the customers are:

The educational institutions can identify more customers according to their functions and services. Of course the final products of the institutions are the skilled graduates and Teaching Learning Resource (TLR) material, among others. For an educational institute, the customers are students, government, industry partners, business associates, employers, parents and other members of the community

Steps to Install TQM

To start with, there are underlying assumptions and principles of TQM. Schmidt and Finnigan (1993) presents some of these basic concepts:

- Organizations are made up of complex system of customers and suppliers, with every individual executive, manager and worker functioning as both a supplier and customer.
- Quality – meeting the customer's requirements – is the priority goal and is presumed to be the key to organizational survival and growth.
- Continuous improvement is the guiding principle.
- Teams and groups are primary vehicles for planning and problem solving.
- Developing relationships of openness and trust among members of the organization at all levels is the likely key condition for success

The question arose as to how we can start TQM in education. There came many models and suggestions with varied level of success stories. As a result of various researches and deliberations, following 11 steps were suggested to start TQM applications in educational institutions.

- Obtain commitment to Total Quality from the top management.
- Recognize your institution as a system with interacting subsystems.
- Identify all the customers and stakeholders
- Develop a shared vision and mission
- Develop goals and objectives
- Identify processes and study the impact of each major process.
- Form cross-functional teams to improve processes
- Training of all teams consistent with their job
- Implement the system to hold the gains that are made (Sustainability)
- Document all improvement exercises
- Repeat steps 1 to 10

TVET is often seen as "last choice education" because of a lack of quality. High-quality TVET, on the other hand, leads to a higher status and improved attractiveness of TVET. Also, high quality TVET program guarantee a strong link between what is learned and the needs of the labor market, with the result that

graduates are more likely to find suitable employment. Quality assurance is therefore essential at all levels throughout the TVET system.

The introduction of these "quality-related" elements in TVET can contribute to additional costs. However, the long-term benefits for society and the economy are such that the initial costs related to upgrading of the quality are well-justified. Nevertheless, high-quality TVET might be seen as unaffordable by many governments, enterprises and training providers. It is therefore particularly important that institutions in countries that have already developed and improved certain elements of quality assurance in TVET share their best practices and innovations with other countries.

Many developing partners like UNESCO-UNEVOC, ADB, CPSC, ILO, British Council and others continuously provide technical assistance, share expertise and exchange best practices. This has become a common practice and many TVET systems of the member countries have benefited from it.

Applying the philosophy and concept of TQM in TVET, the following aspects of institutional functioning that are likely to affect the quality of education provided:

1. Outstanding teachers
2. Excellent examination results
3. Specialization
4. Well-equipped laboratories and workshops with dynamic up gradation for latest technology
5. Well maintained buildings and other facilities
6. High moral values
7. Adequate resources
8. Support of parents, industry and major stakeholders
9. Strong and purposeful leadership
10. Care and concern for students
11. A well balanced demand driven curricula
12. Good teamwork
13. Corporate Social Responsibility
14. Research and Innovation activities

Quality Assurance Systems in TVET of Some Countries

Both developed as well as developing countries are well aware that the need to have a leading – edge approach to quality assurance and improvement for its TVET institutions and system is. They have to develop, maintain and sustain a quality assured and managed TVET systems in order to satisfy their 'customers' at home and abroad. The pressure of competition to deliver quality TVET programs in the wake of intense demand in the national and International labor market for quality skilled manpower is a more challenging endeavor than it is used to be (Park, 2004).

Different countries have resorted to different approaches for quality assurance i.e. accreditation and certification for its Institutions and TVET programs, qualifications framework and certification through appropriate ISO certification standards. As such there is no single prescriptive model to suit every institution in a given country and across the region. There is also no international agreement on definitions of quality assurance, recognition or accreditation methods used to assess TVET quality. The approach presented in this paper on Quality Assurance is one that values the autonomy of TVET institutions while insisting on accountability and 'value for money'. It entails the development of a conceptual framework Quality Assurance System (QAS) and Improvement that will safeguards the integrity of the system and also allows marketing a quality product nationally and internationally (Shrestha, 2012).

Asia Pacific Accreditation and Certification Commission (APACC)

The Inter-Governmental International Organization Colombo Plan Staff College for Technician Education for Human Resources Development established the Asia Pacific Accreditation and Certification Commission (APACC) as one of the specific targets in the implementation of the CPSC Corporate Plan 2003-2008. With the support and commitment of member countries to the CPSC Seoul Declaration of 2004 in Seoul, Republic of Korea, APACC ensures that it is able to guide Technical and Vocational Education and Training (TVET) institutions in equipping themselves with internationally-recognized standards and systems. It enables these institutions to produce workforce with great mobility to move across borders and with regionally-competitive qualification skills.

The Seoul Declaration of 2004 was further strengthened by the continued support and commitment to the mission and goals of APACC, as expressed by participating governments through the Manila Resolution 2005 and Cheonan Affirmation of Commitment 2007.

Purpose of the APACC are as follows:

1. To guide TVET institutions in equipping themselves with internationally-recognized standards and systems
2. To produce workforce with great mobility to move across borders, with regionally-competitive qualification skills
3. To harmonize the quality of TVET in the region and facilitate quality improvement programs

APACC accreditation is an internationally recognized sign of quality. Accredited institutions and stakeholders enjoy the following benefits:

1. Greater workforce mobility and mutual recognition of qualifications in Asia and the Pacific region;
2. Quality and employable workforce in member countries through APACC coordination among its network of institutions, agencies and other stakeholders;
3. Employer confidence on the selection of employees coming from accredited institutions. Accreditation status is important to employers when evaluating credentials of job applicants and when deciding to provide support for current employees seeking further education;
4. International recognition of the institutions' quality, accountability, and public trust;
5. Eligibility and reliability of TVET institutions for funding support from donors and other lending agencies;
6. Part of a regional network of quality institutions that expand schooling and learning opportunities for students; and
7. Transferability of credits earned by a student among educational institutions. Receiving institutions take note of whether or not the credits a student needs to transfer have been earned from an accredited institution.

Role of APACC for TQM in TVET

The APACC award has direct link to the quality improvement. The APACC accreditation criteria (figure 8) are always focused on quality improvement.

Table 2: The changing meaning

Criteria	Weighted Points
Governance and Management	46
Teaching and Learning	120
Human Resources	74
Research and Development	50
Image and Sustainability	50
Other Resources	110
Support to Students	50
Total	500

Governance and Management:

Governance and management criteria focus on how governance and management systems facilitate to enhance student learning environment and improvement of institutional effectiveness.

Teaching and Learning:

Assessment of the teaching and learning facilities ensures the output and outcome of stated student learning.

Faculty and Staff:

Human resource is one of the key resources which contribute to enhance quality of programs and to enhance learning outcomes of the student. Therefore, assessment through this criteria facilitates to develop human resource policies and plan and human resource management. It indicates the right person in right place, time and with appropriate responsibilities.

Research and Development:

It is one of the tools to enhance creativity and innovation in TVET programs based on market needs. The criteria assess the link with research and programs development and information management system of TVET institution.

Extension, Consultancy and Linkages:

This criteria mainly focuses on networking and partnership with industries and other relevant organization to enhance the quality of TVET programs. It assesses the involvement of employers in pre, during and post program stages.

Resources:

It assesses the financial, physical, tools and equipment and library related resources which enhance the facilitating environment to enhance learning outcomes of the student. It assesses not only the availability of resources that are considered time, technology and appropriateness with target student as well.

Support to Students:

This criteria assesses the available student services and career counseling system. It enhances the competencies of student on social, physical and information related skills. As a result student can achieve their learning outcome in a happy and peaceful environment. It enhances the confidence level of student to link with world of work.

Considering the evaluation criteria the role of APACC on TQM seems high. The APACC system assesses the institution in all three pre, during and post TVET management. It considers 360 degree evaluation

approach and continuation of improvement which leads to institutional excellence. It indicates the area of excellence, right direction and need for improvement. Third party evaluation on management system of TVET institution provides eye opening path for them. It ensures the status of institutional quality to achieve learning outcomes of the student.

Who Benefits from a Quality Management System (QMS)?

For Training Institutions, QMS

- bestows national quality recognition to providers of training
- promotes quality and current trends in education/training in the Technical Education and Vocational Training sector
- enhances credibility and image as a training provider
- establishes national quality standards among training institutions
- Promotes a culture of continuous improvement.

For Employers, QMS

- ensures the continued supply of competent employees who have been trained at institutions that comply with established quality standards and criteria
- makes the search for competent employees easier by selecting candidates with qualifications from quality assured training institutions

For Trainees, QMS

- provides recognition for entry into institutions, professions and business
- ensures quality of the training that they have received according to some agreed standards and criteria

For Parents, QMS

- is an indication of the standard and quality of training provided
- Assures them that they are getting value for their investment in the training their children pursue at approved quality assured institutions and programs.

Challenges and Issues for TQM Implementation

The following are major challenges and issues for TQM implementation:

- Maintaining a quality Management system
- Creating a quality culture
- Commitment of the employees to quality
- Leadership support
- Resources allocation to quality improvement activities
- Upholding the process based approach i.e. implementing PDCA cycle in Process improvement as routine activity.
- Document control and management
- Selection of the suitable certification agency

Conclusion

National Qualification Framework and Vocational Qualification Framework are guiding documents to design TQM of TVET institution. A successful implementation of TQM implies that all elements of the organization should be committed to quality. TQM is an obligatory way of thinking about organizations. Its primary goal is to meet the end-users' requirements – quality product or service. It believes in continuous improvement. TQ managed organizations are and should be learning organizations; advocates teamwork and thrives on a high-trust culture. All these are fertile grounds for exploration by TVET Institutions and show great potential for utilization within the TVET system.

APACC system plays significant role to improve organizational quality and produce globally competent workforce. It is a tool for continue improvement and way towards excellence. As an independent third party assessment, APACC highlights the extraordinary achievement, excellent work and shortcomings for further improvement to achieve TQM in an institution.

With limited resources and the mandate to offer high quality TVET to an ever-changing environment and diverse group of learners is a challenge we all have to face in the coming millennium. This is a major task, but this has to be accomplished to sustain the system in this era of globalization and modernization.

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National Vocational Qualification and Certification System of Nepal

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Introduction and Purpose of Having National Vocational Qualifications Framework in Nepal

The main aim of the introduction of NVQF in Nepal is to address weaknesses in the current systems of technical and vocational education and qualifications. Amongst the weaknesses identified are (but not limited to):

- No clear and readily understandable pattern of provision as well as considerable overlap, duplication and gaps in the TVET provision;
- Many barriers to accessing TVET qualifications and inadequate arrangements for progression and transfer of credit
- Assessment methods are biased towards testing of knowledge rather than skill or competence
- Insufficient recognition of learning gained outside formal education and training
- Limited quality assurance and relevance of TVET qualifications.

Nepal is developing the National Vocational Qualifications Framework (NVQF) as a means of standardizing expliciticizing the products or outcomes of TVET, and of enhancing the marketability and mobility of their graduates. Formal national vocational qualifications framework, or systems for the national registration of qualifications, have thus been developed (or are in the process of being developed) in a number of other countries in the world. A shared and common characteristic of these developments is the need to make the meaning of qualifications more transparent and explicit. The expectation is that this will make it easier for all the stakeholders (especially employers and students) in the field of TVET to identify the nature and level of qualifications, to compare them and to identify more easily their articulation possibilities, both within and across national boundaries.

Implementation of a NVQF system is also a transition from a traditional supply-driven TVET system to an entrepreneurial/innovative demand led TVET system VQF have been described as fulfilling a number of purposes. Broadly, these purposes can be classified under the following three main headings:

a. Equivalency and linkages;

b. Quality control; and

c. Coherence and coverage

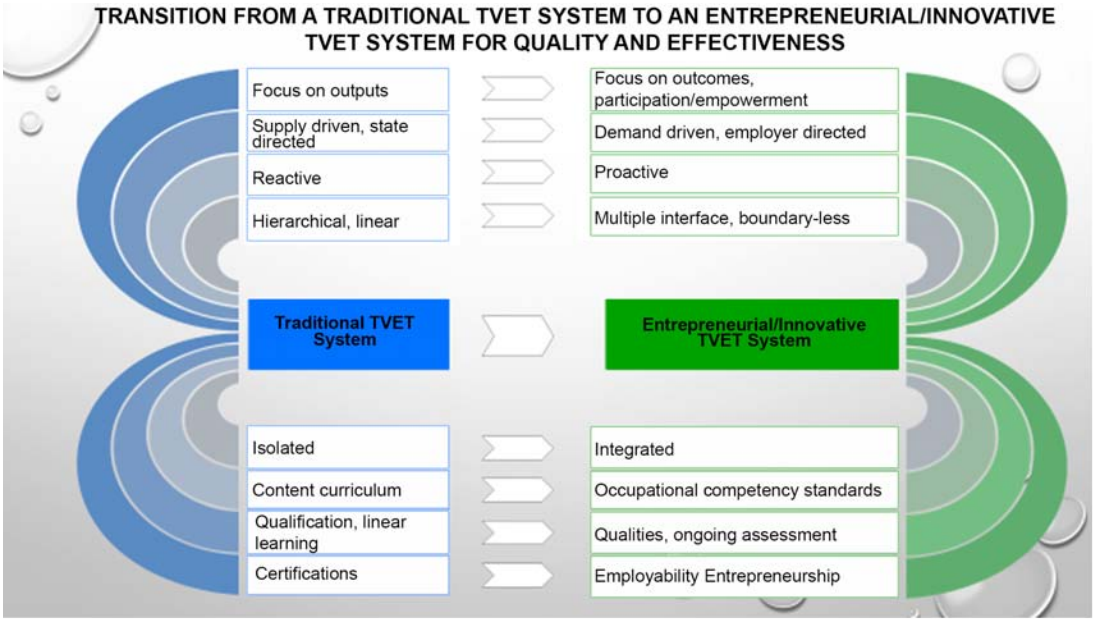

Figure 1: Transition Framework of Nepal's Traditional TVET System, to an Innovative/Entrepreneurial TVET System for Quality and Effectiveness

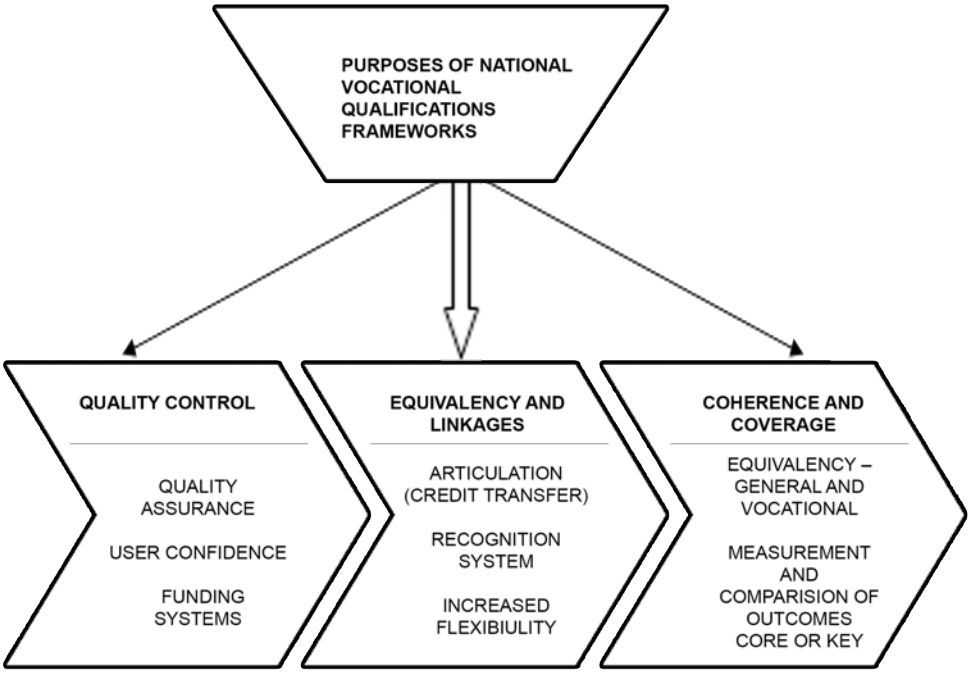

Figure 2: Purpose of Vocational Qualifications Systems

Different countries will have different approaches to dealing with NVQF by offering quality assured and relevant programs and that there is no single prescriptive model to suit every country.

Human capital (skilled people) is considered to be the country's most important asset. People should be given quality and relevant skills and competencies in order for them to meaningfully participate in economic and social development. Many developing countries in Asia are reviewing the quality of participation, outcomes and administration in TVET system. At present, a heavy emphasis is placed and discussed on the registration and compliance of training requirements under a national recognition framework. Emphasis is also placed on the consistency in the awarding of Quality Endorsed Training Programs.

Major NVQF Implementation Themes and Strategies

The four major strategies of NVQF Implementation in Nepal are:

1. Focused on the learner: meeting the vocational and training needs of a diverse group of learners;
2. Oriented to Outcomes: with close link to the market and occupational and training standards, ensuring that all graduates have the skills, knowledge and attitudes they need to compete in a continually changing society;
3. Integrated: sharing common resources with common credentials and avoiding duplication; and
4. Innovative: incorporating information and learning technologies, developing new partnerships with the stakeholders and ensuring that the system is affordable and accountable.

Three major areas to elevate the importance of successful NVQF Development and Implementation in Nepal are:

1. Establishing and/or restructuring existing TVET institution for effective coordination and institutional autonomy to flexibly respond to emerging labor market needs;
2. Establishing a single, unified, and sustainable funding window to expand performance (outcome)-based quality skills training programs to meet the huge needs for training many more people for domestic and overseas labor; and enhancing and
3. Quality assurance to meet national and international standards, including preparing training packages, training trainers, and building a robust monitoring system.

As stated in the national government policy, the NVQF in Nepal should be "a statement of competence clearly relevant to work and intended to facilitate entry into, or progression in, employment, further education and training incorporating the assessment of the following:

1. skills to specified standards
2. relevant knowledge and understanding
3. the ability to use skills and to apply knowledge and understanding to relevant tasks as per the requirements of the market."

The implementation of a robust NVQF system in Nepal would set common principles and guidelines for a nationally recognized qualification system, covering technical and vocational education and training, leading to international recognition of national standards. Students would have the scope for vertical and horizontal mobility with multiple entry and exits.

The corner stone of the NVQF would be the close partnership and collaboration with the industry/ potential employers at all stages starting from identification of courses, content development, training and provision of resource persons, assessment, accreditation, certification and placement.

Nepal is well aware that it needs to have a leading – edge approach to quality assurance and improvement for its TVET institutions to develop, maintain and sustain a quality assured TVET systems, as well as satisfy their 'customers' at home and abroad. The pressure to deliver quality TVET programs is making quality enhancement in the TVET institutions a more challenging endeavor than it is to be.

Discussion points

The Government of Nepal has already made a commitment to introducing a NVQF which would include all qualifications obtained within TVET programs.

An educated population is the key to a country's competitiveness, prosperity and social inclusion. With a poorly-skilled population, however, skills mismatches and gaps can result in economic disadvantages, political instability and high unemployment (particularly for youth), with negative effects on social cohesion.

The rise of the sustainable development including green agenda suggests that TVET should engage more systemically with these concerns.

New partnership for building TVET NVQF systems

To increase learning opportunities through TVET-NVQF development and implementation, there is a need to build new forms of partnership, networks and alliances at all levels, between public, private and civil society stakeholders. Moreover, as the boundaries between learning and work become blurred, there is a need to examine the mix of learning opportunities that reflect individual preferences and labor market needs. This will help capitalize on the full potential of all learning settings.

New forms of partnership should be combined with new and innovative funding models that ensure more efficient and sustainable approaches to the financing of learning and help tap into resources needed to make lifelong learning a reality for more people (Van Adams & Mullaw, 2007). This will also increasingly influence the ways in which countries can mobilize resources that expand skills learning for individuals when they need it most, and make investing in skills development cost-effective for individuals, employers and societies in general. This implies new partnerships with stakeholders such as ministries, planning and financial institutions, and enhancing the role of enterprises, local communities and other stakeholders.

The involvement of new stakeholders in NVQF reforms further emphasizes the cross-sectoral character of TVET. In many countries, there are fragmented and piecemeal TVET policies. At the same time, public policies are evolving and TVET policies increasingly exist within policy interactions that include, among others, those for active labor markets, welfare, industrial development, technology, gender and youth. Significant improvements can be achieved through better coordination that involves relevant stakeholders, in particular social partners, involved in the governance, design, delivery and funding of TVET (Gasskov, 2007) .

Some of the discussion points that can be further explored in order

- Globalization, international and regional cooperation
- Linking TVET with Development
- Learning and the labor market: bridging the gaps

- More equitable distribution of skills
- More and better learning opportunities for all youth and adults

Conclusion

The TVET system (both formal and non-formal) in Nepal has enabled thousands of Nepalese to acquire Technical and Vocational Education and Training services necessary for personal development and career development.

The TVET system of the future in Nepal must move further than it has to date in embracing a new mission, new methods and ideas. It must be inclusive and must create new opportunities to attract learners from all sectors of life. Greater recognition must be given to learning (learning that are related to the requirements of the market), as well as knowledge and skills individuals acquire through life experience. The system must also incorporate an appreciation of the culture and history of their country. All these objectives must be met in a cost-effective manner.

With the introduction of a NVQF System in Nepal, the new TVET environment raises serious questions for government, TVET institutions, industry, staff and students. Four important questions are:

1. Is there consistency in the quality of offering?
2. How does one know that a TEVT institution is what it claims to be?
3. What is 'value for money'?
4. How does one ensure quality and relevance of the training programs?

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Best Practices of TVET Qualification Frameworks in the Republic of Korea

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Introduction

TVET in Korea has widely been credited for effectively supporting the rapid economic growth in the last 40 years. During the 1960s and 1970s TVET was geared towards providing initial training for large populations of learners to meet rising labor demands. In the 1980s, TVET was upgraded to raise the skills levels of workers. In the 1990s, there was an expansion in the TVET institutions, and this, coupled with the Employment Insurance Act, helped Korea grows out of the Asian financial crisis. Since 2000, the goal has been to streamline the division of roles and responsibilities and strengthen collaboration among TVET stakeholders. To this end, wide ranging efforts have been made to reform the TVET framework and policies on one hand and to overcome the skills and talent mismatch on the other.

One of the basic goals of Korea's five-year economic development plan, which has been implemented six times from 1962 to 1992, was to restructure Korean industries with classification of three areas such as the promising high-tech industries, growing industries, and competitiveness-weakening industries. And the promising high-tech industries such as semi-conductors, computers, biotechnology, new materials, optical communications, robots, space, and aviation were expanded financial supports, while growing industries such as mechanical, electrical, electronic, automotive and chemical were encouraged to produce high value-added products. The competitiveness-weakening industries such as shoes, toys, textiles and apparel carried out industry restructuring by suggesting support for business transformation, diversification of management, and support for overseas investment. The result of Korean industry restructuring was a rapid change in employment structure as shown in Figure 1.

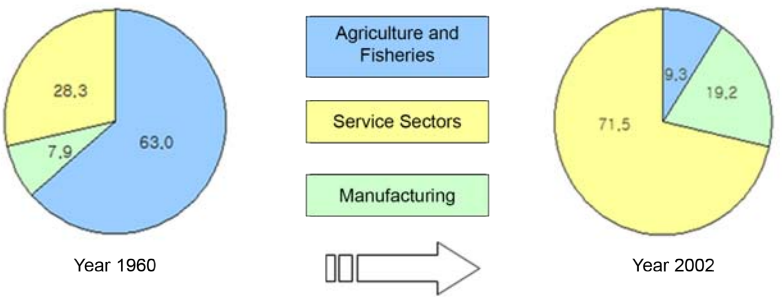

Figure 1. Korean TVET System's Evolution According to Trends of Economy Growth

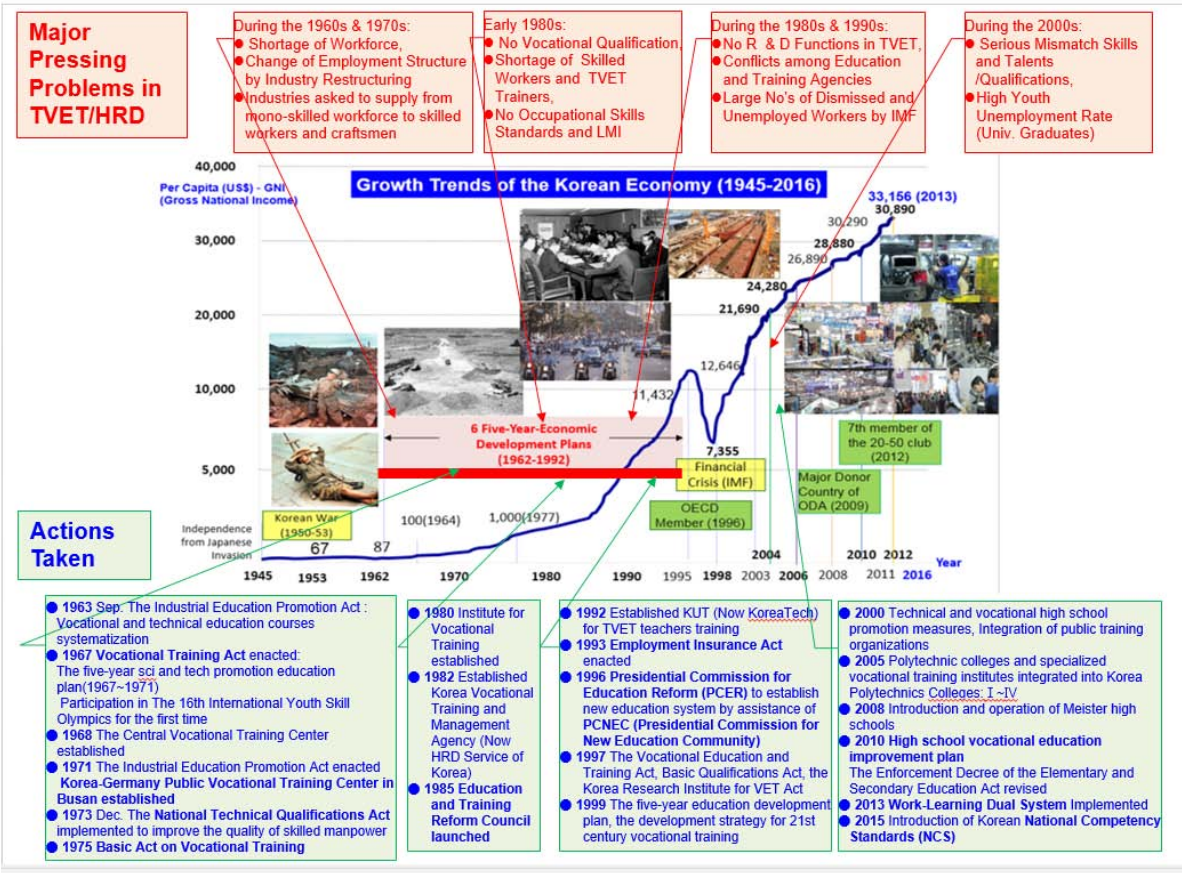

Figure 2. A summary of Korean TVET implementation and highlights

The most current item on the agenda is to overhaul the TVET system to allow for the industries who drive the demand for TVET to take greater initiative. Currently, Korean TVET systems are driving to promote the strength linkage among work-education and training-qualification through development and utilization of the National Competency Standards (NCS) systems which aims to standardize ability (knowledge, skill, and competency) at national level to need to perform one's duties in industrial setting. The future direction is to make TVET relevant to the demand of the industries so that it can train and utilize learners with the necessary technological expertise and skills.

Korea promotes a skills development framework to realize a competency-oriented society. Main context includes skills development throughout working life, skills development as universal right, expansion of a competency-oriented system and culture, maintenance of a TVET advancement system, reinforcement of workplace competency, harmonization of work and education, and support for "employment first, university later".

Under the National Competency Standards (NCS) systems, the number of course-type qualifications was further increased, especially in the 24 major fields which require high levels of practical skills, and examination criteria have been overhauled into NCS-based qualifications according to the following development plan of NCS-based qualifications:

- Design of new vocational qualifications in the 7 major fields in 2014.
- Reform of qualifications in the 7 major fields and design of new vocational qualifications in the 17 major fields in 2015. (Total 24 Major fields)
- Reform of qualifications in the 17 major fields in 2016.

Moreover, the Korean government introduced "VISION 2020: Vocational Education for All" to link work, education and life promoting innovation in TVET systems with vision, direction and strategy. The innovation intends to promote an open TVET systems aiming at TVET competency, and effective transition of school to work and work to school through work-learning dual system and NCS with NCS-based qualifications, NCS-based learning systems.

Korean TVET Systems and Program Contents

Vocational education starts at the high school level. High schools are classified into general high school, vocational high school and schools specializing in languages, science, arts and physical education. Vocational high schools respond to rapid changes in knowledge-based industrial society and aim at fostering skilled human resources. Vocational high schools provide vocational and technical education in technology, agriculture, commerce, maritime, housework and so on. Vocational colleges offer 2~3 year courses at higher education level. The main purpose of vocational colleges is to develop professionals with expertise and practical experience. Major courses are technology, agriculture, nursing, maritime, health, industry, housework, arts and physical education. Among the diverse majors, nursing, clinical pathology, physiotherapy, radiological treatment, fisheries, aviation and engine technology are the 3 year courses.

The Korean TVET systems are categorized into three systems as depicted in Table 1. They are managed by the Ministry of Education and the Ministry of Employment and Labor as two major wings to support TVET systems through their belonging agencies and institutions.

Table 1: Korean TVET System

Category	Classification of TVET Services		Be affiliated to
Formal School System	Primary education (6 years)		교육부 Ministry of Education
	Secondary education (3 middle + 3 high school)		
	University (4 years)		
	Korea University of Technology and Education (KoreaTech, 4 years)		Ministry of Employment and Labor
Technical and Vocational Education (TVE) under Formal Education System	Secondary vocational high schools (3 years)	Meister high schools (36)	교육부 Ministry of Education
		Specialized vocational high schools (499)	
		General high schools having vocational modules (177)	
	Technical junior colleges (142)	Associate Degree (2-3 years)	
		Post-secondary vocational education and training (0.5-1 year)	
	Polytechnic colleges [8 Colleges, 34 Campuses]	Industrial Associate Degree Programs (2 years)	Ministry of Employment and Labor
		Intensified Major Course [Bachelor Degree Course] (2 years)	
		Vocational training programs [Age 15 or older seeking employment, Regardless of educational background) (0.5-1 year)	
		Master Technician Course [Industrial engineers, technicians, or higher with 8 to 9 years of experience in related fields] (1-2 years)	

Non-formal Vocational Training System	Public-Private vocational training institutes [KCCI Training Centers, Other Governmental Agencies]	Company /Institution
	In-house training centers	

Korean NCS-Based Qualification Frameworks as Best Practices

Current National Qualification Systems

With a remarkable economic development in the early 1960s, qualification system in Korea made quantitative growth in line with creation of various qualifications based on individual law. With the enactment of National Technical Qualification Act in 1973, criterion and titles of technical qualifications were standardized to lay trustworthy grounds for national qualification system. Since the enactment of Basic Qualification Act in 1997, Korean qualification systems was categorized into national qualification and private qualification, and managed various subjects of qualification systems under main responsible agency, HRD Service of Korea. There are three major types of qualifications in Rep. of Korea such as (1) 527 National Technical Qualifications (NTQ) focusing on manufacturing, services and business; (2) National Qualifications of Non-Technical Categories (NQNTC) including 149 vocations, such as lawyer, accountant and patent expert; and (3) 20,049 private qualifications (PQ) including areas such as computers, language skills, sports and health, leisure and recreation activities, social welfare, and counselling by Framework Act on Qualifications (2011) as shown in Table 2.

Table 2. Classification of Korean Qualifications

Classification of qualifications		Test numbers	Related laws	Related Ministries	Qualifications (examples)
National qualification	Skills	527	National Technical Qualifications Act (MOEL) in1973	MoEL (19 government agencies)	professional engineer, master craftsman, engineer, industrial engineer, craftsman, word processor, etc.
	Professional	149	Individual laws	24 government agencies	Lawyer (Attorney-at-Law Act), Doctor (Medical Service Act), etc.
Private qualification	Certified private	101	Framework Act on Qualifications (MoE)	12 government agencies	Internet Information Search, TEPS, etc.
	Non-certified private	19,833	Framework Act on Qualifications (MoE)	MoE and MoEL	Marriage counselor, stocks analyst, etc.
	in business	115	Employment Insurance Act (MOEL)	MoEL	Digital master, customer service, etc.

Technical and skilled areas are consisted of 495 trades and 5 degree-system including Professional Engineer, Master Craftsman, Engineer, Industrial Engineer and Craftsman. Service areas are consisted of 32 trades as of Jan, 2016 as shown in Figure 3. Computerizing the entire qualifications process and establishing Q-Net

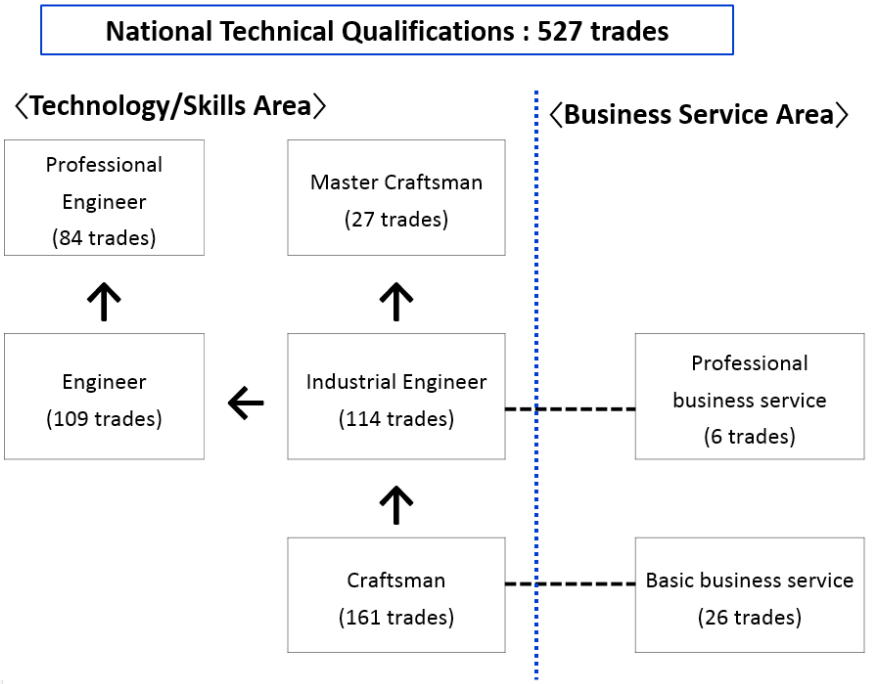

Figure 3: Korean National Technical Qualification System

greatly reduced the time and costs involved in acquiring national skills qualifications while revolutionizing convenience for examinees and innovating work process for staff of the HRD Service of Korea. With a click of the button, users can select among 564 skills and submit applications for tests, select the location of test sites, and check test results. Candidates who passed examinations may also order certificates without the hassle and transportation costs of visiting a branch. In the past, applicants had no choice but to personally go to a branch office and spend an average of 20 minutes to submit their applications. With Q-Net which is a premier qualification management/operation information system providing better opportunities and career advancement in the knowledge and information based society, however, applicants need only spend an average of four minutes to submit their applications online and enjoy a 70% reduction in costs. The procedure of NTQ from testing applying to certificate issuing is depicted in Figure 4.

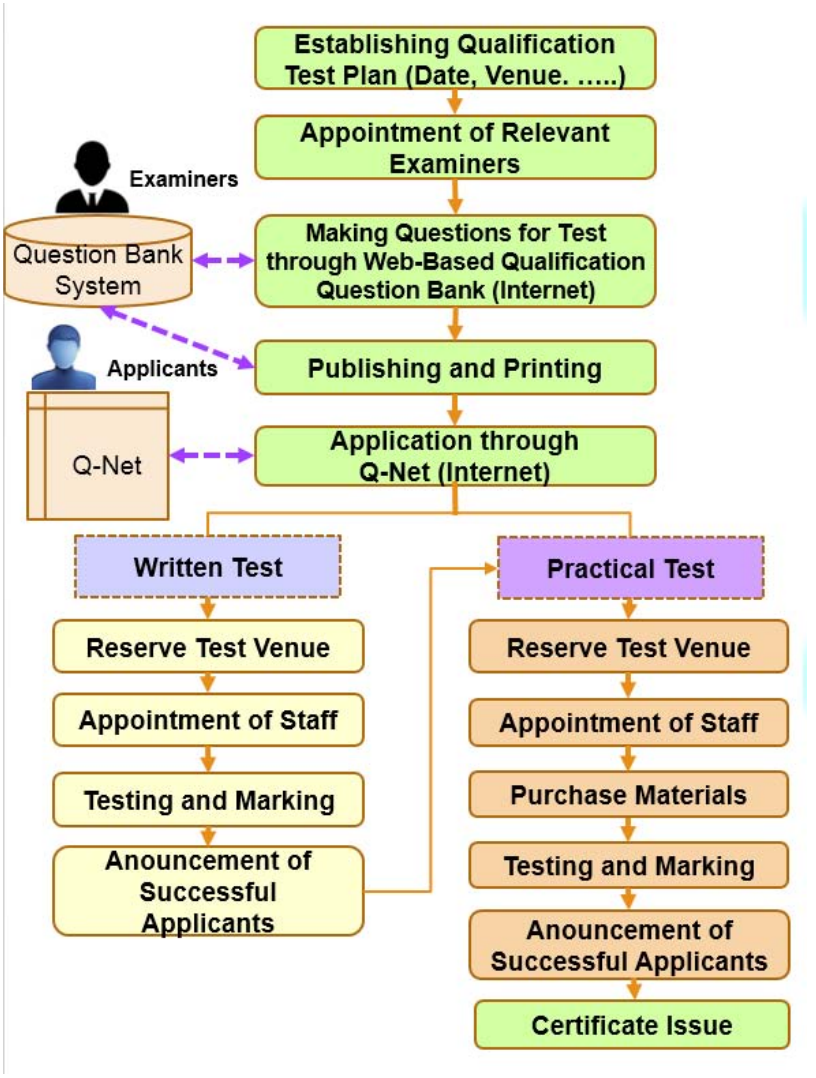

Figure 4.NTQ Testing and Certificate Issuing Procedure

Korean National Competency Standards (NCSs)

The National Competency Standards (NCS) is a newly introduced HRD infrastructure to help the development of strong human resources for the 21st century through solving the following pressing problems and needs in the labor market:

- Mismatch problems of skills and talents (qualifications) between industries and institutions due to inadequate TVET,
- Too much cost in retaining of new employees (US$60,000 per person) as investigated by KEF(Korea Employers Federation) (2008), and
- A need to improve competitiveness for competency-based society.

The Korean National Competency Standards (NCSs) are sets of knowledge, skills and attitudes required to perform a particular job in the workplace, which are standardized by industry and competency level. These standards are intended to systemically reform the TVET and qualification systems to meet the needs of industries (jobs) and encourage competency-oriented HRM (hiring, promotion, wages, and so on) among

companies. For promising industries and new occupations, NCS has been developed each year starting from 2015 to keep up with every paradigm shift in industry by the governance and management body as shown in Figure 5.

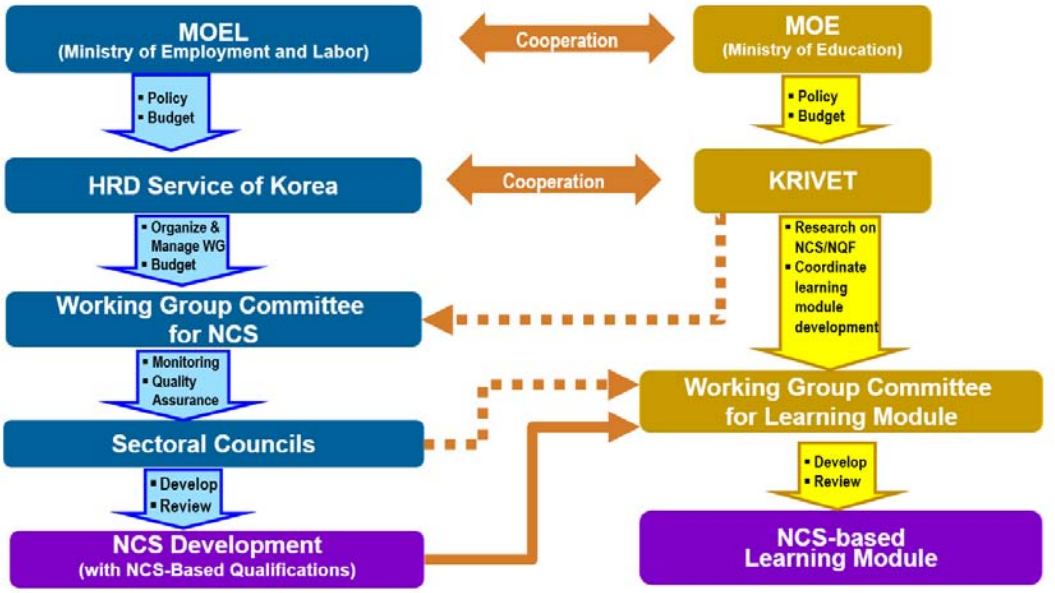

Figure 5: NCS Development Governance Body

"Industry Skills Councils" (Sectoral Councils) were designed as institutions responsible for developing and improving NCS. NCS are reviewed and improved on a routine basis using networks of companies, schools and experts. The practical situation of NCS system is detailed presented in Table 3.

Table 3. Practical Situation of Korean NCS System

Areas	Main Contents
TVET	Education and training courses offered by TVET institutions are being restructured into NCS-based vocational qualification courses which confer vocational qualifications, in order to cultivate "field-oriented talent" needed by industries. Between 2013 and 2016, a total of 844 NCS were developed and improved. NCS-based curricula were introduced in 3 specialized high schools and 78 junior colleges, and NCS were applied to 1,589 courses in 34 polytechnic colleges and 1,052 courses in private training institutions.
Qualification System	The number of course-type qualifications was further increased, especially in the 7 major fields which require high levels of practical skills, and examination criteria have been overhauled into NCS-based qualifications. NCS-based qualifications are developing by responsible agencies and most of industries as the following plan: • Design of new vocational qualifications in the 7 major fields in 2014 • Reform of qualifications in the 7 major fields and design of new vocational qualifications in the additional 17 major fields in 2015 • Reform of qualifications in the 17 major fields in 2016

Employment Process	NCS-based job competency assessment and hiring models are being disseminated across workplaces. The government set a pioneering precedent by introducing the competency-based hiring system in 130 public institutions. It is making efforts to spread the system across all industries. The government supported the voluntary adoption of the system by providing NCS application consulting, including education and training, to SME's (900 enterprises in 2015), discovering and disseminating best practices mainly among large companies, and routinely identifying and addressing the needs of companies through a dedicated institutions, etc.

As of 20th February 2017, the Working Group Committee for NCS with sectorial councils could develop 24 major fields, 76 sub-fields, 213 domains, and 833 sub-domains (833 standards) as exampled and depicted in Figure 6.

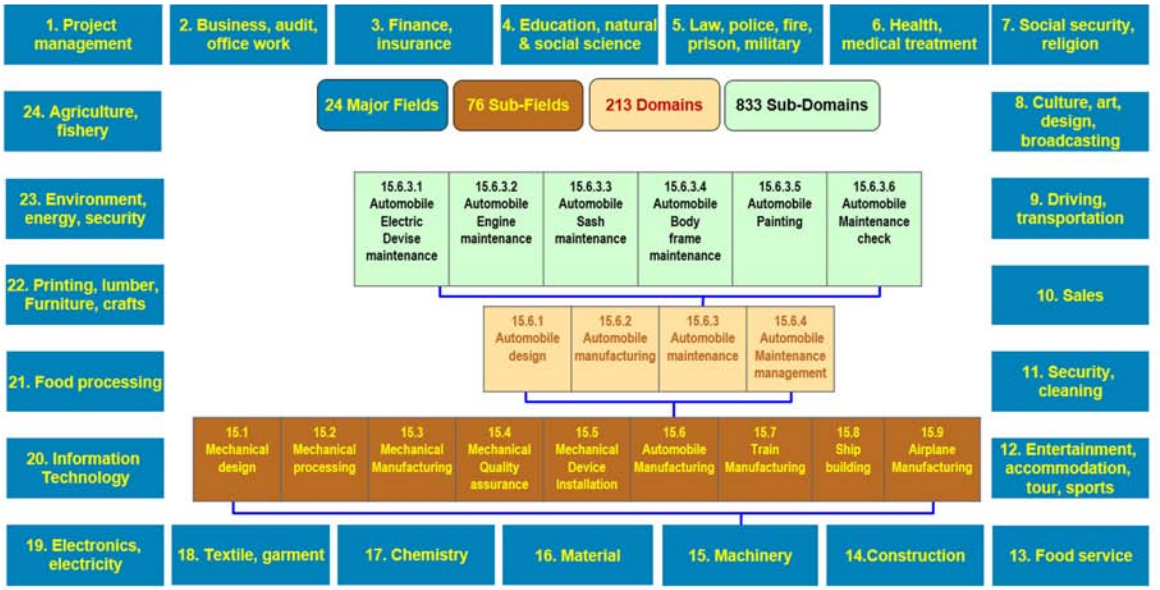

Figure 6: NCS Development Governance Body

The level system of NCS is systemized according to the level of the work in the industrial field. It is utilized in the linking of industrial field - education and training - qualification, presenting the achievement level of lifelong learning ability, and constructing the level system of qualifications. At the time of NCS development, assessment by levels of capability units and their elements is presented according to 8 levels as shown in Table 4.

Table 4. Level system of NCS

Level	Items	Contents
	Definition	• It is possible to create new theories by using the best theories and knowledge in the field. • With the greatest skill, a wide range of technical tasks can be performed • Authorized and responsible for the organization and a whole work.

Level	Items	Contents
8	Knowledge-Skills	• The level of the ability to create new theories by using the best theories and knowledge in the field • The highest level of skill to perform a wide range of technical tasks
	Capability	• Level of authority and responsibility for organization and business
	Career	• Achievable level after continuing the work of 2-4 years from level 7
7	Definition	• Utilizing specialized theories and knowledge in the field, • With a high degree of skill, a wide range of operations can be performed, • The level of responsibility and responsibility to be required for the results of others
	Knowledge-Skills	• Utilizing specialized theories and knowledge in the field • Level of utilization of theories and knowledge in the proximity field • level of skill to perform a wide range of tasks
	Capability	• Level of responsibility and responsibility to be required for the results of others
	Career	• Achievable level after continuing the work of 2-4 years from level 6
6	Definition	• Freely use the theory and knowledge of the field within independent authority • Perform various tasks with general skill • Disseminate knowledge and know-how to others
	Knowledge-Skills	• Level that can freely utilize the theories and knowledge in the field • Level of ability to perform various tasks with general skill
	Capability	• Level of dissemination of knowledge and know-how to others • Level of ability to perform tasks within independent authority
	Career	• Achievable level after continuing the work of 1-3 years from level 5
5	Definition	• Performing very complex and unusual tasks using the theory and knowledge of the field within comprehensive authority • Level of knowledge transfer to other people
	Knowledge-Skills	• Level of theory and knowledge available in the field • Level that can perform very complex and unusual tasks
	Capability	• Level of knowledge transfer to other people • Level to perform the task within the comprehensive rights
	Career	• Achievable level after continuing the work of 1-3 years from level 4

Level	Items	Contents
4	Definition	• Level of performing complex and diverse tasks using limited theories and knowledge of the field within general authority
	Knowledge-Skills	• Level of limited use of theory and knowledge in the field • Level to perform a variety of complex tasks
	Capability	• Level to perform tasks within general authority
	Career	• Achievable level after continuing the work of 1-4 years from level 3
3	Definition	• Level of performing complex tasks using basic knowledge of the field and general knowledge within the restricted authority
	Knowledge-Skills	• Level to utilize the basic theory and general knowledge in the field • Level to perform somewhat complex tasks
	Capability	• Level of performing the task within the restricted authority
	Career	• Achievable level after continuing the work of 1-3 years from level 2
2	Definition	• Level of procedural and routine tasks using general knowledge of the field under general direction and supervision
	Knowledge-Skills	• Level of utilization of general knowledge in the field • Level of procedural and routine tasks
	Capability	• Level of accomplishment of the task under general instruction and supervision
	Career	• Achievable level after continuing the work of 0.5-1 years from level 1
1	Definition	• Level of performing simple and repetitive tasks using basic general knowledge, such as understanding and calculating skills, under specific instructions and thorough supervision
	Knowledge-Skills	• Level of ability to use basic general knowledge such as character understanding and calculation ability • Level of performing simple and repetitive tasks
	Capability	• Level of carrying out tasks under specific instructions and thorough supervision

And NCS-based learning module linked to NCS is teaching and learning contents and syllabus designed to use tasks of NCS in education and training as illustrated in Figure 7.

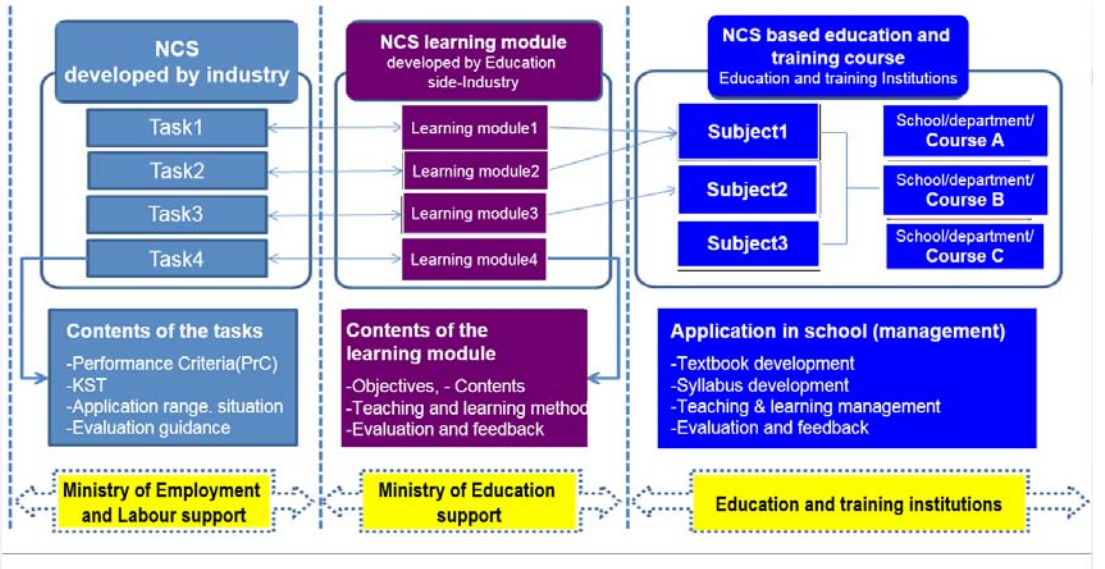

Figure 7. NCS-based Learning Module

Development of New NQF (National Qualification Framework)

The new national qualifications framework (NQF) is a comprehensive system demonstrating the equivalence of education, training, qualifications and work experience based on the amount and level of learning. The Korean government has focused on the "creation of a competency-oriented society through the establishment of a lifelong education system", and is promoting related policies. With this agenda, the Korean government is preparing a development plan and management strategy of NQF based on the National Competency Standards (NCS).

The Ministry of Education (MoE) and the Ministry of Employment and Labor (MoEL) prepared NQF development master plan (2013-2017) as illustrated in Table 5 with two possible models such as "Linked NQF Model" and "Integrated NQF Model" amongst TVET, higher education, vocational qualification, and lifelong learning system, and so on.

Table 5. Five-Year (2013-2017) Master Plan to Establish New NQF

Master Plan of New NQF Establishment	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Strategic Process	Planning	Link NQF with TVET		Associate NQF with TVET and Qualification		Integrate NQF with TVET and Qualification
	Begin	Foundation		Preparation		Introduction
• Revise existing VET	→	→	→	→	→	
• Improvement of existing VQ	→	→	→			
• Introduction of New Qualification				→	→	
• Upgrade of LLL (Lifelong Learning) System	→	→	→	→	→	
• Reform of System regarding Labor Market : HRM System	→	→	→	→	→	
• A Master Plan on NQF Implementation: Action Plan					→	

New NQF was linked with Education, Training, and Qualification from 2014 to 2015 as shown in Figure 8.

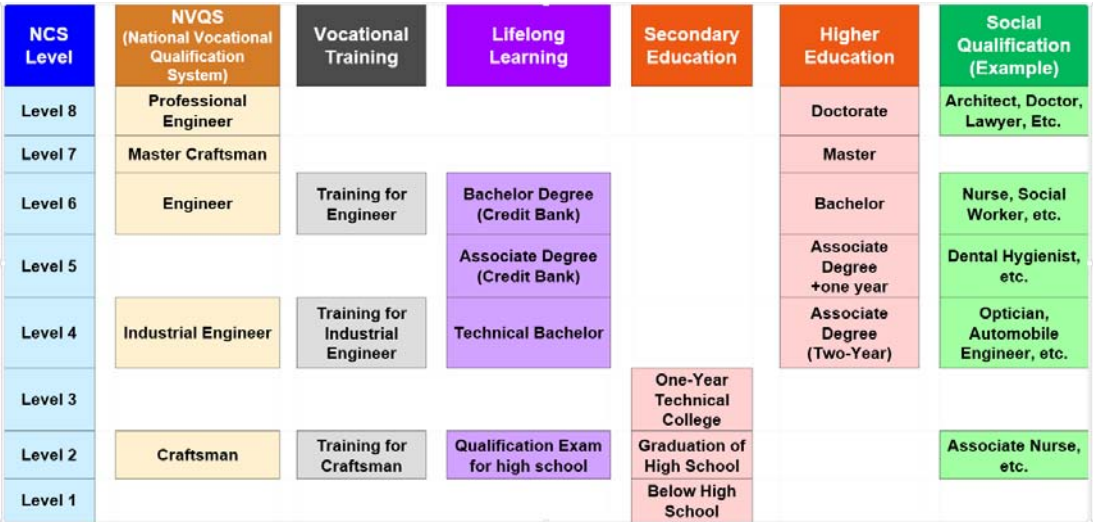

Figure 7. NCS-based Learning Module

The Sectoral Qualifications Framework (SQF) is a qualification framework to be used in each industrial sector prior to the establishment of a national qualification framework (NQF). The SQF development projects supported by the Ministry of Education (MoE) in cooperation with the Ministry of Labor and Employment (MoLE). Figure 9 shows the relationship among qualification frameworks such as SQF, NQF, and TQF (Transnational Qualifications Framework).

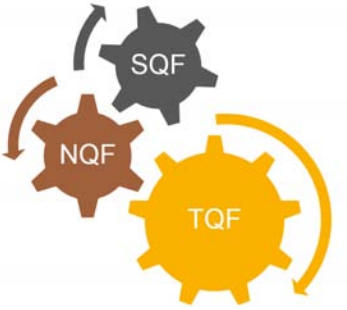

Figure 9. Relationship among Qualifications Frameworks

As of 20th February 2017, 615 NCS-Based qualifications are developed by HRD service of Korea in collaboration with most of ministries, governmental agencies, related associations, and industries according to 24 NCS major fields as shown in Table 6.

Table 6. No. of NCS-Based Qualifications Developed (As of 20th Feb, 2017)

24 NCS Major Fields	No. of Qualifications Developed
01. Project Management	0
02. Business, Audit, and Office work	15
03. Finance, and Insurance	16
04. Education, Natural and Social Science	9
05. Law, Police, Fire, Prison, and Military	9
06. Health, and Medical treatment	4
07. Social security, and Religion	9
08. Culture, Art, Design, and Broadcasting	50
09. Driving, and Transportation	20
10. Sales	17
11. Security, and Cleaning	5

24 NCS Major Fields	No. of Qualifications Developed
12. Beauty, Entertainment, Accommodations, Tour, Sports	40
13. Food Service	14
14. Construction	56
15. Machinery	65
16. Materials	47
17. Chemistry	27
18. Textile, and Garment	25
19. Electronics, Electricity	43
20. Information technology, and Communications	17
21. Food processing	20
22. Printing, Lumber, Furniture, and Crafts	23
23. Environment, Energy, and Safety	38
24. Agriculture, and Fisheries	46
Total	**615**

Conclusions

Korea continues to introduce new ideas to further reform TVET and conform it to the ever-changing needs of the society. With this, lots of on-site job training programs which are in-service training service systems have been successfully operated based on cooperation and exchange among the Ministry of Education, Ministry of Employment and Labor, Ministry of Trade, Industry and Energy, and other government agencies and industry as training providers.

Under the National Competency Standards (NCS) systems, the number of course-type qualifications was further increased especially in the 24 major fields which require high levels of practical skills. In addition, the examination criteria was overhauled into NCS-based qualifications according to the development plan of NCS-based qualifications.

These developments enabled TVET services to its students to broadly change and adopt easily to the challenges posed by the labor market. Through the utilization of the National Competency Standards, TVET in Korea is able to standardize ability (knowledge, skill, and competency) at national level. This can be used as basis for companies to assess whether the trainees or employees are competent to perform a specific duty in an industrial setting.

The future direction is to make TVET relevant to the demand of the industries so that it can train and utilize learners with the necessary technological expertise and skills.

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The Philippine TVET Qualification System:Issues and Concerns for Implementation

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Introduction

In any particular country, the quality of human life is largely dependent on the ability of its government to manage and harness its human capital and material resources to achieve the desired growth and development. In the case of the Philippines, the education and training sector played a significant role in the process of social transformation through human resources development. According to World Bank Report (June 2016) on "Labor Market Review: Employment and Poverty in the Philippines, Filipinos are working hard but remain poor". It was attributed that the cause of in-work poverty among Filipinos to the low learning capacity of the poor, saying that 30% of workers who finished secondary education, hold unskilled jobs and work as laborers.

Former Philippine Labor Secretary Rosalinda Baldoz also said that only 10 out of 1,000 Filipino applicants are getting hired because many lack the necessary skills needed for jobs available in the market.

To make its citizens employable and productive through education and training, the Philippine Qualifications Framework (PQF) was developed through the Department of Labor and Employment (DOLE), Commission on Higher Education (CHED), Technical Education and Skills Development Authority (TESDA), Department of Education (DepEd) and Professional Regulation Commission (PRC) to address the issue of job mismatch.

Further, Executive Order (EO) No. 5, series of 2016 provided the adoption of "The AMBISYON Natin 2040", a long-term vision for development planning which aims to drastically reduce or eliminate poverty incidence in the country. The 25-year vision foresees envisions Filipinos with long and healthy lives, being smart and innovative and living a high-trust society. It is a product of nationwide public consultations led by the National Economic Development Authority (NEDA).

This paper presents specifically the Philippine TVET Qualification System and the issues and concerns for the effective implementation of TVET program in the country.

The Philippine Education System

The Philippine framework for education is focused on the goals to provide knowledge, skills and values for Filipino people to lead productive lives, achieve growth and sustainable development amidst the global

changes. Education in the Philippines embraces formal and non-formal education. Formal education covers the K-12 Basic Education Curriculum which is the Kindergarten and 12 years of basic education (six years of primary education, four years of Junior High School, and two years of Senior High School [SHS]) TESD Specialization/Arts and Sports/Academics and then the tertiary education. On the other hand, non-formal education includes education opportunities, even outside school premises, that facilitate achievement of specific learning objectives for particular clienteles, especially the out-of-school youths or adult illiterates who cannot avail of formal education. An example is functional literacy programs for non-literate and semi-literate adults which integrate basic literacy with livelihood skills training.

Learning institutions in the country are considered responsible in transforming human capital for socio economic transformations. There are three (3) government agencies that are responsible for the education system in the country, namely:

Department of Education (Dep Ed)

– responsible for the basic formal education specifically the elementary and secondary education

Technical Education and Skills Development Authority (TESDA)

– To take charge of postsecondary technical and vocational education and training; and

Commission on Higher Education (CHED)

– to take charge of the higher and advance education.

Three educational government agencies in the country are interlinked and interdependent in their functions to assure effective implementation of education program. Each agency is responsible in the creation of balance along intellectual, environmental, societal, cultural and economic considerations in the pursuit of enhancing the quality of life.

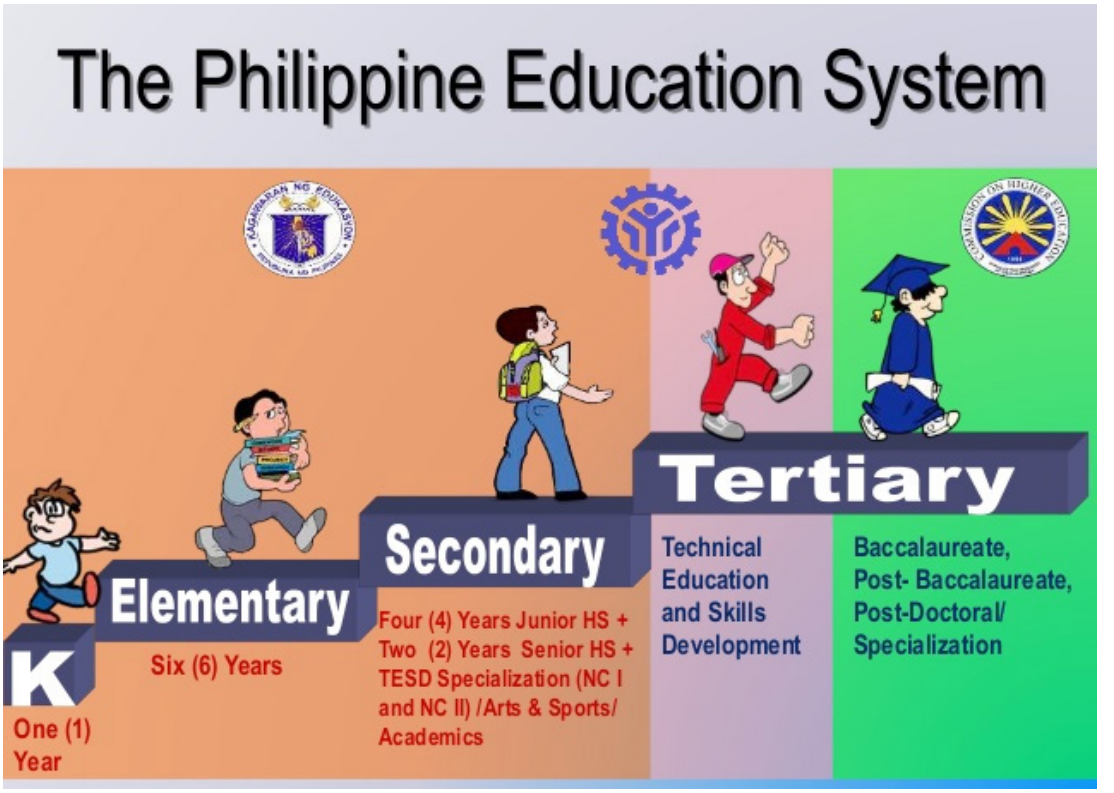

Figure 1. The Philippine Education System

The new K-12 law mandated by the 2013 Enhanced Basic Education Act (RA 10533) added 2 Senior High School, the two years of specialized upper secondary education; students may choose a specialization based on aptitude, interests, and school capacity. The choice of career track will define the content of the subjects a student will take in Grades 11 and 12. SHS subjects fall under either Core Curriculum or specific Tracks. There are seven Learning Areas under Core Curriculum. These are Languages, Literature, Communication, Mathematics, Philosophy, Natural Sciences, and Social Sciences. Current content from some General Education subjects are embedded in the SHS curriculum.

Each student in Senior High School can choose among three tracks: Academic; Technical-Vocational-Livelihood; and Sports and Arts. The Academic track includes three strands: Business, Accountancy, Management (BAM); Humanities, Education, Social Sciences (HESS); and Science, Technology, Engineering, Mathematics (STEM).Students undergo immersion, which may include earn-while-you-learn opportunities, to provide them relevant exposure and actual experience in their chosen track.

After finishing Grade 12 a student can obtain Certificates of Competency (COC) or a National Certificate Level I (NC I). After finishing a Technical-Vocational-Livelihood track in Grade 12, a student may obtain a National Certificate Level II (NC II), provided he/she passes the competency-based assessment of the Technical Education and Skills Development Authority (TESDA).

After the secondary education, the offerings of Ladderized TVET program leading to degree courses needs harmonization between TVET and degree courses. Schools need to collaborate with other institutions in addressing the education and training issues. Networking with other institutions and agencies both local and international is necessary to remain vibrant and effective in addressing the issue of ESD (Education for Sustainable Development). Major challenges in the implementation of programs in TVET system includes the policies, curriculum, practices, and in providing the needed resources.

Harnessing human potentials for maximizing sustainable growth requires a learner-centered institution that can enhances the students' potentials to think and work independently. Producing graduates with work competencies, sensitive to the issues confronting environment and sustainability are among the challenges of TVET teachers.

The ASEAN Qualifications Reference Framework and the Philippine Qualifications Framework

ASEAN Qualifications Reference Framework (AQRF) is a hierarchy of levels of complexity of learning which use learning outcomes as the metric of the hierarchy. Its level descriptors include cognitive and functional competence. AQRF builds an ASEAN zone of trust that facilitate mutual recognition of jobs and skills qualifications in the ASEAN labor market and the mobility of persons. It enables comparison of qualifications across ASEAN Member States (AMS). In ASEAN, personal and ethical competence are valued and included in NQFs. AMS can have more domains than the AQRF.

Table 1: Status of ASEAN NQFs

Country	Level of Establishment	Stage
Brunei Darussalam	Inaugurated 2013, Implemented	6
Cambodia	Inaugurated 2012, initial stages of implementation	5
Indonesia	Inaugurated 2012, initial stages of implementation	6
Lao PDR	Planned	3

Country	Level of Establishment	Stage
Malaysia	Inaugurated 2007, fully implemented and at review stage	8
Myanmar	Planned	3
Philippines	Inaugurated 2012, initial stages of implementation	5
Singapore	Sector QF-Workforce Skills Qualification System, Inaugurated 2003	7
Thailand	Inaugurated 2014, initial stages of implementation, 3 established sub frameworks (i.e. skills, professional and higher education)	4
Vietnam	Planned	3

Stage Description:

1 No intent
2 Desired but no progress made
3 Background planning underway
4 Initial development and design completed
5 Some structures and processes agreed and documented
6 Some structures and processes established and operational
7 Structures and processes established for 5 years
8 Review of structures and processes proposed or underway

The Philippine Qualifications Framework (PQF)

The PQF is a national policy that describes the levels of educational qualifications and sets the standards for qualification outcomes, a quality assured national system aligned with the international qualifications framework. The Implementing Rules and Regulations was signed on 2012 by DepEd, DOLE, CHED, TESDA, and PRC. The institutionalization is by virtue of EO No. 83 signed in the same year by the then President Benigno S. Aquino, Jr.

PQF is competency-based and labor market driven and assessment- based qualification recognition. It establishes national standards and levels for outcomes of education and training, skills and competencies; supports the development and maintenance of pathways and equivalencies which provide access to qualifications and assist people to move easily and readily between the different E & T sectors and between these sectors and the labour market; aligns the PQF with international qualifications framework to support the national and international mobility of workers thru increased recognition of the value and comparability of Philippine qualifications.

Benefits of the PQF for the person: Encourages lifelong learning allowing the person to start at the level that suits him and then build-up his qualifications as his needs and interests develop and change over time. Certificates and licenses are recognized by government.

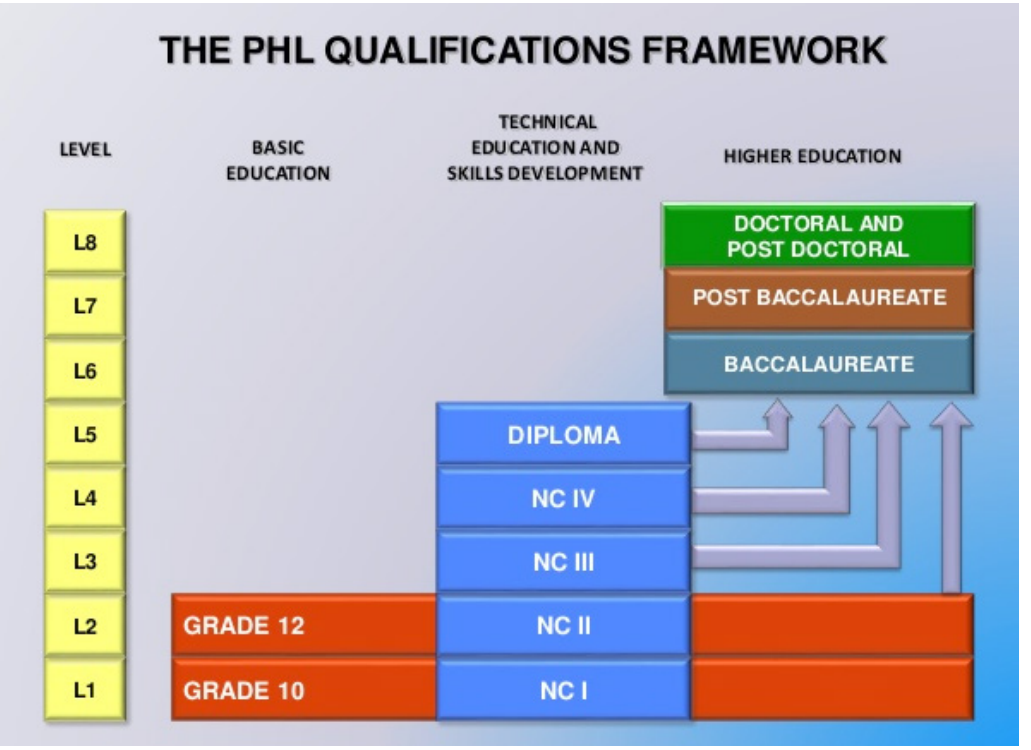

Figure 2. The Structure of the Philippine Qualifications Framework

For the employers: Assures that standards and qualifications are consistent to job requirements/demand Provides common understanding on standards, qualifications and levels.

For the education & training providers: Ensures transparency in training provision, conformance to standards and preciseness of accountability for learning outcomes. It also provides common understanding of policies and guidelines on credit transfers, articulation, portability, bridges pathways.

For the authorities: Provides the standards, taxonomy and typology of qualifications as bases for granting approvals to providers and stakeholders Harmonizes qualifications in E & T across Philippines.

Table 3: The Philippine Qualifications Framework Descriptors

Level	Knowledge Skills and Values	Application	Degree of Independence
Level 1 National Certificate I	Knowledge and skills that are manual or concrete or practical and/or operational in focus	Applied in activities that are set in a limited range of highly familiar and predictable contexts; involve straight forward, routine issues which are addressed by following set rules, guidelines or procedures.	In condition where there is very close support, guidance or supervision; minimum judgment or discretion is needed

Level	Knowledge Skills and Values	Application	Degree of Independence
Level 2 National Certificate II	Knowledge and skills that are manual, practical and/ or operational in focus with variety options.	Applied in activities that are set in a range of familiar and predictable contexts; involve routine issues which are identified and addressed by selecting from and following a number of set rules, guidelines or procedures.	In condition where there is substantial support, guidance or supervision; limited judgment or discretion is needed.
Level 3 National Certificate III	Knowledge and skills that are a balance of theoretical and/or technical and practical. Work involves understanding the work process, contributing to problem solving, and making decisions to determine the process, equipment and materials to be used.	Applied in activities that are set in contexts with some unfamiliar or predictable aspects; involve routine and non-routine issues which are identified and addressed by interpreting and/applying established guidelines or procedures with some variations.	Application at this level may involve individual responsibility or autonomy, and/or may involve some responsibility for others. Participation in teams including team or group coordination may be involved.
Level 4 National Certificate IV	Knowledge and skills that are mainly theoretical and/ or abstract with significant depth in one or more areas; contributing to technical solutions of a non- routine or contingency nature; evaluation and analysis or current practices and the development of new criteria and procedures.	Applied in activities that are set in range of contexts, most of which involve a number of unfamiliar and/ or unpredictable aspects; involve largely non-routine issues which are addressed using guidelines or procedures which require interpretation and/or adaptation.	Work involves some leadership and guidance when organizing activities of self and others.
Level 5 National Diploma	Knowledge and skills that are mainly theoretical and/ or abstract with significant depth in some areas together with wide-ranging specialized technical, creative and conceptual skills. Perform work activities demonstrating breadth depth and complexity in the planning and initiation of alternative approaches to skills and knowledge applications across a board range of technical and/or management requirements, evaluation and coordination.	Applied in activities that are supervisory, complex and non-routine which require an extensive interpretation and/or adaptation innovation.	In conditions where there is broad guidance and direction where judgment is required in planning and selecting appropriate equipment, services and techniques for self and others. Undertake work involving participation in the development of strategic initiatives, as well as personal responsibility and autonomy in performing complex technical operations or organizing others.

Level	Knowledge Skills and Values	Application	Degree of Independence
Level 6 Baccalaureate Program	Graduates at this level will have a broad and coherent knowledge and skills in their field of study for professional work and lifelong learning	Application in professional work in a broad range of discipline and/or research and/or for further study	Independent and/or in terms of related field
Level 7 Post-Baccalaureate Program	Graduates at this level will have advanced knowledge and skills in a specialized or multidisciplinary field of study for professional practice, self-directed research and/or lifelong learning	Applied in professional work that requires leadership and management in a specialized and or multidisciplinary professional work and/or research and/or for further study	Independent and/or in terms of multidisciplinary
Level 8 Doctoral Degree and Post-Doctoral Programs	Graduates at this level highly advanced systematic knowledge and skills in highly specialized and/or complex multidisciplinary field of learning for complex research and/or professional practice or for the advancement of learning	Applied highly specialized or complex multi-disciplinary field of professional work that requires innovation and/or leadership and management and/or research in a specialized or multi-disciplinary field.	Independent and/or in terms of multi-disciplinary and more complex setting

The PQF-NCC created five (5) Working Groups (WGs) that are mandated to provide technical support in detailing the implementation of the PQF such as in harmonizing the levels of qualifications with all levels of education; aligning education standards and learning outcomes to the level descriptors:

CHED – Developing systems that recognizes pathways and equivalencies and establishing a quality assurance mechanism;

TESDA – Maintaining the national registry of quality programs and qualified manpower; Technical Secretariat of the PQF-NCC

PRC – Ensuring the international alignment of Qualifications in regulated professions with thee PQF; and

DepEd – Providing information and guidelines in the implementation of the PQF.

TESDA and TVET

In the Philippines, Technical Education and Skills Education Authority (TESDA) is the TVET authority in the country which has the capacity to steer and provide guidance to the sector. Institution offering TVET programs need to register in UTPRAS (Unified TVET Program Registration and Accreditation System). UTPRAS is a mechanism installed by TESDA to ensure that the programs offered to the public are quality assured and comply with the minimum standards set forth by the government.

TESDA shall SEEK (jobs) through domestic and international market intelligence report to pinpoint specific job requirements. TESDA shall FIND (people) the right people who can be trained to fit the jobs in partnership with NGOs, social welfare agencies / institutions, school and community organizations.

TESDA shall TRAIN (people) using standards of quality for TVET developed in consultation with various industry sectors. This pro-active matching process contributes to the best job-skills fit. TESDA also focuses on increasing productivity of implemented training programs by assisting individuals or groups who prefer to go into micro business, small and medium enterprises of entrepreneurship training.

Figure 3. TESDA Pro-Active Matching Process

TESDA Competency Standards Development

TESDA developed competency standards of all courses leading to middle-level skilled workers. The competency standards serve as guide of the teachers in the teaching of TEVT program consisting of unit descriptors for acceptable work performance. These competencies are packaged into qualifications that correspond to jobs and occupations. Each qualification has specific levels in the Philippine TVET Qualifications Framework (PTQF).

The competency standards and qualifications, together with training standards and assessment arrangements comprise the national training regulations (TR) promulgated by the TESDA Board. The training regulations issued to TVET schools serve as basis for registration and delivery of TVET programs, competency assessment and certification, and the development of curricula for the specific qualification.

The units of competency are aligned with PTQF levels. The alignment takes into account the breadth and depth of skill and knowledge and the level of autonomy and responsibility in work.

TESDA Assessment and Certification of Skilled Workers

The assessment and certification of the competencies of the middle-level skilled workers are done through Philippine TVET Qualification and Certification System (PTQCS). The assessment process seeks to determine whether the graduate or worker can perform to the standards expected in the workplace based on the defined competency standards. Certification is provided to those who meet the competency standards. This ensures the productivity, quality and global competitiveness of the middle-level workers.

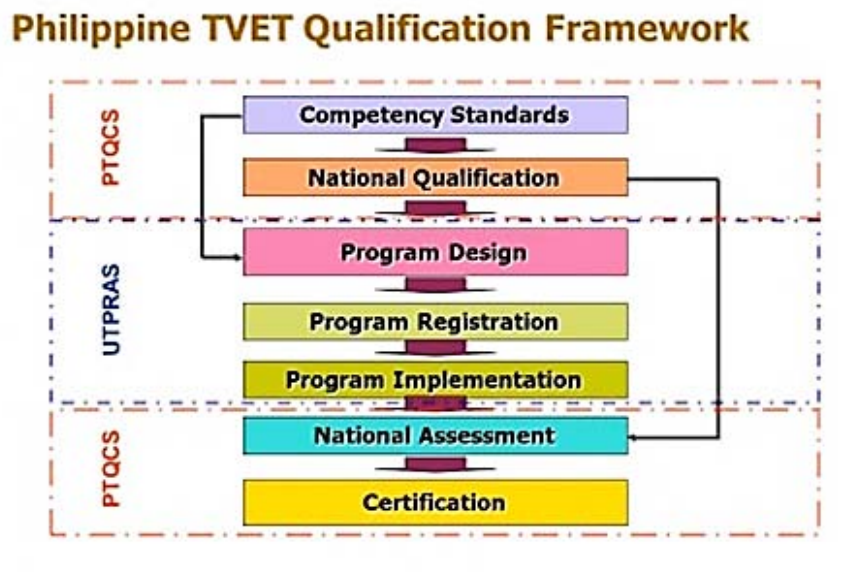

Figure 3. Diagram of the Philippine TVET Qualification Framework

Responding to the human resource development requirements of the Philippine Development Plan and Labor and Employment Plan, the National Technical Education and Skills Development Plan (NTESDP) for 2011-2016 is centered in the development of skilled Filipino workforce to become technically competent, innovative and creative. Emphasis is given on knowledge-based with higher order thinking skills as well as good foundation for life in the pursuit of lifelong learning opportunities. It envisions a 21st Century Skilled Filipino Workforce as technically competent, innovative and creative, knowledge-based, with higher order thinking skills and foundational life skills, in pursuit of lifelong learning opportunities; and processing desirable work attitudes and behavior.

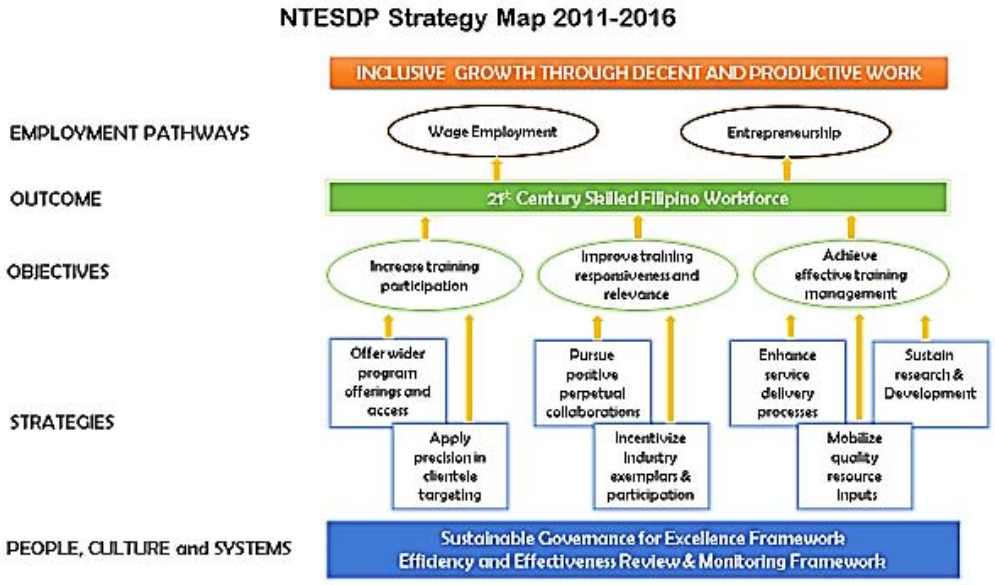

Figure 4. NTESDP Strategy Map 2011-2016

International recognition of degrees and certifications from other countries/economies, recognition of such higher education degrees is the responsibility of CHED.

Under the ASEAN Mutual Recognition Agreements on Tourism professionals and under the ASEAN Constructors Federation recognize Philippine qualifications. TVET qualifications are also recognized abroad thru a bilateral agreement. TESDA has no existing policy on transnational education. However, with the increasing presence of Overseas Filipino Workers (OFWs) in many parts of the world, some providers are delivering training programs in other economies to help OFWs obtain the necessary credentials for promotion. These providers are required to satisfy the host country requirements before offering TVET programs in the host country in addition to the requirements imposed on TVET providers offering program in the Philippines.

Major Issues and Concerns TVET

Issues:

- Internationalization and Global competitiveness
- Relevance, equity, accessibility and cost efficiency of TVET
- The development and implementation of the PQF and its referencing to AQRF in 2018
- Unity towards a single direction for optimum environment for students, graduates, skilled workers and professionals to develop potentials
- Policy dialogues on Educational capacity building of HEI's vis-à-vis AMS HEIs
- Skills training access for workers with special concerns
- Job and skill mismatch
- Skilled workers migration
- Upskilling

Concerns:

- Massive National TVET Trainers / Assessors Qualification Program
- Expanding the Capacity of Private TVET Institutions
- The need for research capabilities in developing labor market information to guide the development of qualifications and core competencies
- Improvement of governance of higher educational institutions through the PQF and AQRF and increased transparency and readability of PQF vis-à-vis higher education institutions in ASEAN
- Policy research and conduct study for harmonization of TVET and HE programs
- Harmonization of PQF Quality Assurance Framework with ASEAN Quality Assurance Framework in Higher Education
- Review existing credit transfer system especially AUN-ACTS (ASEAN University Network – ASEAN Credit Transfer Systems) vis-à-vis PQF
- Common platform for credit systems with ASEAN during pilot/pre-referencing with select undergraduate and post-graduate courses from HEIs
- Capacity building to improve capacity of participating HEI's to existing credit system

- Skills demand overseas vs. local
- Low learning capacity of the poor

Future Directions for Implementation...

- Pursuit for Comparability of Competencies and Mutual Recognition of Skills and Qualifications (MRSQ) with ASEAN countries.
- Expansion of strategic partnerships in TVET program thru bringing together all TVET stakeholders: Government agencies
  - Academe
  - Accrediting bodies
  - Industry/Business
  - Professional organizations
- Enhancing of Education Competitiveness by redirecting the Human Resource Development for sustaining a competitive Filipino workforce.
- Expanding and enhancing career and life choices and opportunities
- Engendering innovations on Greening Skills and Higher Order Thinking Skills (HOTS)

Conclusion

Globalization and emergence of regional economies and networks of regional qualifications reference called for harmonization of national skills framework. Enabling access, quality Lifelong Learning and professional developments as well as cross border mobility and internationalization are towards promoting a locally responsive and globally competitive higher educational system. As for TVET, it continuously build complementary physical and human infrastructure that will enhance the competitiveness and adapt to the evolving requirements of the labor market.

The Philippine National TVET system is still facing major challenges and issues and had to cope with conditions in pursuing its three-prong directions. ILO reports enumerated the major challenges of the Philippine TVET such as on how to create jobs through domestic and foreign opportunities; greater industry participation; career guidance and youth profiling; negative bias towards TVET; limited funding for TVET; and dealing with problems on supply-demand mismatch.

On the other hand strategies and counter measures were also identified such as effective implementation of youth profiling for starting careers; appropriate matching process aided by labor market intelligence; advocating competency-based program; fund sourcing; effective implementation of Ladderized Program (LEP); and linking entrepreneurship to TVET program.

TVET System in the country can be viewed in terms of permeability between Tech- Voc and degree program. Under the present arrangement, Tech-Voc graduates can pursue degree programs. The interfacing between Tech-Voc and degree program is highly necessary as the statistics show that the Philippine education and Training has been producing unemployed educated graduates every year and become workers and earn income for life, and for further studies until they rise to their capacities of growth, even beyond college.

Finally, the Philippine TVET system will continuously address the issues of poverty, social integration, rural and economic development. The system will improve the implementation of its "Ladderized Education Program" to provide wider access of youth to education and training. Hence, TVET role is crucial in poverty reduction, social improvement and opening the opportunities for sustainable development.

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CHAPTER II

National Vocational Qualification and Certification System of Bangladesh

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Introduction and Present Situation of TVET:

Bangladesh conforms fully to the Education for All (EFA) objectives, the Millennium Development Goals (MDG) and all international declarations when it comes to providing educational opportunities to its citizens. Article 17 of the Bangladesh Constitution provides that all children between the age of six and ten years is mandated to receive a basic education free of charge. Recently the literacy rate of Bangladesh has improved as it stands at 71% as of 2015 due to the modernization of schools and the provision of education funds. At present, 16087 schools and 2,363 colleges were getting Monthly Payment Order (MPO) facilities. 27558 Madrasha, and technical and vocational institutions were enlisted for the facilities. 6036 educational institutions were outside the MPO coverage and that the ruling party enlisted 1624 private schools for MPO in 2010. A large number of people of Secondary and Higher Secondary schooling group is out of schooling. Technical and Vocational Education and Training (TVET) is one and only educational mechanism to convert these population to employable workforce to contribute to develop the national economy of our country.

Bangladesh needs more skills for transforming our human capital to upper middle income country. The country has achieved lower middle income country status in July 2015 and per capita income increased to US$1314 per year compared to just under US$700 during 1990. This growth was led by industry and service sector growth and supported by improvements in human development. However, a highly-skilled, more productive workforce is needed to achieve a higher and more rapid economic growth. The current workforce belongs pre-dominantly in low skilled informal sector work in which they receive low pay and social benefits. In addition, out of the 88% of workforce in the informal sector employment, 40% of them have no education and only 14% received a form of TVET training. Increasing the demand for skills development should be imperative due to supply of large and increasing population of working aged citizens (demographic dividend during the next two decades) and economic shifts towards industry and services. The government is currently pursuing to increase the demand for more skilled and highly productive workers (15 million new job projected to created next 10 years) in 7 thrust sectors. There are many programs, projects and activities in the pipeline through the efforts of the Technical and Madrasha Education Division of the Ministry of Education for upgrading skills development in the country. This hopefully should result in the further improvement of technical education's quality and relevance, as well as its access and equity, for the benefit of the students through improving statistics on passing rate, dropout rate, employment rate and number of people engaged in the formal sector.

In 2015, Bangladesh has accelerated the pace of socioeconomic transformation- in many instances surpassing its targets despite the global recession during this period. Recent statistics describe Bangladesh as a development outlier to its credit. With that in mind, the 7th five years plan has been formulated with full recognition that the outlier phenomenon is not merrily a blip on the development path but rather a sustainable occurrence chartering a new development trajectory. Lauded as a development surprise by prominent international media, Bangladesh has emerged as a shining example for countries throughout the world as it continues to defy traditional, linear development models and innovate a novel, alternative pathway for socioeconomic progress. The emphasis on the planned goals and targets are in place to further capitalize on the benefits of technical education.

Table 1: Structural Change in the Economy during the sixth Plan (% of GDP)

Sector	FY 2010	FY 2015
Agriculture	17.81	15.59
Industry	26.14	27.98
-of which manufacturing	16.89	20.17
Services	56.05	56.42

Source: BBS

Table 2: 7th Five Year Plan Targets

Sl no;	Targets	Base year 2010	Vision 2021	Progress under 6th FYP 2015	7th FYP 2020
1	Real GDP Growth (%)	6.1	10	6.5	8
2	Reduction of extreme poverty (%)	17.6		12.9	8.9
3	Share of manufacturing in GDP	16.89	27	17.78	25.1
4	Share of manufacturing employment	12.4	20	1504	20
5	Gross National income per capita (in US$)	843	2000	1314	2009
6	Growth in Agriculture (%)	6.15		3.04	3.34
7	Growth in industry	7.03		9.6	10.9
8	Growth in services	5.53		5.83	6.49
9	Exports(US$ billions)	16.2	82	31.7	54.1
10	Remittances(US$ billions)	10.9		15.6	25.4

Table3: Global Economic Outlook and Bangladesh

GDP at constant prices(% change)	2013	2014	2015	2016	2017	2018	2019	2020
World	3.3	3.3	3.8	4	4.1	4	4	
Advanced Economies	1.4	1.8	2.3	2.4	2.4	2.3	2.3	
Euro Zone	-0.4	0.8	1.3	1.7	1.7	1.6	1.6	

GDP at constant prices(% change)	2013	2014	2015	2016	2017	2018	2019	2020
Bangladesh	6.0	6.1	6.5	7.0	7.2	7.4	7.6	8.0
India	**5.0**	**5.9**	**7.5**	**8.1**	**8.5**	**9**	**9.5**	**10.0**
China	**7.7**	**7.4**	**7.1**	**6.8**	**6.6**	**6.4**	**6.3**	

Source: IMF WEO; India Economic Survey 2015; 7th Plan projections

The Skills development depends on many different actors including the private sectors, non-profit actors, NGOs and civil society as well as the large number of government ministries delivering skills based education and training. Consequently, the skills development policy and the National Vocational Qualification and Certification System in Bangladesh were geared for the betterment of the nation as a whole. NSDP-2011 followed by the Education policy of 2009, Non-Formal Education policy of 2006, the Youth policy of 2003, the National Training policy of 2008 and the NSDC action plan of 2008.

Government institutions in different level for TVET are: (1`) Technical Teachers Training College(TTTC), (2) Engineering Colleges, (3) Vocational Teachers Training Institute, (4) Polytechnic Institute, (5) Technical School and College, (6) SSC Vocational with MPO , (7) HSC Business Management with monthly payment order (MPO) Madrasha with MPO (Vocational & Business Management, (8) Non -Government Diploma Institutes, (9) Non-Government Secondary Level and Others Institutes. The total number of TVET provider institute accredited is around 7925.

Bangladesh Technical Education Board conducted formal training with 34 Curriculum and Informal and non –formal training in 98 courses.

National Technical and Vocational Qualifications Framework in Bangladesh:

The National Technical and Vocational Qualifications Framework (NTVQF) is a comprehensive, yet flexible framework for all qualifications in the skills development system. It aims to support the skill development pathways that provide access to qualification and assist people to easily transition from training into work in Bangladesh. The Bangladesh Skills Development System has two components, the NTVQF and the National Skills Quality Assurance System. Together, these ensure quality, demand based skills development in Bangladesh. The NTVQF is a comprehensive, nationally consistent yet flexible framework for all qualifications in technical and vocational and training, with eight levels:

Table 4: National Technical & Vocational Qualifications Framework

NTVQF Levels	Pre-Vocation Education	Vocational Education	Technical Education	Job Classification
NTVQF 6			Diploma in engineering or equivalent	Middle Level Manager/sub Assistant Engr, etc.
NTVQF 5		National Skill Certificate 5 (NSC 5)		Highly Skilled Worker/ Supervisor

NTVQF Levels	Pre-Vocation Education	Vocational Education	Technical Education	Job Classification
NTVQF 4		National Skill Certificate 4 (NSC 4)		Skilled Worker
NTVQF 3		National Skill Certificate 3 (NSC 3)		Semi- Skilled Worker
NTVQF 2		National Skill Certificate 2 (NSC 2)		Basic-Skilled Worker
NTVQF 1		National Skill Certificate 1 (NSC 1)		Basic Worker
Pre-Voc 2	National Pre-Vocation Certificate, NPVC 2			Pre-Vocation Trainee
Pre-Voc 1	National Pre- Vocation Certificate 1, NPVC 1			Pre-Vocation Trainee

Implementation of the NTVQF in Bangladesh by ensuring three essential components, i.e. Nationally-recognized competency standards, Competency-Based Training (CBT) delivery system and National Competency Assessment and Certification System.

The NTVQF already created remarkable impact in three primary audience. a) Employers/ Industry now able to contribute to shaping of national qualifications and have access to an increasing pool of nationally qualified skilled workers. b) TVET Trainees capable to access high quality, nationally-recognized qualifications. c) Public, private and NGO institutions providing training and ensuring and delivering nationally recognized qualifications.

Pre-vocational qualifications are important steps towards aligning the needs for skilled workers. The qualifications are stepping stones that equip participants with basic skills and allow entry into higher level formal skills development programmers The NTVQF introduces two pre-vocational qualifications: Pre-Vocational level 1 equips candidates with basic language, literacy and numeracy skills relating to an occupation and Pre-Vocational level 2 adds sector and occupational specific skills to these. This range of competencies for both qualifications is specially designed to cater for these people and include flexible assessment methods suitable to their needs. Both Pre-Vocational level 1 and Pre-Vocational level 2 are now nationally recognized qualifications in Bangladesh.

NTVQF- certified TVET trainers and Assessors: Qualified, skilled and motivated trainers and assessors are the foundation of the new skills system in Bangladesh. The new system demands that trainers and assessors not only have skills in training and/or assessing, but also that they possess the actual practical trade skills that they are teaching and/or assessing, preferably at a higher than their trainees.

To become a certified Competency Based Training (CBT) Trainer under NTVQF anybody will need:

1. NTVQF certificate in each occupation they are instructing which is a qualification level either equal to or higher than the level they are instructing.

2. A Certificate IV in pedagogy in Competency-Based Training and Assessment in TVET.
3. At least two years of relevant industry experience.

To become a certified TVET Assessor under the NTVQF, anybody will need:

1. An NTVQF Certificate in each occupation they are assessing which is of a qualification level either equal to or higher than the level they are assessing.
2. Statements of attainment for the units of competency required to be a CBT Assessor.
3. At least two years of relevant industry experience

Table 5: Applying procedure for certification of Trainers and Assessor:

Responsible Party	Key steps	Interfaces
Bangladesh Technical Education Board(BTEB)	Orientation of applicant	Checklist of requirements Trainer/ Assessor Profile form
BTEB focal staff	Evaluation of documents	Checklist of Requirements application form Trainer/ Assessor Certification
BTEB	Create panel of experts	Assessment shall be done by a panel composed of three TVET experts approved by BTEB
Panel of experts	Conduct assessment	Assessment will be based on the assessment design established under the relevant competency standards
BTEB	Issue certificates	Certificate valid for five years
BTEB	Updating of registry	Registry of certified CBT&A Trainers/ Assessor for NTVQF

National Competency Assessment and Certification System

The National Competency Assessment & Certification System (NCACS) consists of certified assessors assessment facilities, assessment tools and the NTVQF information management system. Competency standards are used as the basis for development of the assessment tools.

There are three pathways that may be taken by learners:

1. Participating is an accredited training course delivered by a Registered Training Organization (RTO).
2. Recognition of Prior Learning (RPL).
3. Training and assessment for some units of competency and RPL for other units of competency.

Each pathway leads to the same end point of assessment against the defined national competency standards for units of competency and qualifications under the NTVQF. Assessment is based on evidence or information gathered to prove competency. Evidence-gathering methods include workbooks, projects, interviews, etc. More than one approach can be used and evidence may be gathered at more than one

occasion. Performance is not compared against other individuals and individuals do not receive scaled grades. Rather, they are either graded as competent or not yet competent

Highlights and Best Practices:

Some of the best practices created under the improved Bangladesh National Skills Development Policy are the following:

a. Developed and approved policy on National skill development in 2011
b. Formulated and introduced the NTVQF.
c. Established of the Bangladesh TVET Quality Assurance system.
d. Developed of a dynamic and accessible TVET data management system.
e. Introduced a mechanism for the Recognition of Prior Learning (RPL).
f. Developed new models for Competency Standards.
g. Introduced and developed new, demand-driven courses.
h. Organized a series of new training programs for TVET teachers and Principals.
i. Enhanced work-based learning including apprenticeships programs.
j. Strengthened the role of Industry sectors in TVET activities.
k. Proposed effective & flexible institution management systems
l. Created an access facility for the underprivileged sectors to encourage their participation.
m. Collected accurate labor market information with national and global context.

The Competency Based Training and Assessment is very effective for the selection and identification of Qualifications. It is also effective in creating employability through recruitment, providing education based on the real Training Need Analysis (TNA), employee classification by different levels of Assessment, maintaining quality assurance and progress of skills development and introduction of the Recognition of Prior Learning (RPL).

Some of the sectors where the NTVQF program was successfully conducted include:

a. Transport equipment
b. Agro-food
c. Information Technology
d. Leather & Leather goods
e. Construction
f. Ready Made Garments (RMG)
g. Informal Economy
h. Light Engineering
i. Tourism & Hospitality
j. Furniture
k. Ceramic
l. Pharmaceutical

Due to these interventions, the average enrollment increment trends in general and madrasah education boards in SSC and HSC level is up by approximately 6% and 14% in BTEB, respectively.

Table 6: Projected Enrollment under BTEB with projected enrollment of 10 Boards

Year	BTEB projected enrollment	Total projected enrollment (Including all Boards)	% of BTEB projected enrollment
2015	1,038,820	6,721,497	15.46
2016	1,184,255	7,207,892	16.43
2017	1,350,050	7,735,106	17.45
2018	1,539,058	8,307,217	18.53
2019	1,754,526	8,928,774	19.65
2020	2,000,159	9,604,863	20.82

Challenges and Recommendations

Challenges:

The government has already made conscious efforts in addressing the skill constraints to growth acceleration i.e. skills mismatch, skills deficiency of migrant workers, progress with Technical Education and Training during the Sixth Plan and program and policies.

Despite these multiple efforts, the unavailability of trained labor continue to plague the economy. The unsatisfactory performance of the TVET sector is mainly caused by deficiencies in quality. Certifications from formal institution are not among the major criteria defining the skill level of workers. Duration of overall work experience and on the job training are among the criteria having more weight. Most employers find the training received by workers to be inadequate, and in some cases, irrelevant to their needs. A little less than a half of those who graduate from the training system are unable to find jobs. All of these are major drawbacks of the TVET systems recognized by the NSDP. Extensive lack of facilities, laboratories, machineries and equipment in most of non-government technical institutions along with the lack of infrastructure and manpower of BTEB are additional challenges.

Other challenges include the lack of collaboration with industries, encouragement of the full operation of competency -based training & assessment rather than piloting institutions, creation of an environment that is safe for women in TVET institutions, following up of demand from the industry, creation of all-training provider institutions that are accredited by registered training organizations (RTO) and the introduction of an RPL center. There is also the need to create and increase access facilities for the enrollment of girls, strengthening of institutional capacity, creation of local and international training exposures, encouragement of a continuous and effective mechanisms to finance TVET development and encouragement of worldwide accreditation of existing TVET certificates.

Recommendations:

It should be noted that within the organization, there is a resource constraint and it is important BTEB should consider diversifying the national and global demand. It is given that some matters will take time to be reformed. However, there should be a long, medium and short term organizational reforms that will be

communicated to the stakeholders so as to continue capitalizing on the progress of TVET for sustainability development.

Some of these organizational reforms are the following:

Table 7: Recommended improvements in the Bangladesh NVQS system

Short-Term Goals	Medium-Term Goals	Long-term Goals
1. Increased cooperation between the industry and the personnel institute 2. Increased knowledge sharing and exchange of know-hows 3. Institute personnel. 4. Establishment of effective job placement with the jobs addressing the upcoming technology. 5. Capitalization of the country's demographic advantages. 6. Introduction of Result-based management, monitoring and evaluation. 7. Introduction of more effective monitoring activities 8. Establishment of the Industry Skill Council (ISC) for all competencies and effective utilization of all ISCs for curriculum development and quality assurance manual. 9. Re-design of OJT offerings based on their student life cycle approach. 10. Creation of more facilities that will harnessing the skills of migrant workers.	1. Update the curriculum and make it more flexible before starting the NTVQF program. 2. A training needs analysis should be institutionalized. 3. A comprehensive training for trainers and assessors within purview of own organizational capacity should be conducted. 4. A special mechanism to motivate teachers and trainers must be explored. 5. A universal management information system is needed to avoided inclusive and exclusive error of the same. 6. Extended stipend program for indigenous sectors. 7. Decentralization of the Bangladesh Technical Education Board activities to ensure the effective delivery of the service to end stakeholder.	1. Product/ Service diversity should be explored to cater to varying demand 2. Lifelong education and training program should be expanded. 3. Introduction of flexible technologies that will cater to emerging labor force demands. 4. Long-term improvement of TVET campuses, including massive investments in learning infrastructure.

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National Vocational Qualifications and Certifications System of Bhutan

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Introduction

The Department of Occupational Standards, Ministry of Labor and Human Resources developed the Bhutan Vocational Qualifications Framework and Certification System to streamline and unify TVET system in the country. This framework is a system of qualifications that aims to facilitate the coherent integration of national vocational qualifications within the TVET sector. The main purpose of the framework is to enhance the quality of TVET and provide national recognition to TVET outcomes. The BVQF is intended to enhance the relevance and quality of TVET through:

1. Unified national vocational qualifications which is recognized nationally;
2. TVET system responsive to industry needs;
3. flexible learning and career mobility;
4. the recognition of prior learning (RPL);
5. facilitate linkage between TVET and Tertiary Education;
6. the provision of credit for part of a qualification;

Education System in Bhutan

The Bhutanese education system understood as a means for the passing on of values is based on the unique notion of Gross National Happiness (GNH) which assumes that for the wellbeing of a people, it is essential to include their spiritual and cultural needs in the process of development. Until the 1950s, education in Bhutan was mainly monastic. Literacy was confined to the monasteries, and many eminent Bhutanese scholars traveled to Tibet to study Buddhist scriptures.

Today, the education system includes formal, non-formal, and monastic schools. Enrolment in the formal system begins at age six, but students can apply to the monastic schools at any age. The non-formal centers provide basic literacy skills for all ages. The government provides free education to all students until Grade 10 and scholarships to students who meet the requirements for higher and professional studies. The educational structure provides for 11 years of basic schooling: one year of pre-primary schooling, six years of primary, two years of junior high and two years of high school. Students undergo an examination to move from primary to junior high, and another to graduate from junior high to high school.

TVET System in Bhutan

The mission of TVET in the Kingdom of Bhutan is to contribute to enhancing the skills and productivity of the workforce and to economic development. TVET in Bhutan consist of three modes that is formal, non-formal and informal system of training delivery.

TVET is offered at the secondary education level. At the middle secondary education level, students are able to take pre-vocational subjects provided according to local needs and the availability of equipment, local traditions, indigenous knowledge and skills. Students are required to pass an examination to attend general upper secondary or vocational and technical education. The duration of TVET programs varies from six months to two years and the subjects are linked to the needs of the Bhutanese Labor market and economy. Specifically elective courses focus on providing skills for the development of the following key industries:

a. Infrastructure: hydrogenation, power transmission and distribution, construction;

b. Services: tourism, healthcare, education, information technology (IT), financial services;

c. Manufacturing: cement, herbal products; and

d. Royal Civil Service Commission (government).

In addition to TVET programs offered at the upper secondary education level, the Institute of Zorigchusum Thimphu and Institute of Zorigchusum Tashiyangste vocational training institutes also offer long TVET programs lasting up to six years, in wood carving, painting and tailoring.

TVET at the tertiary level is offered through institutions accredited to the Royal University of Bhutan and providers registered with the Department of Occupational Standards. Most TVET programs last four years and focus on engineering, technology, business administration, and education. Medicine programs last five years.

Apprentice training programs are provided through a contract between an apprentice and an employer. Training periods normally last six to nine months, and in some cases one year, and aim to provide students with appropriate skills and competencies for the world of work. The apprentice training program covers all sectors, but mostly concentrates on the service and hospitality sector.

Currently there are 8 public training providers funded by the Royal Government of Bhutan and about 67 private and 7 NGO registered training institutes which can provide TVET in Bhutan with the capacity to train about 6,000 trainees.

National Economic Plan of Bhutan

Bhutan's rapid economic growth has been fuelled mainly by investments in hydropower. While the growth rate has averaged 7.9 percent in the last two decades, it has been highly unstable with the economy susceptible to volatilities and external shocks. Sustaining a stable growth path has been a major challenge. Another challenge has been to channel the revenue generated from hydropower to other viable avenues of growth.

Skills and craftsmanship has been the foundation of Bhutan's socio-economic development for eons. It was found that in order to improve workforce productivity and economic competiveness, a robust Technical and Vocational Education and Training (TVET) system must be put in place in the modern Bhutan.

The demand for skills is a derived demand influenced by multiple factors of the economy and the performance of the country's Labor market. Bhutan is a small country and the number of people entering

and leaving the Labor market influences it to a great extent. Therefore, the country has come up with pillars and strategies to provide quality TVET that remains relevant to the socio–economic development aspirations of the country.

Pillars	Strategies	Expected Outcome
1. Expand TVET provision	1. Expand capacity to meet future needs 2. Facilitate the expansion of private TVET providers 3. Improved utilization of resources 4. Promoting Equity Enrolments 5. Supporting positive images of TVET	1. Capacity of public TVET system expanded from 1,500 to 3,900 seats over the next 10 years. 2. Existing physical facilities and equipment of TVET providers upgraded. 3. A vocational college constructed with industry ready equipment. 4. Role of private providers in delivering TVET programs increased at all levels. 5. Improved access to TVET for disadvantaged groups. 6. TVET viewed as a preferred career path for young people.
2. Improve quality	1. Training of trainers 2. Improve the quality of TVET programs 3. Identify new and innovative forms of delivery 4. Ensure the private sector plays a key role in delivering TVET	1. Collaboration between providers and employers established to deliver quality TVET in a cost effective manner. 2. A cohort of competent trainers developed to deliver diploma and higher–level diploma programs. 3. Qualifications that are fit–for–purpose developed. 4. Improved engagement between the public and private sector. 5. A TVET Resource Centre established to facilitate commitment to international standards. 6. Frame work for knowledge transfer between overseas and national providers developed and implemented. 7. Institute–industry linkages strengthened. 8. Qualified TVET managers and trainers recruited. 9. NITE established/College of Education facilities used for imparting pedagogy skills in technical instruction.

Pillars	Strategies	Expected Outcome
3. Improve relevance	1. Improve intelligence on skills in demand 2. Align TVET program to the needs of the Labor market 3. Ensure youth develop more employability skills 4. Improve skills levels for sustainable livelihoods	1. Improved match between TVET qualifications and the needs of the Labor market. 2. Skills development aligned to economic priorities. 3. Skills gap identified by the MoLHR 4. Skills training for informal sector and livelihoods activities improved. 5. Employers involved in the development of qualifications. 6. Employment opportunities for youth increased in Bhutan and overseas.
4. Strengthen management systems	1. Setting up of a coherent and strategic information systems 2. Strengthening the management and coordination of TVET 3. Ensuring the private sector plays a key role in delivering TVET 4. Moving towards a performance based policy system	1. Improved management and coordination of TVET. 2. Sector Skills Advisory Boards established. 3. Regulatory framework for private sector engagement implemented. 4. An information system established. 5. A performance based planning system introduced. 6. Provider level management and capacity strengthened

TVET Enrollment Data

There are currently 6 TTIs offering technical courses such as electrical, mechanical, construction, automobile, computer hardware and driving with a total enrolment of 726 (for 2016). The 2 IZCs offer Courses in traditional Arts and Crafts such as painting (lhadri), wood curving (patra), Clay sculpture (Jimzo) and embroidery (tshemzo) with a total enrolment of more than 300 students.

Table 2: TVET Enrollment Data in Bhutan

Institute	Present capacity	Present enrolment		Present Total	Gap	Planned enrolment for 2015
		Male	Female			
TTI Chumey	180	82	67	149	-31	100
TTI Khuruthang	200	213	112	325	+125	150
TTI Rangjung	172	124	89	213	+41	120

Institute	Present capacity	Present enrolment		Present Total	Gap	Planned enrolment for 2015
		Male	Female			
TTI Samthang	120	115	25	140	+20	120
TTI Serzhong	196	70	68	138	-58	150
TTI Thimphu	98	34	22	56	-42	86
IZC Thimphu	240	150	93	243	+3	140*
IZC Trashi Yangtse	150	104	71	175	+25	72*
Total	1356	892		547	1439	788

Employment Data of TVET Graduates

The following table gives an indication of the number of students who have graduated from the TTIs/IZCs over the last twelve years. In 2016, 888 trainees graduated from the TTIs and 201 from the IZCs.

Table 3 — Number of graduates from TTIs/IZCs from 2004 to 2016

Institute	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	TOTAL
TTI Khuruthang	44	27	43	67	70	95	72	108	87	104	185	180	165	1247
TTI Rangjung	82	24	57	25	75	85	97	95	117	78	135	135	140	1145
TTI Chumey					237	20	30	46	101	65	79	82	87	717
TTI Sherzhong					85	46	46	40	40	60	72	68	72	529
TTI Thimphu					0	0	21	17	19	19	29	32	33	170
TTI Samthang	110	106	115	120	117	172	125	80	165	66	152	153	160	1641
CSC								85	38	78	266	211	231	909
Subtotal of TTI	321	195	293	478	584	418	391	386	529	392	652	861	888	6358

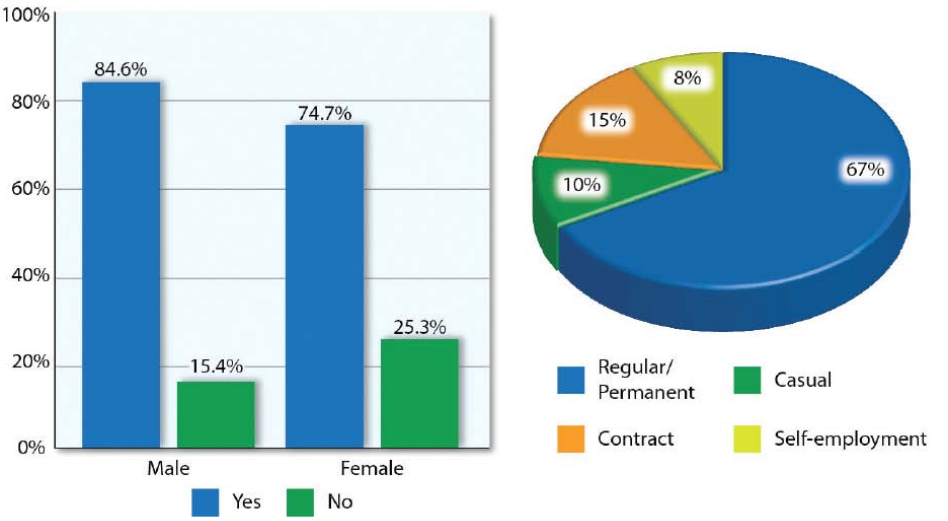

Figure 1: Percentage of Employed post–graduation and nature of employment

As indicated in the Figure 1, nearly 85 % of males and 75% of females said they were employed. The majority were employed as regular worker, whereas 25% are working either as casual or contract workers and 8% are self– employed.

Bhutan Vocational Qualification Framework

A BVQF is an award which recognizes that learning has taken place and that learning outcomes have been achieved. These learning outcomes are expressed as achievements in meeting competencies that are listed in the National Competency Standards. Award of qualifications will be based on competency-based assessment for each occupation. A national assessment and certification system is developed to plan and coordinate systematic competency-based assessments for the award of National Certificates.

Vocational Qualifications Levels

The BVQF has five qualifications: National Certificate 1 (NC1), National Certificate 2 (NC2), National Certificate 3 (NC3), National Diploma 1 (ND1), and National Diploma 2 (ND2). NC 1 is the lowest and NC 3 is the highest in terms of skill competency requirements or complexity at the vocational level. However, applicability of all levels differs from occupation to occupation.

BVQF Levels 1 to 3

BVQ levels 1 to 3 allow trainees to upgrade competencies from semi-skilled to master craftsmen stage through the acquisition of competencies specified at each level. These competencies are incorporated into the units of competencies which are packaged to form the National Competency Standards of a particular occupation. NC1, NC2 and NC3 shall be mainly skills or practical based with only about twenty per cent of trade related theory.

BVQF Levels 4 to 5 (ND1 & ND2)

BVQF levels 4 to 5 leads to supervisor or manager level qualifications. The ND1 and ND2 shall focus on mastery of more knowledge component with decreased proportion of skills competency as compared to competencies at lower levels. Therefore, there will be an increasing knowledge component as individual progresses up the level hierarchy. Potential individuals transiting to ND1 from NC3 shall pursue courses/ programs in line with their trade of competency or related courses offerings only as decided during the selection process.

BVQF levels 4 and 5 competency standards comprise of units of competency and each unit of competency is assigned a credit value. A trainee will be eligible to receive the BVQF level 4 qualifications once the required credit specified in the relevant competency standards is earned.

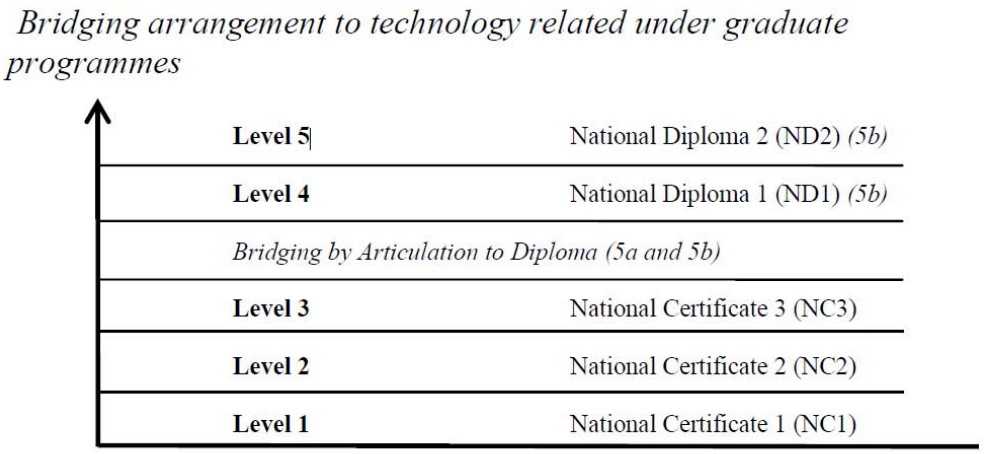

Figure 2. Bhutan Vocational Qualification Framework (BVQF) levels and corresponding qualifications.

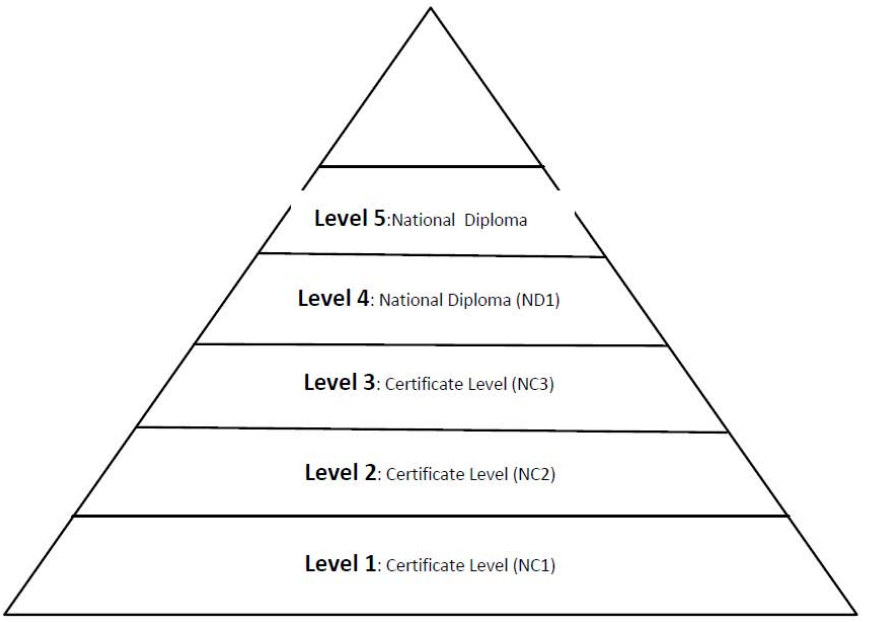

Figure 3. BVQF Levels and their corresponding workplace.

In the workplace, NC1 co-relates to semi-skilled; NC2 to craftsperson; NC3 to master crafts person in the work place and ND1 and ND2 to supervisory or managerial personnel. Level descriptors1 have been developed and placed at annexure 2.

Equivalency of Vocational Qualifications

As regards equivalency, National Certificate 1 (NC1) is comparable to class X, National Certificate 2 (NC2) to class XI and, NC3 to class XII. However, the NC1 is not exactly the same as class X, NC2 to class XI and NC3 to class XII, it only means that the qualifications are equivalent and make comparable demands in terms of learning outcomes.

Recognition of Prior Learning

Any skilled workers in the country shall also be eligible for award of National Certificates, based on the demonstration of competencies as per the National Competency Standards. This helps recognize technical and vocational skill competency that skilled workers achieve through work experience or other modes. The Department of Occupational Standards shall develop and administer Recognition of Prior Learning to award National Certificates to such skilled workers.

Progression and Linkage of TVET to Tertiary Education

Individuals can have the option to enter the labor market upon their certification at a particular certification or qualification level. Although individuals will be encouraged to spend reasonable time in employment upon completion of each level, no restrictions shall be placed on individuals who wish to progress up from NC1 to NC2 levels. However, minimum of six months field experience in relevant is required to progress from NC2 to NC3.

Entry of National Certificate 3 holders to Diploma programs offered by institutions within the country shall be based on fulfilment of selection criteria and bridging arrangements. While diploma programs categorized as 5a2 is offered by the institutions accredited to the Royal University of Bhutan, programs categorized as 5b shall be offered by the providers registered with the Department of Occupational Standards. Similar linkage and bridging arrangements shall also be established for entry of ND2 to first degree qualification. This provision to link TVET to Tertiary Education is proposed in Bhutan Qualifications Framework to promote life-long learning and career development opportunities. The "Bhutan Qualifications Framework" as proposed in the Tertiary Education Policy ensures the linkage between school education, TVET and, tertiary education in the country.

The following illustration also focuses on the concept of life-long learning shown by dotted arrows from the Labor market to TVET. This is further complimented by the Bhutan Qualifications Framework at annexure 1 which proposes 8 levels across School education, Vocational education, University education and Monastic education.

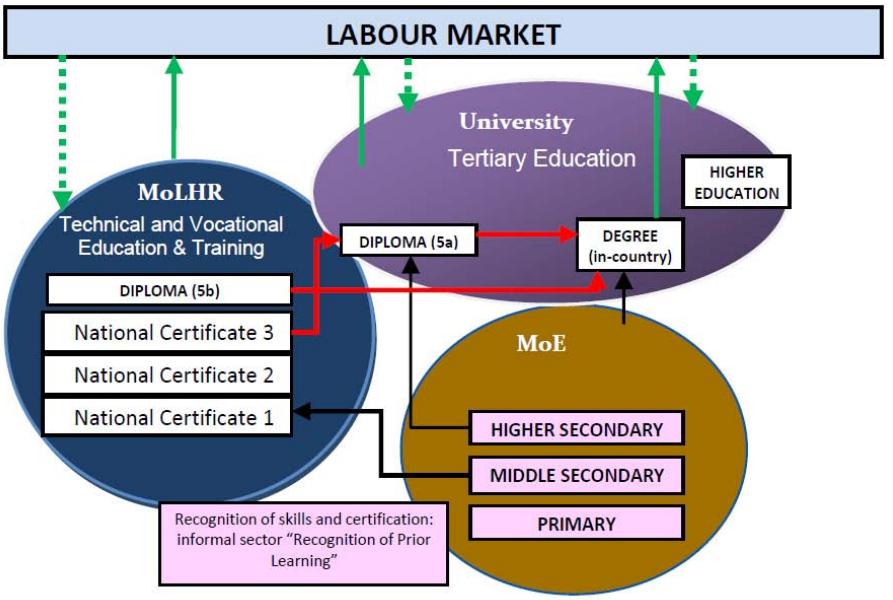

Figure 3: Schematic illustration of the three major stakeholders and the linkages between each as well as Labor market

National Certification System

National Certificates or qualifications shall be awarded to individuals only upon assessment of competencies against assessment criteria defined for each level in the respective National Competency Standards (NCS).

The individuals assessed and found competent at level 1 shall be awarded National Certificate 1 or NC1 and NC2 for level 2 and, so forth. These National Qualifications for all in-country TVET programs shall be defined using the BVQ level descriptors. The National Certificates and diplomas (NC/ND) shall be recognized by the royal government as national qualifications awarded to individuals completing the post-secondary level (e.g. post basic education) TVET programs offered by training providers in the kingdom. The training and assessment of competence can continue to be provided by various TVET institutions or providers but the awards shall be centralized and coordinated by the department, in order to ensure consistency of quality outcomes. Only those courses which comply with or fulfils the requirements of the quality assurance system shall to lead to award of a National Certificates.

Highlights and Best Practices

TVET Practices Adopted in Bhutan

In order to foster the TVET system in our country, the government has established the Bhutan Vocational Qualification Framework (BVQF), which sets a good foundation for quality assurance system and competency-based training system. Furthermore the government has also developed TVET Blueprint 2016-2026 to ensure a coordinated transition towards a demand orientated TVET system.

TVET Reform Initiatives

In order to enhance the TVET system in the Kingdom of Bhutan, a number of initiatives are being under-taken. For example the i-School Project implements low-cost and user-friendly information technology

(IT) in schools through mobile broadband. The introduction of IT aims to foster innovation and creativity, and enhance the learning of students. All the public training providers are provided with high speed internet facilities to promote E-learning.
In order to encourage public-private partnerships (PPP), the Ministry of Labor and Human Resources (MoLHR) has launched the "Establishment Regulation for Private Training Institutes and Registration Regulation for Training Providers". Other MoLHR initiatives focus on developing occupational standards and maintaining the BVQF.

The Library Management Information System was launched online to help TVET trainees to meet the needs of all the library information seekers in TTIs. It was designed to maintain and organize library in an efficient manner. The Institutes library is equipped with technical and general books in order to support the ongoing courses conducted at the Institutes.

In the initiatives, it was mandatory for all training providers to be registered with the MoLHR and all its training programs to be accredited by the Ministry to have quality training. Frequent visits are made by the officials from Department of Occupational Standard at training providers for monitoring and evaluation of the training.

It was envisaged that vocational education would be introduced from class VI onwards till class X. In order to encourage the students in TVET system, Students who attended the vocational education at these levels where given more weighting for entry into the TTIs after class X.

Best TVET Practices in Bhutan

The TVET institutes in our country have adopted competency-based training system which ensures that training and assessment are based on National Competency Standards. Competency-based training ensures a responsive and high quality TVET system in the country. This system of training has brought major changes in the teaching-learning process and has produced competent graduates as per the survey carried out in the year 2015.

The skilled workers who have acquired competencies through work experience or other modes are also assessed and certified through Recognition of Prior Learning, appreciating and promoting the craftsmanship of technical/traditional craftsman. Unlike in the past it is not necessary to undergo formal training to be eligible for assessment and certification. Through RPL the competencies achieved through other informal means can be validated against the national competency standards. The prior learning can be acquired from:

Challenges

At the moment the TVET system faces a number of challenges in the areas of capacity, quality and employability. Despite tremendous progress made in the development of a modern TVET system there remain a number of challenges. Most significant problem existed are expected to emerge in areas of access, quality, relevance and management of TVET, which is the key issue in meeting the expectation of the stakeholders and beneficiaries.

The country needs to address the conflict of TVET graduates with different certificates (i.e. graduates of conventional training was awarded institute certificate and graduates of Competency-based Training is awarded National Certificate) has become chaos for the graduates having same competencies in the job market.

It is important also to realize that the awareness on BVQF is very weak among the stakeholders and beneficiaries. In addition, it is also found out that the duration of training for same NC level but for different occupation was found unrealistic (e.g. NC II Electrician – 13 Month, NC II Auto-mechanic – 16Months, NC II Cable TV Technician – 6 Months).

As the National Competency Standard is the heart of the BVQF, the training materials, training standards, and assessment are closely linked/derived from it. In addition competency standards developed have to be validated by the Technical Advisory Committee which constitutes of 13 private sectors. It was found that the participation from industries has been very weak, leading to skills gap in the market.

The CBT program is considered challenging, good standard and worthy of the efforts. Nonetheless, the other supporting components that were necessary to make CBT successful are in short supply. Components like number of trainers, shortage of learning materials/equipment and inadequate budget is hampering the intended quality and standards.

Recommendations

To address these challenges, adequate awareness on BVQF should be carried out before implementing the framework. There should be alternative means for enhancing the roles of industries in developing the NCS. Research and analysis should be carried out before developing the Competency Standards to avoid skills gap and to obtain uniform course duration for the identical NC levels.

Annexes

Table 4: The Bhutan Qualifications Framework developed by Bhutan Accreditation Council

Level	School Education	Vocational Education	University Education	Monastic Education
8			Doctoral	Khenpo
7			Masters	Geshey
6			Bachelor	Tencho
5		ND1 & ND2	Diploma	Madhamik
4	Bhutan Higher Secondary Education Certificate (BHSEC)	NC2 & NC3		
3	Bhutan Certificate of Secondary Education (BCSE)	NC1		Sheyrim
2	Lower School Education			
1	Primary Education			

Table 5: BVQF Level Descriptors for National Certificate 1 (NC 1)

Carry out processes that are:	Learning demand:	Accountability:
• Limited in range • Routine responses, repetitive and familiar • Single processes • Employed within closely defined contexts	• Recall • Narrow range of knowledge and cognitive skills • No generation of new ideas	• In directed activity • Under close supervision and quality control • With no responsibility for work or learning of others

Table 6: BVQF Level Descriptors for National Certificate 2 (NC 2)

Carry out processes that:	Learning demand:	Accountability:
• Are moderate in range. • Are established and familiar • Offer a clear choice of routine responses. • Involve some prioritization of tasks from known solutions	• Some relevant theoretical knowledge. • Interpretation of available information. • Known solutions to familiar problems • Little generation of new ideas	• In directed activity. • Under general supervision and quality control. • With some responsibility for the quantity and quality of output. • With possible responsibility for guiding others.

Table 7: BVQF Level Descriptors for National Certificate 3 (NC 3)

Carry out processes that:	Learning demand:	Accountability:
• Require a range of well-developed skills • Offer a significant choice of procedures requiring prioritization • Are employed within a range of familiar contexts	• Some relevant theoretical knowledge • Interpretation of available information • Informed judgment • A range of known responses to familiar problems	• In directed activity with some autonomy • Under general supervision and quality checking • With significant responsibility for the quantity and quality of output • With possible responsibility for the output of others

Table 8: BVQF Level Descriptors for National Diploma 1 (ND 1)

Carry out processes that:	Learning demand:	Accountability:
• Require a wide range of technical or scholastic skills • Offer a wide choice of standard and non-standard procedures • Are employed in a variety of routine and on routine contexts	• Specialized knowledge with depth in more than one area • Analysis, reformatting and evaluation of a wide range of information 8 Formulation of appropriate responses to resolve both concrete and abstract problems	• In self-directed activity • Under broad guidance and evaluation • With complete accountability for quantity of quality of output • With possible responsibility for the quality and quantity of output of others

Table 9: BVQF Level Descriptors for National Diploma 2 (ND 2)

Carry out processes that:	Learning demand:	Accountability:
• Require a wide range of specialized technical or scholastic skills • Involve a wide choice of standards and non-standard procedures • Are employed in a variety of routine and non-routine contexts	• A broad knowledge base with substantial depth in some areas • Analytical interpretation of a wide range of data • Determination of appropriate methods and procedures in response to a range of concrete problems with some theoretical elements	• In self-directed and sometimes directed activity • Under broad general guidelines or functions • With full responsibility for the nature, quantity and quality of outcomes • With possible responsibility for the achievement of team output

National Vocational Qualification and Certification System of Fiji

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Introduction

Today's globalized and highly competitive environment calls for a workforce that is skilful, efficient and innovative. This is imperative for any nation that seeks to build a knowledge-based economy via a highly competent, well-educated human resource capital. The Technical Vocational Education and Training (TVET), nowadays increasingly being considered as an integral part of mainstream education, creates important pathways towards enhancing competencies for honing employability skills necessary for creating highly successful economy. Although TVET is seen instrumental for sustainable development, the transformation plan is crucial to ensure labor market priorities are identified along with initiative of restructuring TVET as equally preferable institution for post-secondary education in the country.

This paper will discuss the educational system including the current situation of TVET in Fiji, the Fiji Qualification Framework, best practices for quality TVET graduates and challenges encountered when implementing qualification guidelines. The paper concludes by suggesting future directions for other regional member countries to assist develop their National Vocational Qualification System.

Educational System of Fiji

Fijian law requires that all children, regardless of gender, race and ethnic affiliation, have access to education, which is under the responsibility of the Ministry of Education. The government has drawn up educational programs such as the formulation of policies that will cater the needs of the students, raining the quality of relevant education, and making students less dependent on the labor market but capable of venturing into self-employment after completion of their course.

The structure of the Fijian educational system is divided into 3 levels namely the primary school, secondary school, and higher education. The language of instruction is English.

The primary school system consists of 8 years of schooling and is attended by children from the ages of 6 to 13 years. Upon the completion of primary school, a certificate is awarded and the student is eligible to take the Secondary School Examination.

Entry into the secondary school system, which is a total of 5 years, is determined by a competitive examination. Students passing the 8th year exam then follow a three-year course that leads to the Fiji School Leaving Certificate or Year 12 examination and the opportunity to attend senior secondary school. At the end of this level, they may take the Year 13 examination, which covers 4 or 5 subjects. Successful completion of this process gains students access to higher education.

The higher education is offered in universities or collegiate institutions led by the University of the South Pacific, which is financed by 12 countries in the region, and the University of Fiji. The other institutes include the Fiji National University and the recent established Technical College of Fiji which has 12 campuses decentralised around the country.

The Fiji Technical institution offers fulltime training in various trades that ranges its qualifications from Certificate Level II to diplomas in Engineering, Construction, Hospitality & Tourism, Tailoring and Agriculture studies.

TVET System in Fiji

TVET system with its current structure comes under a number of government ministries. The Ministry of Education (MOE) looks after the school-based TVET systems both in the formal academic and the post – secondary TVET program, either stand-alone or attached to secondary school. The Technical College of Fiji (TCF) is a stand-alone technical institution administered by the Education Ministry. It has 12 campuses located over the country. There are also Technical Centres in remote rural and maritime locations attached to secondary schools. Monfort Boys Town is classified under the private vocational but is currently receiving an annual funding grant from the Ministry of Education.

The Fiji National University is providing a range of TVET programs such as agriculture, engineering, construction, Tourism & hospitality, Housekeeping Services & Accommodation, Cookery & Baking, Forestry and the list goes on. These programs are offered at certificate, diploma & degree levels. The institution is a self-governing body but receives large portion of its annual grant from the Fiji Government.

Private TVET vocational training institutions like APTECH Computer School, are sectioned under the Ministry of Education for registration and recognition certification. Other private TVET providers with agriculture based-training such as Tutu Vocational Centre are supported and funded by the Ministry of Agriculture.

The Ministry of Forestry provides forestry skills training at the Forestry School in Colo-i-Suva named Timber Industry Training Centre (TITC). They also provide short up-skilling training courses for those already working in the forestry/timber industry.

USP's School of Education provide TVET teachers training programs at the certificate, diploma and degree levels for those who wish to pursue teaching as a career. These programs provide technology-based knowledge rather than industry-based training. USP is managed and funded by 12 Pacific island countries however the Fijian Government contributes a large portion of the USP Fund.

National Economic Plan of the Country

1. The medium term economic strategy is to maintain the stability and sustain economic growth. It has been concluded for the last 5 years that exports have grown but not fast enough; employment has grown but not enough to absorb all school leavers; and the economy is in equilibrium. Hence the new medium term plan aims to achieve a higher level of growth in a sustainable manner.
2. The new strategic plan aims to achieve higher economic growth through a restructuring of the economy. A key component will be a continuous restructuring of the public sector to include an overall down-sizing of the public service (with the exception of education and health) and reform of public enterprises.

3. The key component of the restructuring of the economy is the enhancement of the private sector and especially increasing the level of investment in the economy to 25% of GDP including raising private sector investment by 10%. The sugar industry to continue enhance investment and create cost efficiencies in all facets from production and transportation through to processing.

   Agriculture and livestock production is to expand substantially to increase exports and reduce imports especially to supply the thriving tourism industry. Increased production is to be achieved through: building the capacity of rural communities to diversify their activities; establishing commodity protocols with Australia, New Zealand and China; strengthening agricultural training institutions; improving access to credit; enhance linkages between growers and tourism operations; and, enhancing infrastructure.

   In respect of forestry the plan seeks to increase the contribution to GDP but at the same time ensure sustainability and maximum returns to the resource owners. A slight increase in GDP is expected from marine resources.

4. Tourism Industry remains positive in 2017 and is expected to lead the growth. Main government intervention here will be: promoting human resource development and introducing of accreditation schemes for quality of services, training and productivity; development of infrastructure; and generally developing niche and new markets.

5. Manufacturing is to be expanded with increased competition to imports and increased exports. Government intervention is overall to improve the institutional environment which will include implementation of private sector development policies and cheaper business inputs. One major concern is the cost of telecommunications. The strategic plan is to reduce costs in telecommunications and transportation.

6. Overall, the goals for economic expansion will require a substantial increase in skilled workers in construction and tourism.

TVET Enrolment Data

Table 1: Structure of Formal TVET

Level	Number of Institution	Entry Level	Duration	Certification
Pre-Vocational Secondary	165 - MOE	Year 8	2 years – Y 9 & Y10	Compulsory
		Year 10	3 years – Y 11,12 & 13	Optional
Vocational Centres	39 - MOE	Year 10 & 11	2 years	MOE Vocational Certificate
		Year 12	1 year	
Post-Secondary TVET				
Certificate	3-TITC, TCF & FNU	Year 12	1 year [3 trimesters]	Certificate Level 1/II/III/IV
Diploma	1-FNU	Year 13	2 years	
Degree	2-FNU & USP	Year 13	3 – 4years	

Table 2: Students Enrolment in Formal TVET

Level	Grade	Year			
		2014	2015	2016	2017
Pre-Vocational Compulsory	Year 9	21,923	21,976	23,016	23,282
	Year 10	21,154	21,202	21,662	22,012
Pre-Vocational Optional	Year 11	13,948	13,980	14,216	14380
	Year 12	10,629	10,651	10,831	11,056
	Year 13	7,306	7,323	7,446	7,532
Vocational Centre [Specialized Field]	Year 10, 11 & 12 –total dropouts enrolled for Vocational.	2,015	2,149	1,209	1,482
Post-Secondary TVET					
TITC	Certificate I – Year 12	24	24	24	24
TCF	Certificate II – Minimum Year 10	-	1289	2631	2769
FNU	All Levels -Minimum Year 12	6,453	6,017	5,891	7,149
Other Tertiary		2,143	1,760	2,268	2,372
Missing from Formal TVET		3,213	2,640	3,402	3,558

TVET Employment Data

There is limited information available on the Fiji labor market and a lot of that information is dated. For example, a labor market website developed with the assistance of the International Labor Organization (ILO) called the Fiji Computerized Human Resource Information System has no references later than 2016 (National Planning Office, 2016). Data are occasionally collected for government decision purposes but are not collated and presented in reports. Some data are also not reliable. Data on emigration for example are collected from embarkation cards which in turn depend on the person accurately indicating their intentions. Little data exists about émigrés apart from their ethnicity. For example, do émigrés with construction skills actually gain experience overseas in the construction industry of the destination country?

About one third of the labour force amounting to 120,000 is employed in the formal sector (MOFNP: 2016). Table 3 provides the TVET Employment data per economic activity area in 2016.

Economic Activity	Men	Women
Agriculture, Forestry & Fishing	1,461	186
Mining & Quarrying	1,577	84
Manufacturing	15,570	13,632
Electricity & Water	2,505	160
Construction	4,074	159
Wholesale and Retail Trade & Restaurants & Hotels	13,068	7,269

Economic Activity	Men	Women
Transport Storage & Communication	7,532	1,714
Finance, Insurance Real estate & Business Services	4,272	2,490
Community, Social & Personal Services	22,655	12,725
Total	**72,714**	**38,419**

Fiji Qualification Frameworks (FQF)

The Fiji Qualification Framework is structured by a statutory coordinating authority called the Fiji Higher Education Commission [FHEC]. The commission operates under the Ministry of Education that assumes the responsibility of drawing the Tertiary Education qualification charter, acts, and policies for different sections of tertiary education including TVET. The FHEC are the main regulator that takes care off the quality assurance, national qualification framework, standards, certification, accreditation, acts, policy, funding and training in Fiji. All TVET providers are sanctioned under the commission.

What is the Fiji Qualifications Framework?

It is a Framework on which Standards and Qualifications are registered.

The Fiji Qualifications Framework (FQF) has 10 levels:-

- Level 1: Certificate 1
- Level 2: Certificate 2
- Level 3: Certificate 3
- Level 4: Certificate 4
- Level 5: Diploma
- Level 6: Advanced Diploma
- Level 7: Bachelor's Degree
- Level 8: Post Graduate
- Level 9: Master Degree
- Level 10: Doctorate Degree

It has three (3) Key education sectors:

- School Sector
- TVET Sector
- Higher Education Sector

What will the Fiji Qualification Framework do?

1. Provide flexible & multiple pathways for acquiring education.
2. Make qualifications accessible to those already in industry.
3. Allow Recognition of Prior Learning-(RPL) and current competencies
4. Provide for recognition of other qualifications especially for overseas institutions.

5. Meet industry need with alignment to the training institutions.
6. Ensure the transferability of credits across various institutions.
7. Ensure recognition of local qualifications by overseas institutions.
8. Allow the award of National Certificates set against National Standards.
9. Provide for the offering of different levels of programs at different institutions but which can lead to a national qualification.

How it Links to National Goals?

1. Peoples Charter for Change, Peace and Progress: Pillars
2. Achieving Higher Economic Growth while ensuring sustainability
3. Reducing Poverty to a negligible level
4. Making Fiji a knowledge-based society
5. Enhancing global integration and international relations

Overall Benefits of Fiji Qualification Framework

1. Learners: Provision of quality education with national recognition and international comparability.
2. Workers: Clear Learning pathway in the qualification structure that facilitates and supports lifelong learning.
3. Workforce: knowledge + skill + attitude and supports lifelong learning.
4. Society: knowledge based society and a learning nation.

Other Fiji Qualification Framework Benefits

1. National Consistency of Recognition of Outcomes.
2. National Consistency of Certification.
3. National Quality Assurance System and Mechanism.
4. Flexibility of Movement and Credit Transfer.
5. Vocational School: access levels 1 & 2.
6. Secondary school: access Pre-Trade Entry Qualification.

Fiji Qualification Framework Record of Learning

It is a Database that contains record of all credits gained from the unit standards achieved. This will be updated as new credits are earned.

Industry Standards Advisory Council

The National Qualifications are developed by the Industry Standards Advisory Committee (ISACs) on behalf of the Fiji Higher Education Commission [FHEC]. The ISACs consists of industry stakeholders, professional associations, licensing agencies, Institutions and Government representatives. During the development process, the FHEC invites representatives from respective stakeholders to advise the FHEC on what should be the components of the National Qualifications. The building blocks of these Qualifications are called

the Unit Standards which make up the National Qualifications. The standards are developed by the ISACs. This process ensures that training and assessment meet industry requirement. Each qualification will outline the minimum number of unit standards a learner must achieve.

Programs Developed by the ISACS:

Agriculture, Aircraft-Maintenance, Automotive Electrical & Electronics, Automotive Mechanic, Baking & Patisserie, Cabinet Making & Joinery, Carpentry, Cookery, Electrical Fitter Mechanic, Electronics, Fitting & Machining, Heavy Commercial Vehicle Mechanic, Heavy Mobile Plant Mechanic, Marine Engineering, Navigation & Seaman 16. Panel Beating Plumbing, Printing, Refrigeration, Saw Doctor and Welding Fabrication

How Will It Happen?

Unit Standards are developed by Industry Standards Advisory Committees (ISACs) and focus on what is expected of employees at the workplace.

1. Expressed as outcomes they embody the ability to transfer and apply skills, knowledge and attitude.
2. Since the standards are developed by the ISACs they will ensure that Training and Assessment meet industry requirement.
3. Each qualification will outline the minimum number of unit standards a learner must achieve.

In a nutshell, the National Qualifications Framework of Fiji is presented below:

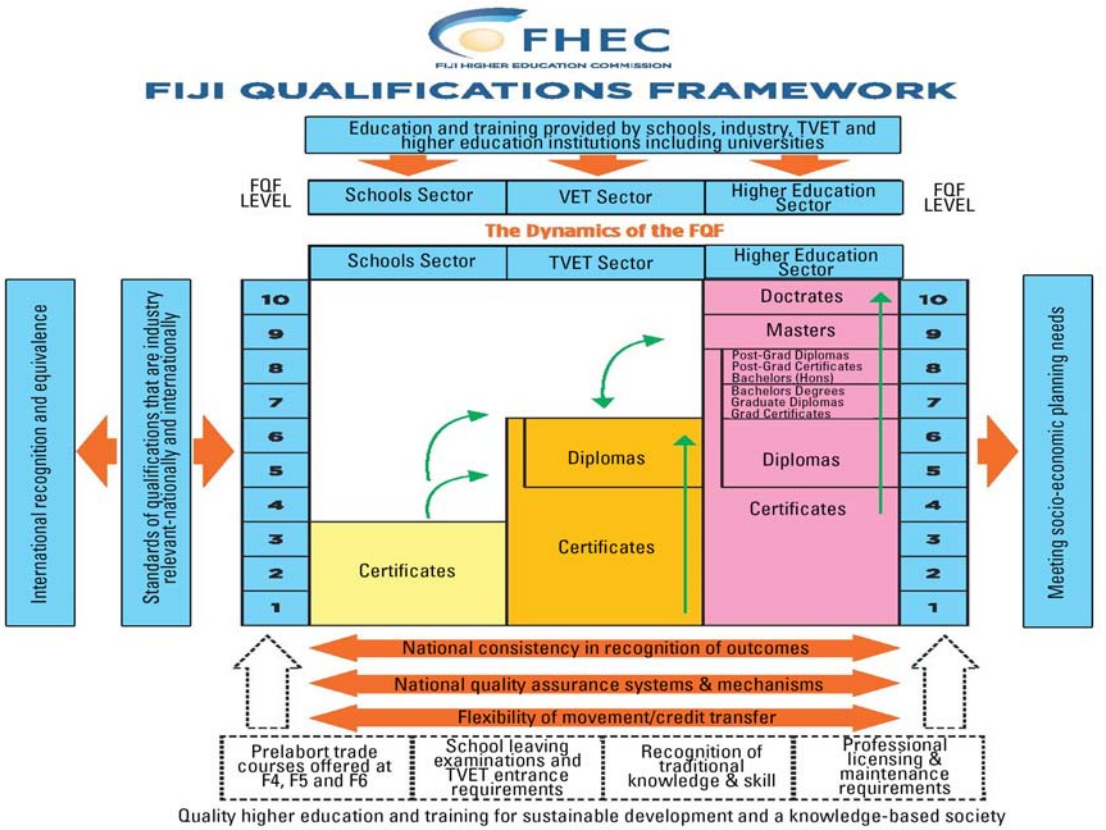

Figure 1: The National Qualifications Framework of Fiji

Best Practices for Quality TVET

Best practices adopted in Fiji to ensure quality TVET graduates:

1. Ensuring that the trainees comply with OHS standards when attending to practical trainings.
2. Ensuring that the trainees who are recruited into TVET institution have some prior knowledge and basic skills of TVET courses.
3. Mandating trainers who hold certificates & diplomas qualification with high level of industrial experience are facilitating trainings for certificate and diploma TVET programs.
4. Quality TVET facilities [tools/equipment/machines] are provided and used by trainees to develop their skills during practical.
5. Time allocation for classroom lectures or face to face contact, student self-directed learning, and more time is allocated for skills practical training and assessment.
6. Some TVET providers such as Fiji National University & Timber Industry Training Centre do provide Time-Based Assessment [TBA] to their trainees but some like Technical College of Fiji [TCF] offers a Competency-based Assessment [CBA].
7. Theory & Practical Training are both on Time Based Assessment at FNU & TITC however if a trainer fails he/she shall repeat the unit or course on the later scheduled period [trimester/ semester]. However for TCF the 2 elements [Theory & Practice] are covered under Competency-based Training [CBT] where regular practical & assessment are conducted until the trainees is competent enough with the required skills.
8. Trainees are closely supervised and monitored by their respective trainers and workshop/ training assistant during their practical period.
9. Trainees' Industrial Attachment is arranged by the TVET providers. Industrial Attachment allocated by training providers' ranges from 2 to 6 months. The following are carried out to verify industrial training:
    - Industrial Training Agreement prepared and signed by the Education Training Providers [ETP] & Industrial Training Providers [ITP]
    - Workplace manuals prepared by TVET providers are issued to trainees to log-in daily activities.
    - Daily activities are initialled by their respective supervisors.
    - Trainees' supervisor assigned, supervise and monitor the trainees' activities daily in relation to the program units' standard requirements.
    - Program trainers do regularly take industrial visit to monitor the progress of the trainees industrial training and discuss with the supervisor of the trainees performance and recommendation for further improvements [attitude & skills]
    - Completed Wokplace manual to be signed and stamped by the Industry manager and submitted to the Institution before Assessment. It is an important document that will strongly guarantee promotion and or certification.
10. Recognized TVET providers who offer Competency-based Training [CBT] have their trainees assessed by an external assessor from other TVET institution.
11. In Competency-based Training & Assessment [CBTA], trainees' portfolios are the main focus

for assessment. Institutions do provide for an outsized ring binder for students collections. The collection or portfolio contains the evidence requirements of the respective units' standards. The evidence requirements are in the form of videos, photos, written tutorials & test, written assignment done during self-directed learning period [SDL], lecture notes with comments, direct observations, response to interviews, and workplace manual. The requirements are developed and collected based from the unit standards outcome.

12. There are two stages of assessment normally conducted in Competency-based Training & Assessment [CBTA].
    - The first is pre-assessment - is conducted by external assessors where they assess the trainees' portfolios and makes recommendations on areas for further improvements before the next pre-assessment emanates. The pre-assessment are conducted 3 times per trimester or semester.
    - The second is Assessment - after the 3rd pre-assessment the Assessment is scheduled on a later date to finally evaluate the trainees' portfolios and test the trainees for certain skills randomly selected by the assessor.
13. The assessor presents their report to the Institution Assessment Board after assessment. The board comprises of Rep from Education Ministry, Rep from FHEC, Assessors, Rep from Industry, TVET program coordinators and head of TVET Institution. Based from the presentation of the Assessors, the board will make judgement on the validity of the work presented then finally declare whether a trainee is promoted to the next level and or qualified to be awarded a national certificate for a particular program.
14. On-going short-courses conducted at various TVET institutions for up-skilling those already in the industry and is meant for nation building. Only those offered by Technical College of Fiji are of tuition free but others are funded.
15. Some TVET providers such as FNU & Ministry of Youth offers sustainable livelihood program for those living in the village and squatter settlements. Programs such as cooking, baking & patisserie, boat building, carpentry, small engine repair, sewing & weaving and horticulture. Most of the village based short courses are free and are meant to develop village skills and create opportunity for them to earn a living that is be self-employed.

Recommendations and Initiatives to be Adopted to Ensure for Quality TVET Graduates and Programs

1. TVET Institutions should be upgraded to comply with industry standards.
2. Tertiary Education Loan Scheme should be applicable to all students qualified for TVET programs operated under the registered & recognized Institution
3. TVET subjects should be made compulsory to the year 11, 12 & 13 as well and not only for year 9 & 10.
4. Provide In-service training for TVET Trainers to upgrade their qualification to meet the current industrial skills.
5. Additional Technical College campuses can be located to those parts of Fiji that have not access to national training initiatives. So that students of those parts of the island could be channelled and get access to technical skills development.

6. Government should allocate more funding in upgrading TVET infrastructures especially technical workshops to comply with Industrial Standards. This shall include staff quarters, water, electricity and telecommunication
7. TVET providers should consider providing more quality tools, equipment & machines for TVET hands-on training.
8. Continuous professional developments should be given to trainers on skills development by TOT (Training of Trainers) so as to assist develop & maintain their level of competence to the highest.
9. Training providers should develop a more collaborative and better working relationship with the other levels of education especially the secondary level.
10. TVET Providers should prepare the trainees for the world of work and therefore, it is critically important for these institutions to develop strong mutual partnership with the industrial, commercial and private sectors as well as with communities and employers. This will ensure relevance & appropriateness of the programs on the one hand and provide a mechanism for supporting and monitoring programs, courses and activities on the other.
11. It is recommended that information technologies be used to facilitate the establishment of networks for mutual participatory, collaborative and consultative processes and for sharing experiences, knowledge and materials amongst TVET stakeholders to enhancing quality of TVET in Fiji.
12. TVET Institutions that offers trade courses of level I, II, III & IV should be conducted using Competency-based Assessment. It is a trade level that requires quality skills development to take place. Thus it requires sufficient quality time to be involved with practical skills training. It would be the best way out to acquire competent workers for the society.

Best Practices in TVET Implemented in Fiji that Other Countries may Adopt

1. The trainees' Industrial Attachment was arranged by the TVET providers allocated for a period of up to 6 months. The following was carried out to verify a valid industrial training:
   - Signing & ensure compliance to the Industrial Training Agreement between ETP & ITP
   - Filling of Workplace manuals.
   - Signing and Stamping of the Manuals by the Trainees supervisor and or manager.
   - Regular industrial visit to monitor the progress of the trainees conducted by Trainers or TVET program coordinator.
2. Competency-based Training [CBT] assesses their trainees which in turn was assessed by an external assessor from other TVET institutions.
3. Trainees' portfolios to be the main focus for assessment. Institutions could provide for an outsized ring binder for students collections. Include all training assessment requirements in the portfolios.
4. Competency-based Assessment was conducted in two stages: Pre-Assessment and Assessment.
5. Signing of the Memorandum of Understanding (MOU) between the Education Ministry

(on behalf of the formal TVET Institution sector) and Ministry of Employment & Industrial Relation in making sure those graduated from TVET Institution are registered under the National Employment Centre (under MOEIR/NEC). It is the responsibility of the centre (NEC) to undertake professional counselling, aptitude assessment, life skills training and are trained in the relevant employment skills demanded by the market. The NEC is benchmarked to three international standards comprising of ISO 9001:2008 (Quality Management System), ISO 26,000 (Corporate Social Responsibility Guidelines) and the Fiji Business Excellence Framework. These standards ensure that unemployed persons trained under NEC are marketable nationally, regionally and internationally.

6. Establishment of National Technical College campuses, both in the district and in the provinces, around the Country
7. Implementation and strict compliance of OHS standards
8. National Qualification Advisory Council and Industry Standard Advisory Committees works in partnership and ensure established standards are followed and maintained and can be regularly reviewed for further upgrading to meet future market demands.
9. All recognized TVET institutions are required to be Industry-compliant to meet the global market.

Challenges Encountered in Implementing TVET Qualification and Certification Guidelines.

Challenges encountered in TVET when implementing qualification & certificate requirement is that there is a lack of readiness of stakeholders, lack of relevance of some of the program qualification and the unavailability of suitable training resources and facilities.

There is also the inconsistency with Industrial Performance. When industry performance exists to be inconsistent towards established international standard, it affects the market demands of the industry product and could lead to financial losses. Thus, the industrial opinion would develop the notion of staff redundancy. This is where certain qualifications would be vanished and loses relevancy of competencies to continue in the industrial workforce.

There are incidents in which the trainees are not meeting the training standard requirements such as irregular attendance to training, lack of good understanding of the training competencies (absence of prior knowledge) and lack of confidence & commitments towards industrial training (an attachment where they gain sufficient industrial knowledge & skills) would certainly lead up to sub-standard performance. Trainees do not receive useful on the job training. Hence with such laxity would cause the trainees for non-compliance with program qualification.

TVET Program qualification and certificate guidelines are not properly implemented due to the lack of appropriately qualified trainers and leaders. In particular, a large number of trainers have little industry experience in their respective training field. This has resulted to the lack of good care and monitoring of training activities, therefore it fails in meeting the qualification and certificate guidelines.

Due to strong pressure for academic credentials, TVET is still regarded as a “second best option” rather than an important component of the life-long learning process. This has an adverse effect on the overall development of TVET including the notion to meet qualification guidelines which tend to be less effective for some TVET institutions.

Recommendations to Other Countries with Regards to Developing their National Vocational Qualification System [NVQS]

Major Stakeholders such as Education Ministry, National Qualification Advisory Council, National Council of TVET, TVET Institutions and Industries must work in partnership consistently and with high level of commitments to formulate TVET study programs & units' standards that is responsive to meeting the local and global market demand.

Countries should seriously consider the upgrade of their training institutions in terms of infrastructure, learning facilities (tools & equipment/machines) and staffing to meet the high quality standards expected by the industry.

Register and seek recognition of vocational institutions to the national education qualification advisory council such as the one organized by the Fiji Higher Education Commission. If the TVET provider has the capacity to operate the institution with the available infrastructure & human resource management that meets the minimum or even exceeds the expected criteria, it should seek accreditation of the study programs and institution.

The government should continue to strengthen the pre-vocational secondary school curriculum with a view towards creating a viable, attractive technical and vocational education and training program which will provide qualified, capable graduates into professional post-secondary institutes. This program should seek to increase the number of women entering technical fields and the workforce as well.

The perception among trainers, trainees and parents of technical and vocational education and training as a career path of "second or last resort" must be transformed. TVET should be made more attractive and professionally esteemed as a system that produces the skilled workers that the country's economy requires. TVET institutions should not be treated as a stream apart, but as an integral part of educating Nation's youth.

Government should continue to increase financial resources towards TVET as it demonstrates a deep commitment towards building the future of the country. However, the distribution of funding should be better allocated to address the specific requirements of each TVET Institution to ensure that the quality of TVET is equitable and quality standards are comparable throughout the country.

Lastly, the Competency-based Education & Training should be used in all trade levels (Cert. level I, II, III & IV). It is an important strategy that is seen to promote skills development. CBET prime focus is on life-long learning and holistic development, multiskilling, flexibility and the creation of a world-class workforce. With properly constructed "bench-marks", CBET has the potential to produce intellectual capital that is competent in terms of what the industry or employer needs. Some of these competencies include efficiency, effectiveness and quality performance.

Annexes

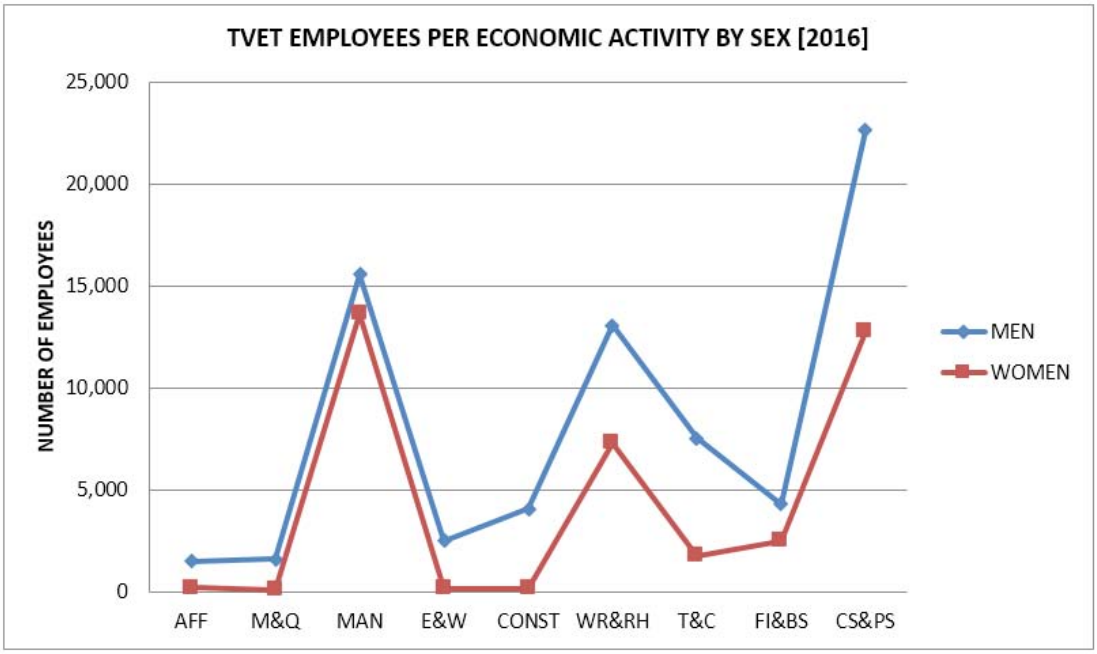

Figure 2: TVET Employees per Economic Activity Grouped According to Sex, 2016.

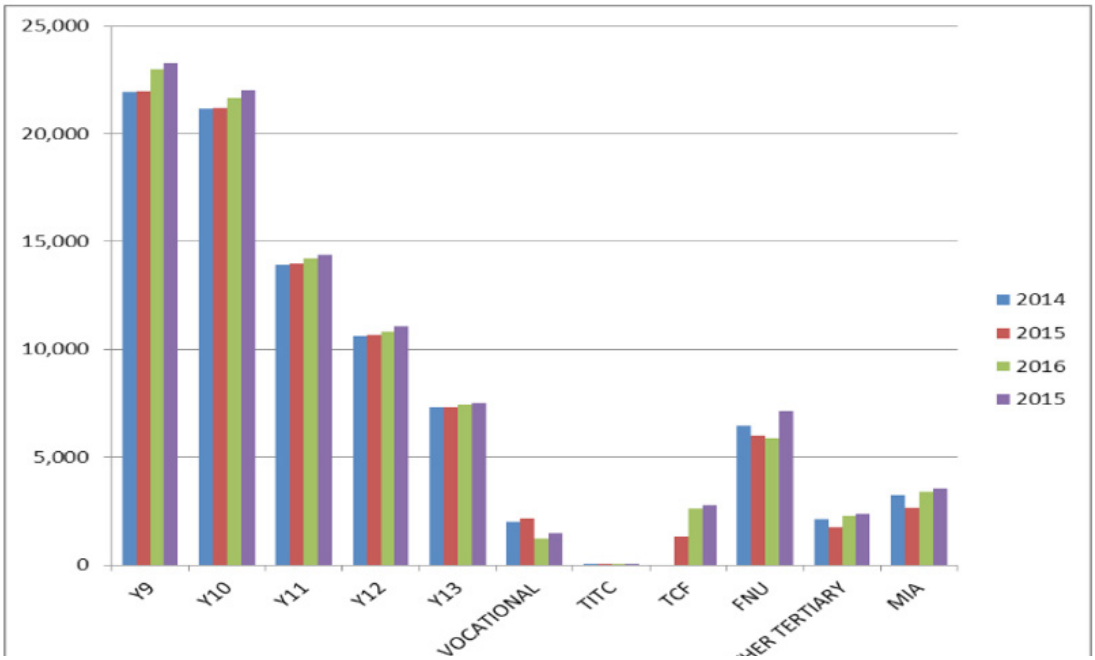

Figure 3: Comparison of Enrolment Figures per Qualification from 2014-201

National Vocational Qualification and Certification System of Malaysia

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Introduction

The Malaysian Qualifications Framework is a unified system of post-secondary qualifications offered and managed by the Malaysian Qualifications Agency (MQA) under the Ministry of Higher Education (MoHE). It started with the realization of the rapid demand of the need to establish a certification of standards and accreditation of academic programs (MoHe, 2008). The National Accreditation Board (or the Lembaga Akreditasi Negara, LAN) was established in 1996 in order to foresee and manage the quality standards, certification and accreditation of programs provided by the universities. Previously, no existing qualification and accreditation system existed.

A series of consultation seminars were held from 2003-2007 in order to further rationalize, integrate and synchronize it to the Malaysian Economic Development Plan. Finally, the Malaysian Qualifications Agency Act was enacted in 2007, integrating the recommendations and findings from these seminars.

The Malaysian Qualification Agency

According to the official website of the Malaysian Qualification Agency (2017), its main role "is to implement the Malaysian Qualifications Framework (MQF) as a basis for quality assurance of higher education and as the reference point for the criteria and standards for national qualifications". It is also responsible for monitoring and overseeing the quality assurance practices and accreditation of national higher education.

With the vision to be a global authority on quality assurance of higher education and the mission to put in place a system of quality assurance that is recognised internationally, the MQA is set to chart new boundaries in higher education quality assurance.

The functions of the MQA are the following:

- To implement MQF as a reference point for Malaysian qualifications;
- To develop standards and credits and all other relevant instruments as national references for the conferment of awards with the cooperation of stakeholders;

- To quality assure higher education institutions and programmes;
- To accredit courses that fulfil the set criteria and standards;
- To facilitate the recognition and articulation of qualifications; and
- To maintain the Malaysian Qualifications Register (MQR)

The Malaysian Qualification Agency

Figure 1: Vision 2020 and the Overview of the National Economic Plan of Malaysia

10th Malaysia Plan – Chapter 5: Developing and Retaining a First –World Talent Base:

- revamping the education system to significantly raise student outcome
- raising the skills of Malaysians to increase employability

11th Malaysia Plan – Chapter 5: Accelerating Human Capital Development for an Advanced Nation

- Creating more jobs and maintaining full employment
- Improving legislation and institutions to transform the labor market
- Mainstreaming and broadening access to quality TVET programs
- Upskilling the workforce through lifelong learning
- Improving education delivery through better access and quality

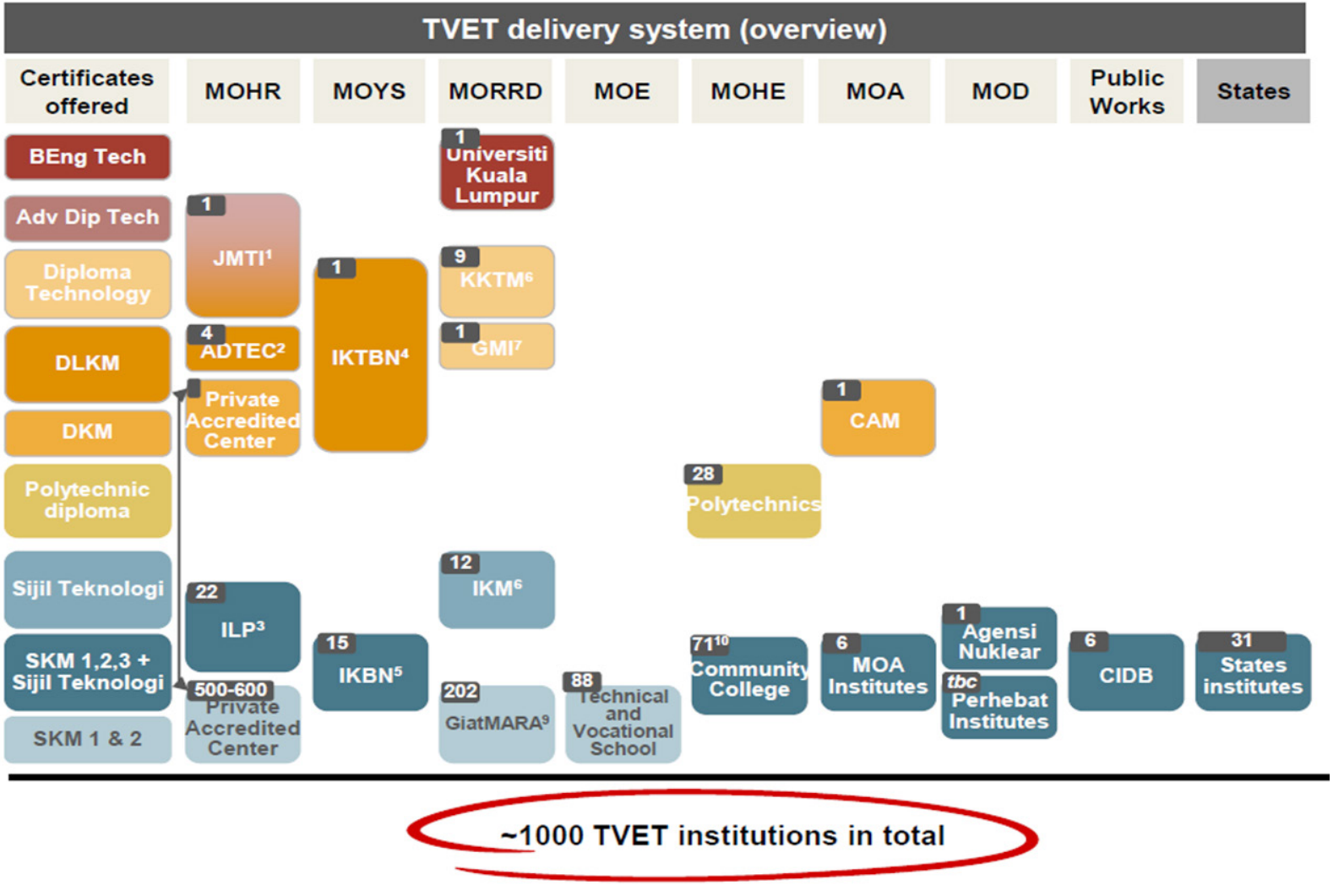


Figure 2: General Framework of TVET in Malaysia

The National Skills Qualifications Framework

The Malaysian Skills Certification System is a skills-based and work-based certification system which achieve through assessment and training.

There are 5 levels of National Skills Qualifications Framework:

- Level 1 : Malaysian Skills Certificate Level 1 (SKM 1)
- Level 2 : Malaysian Skills Certificate Level 2 (SKM 2)
- Level 3 : Malaysian Skills Certificate Level 3 (SKM 3)
- Level 4 : Malaysian Skills Diploma (DKM)
- Level 5 : Malaysian Skills Advanced Diploma (DLKM)

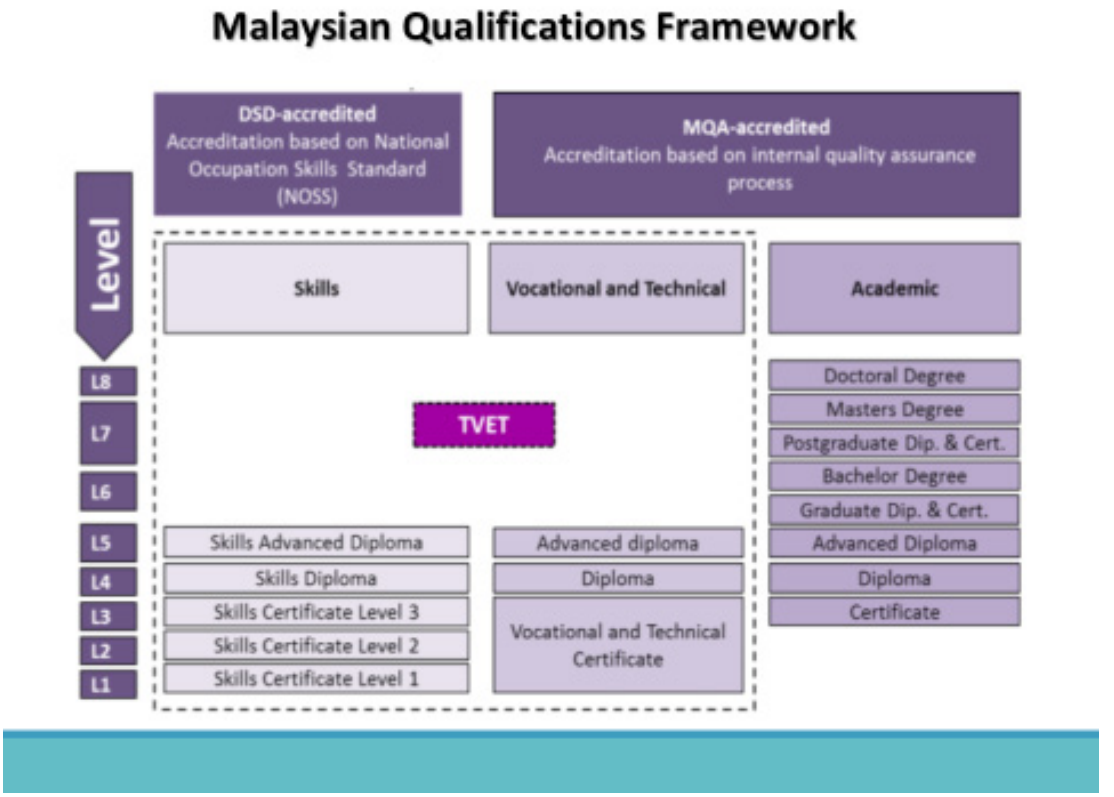


Figure 3: Malaysian Qualifications Framework

Malaysia realizes the need to integrate the different sectors with a distinct accreditation system into a single qualification system in order to provide a more simple and streamlined implementation.

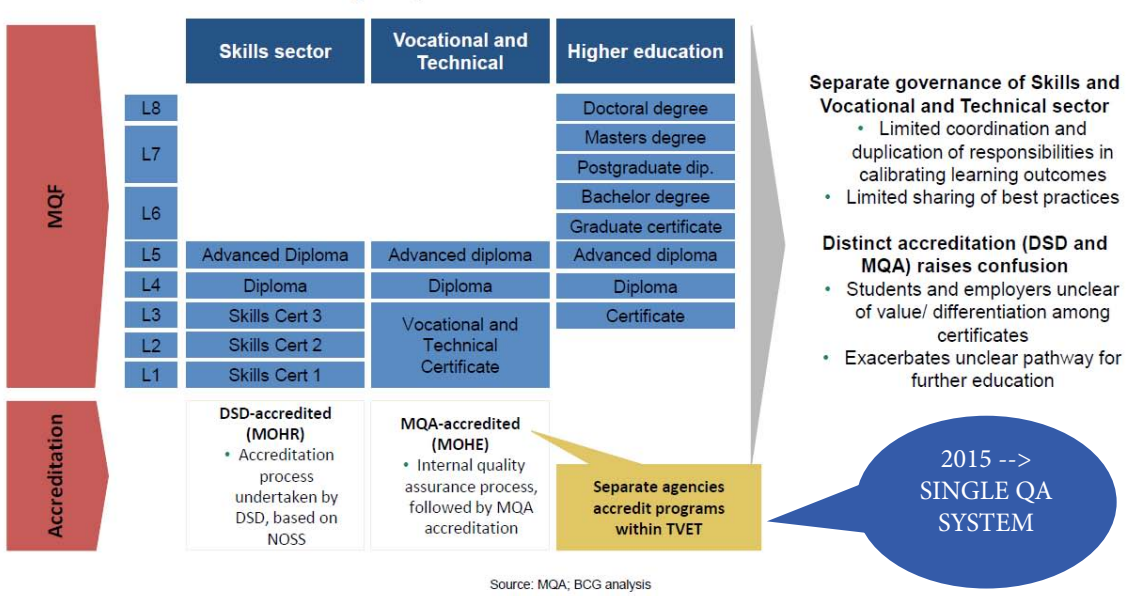


Figure 4: Malaysian Qualification Frameworks Challenges of Integration

Community Colleges in Malaysia: Moving Forward for the Champion of TVET

The community college system in Malaysia provides a wide range of Technical and Vocational Education Training (TVET) courses. Disciplines covered include accounting, architecture, construction, engineering, drafting, entrepreneurship, hospitality, personal services, multimedia, and visual arts.

In 2000, the Government approved a proposal by the Ministry of Education (MOE) to establish a network of educational institutions whereby vocational and technical skills training could be provided at all levels for school leavers before they entered the workforce.

Since the establishment of the first 12 pioneer community colleges in 2001, the number of Community colleges across all states in Malaysia with the exception of the Federal Territory, has risen to 91 (as per Oct 2014).

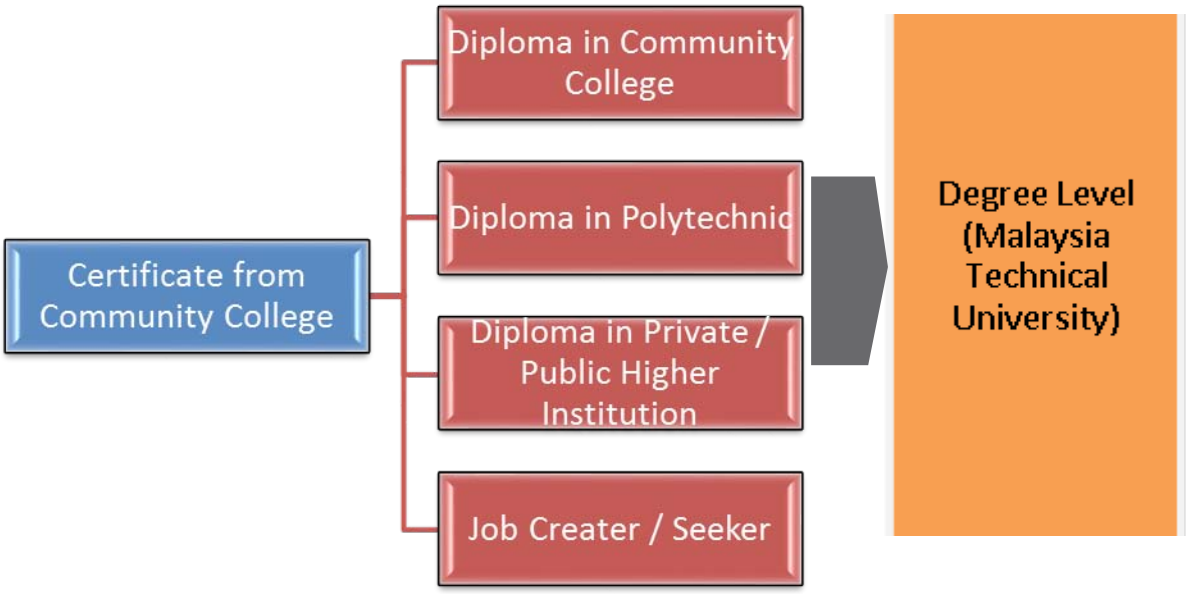
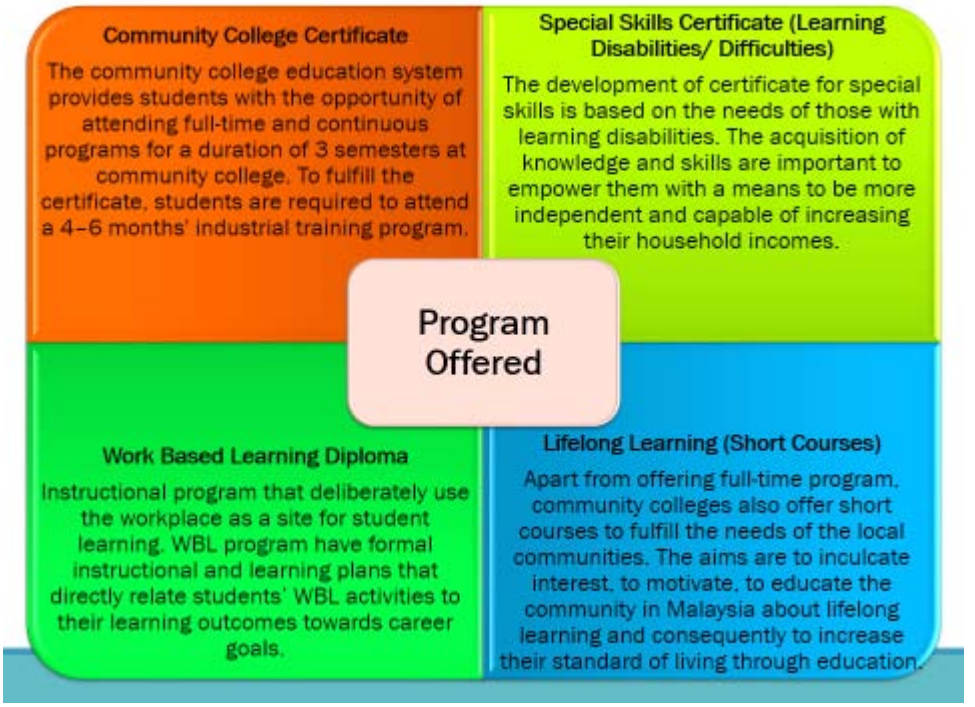


Figure 5: Community College Learning Paths

Some of the programs offered in the Community Colleges are presented below:



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National Vocational Qualifications and Certifications System of Maldives

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Introduction

The Maldives comprises of a garland of islands in the Indian Ocean which is made up of a set of complex ecosystems. These small islands are surrounded by thousands of reefs with rich biodiversity. Maldives being surrounded by sea gets the maximum contribution to the economy through the rich biodiversity, namely from industries such as Tourism, Fisheries and Transport. The marine life with its beautiful gardens of live coral reefs has made the Maldives a globally well-known "Heaven on Earth". However, these ecosystems are vulnerable to other external factors which are currently increasing in number. Thus, education and awareness is required for the sustainable development and growth of the economy, as the Maldives is largely depending on marine life to get its economy going.

"Education for All" is a Millennium Development Goal that the Maldives has almost achieved. Through the years, the country has introduced the vocational education stream within the last decade. Technical & Vocational Education & Training (TVET) in the Maldives was formally initiated through an Asian Development Bank funded project: Employment Skills Training Project (ESTP). TVET was inaugurated as a department in the Ministry of Human Resources, Youth and Sports in the year 2007. It has gradually evolved and has been established as TVET Authority under the Ministry of Education since the year 2010. TVET Authority is the national regulatory body of the TVET programs conducted in the Maldives.

Maldives Education and TVET System

The country relies on two systems to regulate and implement TVET: first is the Maldives Polytechnic and the TVET Authority in Maldives. However, compared to the previous years the present government has increased the skill based trainings. For example, from 2014 in Male' the capital city Maldives, a skill training program named "Dhasvaaru" was introduced for the students of 12 schools and in the year of 2015, TVET system was introduced in all the schools of Maldives.

Skill training programs for different industries were conducted and it mainly targets the youth or school leavers.

Other initiatives to further integrate the youth into the TVET system include the Ministry of Education, Ministry of Youth and Sports and the Ministry of Tourist. A tripartite cooperation tapped the involvement of the tourist resorts and introduced a program named "Step" to train more youths for the employment in the tourism industry.

Training programs for pharmacists and nurses were also introduced for those interested to work in the health industry. Moreover, photographers and cashiers were also trained for the benefit of the leisure and tourism industries. Other projects are already in the pipeline and it demonstrates the drive of the present government to give a great importance to the implementation of TVET and the employment of TVET graduates after they leave their schools. The figure beside further indicates the number of enrollees in TVET.

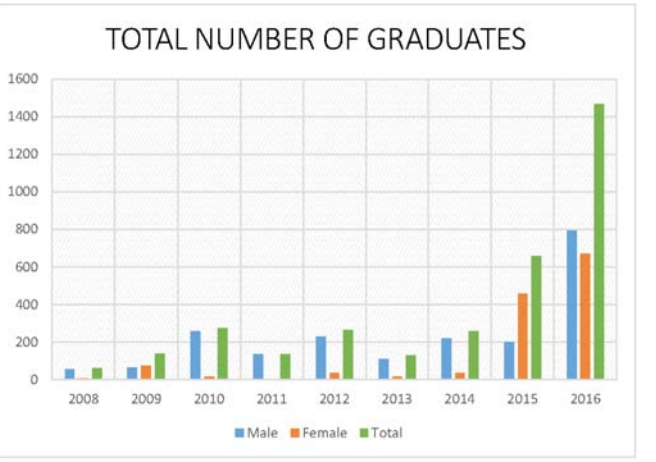

Figure 1: Number of TVET Graduates Sorted Based on Gender

The present government is giving a great importance for the TVET graduates. Due to this, in the past three years, number of TVET graduates has been increased compare to the previous years. Also, it is known that from the TVET graduates, number of female TVET graduates are increasing.

Apart from Maldives Government, private institutes and cooperatives together with TVET authority, have increased the training for youths in different industries from the year 2014 onwards. Also from 2014, there was also an increase of private sector institutes that develop the skill base, as well as private institutes and industry partners that take part in creating more TVET graduates.

The current government of Maldives laid out a vision to become a high-income, economically-resilient and sustainable, inclusive economy. There are plans to lay the foundation to further diversify the economy and open it to new sectors and industries. There are also plans to establish more free trade/economic zones and further diversify financial services through the development of more modern systems to attract more banks and financial institutions. Maldives is also working to build its reputation as a hub of financial services, investment funds and venture capitalism.

Qualification and Certification Framework

The Maldives Accreditation Board (MAB) was created by a Presidential Decree in 14th August 2000 and renamed as Maldives Qualifications Authority (MQA) on 17th May 2010.

MQA's mandate is to assure the quality of post-secondary qualifications awarded in testimony of educational attainments. Thus, a framework was developed in 2001. It is called Maldives National Qualifications Framework (MNQF).

The Maldives National Qualification Framework is a framework targeted to incorporate the elements of the academic pathway and the vocational pathway. For example, a student having a certificate level 3 in Academic field can join a program of certificate level 4 in Vocational field. As well as, a student having a certificate level 4 in Vocational field can join a program of certificate level 5 in Academic field. The process of revising the MNQF V1.0 began in 2005. After extensive research and discussions with experts and concerned authorities, the process was completed in February 2009 and the revised MNQF (V2.0; generally referred to as "MNQF 2009") came into effect when MAB formally endorsed it in September 2009.

The migration from a time-based to a competency-based system is one of the fundamental features of the strengthened framework. In the MNQF V2.0, quality and content were given precedence over duration and hours. In addition to increasing the relevance and quality of post-school education and training in the Maldives, the strengthened MNQF V2.0 incorporated a broader and more coherent technical and vocational qualification. This provided the opportunity to put in place sustainable and strategic solutions

for national human resource development needs. Furthermore, the establishment of a national technical and vocational qualifications system based on national competency standards made considerable flexibility worker skills acquisition.

One of the primary focuses of the MNQF V2.0 is the unified qualifications system which guarantees more international recognition for the qualifications and the skills and knowledge of Maldivian citizens.

The framework is internationally benchmarked, flexible, and responsive to the national, economic and social development of the Maldives. As a key step to promote international benchmarking of the qualifications, the MQA aligned qualifications to its 10-level framework using the level descriptors of the Scottish Credit and Qualifications Framework (SCQF).

The assigning of levels to all MQA accredited courses and qualifications inadvertently facilitated student pathways for a smooth progression of qualifications and encouraged life- long learning.

MQA aims to formally benchmark its qualifications with the frameworks in the UK (including Scotland) Malaysia, Australia and New Zealand, and with the vocational frameworks in Sri Lanka and Singapore. Using the mechanism provided by new European Qualifications Framework, it will be possible to determine the alignment of levels with Frameworks in all EU member states.

With the establishment of the MNQF V2.0 all existing qualifications were required to be submitted for re-approval by the MQA to ensure consistency with the new national system by 01 September 2011.

The main objective of the MNQF V2.0 was to bring all recognized qualifications into a single unified structure with systems to support:

a) National competency standards setting;

b) Quality assurance of teaching, assessment and certification;

c) Student and learner support and reporting

Since the implementation of the MNQF V2.0 from September 2011 MQA has been open to feedback provided by stakeholders. From below the table it's easy to identify the Maldives National Qualification Framework level and qualification titles.

LEVEL	QUALIFICATIONS TITLES
10	Doctoral Degree Higher Professional Diploma Higher Professional Certificate
9	Master's Degree Advanced Professional Diploma Advanced Professional Certificate
8	Postgraduate Diploma Graduate Diploma Postgraduate Certificate Graduate Certificate
7	Bachelor's Honors Degree Bachelor's Degree Professional Diploma Professional Certificate
6	Advanced Diploma / Associate Degree Professional Certificate

LEVEL	QUALIFICATIONS TITLES
5	Diploma
4	Certificate IV / Advanced Certificate
3	Certificate III
2	Certificate II
1	Certificate I

The Maldives Qualification Framework has 10 levels. Each level is considering a certificate according to Maldives National Qualification Framework. As mentioned in the MNQF, each level has an enter criteria. If a student wants to join any level program he/she must be fulfill the enter criteria of MNQF. The form below the describe MNQF level an enter criteria. 3.0 TVET Curriculum in the Maldives

Level	Qualification(s)	Minimum Credits	General Entry	Entry Criteria Alternative Entry
Level 1	Certificate I	10 credits (3 weeks full-time)	• Completion of Basic Education AND • Ability to communicate in the language of instruction	• 16 years of age AND • Ability to communicate in the language of instruction
Level 2	Certificate II	30 credits (10 weeks full-time)	• Completion of Basic Education OR • Attainment of a Level 1 qualification	• 16 years of age AND • Ability to communicate in the language of instruction
Level 3	Certificate III	40 credits (15 weeks full-time)	• Completion of Basic Education OR • Attainment of a Level 2 qualification	• 18 years of age AND • Ability to communicate in the language of instruction
Level 4	Certificate IV / Advanced Certificate	120 credits of which 90 credits at Level 4 (1 year (30 weeks) full-time)	• Successful completion of Lower Secondary Education OR • Attainment of a Level 3 qualification	• 18 years old and 1 year work experience AND • Ability to communicate in the language of instruction

Level	Qualification(s)	Minimum Credits	General Entry	Entry Criteria Alternative Entry
Level 5	Diploma	120 credits of which 90 credits at Level 5 (1 year (30 weeks) full-time)	• Successful completion of Higher Secondary Education OR • Attainment of a Level 4 qualification in a related field OR • Attainment of a Level 4 Foundation Study Program approved for the specific Diploma program.	• Completion of a Level 4 qualification (unrelated), and successful completion of an MQA approved University Preparation Program* OR • 20 years old, completion of secondary school, 2 years of relevant work experience, and successful completion of an MQA approved University Preparation Program
Level 6	Advanced Diploma/ Associate Degree	240 credits of which 90 credits at Level 5 and 90 credits at Level 6 (2 years (60 weeks) full-time)	• Successful completion of Higher Secondary Education OR • Attainment of a Level 4 qualification in a related field OR • Attainment of a Level 4 Foundation Study Program approved for the specific • Diploma program.	• Completion of a Level 4 qualification (unrelated), and successful completion of an MQA approved University Preparation Program* OR • 20 years old, completion of secondary school, 2 years of relevant work experience, and successful completion of an MQA approved University Preparation Program
	Professional Certificate	40 credits (15 weeks full-time)	• Attainment of a related qualification at Level 5	

Level	Qualification(s)	Minimum Credits	General Entry	Entry Criteria Alternative Entry
Level 7	Bachelor's Honours Degree	480 credits of which a minimum of 150 credits at Level 7; from which at least 15 credits to be awarded for research related projects or modules (4 years full-time)	• Successful Completion of Higher Secondary Education OR • Attainment of a Level 4 qualification in a related field OR • Attainment of a Level 4 Foundation Study Program approved for the specific Diploma program.	• Completion of a Level 4 qualification (unrelated), and successful completion of an MQA approved University Preparation Program* OR • 20 years old, completion of secondary school, 2 years of relevant work experience, and successful completion of an MQA approved University Preparation Program
	Professional Diploma	120 credits of which 90 credits at Level 7 (1 year (30 weeks) full-time)	• Attainment of a related qualification at Level 6	
	Professional Certificate	40 credits (20 weeks full-time)		
	Graduate Certificate / Post Graduate Certificate	60 credits (20 weeks full-time)	• A related Bachelor's Degree	• 25 years old, completion of a related Level 5 qualification, and 6 years of relevant experience (of which 3 years of experience is obtained after completion of a Level 5 qualification), and achieved a pass rating from an interview or exam given by the institute.

Level	Qualification(s)	Minimum Credits	General Entry	Entry Criteria Alternative Entry
Level 8	Graduate Diploma / Post Graduate Diploma	120 credits (1 year (30 weeks) full-time)		OR • 25 years old, completion of a related Level 6 qualification, and 4 years of relevant experience (of which 2 years of experience is obtained after the completion of a Level 6 qualification), and achieved a pass rating from an interview or exam given by the institute.
Level 9	Master's Degree	120 credits (1 year (30 weeks) full-time)	• A related Bachelor's Degree OR • A related Graduate Diploma at Level 8 • Attainment of a related qualification at Level 8	• 25 years old, completion of a related Level 5 qualification, and 7 years of relevant experience (of which 3.5 years of experience is obtained after completion of a Level 5 qualification), and completion of an MQA approved Pre-Master's Program. OR • 25 years old, completion of a related Level 6 qualification, and 6 years of relevant experience (of which 3 years of experience is obtained after completion of a Level 6 qualification), and completion of an MQA approved Pre-Master's Program.

Level	Qualification(s)	Minimum Credits	General Entry	Entry Criteria Alternative Entry
Level 10	Doctoral degree	360 credits (3 years full-time)	• Attainment of a related qualification at Level 9	
	Higher Professional Diploma	120 credits (1 year (30 weeks) full-time)		
	Higher Professional Certificate	60 credits (20 weeks full-time)		

The national TVET authority aims to enforce curricula produced from the national competencies (NCs). The few number of regional training offices (RTOs) delivering TVET programs in the Maldives adhere to this and hence the trainings are closely tallied with what is given in the NCs for different trades. This indicates that the NCs are mainly used as the basis for these trainings and hence itself is moreover used as the curriculum.

NCs are written specifications of the skills required for a particular occupation, and thus stating the realistic functions that an employee at a certain occupation would perform at the workplace. Since this makes the NCs very specific and work oriented outcomes, the development process must include consultation from all key stake holders.

MQA endorses the NCs after assuring that it has the required qualifications which fit in to the MNQF along with the ESC approval for the content in it.

Once a NCS is endorsed by MQA, it is available for the RTOs to conduct trainings according to it. Upon completion of the training, TVET Authority conducts an external assessment for the trainees and then issue nationally recognized, MQA approved certificates to the trainees. Even though these current practices have some involvement of both industry and institutions offering TVET programs, increasing their involvement in developing the curriculum will be helpful in ensuring sustainable development as explained below.

Competency Based Assessment and Certification

Competency-based assessment is the process of collecting evidence and making judgments on the nature and extent of progress towards the performance requirements set out in a National Skill Standard and at an appropriate point, making the judgment as to whether competency has been achieved. The Criteria for Assessment are as follows:

- Units of competence
- Elements of competence
- Performance criteria
- Critical aspects of the unit of competence
- Underpinning knowledge
- underpinning skills

Criterion referenced assessments assume that the assessment decision is based upon a collection of evidence, not one event such as practical test or a written examination. A combination of methods should be used to gather evidences to reach an assessment decision and it facilitates a sound, confirmed and right assessments.

Short answer type questions will be used to assess the knowledge and understanding pertaining to competencies. Questions and model answers are provided for each element of competence; but the assessors shall not restrict themselves only to these questions. The short answers are available for each unit to maintain the consistency of assessments.

Practical tests will be used to assess the skill competencies in the workplace situations. The practical tests are available with the appropriate check lists for assessments. The practical too covers the units of competence as a whole or part thereof. However, the assessors shall not restrict themselves to these practical tests only.

Direct observations will be used to assess the skill competencies in the workplace situations. The guideline for direct observations is available in the appropriate check lists for assessments. The direct observations cover the units of competence as a whole or part thereof. However, the assessors shall not restrict themselves to the direct observation only in the specified check lists.

Oral questioning will be used to assess the knowledge and understanding pertaining to competencies. Questions and Model answers are provided for each element of competence; but the assessors shall not restrict themselves only to these questions. The questions and short answers are made available for each unit to maintain the consistency of assessments.

Best Practices

In order to ensure the best quality of TVET graduates in Maldives TVET Authority has implemented rules and guideline, TVET programs are to be delivered in mainly two ways, which are the Institution-based training and Employment-based training. After conducting program on these two ways, the quality of graduating students are improving.

Institution-based training happens when a student is attending an institute to complete the TVET program or to give TVET training. In order to improve the quality of the students studying in an Institute, it is important to ensure that the lecturers teaching in the institutes are working in an experienced industry. To gain industrial experience it is important for the students training in the institute to work in the industry. Also, to complete the practical part these students should implement a workshop in the Institute.

Employment-based training is a program, such as apprenticeship or internship, which are conducted by places which offer job opportunities. In employment based training centers, practical exercises are held in workshops for the students. The students trained in these centers are required to work in the industry. In addition to the program curriculum, trainees are also trained to communicate in proper manner and to maintain their discipline in the industry and in the working place.

The result of conducting such TVET programs in Maldives have led a positive direct impact on students. Before the students complete their training program, they are guaranteed to land a job because they are trained by experienced people from the industry. Due to this, the quality of the students get improved due to the fact that the people in the industry can closely monitor the skill of the students, their interest, their discipline and their compliance to the rules and regulations.

Challenges

Maldives faces difficulties in implementing guidelines and certification and qualification framework. Having less institutes to conduct TVET program information dissemination are also a factor. Moreover, not having internationally experienced trainers for the TVET programs led to difficulties in implementing guidelines in the Institute. One of the key challenges identified were the issues in the implementation of

the Minimum Entry Criteria and allocated minimum credits of the MNQF. Stakeholder consultations from 2015 resulted in revision of the Minimum Entry Criteria as well as changes to the allocated minimum credits of the MNQF.

Having less interest in training the students by the people in the industry and less support in implementing the rules and guidelines by these people have resulted in some difficulties for the industry. That's because the guidelines relating to certification and qualification are implemented according to the requirements of the industry. If the guidelines relating to certification and qualification does not match with the requirements of the industry, then it may cause difficulties for the students who are completing TVET program in the working place. Also, the skills they gained might not be the skills which are required by the industry. Moreover, not getting enough support from the people in industry can lead to less qualified students who complete the TVET program.

To conduct the TVET program and to implement framework, many problems arise due to the country's geography. Due to this, it is difficult to conduct TVET programs and implement framework in each island. In addition, a small population, less facilities for travel and other related problems led to many difficulties for TVET.

Recommendation

To prepare the guidelines relating to qualification and certification, the first thing to do is to complete the industry's requirements. If the qualification and certification framework or the related guidelines doesn't fit with the industrial requirement, then it may arise lose for the students.

While preparing the framework and guidelines relating to TVET programs, it is important to have legal power. If this is not the case, it is hard to get the support from the industry in preparing and implementing the framework. It is their duty to implement the guidelines relating to frameworks of institutes and centers which conduct TVET programs. By having legal powers, it makes easy to have support from the institutes and industries.

It is crucial to conduct awareness program for school students, youth, parents and people from the industry. Due to not having the required information for students relating to qualifications which is included in Maldives National Framework, the proportion of youth applying for TVET program.

In order to give proper information about guidelines relating to framework, for newly admitted students in the industry, awareness programs should be conducted. This is because if they don't have the right information, problems might occur.

Conclusion

The present Government of Maldives is working hard to implement the frameworks and to increase the TVET graduates. Programs targeting students were held to give information about National Qualification Framework. The National Qualification Frameworks in Maldives is accepted by the Maldivian institutes and Industries and the government is motivated to see further improvements in the implementation of TVET in the country.

National Vocational Qualifications and Certification System of Myanmar

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Introduction and Present Situation of TVET

The Department of Technical and Vocational Education and Training (DTVET) under Ministry of Education is leading in all TVET sectors of Myanmar. There are over 10,000 Private and about 250 Public TVET Schools and Training Center. DTVET has 22 Government Technical Institutes (GTI), 34 Government Technical High Schools (GTHS), one English Language Proficiency School (ELPS) and one Singapore-Myanmar Vocational Training Institute (SMVTI). DTVET is mainly responsible for the development of technical education, training for higher level technicians, offering programs that link education with work experience, setting priorities for occupations and skills most useful in practical fields, organizing vocational training programs for school leavers, implementing policies and guidelines, planning for the expansion of schools.

Brief Discussion of the Educational and TVET System

Our country has three types of education sectors which are: (1) basic education, (2) TVET and (3) higher education. The current education system comprises of six years of primary education (KG to Grade 5), four years of lower secondary and three years of upper secondary education. There are currently 44,159 basic education schools in Myanmar accommodating approximately 8.6 million students. The majority of these schools are managed by the Department of Basic Education under the Ministry of Education, however, a significant percentage of student access basic education through monastic, private and community and ethnic education schools.

Technical and Vocational Education and Training (TVET) provides learners with knowledge and skills for the world of work. The main objective of TVET is to equip learners with the competencies that will enable them to find decent employment and make a living. Therefore, TVET needs to respond to labor market needs and strongly align with a country's socio-economic development plans. High quality TVET that equips Myanmar's economy with a skilled and competitive work force, will contribute to the economy's sustainable growth. In 2017, the country has an increasing demand for skilled labour in agriculture, energy/extractive, manufacturing, infrastructure, and tourism/hospitality sectors. The TVET-related ministries and the private sector will implement three complementary and linked strategies to achieve the Transformational Shift for TVET.

Economic Policies of the State

i. Through strengthened public financial management, delivering fiscal prudence and macroeconomic stability, while creating the financial space necessary for an expanding economy

ii. Reforming state-owned enterprises and, where possible, privatizing them and promoting and assisting small and medium enterprises as generators of employment and growth

iii. Through improving technical and vocational education, fostering the human capital to support a modern economy

iv. Prioritizing the rapid development of fundamental economic structure such as electricity generation, roads and ports etc., and establishing Data ID Card System, Digital Government Strategy and e-Government System;

v. Creating employment opportunities for the people at home, the displaced and those returning from abroad and prioritizing the emergence of more businesses that creates higher value-added job opportunities;

vi. Ensuring balanced and mechanized agricultural economic model that will actively supporting the agriculture and livestock sectors to enable inclusive growth, enhanced food security and promote export;

vii. Asserting the right of individuals to freely pursue the economic opportunities they wish to choose, in a market framework that supports a vibrant private sector, formulating specific policies for the promotion of investment and enhancing patent rights and law enforcement;

viii. Achieving monetary and financial stability, while creating a financial system that can sustainably provide capital to businesses, farmers and households;

ix. Establishing environmentally sustainable cities, upgrading public services and utilities, reinvigorating public spaces and conserving heritage;

x. Ensuring secure rights to property through the laws and practices, while constructing a fair and efficient taxation system that, through finding the state, enables the protection of the rights of the people;

xi. Promulgating regulations that support innovation and technique to stimulate the development of high-tech and intellectual property rights;

xii. Ensuring stronger business links and foundations within the fast changing ASEAN region and beyond.

TVET Enrollment Data

GTI offers mainly for five majors such as Civil, Electronic, Electrical Power, Mechanical and Information Technology. The enrollment figures of Government Technical Institute (GTI) has been increasing for the three years as shown in Table 1 and Figure 1. The enrollment data for Government Technical High School (GTHS) is fluctuating within three years as shown in Table 2 and Figure 2. Some GTHS provide for four or five majors and some GTHS provide for eight majors such as Building Technology, Electronic Technology, Electrical Technology, Auto Mechanic Technology, Machining Technology, Information Technology, Refrigeration and Air-conditioning Technology and Metal Processing Technology.

Table 1. Number of Enrollment students (GTI)

No	Department	2014-2015	2015-2016	2016-2017
1	Civil	641	843	1103
2	Electronic	420	647	911
3	Electrical Power	525	775	1011
4	Mechanical	497	748	942
5	Information Technology	28	31	138
6	Total	2111	3044	4105

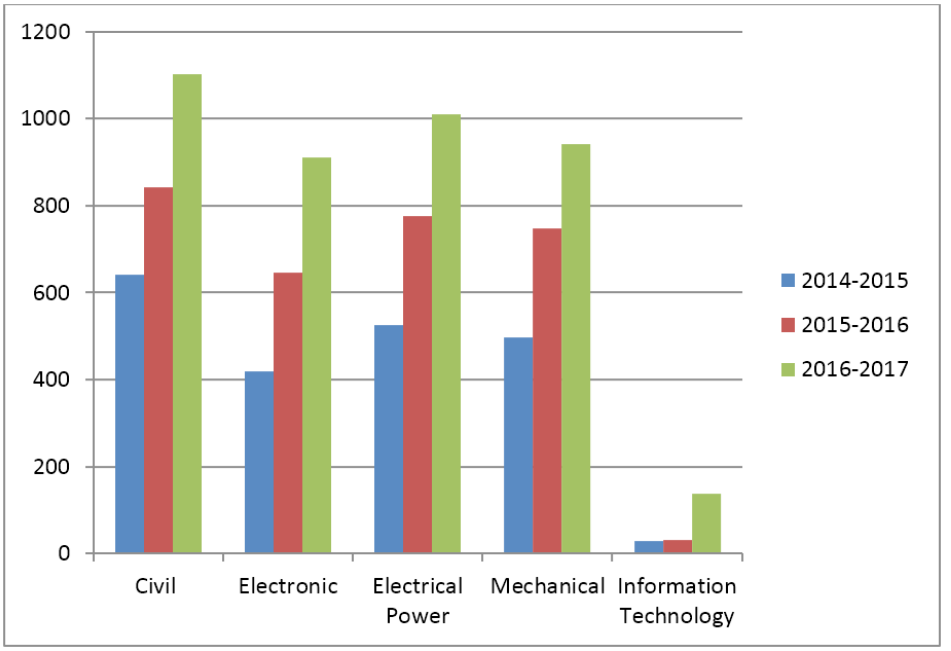

Figure 1. Number of Enrollment Students (GTI)

Table 2. Number of Enrolment students (GTHS)

No	Department	2014-2015	2015-2016	2016-2017
1	Building Technology	502	911	717
2	Electronic Technology	207	489	597
3	Electrical Power	253	680	712
4	Auto Mechanics Technology	266	649	558
5	Machining Technology	172	343	348
6	Information Technology	73	77	80
7	Refrigerating and Air Conditioning Technology	1	35	22
8	Metal Processing Technology	42	31	26
9	**Total**	**1,516**	**3215**	**3141**

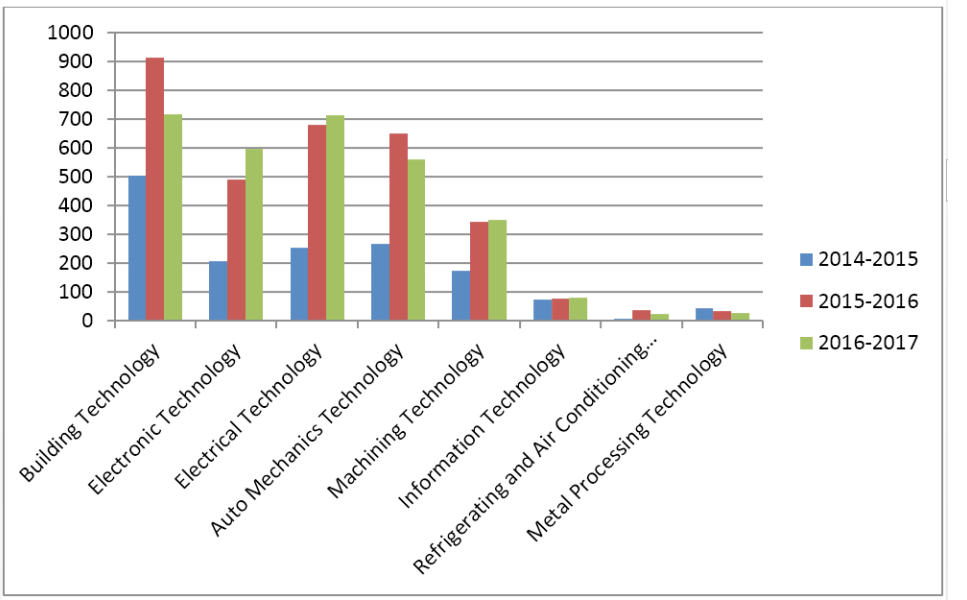

Figure 2. Number of Enrollment Students (GTHS)

Employment Data

The percentage of employed people working in the sectors of "Agriculture, Forestry and Fishing" was highest among both males (55.4%) and females (47.4%). Nationally, it employed was 52.2% of the workforce or an equivalent of 10.7 million people. The second highest industry was "Wholesale, retail trade includes spare parts for repair of motor vehicles and motorcycles" at 7.2% for males and 12.6% for females. It employed 1.9 million people. The third highest industry was "Manufacturing" at 6.8% both sexes, it employed 1.4 million people. Fourth was "Accommodation and Food Services Activities" that employed 4.7% or 962,000 people. Fifth industry was "Construction" with 4.6% or 940,000 people. About 616,000 people (3%) reported to be under "Public Administration including Civil Servants". An estimated 390,000 and 112,000 people (1.9% and 0.5%) were in "Education" and "Health" industries, respectively.

Table 3. Employment Data

No	Sector	Males (%)	Females (%)	Employment
1	Agriculture, Forestry and Fishing	55.4	47.4	10,726,809
2	Wholesale, retail trade including spare parts for repair of motor vehicles and motorcycles	7.2	12.6	1,923,400
3	Manufacturing	4.9	9.7	1,395,314
4	Accommodation and Food Services Activities	3.2	7.0	962,720
5	Construction	6.8	1.1	940,231
6	Public Administration including Civil Servants	3.6	2.2	616,557
7	Education	0.6	3.9	390,092
8	Health	0.4	0.8	112,966

Source: 2014 Myanmar Census Report Volume 2-B (Occupation and Industry)

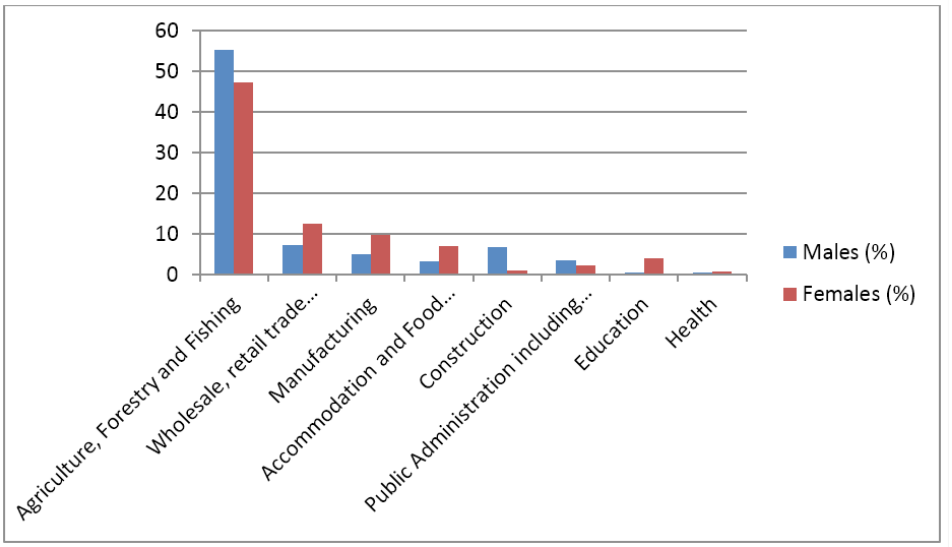

Figure 3. Employment Data

Myanmar National Qualifications Framework (MNQF)

Myanmar has undergone several training workshops in developing its qualifications framework for TVET.

Four workshops on AQRF were carried out in Myanmar in the year 2015. There were two cascading workshops on interpreting MNQF and AQRF conducted by Temasek foundation and Singapore Polytechnic. The Master trainers trained 100 officials from related ministries on basic education, TVET education and higher education sectors.

Some of the workshops in enhancing workshops include the ASEAN Qualifications Reference Framework (AQRF)', the 2nd workshop on 'Conduct Referencing to AQRF' in March 2015 and the 3rd workshop on 'Qualification Design and Development' tapping 60 participants in Yangon. Finally 'Master Trainer' workshop was organized with 30 participants in Naypyitaw.

In addition, the Master Trainers conducted two cascading workshops on 'Interpreting MNQF and AQRF' involving 147 participants at Yangon University & Mandalay University. However, some relevant stakeholders should be made aware of the importance of referencing process between MNQF and AQRF.

The specific objectives of MNQF are the following:

1. Reinforce making policies on quality assurance and setting the standards and learning outcomes of qualifications
2. Make qualifications transparent and comparable within and across national borders and to be recognized by international community
3. Support mobility of learners and employees by creating credit transfer system and competency standards
4. Make qualifications assured being more responsive to individual and employer needs, more relevant to industry needs and more trusted by community
5. Support flexible education by providing a choice of educational pathways and recognizing prior learning
6. Link certificates and diplomas with undergraduate and postgraduate degree level education

7. Encourage people to view academic and vocational qualifications as equally valid
8. Improve opportunities for validation and recognition of non-formal and informal learning
9. Raise the quality of human resources in the country.

In addition, the MNQF will have the following functions

1. Harmonize Myanmar education in the region.
2. Utilize MNQF for the purpose of quality assurance.
3. Utilize MNQF for the purpose of curriculum development.
4. Utilize MNQF for the purpose of writing programme-level learning outcomes. (To create outcome-based education system)
5. Create harmonious national credit units system.
6. Link to ASEAN Qualification Reference Framework (AQRF).
7. Facilitate students and workers mobility.

MNQF or NVQS Domains and Level Descriptors

The NVQS system is included in Myanmar National Qualifications Framework (MNQF). MNQF has 8 levels of complexity of learning outcomes. The level descriptors include the notion of competence which is the ability that extends beyond the possession of knowledge and skills. The level descriptors include three domains:

1. Knowledge and skills
2. Application and Competency
3. Responsibility

The knowledge and skills domain includes the various kinds of knowledge such as facts and theories as well as the skills used, such as practical and cognitive skills. The application and competency domain defines the context in which the knowledge and skills are used in practice, and that are observable and measurable, necessary to perform a work activity independently at a prescribed proficiency level. The responsibility domain defines the responsibility for oneself and others. MNQF covers three sectors of education and training as shown in Table 4.

Table 4. MNQF and NVQS (draft)

<table>
<tr><td rowspan="2"></td><td rowspan="2">MNQF</td><td colspan="3">Sector</td><td rowspan="2">Lifelong learning</td></tr>
<tr><td>Basic Education</td><td>TVET Education</td><td>Higher Education</td></tr>
<tr><td rowspan="19">18+
17
16
15
14
13
12
11
10
9
8
7
6
5</td><td>Level 8</td><td rowspan="19"></td><td rowspan="6"></td><td>Post-Doctoral Studies/ Doctoral Degrees</td><td rowspan="19">Recognition of Prior Learning (Assessment and validation) Informal/Non-formal Learning</td></tr>
<tr><td>Level 7</td><td>Master Degree</td></tr>
<tr><td>Level 6</td><td>Post Graduate Diplomas, Bachelor Degrees</td></tr>
<tr><td>Level 5</td><td>Diploma (pass Grade 12) 3 years</td><td>Associate Degrees / Undergraduate Diplomas</td></tr>
<tr><td>Level 4</td><td>V&TC/SC 4 (After Grade 12)</td><td rowspan="18"></td></tr>
<tr><td>Level 3</td><td>Grade 12</td><td rowspan="3">V&TC/SC 3 (pass Grade 9) 2 years</td></tr>
<tr><td></td><td>Grade 11</td></tr>
<tr><td></td><td>Grade 10</td></tr>
<tr><td>Level 2</td><td>Grade 9</td><td rowspan="4">V&TC/SC 2 (pass Grade 5)</td></tr>
<tr><td></td><td>Grade 8</td></tr>
<tr><td></td><td>Grade 7</td></tr>
<tr><td></td><td>Grade 6</td></tr>
<tr><td>Level 1</td><td>Grade 5</td><td rowspan="6">V&TC/SC 1 (pass Grade 5)</td></tr>
<tr><td></td><td>Grade 4</td></tr>
<tr><td></td><td>Grade 3</td></tr>
<tr><td></td><td>Grade 2</td></tr>
<tr><td></td><td>Grade 1</td></tr>
<tr><td></td><td>KG</td></tr>
<tr><td>Age</td><td colspan="5"></td></tr>
</table>

V&TC/SC – Vocational and Technical Certificate/Skill Certificate

Level	Knowledge and Skills	Application and Competency	Responsibility	Bloom's Taxonomy
8	- Most advanced and specialized level of knowledge and at the frontier of afield - Independent & original thinking & research, resulting in creation of new knowledge or practice - Understanding relationship between specialized field and global issues	- Development & testing of new theories to resolve complex, abstract & emergent issues - Highly specialized & complex contexts - Innovation, commercialization of knowledge and entrepreneurship - Contribution to Policy making	- Substantial commitment to management of research - Significant responsibility for extending professional knowledge & practice, & creation of new ideas &/or processes - High level initiatives, adaptability and leadership in team works - To accept personal and social responsibility	Creating
7	- Forefront of a field and show mastery of a body of knowledge - Critical & independent thinking - Capacity to extend or redefine Knowledge or practice - Ability to use a range of advanced and specialized skills - Communicate and publicize to target audience with different levels of knowledge	- Complex & unpredictable contexts - Involve development & testing of innovative solutions to resolve abstract & emergent issues - Applying multi-disciplinary approaches to complex issues - Professionalism and Ethics/Attitude	- Initiatives and responsible guidance to others - Expert and sound judgment, ignificant responsibility for extending professional knowledge and or practice and creation of new ideas and or processes - Sustained and responsible management in quality improvement - Ability to work in groups of multi-disciplinary nature with responsibility	Evaluating
6	- Specialized technical and theoretical within a specific field - Understanding multi-disciplinary approaches - Critical & analytical thinking - Communication skills, sharing information	- Problem-solving skills in complex and changing contexts - Development of solutions to resolve complex & abstract issues - Creativity	- Minimal guidance (with initiative, adaptability &self-direction) - Defensible judgment - Significant planning, coordination, evaluation in quality improvement - Applying collaborative and integrative approach	Evaluating

Level	Knowledge and Skills	Application and Competency	Responsibility	Bloom's Taxonomy
5	- Detailed technical and theoretical knowledge of a general field - Analytical thinking in routine processes	- Subject to change - Resolving complex & sometimes abstract issues	- Minimal guidance (with self-direction and self-motivation in individual and collective works) - Defensible judgment significant planning, coordination & evaluation of activities	Analyzing
4	- Theoretical and technical with general coverage of a field - Specific methods, tools and materials	- Predictable but subject to change - Resolving unfamiliar issues	- Broad guidance with some self-direction - Defensible judgment, planning, & coordination	Analyzing
3	- General principles, some conceptual aspects and information - Basic and simple methods, tools and materials	- Stable with some aspects subject to change - Resolving routine issues	- General guidance, Judgment - Independent in thinking - (to be reviewed, not relevant to this level) - Teamwork	Applying
2	- General and factual - Standard actions or techniques	- Structured - Resolving familiar issues	- Routine supervision - Some discretion or judgment	Understanding
1	- Basic or general knowledge - Simple or straightforward	- Highly structured & familiar	- Close support & supervision - Very limited discretion or judgment	Remembering

Highlights and Best Practices

The Myanmar National Qualifications Framework was implemented in November 2013 through a working group composed of representatives from 12 ministries. The working group held several meetings and ran workshops on NQF. The working group collaborated with experts from UNESCO Myanmar Office. However, they were not able to produce a draft of MNQF in July 2014. To follow up, the working group invited officials and rectors from Yangon Region and Mandalay Region to a meeting and presented the draft of MNQF in August 2014. Using the comments and suggestions from that meeting, the working group developed its first draft of MNQF.

The first draft of MNQF was distributed to more than 300 relevant institutions and stakeholders, and further comments and suggestions were asked for. Those comments and suggestions were analyzed and presented to the Myanmar Education Promotion Conference (Higher Education) in May 2015. Based on

these suggestions, comments and discussions, the second draft of MNQF was developed in July 2015. The second version of the referencing report was produced as an output of a Master Trainer training program of Referencing MNQF to AQRF from March 2015 to January 2016. The NVQS was 6 levels in the second draft and it was also revised according to the comments and critical notes from local scholars. At the present time, NVQS is proposed 5 levels based on AQRF and ISCED-2011. According to National Education Law, National Education Accreditation and Quality Assurance Committee (NAQAC) for TVET will approve NVQS and then it will be implemented and developed.

Steps to Compare the AQRF and NQF Level Descriptors

Before the comparison, the system should have a ready access to the following documents.

1. MNQF Level Descriptors
2. AQRF Level Descriptors
3. A list of MNQF qualifications that are currently designed according to NQF Level Descriptors

Step 1: Establish that the NQF Level Descriptor summarises the learning outcomes appropriate to a specific level in a qualifications framework.

Step 2: Determine if the NQF Level descriptors are grouped in different levels of taxonomy of knowledge and skills and the notion of competence.

Step 3: Identify the NQF qualifications and job / occupation levels that best fit the NQF Level descriptors.

NQF Level	NQF qualifications	Job / occupation levels
8		
7		
6		
5		
4		
3		
2		
1		

Step 4: Compare each NQF level descriptors to the AQRF level descriptors to determine the best match.

Step 5: If a selected NQF level descriptor has the closest match to one particular AQRF level descriptors, pick one NQF qualification at that NQF level to examine if the said NQF qualification can fit the AQRF level descriptors. If yes, repeat Step 4 for a new NQF level descriptor. If no, proceed to Step 6.

Step 6: If a selected NQF level descriptor has only partial match to one particular AQRF level descriptors, pick the job / occupation level at that selected NQF level to examine if the said job / occupation level can fit the AQRF level descriptors. If it fits, proceed to next step. If not, repeat Step 5 but compare the NQF level descriptor to one level lower of the AQRF level descriptors.

Table 6. Comparison Table of AQRF and MNQF

AQRF Level	MNQF Level	% Fit/ Match	MNQF Qualification Name	Job / Occupation
5	5	98%	Diploma	Senior Technician
4	4	98%	V&T C/SC4	Junior Technician
3	3	98%	V&T C/SC3	Advanced skilled operator
2	2	98%	V&T C/SC2	Skilled operator
1	1	98%	V&T C/SC1	Semi-skilled operator

Challenges and Recommendations

The AQRF Referencing Process cuts across all levels of the NQF system. It is recommended that when there are issue pertaining to the specific levels of NQF referencing process, the respective committees or workgroups looked into it and provide resolution to the matter raised. The vesting of ownership and responsibility to the respective committees or workgroups is essential to ensure pre-conditions of referencing are met.

The challenges are inadequate awareness on Vocational Qualification System (VQS) in public TVET sectors, weakness of cooperation between public and private TVET sector, less of financial support from government to implement VQS and less of experts to develop VQS. It is required well planned knowledge sharing programs of VQS. Basic and advance Training to foster Master Trainer of VQS and nurturing experts in TVET education should be conducted. Mutual trust and respect, synchronizing between private and public sector, transparency and effective portal system are needed. It is necessary to allocate adequate budget. Three types of vocational qualification system such as basic level, middle level and higher level TVET system are provided based on National Education Law (NEL). It is proposed to approve five levels of vocational qualification; level 1 to level 5 and also need to develop training design and curriculum to match the required qualification.

There is not a wide availability to AQRF and dissemination of accurate information about AQRF and still need consultations take place with different levels of stakeholders. Most of the stakeholders (UMFCCI, Senior Officials from Higher Education and Private Schools) realize the development of AQRF as an enhancement to regional cooperation. Quality assurance in the qualifications system is seen as critically important including validation, accreditation and certification system. According to the National Education Law (NEL), National Education Policy Commission (NEPC) has been formed and NEPC will form National Education Accreditation and Quality Assurance Committee (NAQAC) for basic education, TVET education and higher education sectors. NAQAC will validate Myanmar National Qualifications Framework (MNQF) and will implement it. NAQAC will be responsible for the validation, accreditation and certification of the qualifications.

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Workshop 1 : Interpret the ASEAN Qualification Reference Framework

Workshop 2 : Conduct Referencing to ASEAN Qualifications Reference Framework;

Workshop 3 ; Qualifications Design and Development;

Workshop 4 ; Master Trainers Workshop

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National Vocational Qualification Framework and Certification of Pakistan

Mr. Fayaz A. Soomro
Deputy Director
National Vocational & Technical Training Commission
Islamabad, Pakistan

Introduction to Present Situation of TVET

Capital investment is not a lasting solution for ensuring socio-economic development of any country. Countries who have invested in conventional education, agriculture, technology, telecommunications and human resources development through TVET has ensured sustainability and development by the passage of time. TVET is a strategy to convert the general masses as human capital paving the ways for progress and prosperity.

The Government of Pakistan identified TVET as key indicator (World Bank Paper). Retrospectively, it has been discussed under the umbrella of Medium Term Development Framework (2005-10) and the National Skills Strategy (2009-2013) is its outcome in terms of practical approach.

Skills development in Pakistan is complex and multi-layered. It is clear that some employers provide world-class training, but too many, it seems, regard training as a cost, rather than an investment. The main provider of skills is the informal sector, but there is no detailed information about the numbers of people trained or their subsequent progression. Although, these issues have been focused by the present government in the current decade with pragmatic approach to come up with proper panacea by initiating mega projects and strategies.

Pakistan is blessed with tremendous human resource potential where around 68% of the population is below 30 years. Owing to focused approach toward TVET sector, this demographic strength could be utilized positively for betterment of socio-economic fabric of country. There is no denying the fact that Pakistan is facing huge unemployment issues, but due to network of TVET institutes (3581) across the country, such unemployment challenges can be coped with focused approach. This presents a huge potential for the TVET sector to lead in addressing the challenges posed by this demographic trend.

Unfortunately, TVET Sector in Pakistan has remained neglected area and could not invite attention of general public at larger scale. In retrospect, the TVET Sector of Pakistan is facing various challenges. Some of these challenges include:

a. Low prioritization of skill development

b. Prevalence of uncertified workers which are getting lesser salaries as compared to skilled workforce across the country in general and world over in particular;

c. Present Education System is producing unskilled certificate/degree Holders;

d. Technical Training has remained as an ignored field of education and the general mindset is averse to Technical Training;

e. Lack of Quality Training Institutes;

f. Inappropriate Allocation of Funds for Training;

g. No existent research and development initiatives in the TVET Sector;

h. Deficiency of quality master trainers;

i. Absence of centers of excellence in technical training;

In order to improve the TVET system in Pakistan, National Vocational & Technical Training Commission (NAVTTC) was established as an apex body and a national regulatory authority for TVET. It has undertaken the onus of addressing the challenges of Technical and Vocational stream in the country and was also involved in policy making, strategy formulation and regulation and revamping of TVET system. The commission also promotes linkages among various stakeholders at national as well as International level.

The Pakistan National Vocational Qualification Framework has been developed in terms of National Skill Strategy to promote competency based and demand driven training.

Brief Discussion of the Educational and TVET System

Pakistan has a total registered population of 180 million population and at least 59.74 million constitute the formal labor force that fulfils the demands from national as well as the international job market (Labour force survey 2012-13). The TVET Sector in Pakistan is characterized to be a supply-driven rather than being a demand-driven sector and consequently has been struggling with its limited sources to meet the annual skill demand.

The current TVET system produces 315,000 skilled workers annually to meet the annual demand of 950,000 skilled workers which contributes to only 5.5.% of the total labour forces of 59.75 million (National Skill Information System 2016). This leads to the growth in the informal economy workers, which is currently at 73.80% of the total labor force, and is still increasing. Work in informal economy is undocumented, unregulated and characterized by low earnings and low productivity. Skills are passed from one generation to another through the indigenous Master-Apprentice, Ustad Shagird and Learning by doing.

As a reform agenda, the Vision 2025, Pakistan emphasizes on developing human and social capital as a prime pillar for the socio-economic development by introducing new and innovative practices such as encouraging the linkages with the informal sector, by providing assessment opportunities that recognizes prior learning and experiences (Pakistan TVET Policy 2016).

The Pakistan's National Vocational Qualification Framework is responsible for bridging this formal-informal gap divide and allowing the recognition and certification of skills through Recognition of Prior Learning (RPL) and Recognition of Current Competence (RCC).

The Education System of Pakistan can be classified in two streams i.e. General Education and Technical Education stream. The first stream, higher education, is focused on implementing General Education and NAVTTC is the higher education commission of the TVET Sector in Pakistan.

Before the 18th Amendment, the Education System in Pakistan was the responsibility of Federal Government. The Ministry of Education at Federal level is responsible for formulating Policies, Planning and Promotion of Educational facilities across the country. But, after the passing of 18th Amendment, the responsibilities

of Education System are divided among the Federation and the Provinces. Pakistan is a developing country and in this respect it has to be very much concerned regarding its economy so that it should be stable and their run for development should not be affected. If we talk about Pakistan we are lacking in the technical education and we are far behind in producing goods as compared to other countries as we are relying heavily on the imports.

NAVTTC plays an important role in reforming TVET Sector in Pakistan. Due to these efforts we can expect a more rigorous participation of TVET to encourage a holistic socio-economic development. NAVTTC has taken landmark efforts to reform and improve the implementation of TVET.

National Economic Plan of the Country

The 11th Five Year Plan (2013-2018) is being issued at a time when Pakistan is facing multiple challenges on the economic, security, and development fronts. These provide compelling reasons to make fundamental changes in the growth and development paths treaded in the past.

Vision 2025 addresses Pakistan's inability to achieve sustained and rapid economic growth. The Vision aims to serve as an aspirational document visualising the destination of balanced human, social, and economic progress throughout Pakistan. It emphasises revival of growth, strengthening of the country's development foundation and enabling it to reach the status of an upper middle income country. It is not a static vision. In a dynamic setting, the period beyond 2025 will continue the momentum and mount a big push towards attaining the status of a developed economy by 2047, the first centenary of Pakistan.

The Vision was drawn up after extensive consultations with a very wide range of stakeholders, which comprised political parties, federal ministries, provincial governments, national and international private sector entrepreneurs, international development and financial institutions, academia, think-tanks, independent experts, Non-Governmental Organisations (NGOs), parliamentarians and the civil society. A major national consultative conference, which included over 1,000 invitees, was held in November 2013, which was chaired by the Prime Minister of Pakistan, and attended by the PM of the Azad Jammu and Kashmir (AJ&K), Chief Ministers of the four provinces, and leaders from all walks of life. The Vision divides its challenges and goals into a set of seven pillars, identified as the key drivers of growth, which will transform Pakistan into a vibrant and prosperous nation by 2025. In addition to these seven pillars, the government is also working towards the restitution of key enablers, such as political stability and continuity of policies, peace and security, rule of law, and social justice. The seven pillars are explained below:

Pillar-I: Putting people first: Developing human and social capital aiming at

- Achieve universal primary education with 100 per cent net primary enrolment,
- Increase higher education coverage from seven per cent to 12 per cent, and
- Enhance proportion of population from 48 per cent to 90 per cent with an access to improved sanitation

Pillar-II: Achieving sustained, indigenous, and inclusive growth aiming at

- Become one of the 20 largest economies in the world, leading to Upper Middle Income country status, and
- Increase annual exports from $25 billion to $150 billon

Pillar-III: Democratic governance, institutional reform and modernisation of the public sector aiming at

- To attain a place in the top 50th percentile in the following measures of the World Bank's Worldwide Governance Indicators, that is, political stability, no violence and terrorism, and control of corruption.

Pillar-IV: Energy, water and food security aiming at

- Energy: Double power generation to 45,000 MW and provide uninterrupted, affordable and clean energy for all, and electricity access from 67 per cent to 100 per cent of the population
- Water: Increase storage capacity to 180 days and improve efficiency of usage in agriculture by 20 per cent
- Food: Reduce the food-insecure population from 60 per cent to 30 per cent

Pillar-V: Private sector and entrepreneurship-led growth aiming at

- Rank Pakistan in the top 50 countries on the World Bank's Ease of Doing Business Rankings, and
- Increase Diaspora investment (via remittances) in the private sector to the tune of $40 billion

Pillar-VI: Developing a competitive knowledge economy through value-addition aiming at

- Quadruple contribution of the Total Factor Productivity to growth, and
- Improve Pakistan's score on the World Bank Institute's Knowledge Economy Index from 2.2 to four.

Pillar-VII Modernizing transportation infrastructure and greater regional connectivity aiming at

- Increase road density from 32 Km/100 Km2 to 64 km/100 Km2 ,
- Share of the Pakistan Railways from four per cent to 20 per cent, and
- Ensure reduction in transportation costs, safety in mobility, effective connectivity between rural areas and markets and urban centres, interprovincial high-speed connectivity, integrated road and rail networks between economic hubs (including air, sea and dry ports), and high-capacity transportation corridors connecting major regional partners.

Realizing the Vision 2025 will require a well-defined coordination mechanism among the federating units, including four provinces and Special Areas, which comprises Federally Administered Tribal Areas (FATA), Gilgit-Baltistan (G-B) and AJ&K. Moreover, steps towards providing an enabling environment for the realization of this Vision have been taken. There are various reforms underway to materialize the Vision 2025. Education and Technical Education is one of important pillar.

TVET Enrolment Data

The details regarding TVET enrolment for the year 2015-16 is tabulated below:

Table 1: Enrolment in Technical and Vocational Institutions by Province, type and Gender (Public & Private, 2015-16)

Province/ Region	Type	Institution				Enrollment			Teacher		
		Male	Female	Mixed	Total	Male	Female	Total	Male	Female	Total
Punjab	Technical	256	247	161	664	49,054	3,995	53,049	4,013	2,290	6,303
	Vocational	415	538	200	1,006	62,019	55,682	117,701	2,471	285	2,756
	Total	671	785	361	1,670	1,11,073	59,677	170,750	6,484	2,575	9,059
Sindh	Technical	59	18	115	192	39,571	18,002	57,573	1,511	625	2,136
	Vocational	138	194	79	411	12,567	8,941	21,508	589	245	834
	Total	197	212	194	603	52,138	26,943	79,081	2,100	870	2,970
KPK	Technical	26	6	2	34	2,785	2,204	4,989	1,987	50	2,037
	Vocational	496	139	35	670	21,977	8,256	26,781	502	93	595
	Total	522	145	37	704	24,762	10,460	31,770	2,489	143	2,632
Balochis-tan	Technical	9	2	0	11	1,221	567	1,788	171	32	203
	Vocational	48	58	18	124	1,324	647	1,971	98	82	180
	Total	57	60	18	135	2,545	1,214	3,759	269	114	383
GB	Technical	5	0	3	8	1,408	32	1,440	190	0	190
	Vocational	23	124	23	170	2,654	7,018	9,672	416	185	601
	Total	28	124	26	178	4,062	7,050	11,112	606	185	791
AJK	Technical	9	0	5	14	1,425	0	1,425	247	26	273
	Vocational	31	70	11	112	3,400	3,256	6,656	341	121	462
	Total	35	67	12	114	5,166	3,405	8,571	588	147	735
FATA	Technical	10	0	0	10	1,125	0	1,125	248	0	248
	Vocational	14	41	0	55	1,276	1,102	2,378	67	88	155
	Total	24	41	0	65	2,401	1,102	3,503	315	88	403
ICT	Technical	7	8	5	20	621	321	942	325	98	423
	Vocational	21	69	8	98	777	1,941	2,718	597	164	761
	Total	28	77	13	118	1,398	2,262	3,660	922	262	1,184
Pakistan	Technical	381	281	291	953	97,210	25,121	122,331	8,692	3,121	11,813
	Vocational	1,186	1,233	374	2,646	105,994	86,843	189,385	5,081	1,263	6,344
	Total	**1,567**	**1,514**	**665**	**3599**	**203,204**	**111,964**	**311,716**	**13,773**	**4,384**	**18,157**

The employment data for the year 2015-2016 is the following:

Table 2: Demand per Trade/Qualifications (Public & Private, 2015-16)

Trade	Local	Overseas	POEPA	Total
Driver	3,896	1,081	77,038	82,015
Mechanic	3,138	5,316	36,228	44,682
Mason	104	2,945	36,170	39,219
Steel Fabricator	309	16,900	15,854	33,063
HTV Driver	84	32,070	-	32,154
Carpenter	657	919	20,820	22,396

Trade	Local	Overseas	POEPA	Total
Electrician	1,089	507	19,890	21,486
Agricultural Field Assistant	10	30	18,069	18,109
Plumber	565	3,380	12,090	16,035
Machine Operator	711	1,579	11,288	13,578
Painter	252	745	12,046	13,043
Welder	400	1,628	10,643	12,671
Office Management	876	259	11,075	12,210
DBA	92	14	11,745	11,851
Fitter	322	5	10,052	10,379
Operator Heavy Machinery	12	10,158	-	10,170
Others trades	41	7,700	-	103,699
G. Total	12,558	85,236	303,008	496,760

TVET Qualification Framework

The National Skills Strategy 2009-2013 (NSS) has proposed a paradigm shift from curriculum -based education to competency-based training. It has envisioned the provision of relevant skills for industrial and economic development, improvement of access, equity and employability and assurance of quality through an integrated approach.

The NSS has set out three objectives and has proposed certain reform areas in order to attain those objectives. The three objectives have been:

- Providing relevant skills for industrial and economic development
- Improving access, equity and employability
- Assuring quality

The NSS has been developed with the cooperation of, and in extensive consultation with, various stakeholders including local and international experts, relevant ministries, provincial governments, training providers, trainees, private sector associations and Chambers of Commerce.

National TVET policies focus on:

- Making employment and employability the central theme of economic and social policies;
- Developing policy planning and coordination for ensuring integrated professional, vocational and technical training in accordance with international standards
- Developing a dynamic professional, vocational and technical training system to ensure horizontal and vertical linkages;
- Developing, standardising and regulating curricula, schedules, institutes and examination/ certification bodies for TVET; and

- Providing scholarships, fellowships, trainings and international assistance in professional, vocational and technical courses.

TVET Legislation

The Constitution of 1973 provides for equality and well-being of all citizens and no discrimination on the basis of sex, caste, creed or race. Article 37 stipulates that the States shall make technical and professional education generally available and equally accessible to all on the basis of merit.

The Apprenticeship Ordinance of 2009 provides regulation, coordination and policy direction for TVET. It establishes the National Vocational and Technical Training Commission (NAVTTC), and defines its management, functions, powers and related operational functions.

NAVTTC Act 2011 defines the funding rules for NAVTTC and Act No XV of 2011 states its core objective as to provide for Regulation, Coordination and Policy Directions for TVET.

Evolution of Pakistan's NVQF

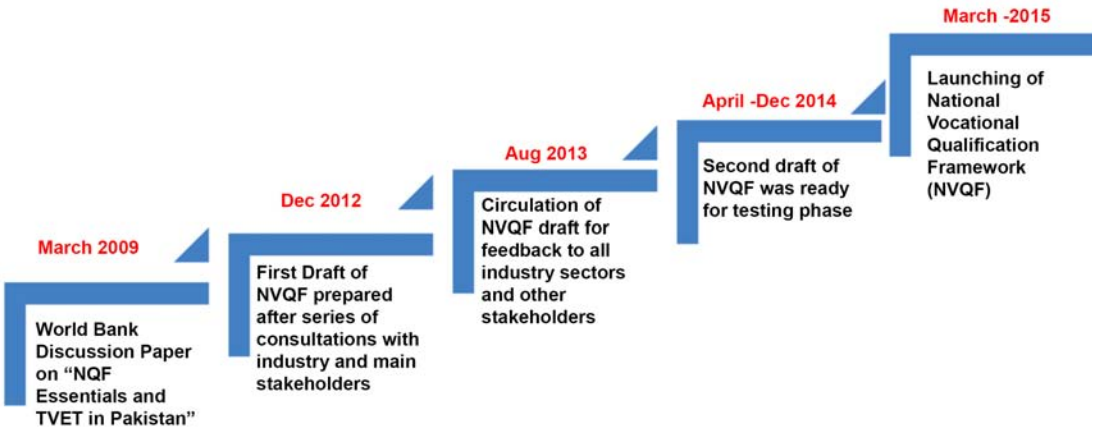

Figure 1: Evolution of Pakistan's NVQF

The NVQF is intended to provide a distinct pathway for Technical and Vocational Education and Training within the overall national qualification structure. NVQF (Figure 1) pre-vocational levels were designed to meet the basic TVET entry needs of the majority of the population with the little or no schooling, and five levels (Level 1 to 5 from certificate to diploma) to provide a clear pathway in TVET and entry into Higher Education degree levels.

Each level of qualification framework is defined by a set of approved Level Descriptors (Copy enclosed). NVQF is the point of active guidance and integration of five interacting systems which, if properly coordinated ensures the achievement of the NVQF purposes- the qualification development system, the assessment delivery system, the training delivery system, the national skill certification system and national quality assurance system.

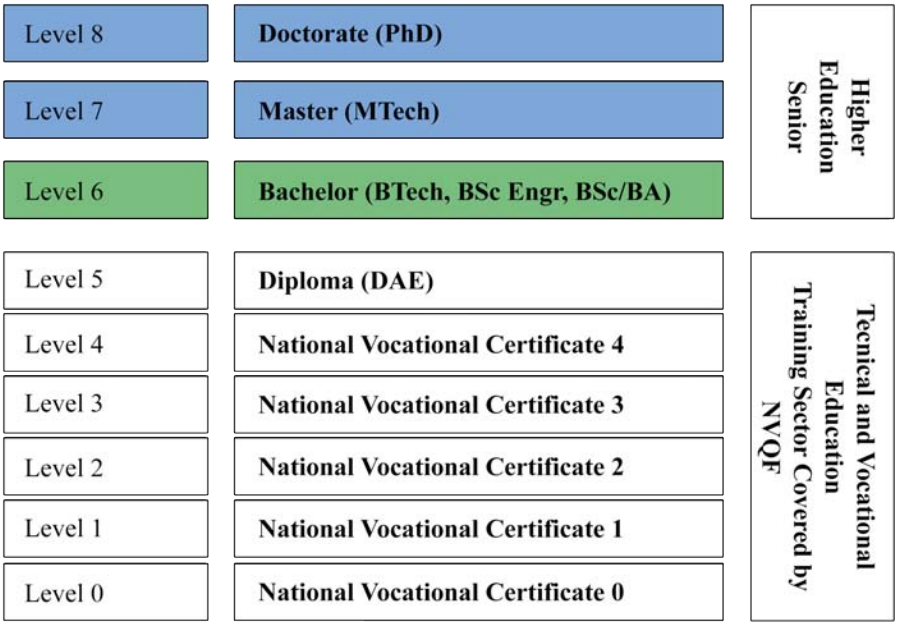

Figure 2: Structure of NVQF for the Industry

Pakistan National Vocational Qualifications Framework

The Pakistan National Qualification Framework (NVQF) is a national system of technical vocational qualifications aimed at improving quality of TVET outcomes that meet the needs of industry. It provides a national system of policies and guidelines for classification of qualifications, introduction of progression pathways for vertical and horizontal movement within the TVET Structure and achievement of a qualification through credit accumulation, besides promoting recognition of qualifications at national and international levels. It has policies, procedures and management structures that ensure to meets the objectives.

Purpose of NVQF

- Enhance the quality of vocational and technical education and training by determining clear qualification levels and by creating transparency for employers concerning the qualifications of applicants
- Improve the alignment between qualifications, training programs and skill demand
- Establish a structured national framework for vocational and technical learning achievements based on defined levels and characteristics
- Standardize the system of defining the characteristics and value of qualifications and relationship between qualifications
- Promote up-skilling of the population and to facilitate horizontal and vertical movement within the skill development system through expanding pathways for progression and facilitating credit accumulation and transfer
- Facilitate the Recognition of Prior Learning (RPL) to provide mechanism that allows individuals to gain recognition of the skills that they have

- Contribute to international recognition of Pakistani qualification by improving the credibility, portability and recognition of NVQF qualifications nationally and internationally
- Establish validity and reliability through comprehensive and correct quality assurance system that assures the quality of qualifications, training and assessment programs and certification
- Support new ways of standardizing technical and vocational training

Scope of NQF

When determining the scope of the NQF in Pakistan, the key question is how the educational sectors and geographical provinces can be integrated in the NQF in the best possible manner. Several questions arise: Will the NQF cover all of the education system in Pakistan in one single model? Will a number of sector- and/or province- specific qualification frameworks be a better solution? How flexible will the NQF be regarding the differences in training and quality assurance in the different provinces of Pakistan?

Pakistani NVQF as a Legal Framework for Industries?

National Vocational Qualifications are designed to measure the competency of different vocational skills. The intention of having NVQ is to produce Pakistani workforce globally competitive, in order to suit Industry specific, standardized Technical and Vocational Education system. Industry of Pakistan has exhibited a great trust upon these qualifications and the employment rate has enhanced tremendously.

What are the Advantages of Applying this NVQF for the TVET System?

The TVET System of Pakistan is fragmented. Currently four provincial authorities and private training providers impart TVET training in the country. Their training varies from aspects such as curricula, quality of training and assessment system. The environment affects the terms of standardization of skills and ultimate recognition of qualifications in the local and international job market. Moreover, the NVQF is offering competency-based training which is actually a paradigm shift from time bound to flexible, curriculum-based to competency-based and supply-led training to demand-driven skills development.

The NVQF also define the skills required for a qualification. It also determines the equivalence within TVET Sector, allows standardized vocational qualification, provides framework for quality assurance, vertical and horizontal progression for learners, recognition of national and international qualification systems, improvement in quality of training and increased options for learners in selecting training programs.

The Government of Pakistan believes that there are series of practical measures that can be taken to encourage employers to join a national effort to strengthen Pakistan's skills. These includes the creation of an enabling environment that will encourage the flourishing of TVET such as more representation from employers, IAGs, Sector Skill Councils; participation of employers in the employment related subjects; more effective liaison with chambers, and approaching overseas employers. There is also a need to develop a more supportive framework, to review the scope for financial incentives and to guarantee an employer role.

In addition to above, a possibility to reform and provide a new setup for more robust qualification assurance mechanisms regarding quality of learning outcome. A possibility for employers to relate demands in enterprises to qualifications in the education system (provided that the qualifications are described as learning outcomes) should also be explored for this could increase linkages between industry and the education system.

The promotion of recognition of Pakistani qualifications in an international context must be encouraged, as there are a large number of Pakistanis working in the Middle-East that can benefit from such an initiative.

What are the Advantages of Applying this NVQF for Industry?

The NVQF gives a leading role to industry in terms of identification of occupations it requires by preparing competency profiles through effective Job analysis methods, standardizing competencies, development of assessment system and conducting assessment of trainees. This ensures imparting relevant skills required by the industrial sectors and ultimate employment of the graduates. Moreover, the following are advantages of applying NVQF for industry:-

- It is in the business interests of employers to invest in their own workers and their families and that improvements in productivity and quality will add to the 'bottom line' and increase profitability;
- Employers have a vested interest in ensuring that congenial conditions for business and economic growth are developed and maintained. Investment and business growth are not stimulated in societies which lack cohesiveness and where there are risks of civil disturbance. It is worthwhile for the private sector to try to defuse the 'demographic time-bomb', for example, and help to provide positive opportunities for young people;
- The private sector has the skills and knowledge to 'make a difference' and to inject energy and experience, both to generate new training opportunities and to support the reform of public TVET provision;
- There is a moral justification for enterprises to demonstrate corporate social responsibility and to contribute to economic and social growth beyond their immediate business concerns.

The Governance and Regulatory Framework of NVQF

The NVQF will be managed through a national management system led by a competent body and will include the people representing interests of industry / group employers as well as federal and provincial authorities. At the moment NAVTTC is the managing organization. However, the key role of the various agencies in the national management system are as follows:

i. National Vocational & Technical Training Commission (NAVTTC): is the normative body at the national level responsible for facilitation, coordination and regulation of technical education and vocational training in the country under NAVTTC Act-2011.

ii. Provincial Technical Education and Vocational Training Authorities (TEVTAS):
TEVTAs are responsible for the implementation of the competency based training program (CBT).

iii. Board of Technical Education (BTE) and Trade Testing Boards (TTB): BTEs and TTBs are responsible for the operation of NVQF complaint assessment.

iv. Industry Advisory Groups (IAGS): IAGs are industry representative bodies which will support the identification of priority demand; the development of skills competency-standards, qualifications and curricula.

Highlights and Best Practices

The quality of training can only be ensured through the involvement of employers in development of the training programs, training of trainers, availability of infrastructure in the training establishments and a standardizing an effective assessment system. Pakistan has made a significant progress in this aspect.

Due to the proactive approach of the government, there was a recorded increase the involvement of industrial sectors in the TVET system of the country and further improvement of the accreditation system. NAVTCC has also established Centers of Excellence across the country to encourage the replication of the best practices in other areas/regions.

A Competence Based Approach

In a number of countries, a major change has taken place during the recent decades in the increased use of competence based approaches to education and training instead of curriculum-based. Competences relate to the learning outcome of education and training.

They describe what the student is supposed to know and ability after finishing a learning program. Most qualifications frameworks are outcome-based. Often, the use of these frameworks is simply seen as synonymous with an outcome-based approach to education and training, i.e. a competence based approach.

In Pakistan the existing educational system follows a curriculum-based and time-bound approach. Introducing competency-based education and training in Pakistan has a number of benefits. One benefit is that it becomes a tool to improve dialogue with enterprises about relating need of skills in industry to competence development in the education system. This approach, however, faces certain risks which is especially relevant to keep in mind for a developing country as Pakistan. A competency-based approach must be based on trust.

Stakeholders agree on the competences that should be developed in education and training, but when the only outcome of education and training is described and agreed upon, it is basically the task of providers and teachers to get there. Quality assurance mechanisms and close interaction with industry are essential initiatives to combine with a competence based approach.

Challenges and Recommendations

Since a new system is being introduced in the TVET which is facing resistance from the implementing stakeholders. Furthermore, the response from the industry is not satisfactory. Blue collar jobs is still seen negatively by the society, and measures must be taken to erase that stereotype and accept the viability of these jobs in providing a significant income or lifelong skill.

One of the current challenges facing the system is the rather unclear definition of roles and boundaries between different TVET agencies, as well as, in some cases, the work of some international donors. Partly to address that, NAVTTC, TEVTAs, and BTE/TTB agreed in 2003 to have a TVET Regulatory Framework to precisely define roles and identify their specific functions. Due to over role of functions, NVQF has been devised to focus a centric approach as a whole system across the country under the direction of NAVTTC.

Recommendations to Other Countries and Organizations with Regards to Developing their own NVQS

- A National Skill Information System (NSIS) must be maintained in consultation `with industries by NAVTTC at its Headquarters for both supply and demand sides
- The industry experts must finalize some established mechanism for the proper implementation of credit transfer and credit accumulation system on NVQF
- Industries and academia must determine equivalencies of various NVQF qualifications
- Additional NVQF qualifications must be identified by the industry with a focus on employments
- It is also suggested to establish an Inter Qualification Awarding Bodies committee of Chairmen (IQABCC) for treating equivalences applications on case to case basis
- Links and initiatives with other organizations must be established. For example, the World Bank in Punjab is going to establish Punjab's single skill testing authority with the name of Punjab Skill Authority (PSA) by the merger of PBTE, TTB Punjab and PVTC. There is a need to bring industry on board and at driving seat.
- Outline NQF objectives to promote transparency, comparison and progression. Increase linkages between industry and education system and will promote qualifications in an international context.
- Present the implementation mode of the NQF as an incentivized framework. The focus of these incentives should be the incorporation of all qualifications leading to relevant certificates and diplomas. Providers – public as well as private – of these qualifications should be able to meet the framework criteria, if they want the benefits put forward. Public funding could gradually be restricted to institutions and programs leading to recognized qualifications to provide incentive for use of the NQF.

  Further, the NQF development and implementation process should be incremental, meaning that:

  - An action plan should be medium-term to allow time to commit and ample training of developers and officials.
  - The implementation process should be modularized to allow the setup of different initia¬tives/sub-policies to be implemented, which will be successfully independent of the success of the overall implementation process.
- Recommend that the NQF be competency-based. Hence, it would be outcome-based with competence descriptions as part of the framework. The competency-based approach should be combined with use of new curriculum to avoid a too radical shift in learning approach for providers and teachers. Competence descriptions should be supplemented with guidelines on how to develop curriculum corresponding to the competences. If curriculum is developed at provincial level, it should be voluntary to use by these teachers/ providers.
- Advise that the social partners (employers and employees) should be involved at the earliest in the development of the NQF. Further, the NQF should be only one policy in an overall reform to link with the social partners. Linkages should be pervasive at the national,

provincial and local level; including the delegation of decision power to representative of employers and employees.

- Quality assurance responsibility should be divided between the above mentioned bodies and include:
  - o Description of learning outcome of qualifications
  - o Quality assurance of learning outcome and development of qualifications
  - o Quality assurance of the NQF itself (i.e. accrediting the placing of qualifications on proper levels in the framework)

Establishing a NQF TVET Stream will benefit from a more thorough analysis in certain topics. Further knowledge is needed on how to integrate NQF development with other education reforms, especially quality assurance mechanisms and setting up skills standards.

There is also a need to further develop the knowledge of an incentivized mode of implementation. The method of analysis should include interviews with officials and experts from low- and middle-income countries with experiences in NQF development. The systems of South Africa, Malaysia and countries from Eastern Europe and the Caribbean can be the benchmarks on this regard.

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National Vocational Qualifications and Certification System of the Republic of the Philippines

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Introduction to Present Situation of TVET

The education sector of the Philippines is managed and regulated by the Department of Education (DepEd), Commission on Higher Education (CHED) and Technical Education and Skills Development Authority (TESDA). DepEd is responsible for the K–12 basic education: it exercises full and exclusive control over public schools and nominal regulation over private schools, and it also enforces the national curriculum that has been put in place since 2013. CHED and TESDA, on the other hand, are responsible for higher education; the former regulates the academically-oriented universities and colleges while the latter oversees the development of technical and vocational education institutions and programs in the country. The diagram below illustrates the education system:

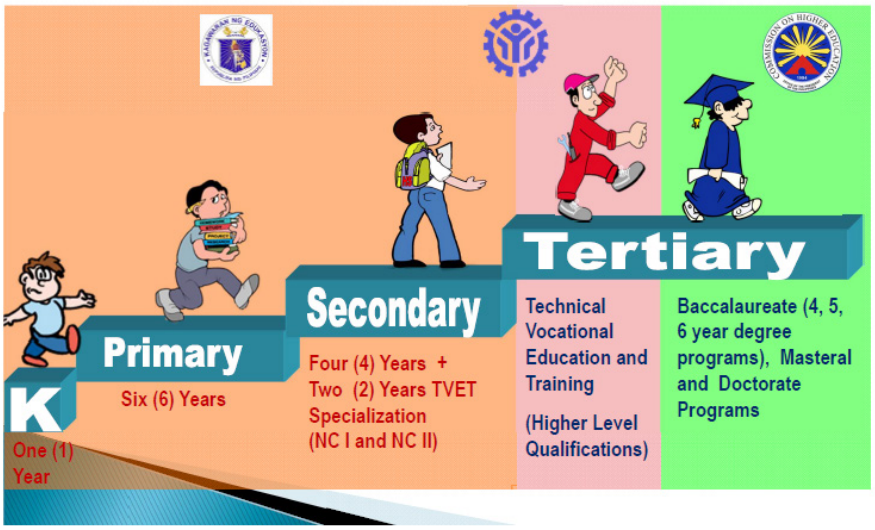

Figure 1: The Philippine Education System

From 1945 to 2011, basic education took 10 years to complete: 6 years of elementary education and 4 years of high school education for children aged 6 to 15. However, after the implementation of the K–12 Program of DepEd and subsequent ratification of Kindergarten Education Act of 2012 and Enhanced Basic Education Act of 2013 (Fig. 1), the basic education today takes 13 years to complete. The 13 years include 1 year of kindergarten, 6 years of elementary education, 4 years of junior high school and 2 years of senior high school for children aged 5 up to 17. As of 2016, the implementation of Grade 11 has started.

TVET in the Philippines

TVET in the Philippines has undergone major transformation since the creation of the Technical Education and Skills Development Authority (TESDA) in 1994 through the passage of Republic Act 7796 or The TESDA Act Law of 1994".

With a clear mandate to ensure the provision of relevant, efficient, accessible and high quality technical vocational education and training opportunities for the Filipinos to meet the skills requirements for economic and social development, today, TVET is recognized as a major strategic option in the country's overall human resources development strategy because it is rapid, flexible, job-oriented, competency-based and can easily lead people to jobs.

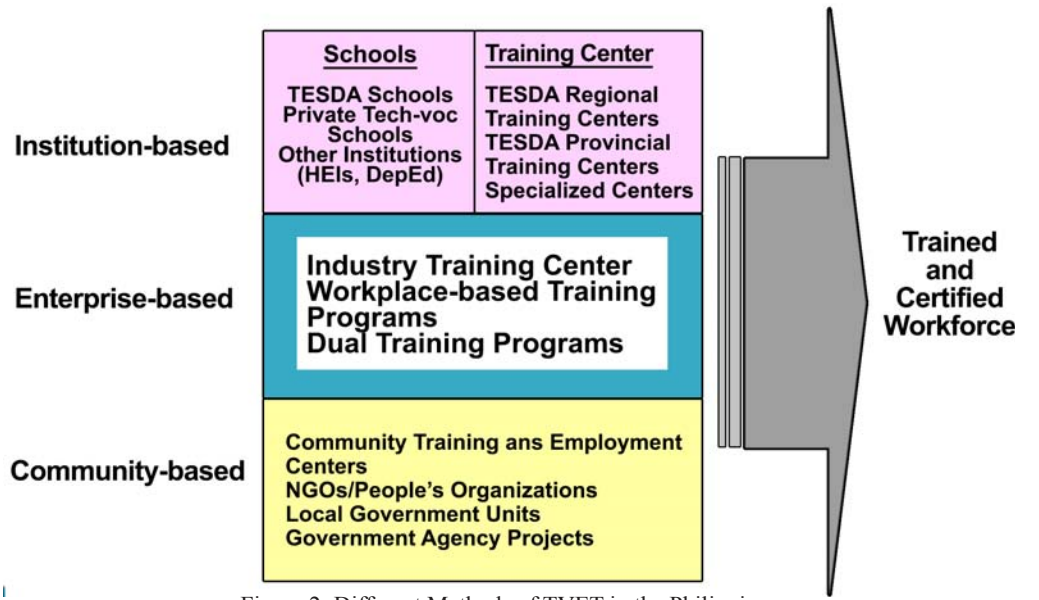

Figure 2: Different Methods of TVET in the Philippines

At present, TVET provides education and training opportunities through four (4) basic modes of training delivery (Fig 2.) that is, (a) School-based (b) Centre-based (c) Community-based and (d) Enterprise-based Programs to prepare trainees and other clients for employment. It also addresses the skills training requirements of those who are already in the labour market and would need to upgrade or develop new competencies to enhance employability and improve productivity.

Figure 3: The Philippine President's 10-point Socio Economic Agenda

To clearly emphasize the relevance of TVET in the country, the present administration has included in its 10 Point Socio-Economic Agenda for the next six (6) years which were stamped as priorities as it is aimed at achieving sustained economic growth and address poverty – a perennial problem in the country the (1) promotion of rural and value chain development toward increasing agricultural and rural enterprise productivity and rural tourism and (2) investment in human capital development, including health and education systems, and match skills and training. Both are concerns of the TVET sector.

Philippine Development Plan

The draft Philippine Development Plan 2017-2022 outlines the following strategies to realize the indicated priority concerns that TVET shall manage:

Enhancement of Community Based Training for Special Groups

This is based on the universal principle of social inclusion, and places people particularly those who are socially excluded and displaced back to the society. These people include, but not limited to, informal workers, indigenous peoples, farmers, fisherfolks, drug dependents, rebel returnees, women victims of abuse and human trafficking, returning and repatriated overseas Filipinos (OFs), persons with disability, etc. They are seen as the beneficiaries and active participants in the development process.

The program also aims to address the disparities and uneven development across regions, provinces and sectors.

This will be promoted through the identification and supply of the specific skills requirements of different barangays. It will use a community-driven approach to training delivery and continuous consultations and collaboration at the grassroots levels with other government agencies. It will be are-specific, resource-based, flexible, and holistic, product and service oriented. It will serve as a driving force for change and upliftment of the lives of the lives of the Filipino people, contributing to the socio-economic development of our nation as a whole.

Providing Access to Quality and Relevant TVET Opportunities

Since labor is considered as the main asset of the poor, equipping them with skills, knowledge and technology will not only improve their employment and income generation but also enhance their productivity and social growth. Thus, additional resources such as manpower, facilities and funding should be provided to expand their access to high quality and relevant TVET opportunities. Linkages with government tech-voc institutions and state universities and colleges offering TVET programs shall also be pursued and strengthened to accommodate a greater number of beneficiaries.

Specific programs under this strategy includes the following : (a) Community- Based or Barangay-based Training ; (b) Scholarships (PESFA, BuB, STEP); (c) Mobile Training Program; (d) Compact Mobile Units (CMUs); (e) Skills Training for various clients (IPs, micro and small enterprises, women victims of abuse / human trafficking, drug dependents, housewives, out-of-school youth, rebel returnees decommissioned combatants, returning/repatriated OFs, displaced workers, informal workers, etc.; (f) TESDA Online Program; (g) Onsite Training and Assessment; and (h) Moral Renewal Program.

TVET for Global Competitiveness

TVET is recognized as a source of the required skills, knowledge and technology to drive productivity in support to agriculture, industry and services sectors and consequently, make them globally competitive. Productivity is the basis for sustained economic growth and wealth accumulation.

Ensure Globally Competitive TVET Programs

In pursuing global competitiveness, TVET is generally characterized by following set and internationally benchmarked standards, continuous adaptation of the most recent technologies and innovations, conformity with the demands of the industries as well as actively strengthening public-private partnerships.

The thrust for Global Competitiveness is characterized by a training delivery that is normally set in a formal setting, whether in schools and training centers or enterprises. This would cater to the needs of Wage/Self-employed workers, industry workers and trainers in need of skills upgrading, basic education and higher education graduates, and the workers needed in emerging technologies and newly established companies.

This can be done through (a) scaling up technical education; (b) International alignment of Philippine TVET qualifications; (c) strengthening the Philippine Qualifications Framework (PQF); (d) recognition of higher TVET qualifications; (e) quality and relevant TVET; (f) expand Public-Private Partnerships; and (g) strengthening stakeholders collaboration.

The programs under this strategy include the following: (a) Competency Standards and raining Regulations Development (b) TVET Program Registration and Accreditation; (c) Competency Assessment and Certification; (d) Scholarships (TWSP); (e) Mutual Recognition Arrangements; (f) Benchmarking & Comparability and (f) Innovation Centers-International Partnerships and Arrangements (including

linkages with foreign skills training institution; Enterprise-Based Trainings (DTS, Apprenticeship) Skills Competition and Capability building for Center of Excellence.

TVET Enrolment

Through the four (4) modes of training delivery in TVET, a steady rise in TVET outputs were registered from 2010 to 2015. From 1,568,617 enrolees in 2010, the figure rose by 45% in 2015 at 2,281,389. Likewise, graduates increased from 1,344,371 in 2010 to 2,129,758 in 2015. Since 2010 up to May 2016, TESDA has recorded a total of 10,543,440 TVET graduates an average of 257,157 graduates per month, not including TESDA Online registered users who have so far reached an estimate of 755,745 as of May 2016.

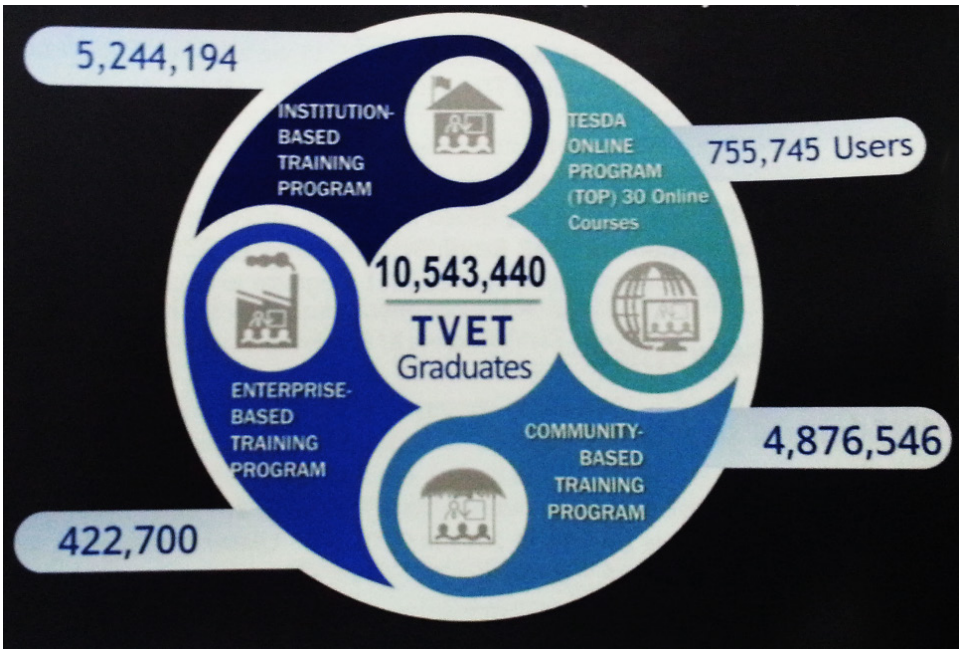

Figure 4: TVET Graduates in the Philippines as of May 2016

It is also worthy to note that based on a 2014 study conducted by TESDA, many college graduates and career shifters go to TVET. A sizeable number of TVET graduates were college undergraduates and college graduates with 13.8% and 16% respectively, with "getting a job" as the most common reason for taking up TVET programs. This means that there is really a positive perception among Filipinos the TVET can lead them to employment.

Employment Rate of TVET Graduates

The results of the Study on Employment of TVET Graduates conducted by TESDA shows that the employment rate of TVET graduates is steadily on the rise. From 48.5% recorded in 2005, it reached 65.4% in 2014. This indicates continuous improvement in the implementation of major TVET policies and programs particularly on program registration, competency assessment and certification, scholarships.

The positive results of the study on the employability of TVET graduates prove that TVET programs ensures jobs for TVET graduates.

National Qualification Frameworks

All efforts and programs for the TVET sector are designed and implemented within the context of a quality-assured TVET system. This is to ensure that TVET produces job-ready Filipino workers meeting the requirements of the labor markets at the local and international grounds.

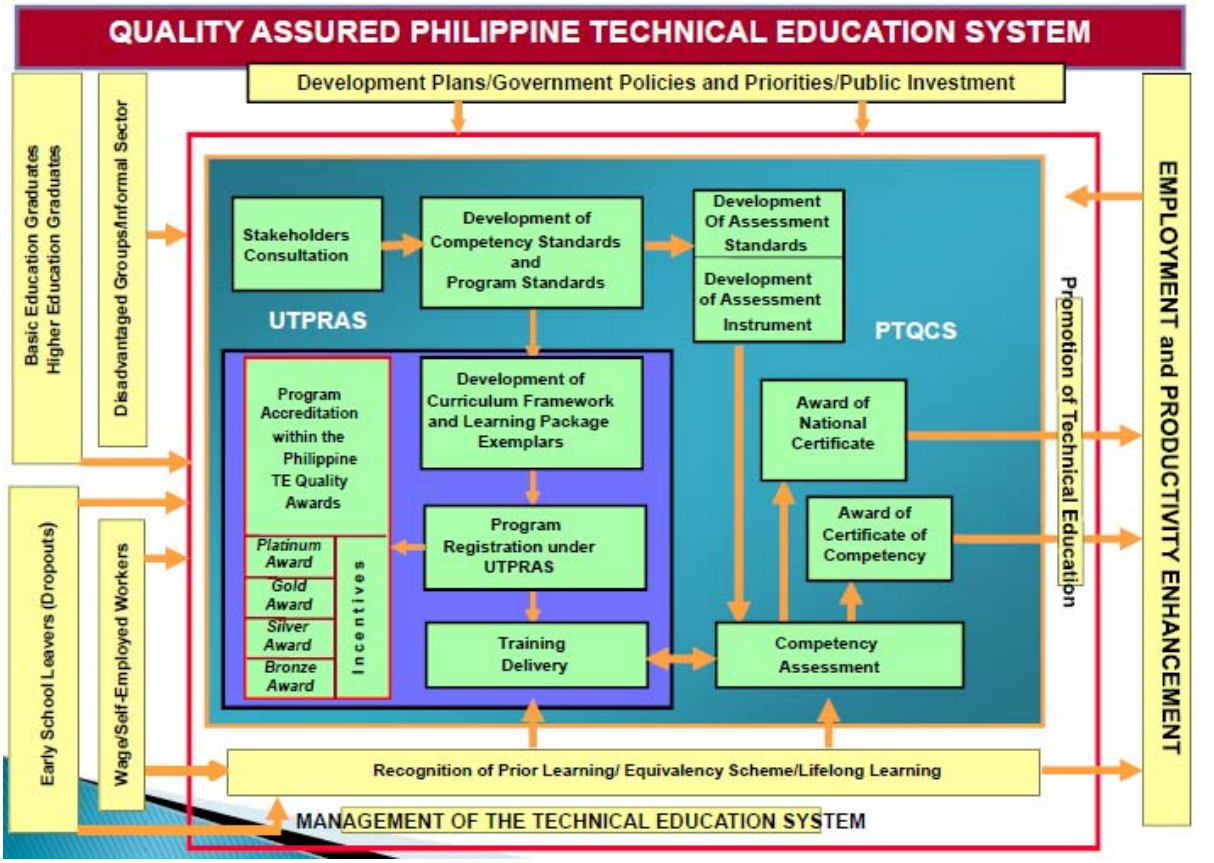

Figure 5: The Philippine Technical Education System in a Nutshell

In the formulation and implementation of the National Strategy for TVET, the country adheres to the Quality Assured Philippine TESD System Framework (Fig. 6) in which the Industry Consultation is the key component. It anchors on the three pillars namely the: (1) TVET Qualification and Certification, (2) Unified TVET Program Registration and Accreditation System (UTPRAS); (3) and the Philippine TVET Quality Awards.

The Philippine TVET System is competency-based, assessment-driven and occupation-focused. It starts with industry definition of competency standards and ends with the industry utilizing TVET system outputs that are able to demonstrate the competence desired in the workplace.

It is specifically based on the following principles:

- The National Technical Education and Skills Development Plan is anchored on national priorities spelled out in the Philippine Development Plan and in the Investment Priorities Plan, current labor market information and customer needs.

- The national development priorities spelled out in the national plans become the basis for the TESDA Board in drawing up the National TVET policies and priorities.
- The system is driven by competency standards and training regulations derived from industry requirements and specifications and guided by TVET priorities identified by the TESDA Board.
- The Training Regulations serve as minimum national standards that serve as the basis for the development of competency-based curriculum and learning packages, competency assessment tools and standards and the training and qualification of trainers and assessors.
- The system is accessible to a broad range of customers including the unemployed, the underemployed, displaced workers, new entrants to the labor force, technical vocational institutions and enterprise-based training providers.
- The quality of training delivery is premised on an efficient and Unified TVET program Registration and Accreditation System (UTPRAS) that is incentive-driven.
- The system incorporated a competency based Philippine TVET Qualifications and Certification System (PTQCS) that serves as the basis for the grant of national credentials including trainers and assessors certificates.
- The system recognizes prior competencies acquired through alternative means and through related work experiences through a system of equivalency within the entire education system
- Employment and productivity enhancement are the ultimate metrics of the technical vocational education and training system to effectively bring about the effective matching of labor supply and demand.
- The government builds up the TVET sector capability and capacity through financial resource management, human resource development, physical resource management, information management, marketing and advocacy, administrative management, customer feedback, management of external relations and environmental concerns.

The system incorporated a competency-based Philippine TVET Qualifications and Certification System (PTQCS) that serves as the basis for the grant of national credentials. It is the basis of the award of National Certificates in the denoted levels which is the National Certificates Level 1 to 4 to signify performance according to the competency standards set based on the descriptors of the levels prescribed for such performance in the Philippine TVET Qualifications Framework or PQF. These levels and descriptors find its way into the Philippine Qualifications Framework, institutionalized through Executive Order No. 83. The PQF is a framework composed of eight level qualifications in which the first 4 levels are National Certificates, level 5 is the diploma level, level 6 is the bachelor's degree, level 7 is post baccalaureate or masters and level 8 is doctoral and post-doctoral level.

The system also recognizes prior competencies acquired through alternative means and through related work experiences through a system of equivalency within the entire education system.

The assessment and certification of competencies in the PTQCS is an open system where competencies acquired at work, at home, in communities are recognized based on evidences submitted or demonstrated.

TVET Quality Assurance

The following are the TVET sector mechanisms and programs to ensure quality TVET graduates:

- To address the job-skills mismatch TESDA together with the member agencies – DepEd, CHED, Department of Labor and Employment and Professional Regulations Commission ensured the implementation of the Executive Order No. 83 s. 2012 known as the Institutionalization of the Philippine Qualification Framework (PQF) – a tool that can better prepare Filipino students into the labor force, harmonizes basic education, technical vocational education and higher education into a nationwide schedule of skills and competencies. With the PQF, students gain a clearer picture f the competencies they need for their job interests while employers are able to easily identify the basic work skills their employees must possess. This reform to the educational system will be able to eventually solve the problem of job-skills in the Philippines. It can boost the international confidence among Filipino workers by making them more competitive and employable.
- Philippine TVET Trainers/Assessors Qualification Framework (PTTQF) – a four level framework which aims to ensure consistent delivery of quality technical vocational education and training services through the training, assessment, qualification and creation of pool of technical trainers/assessors competent in trade qualifications and training and assessment methodologies.
    - To support the moves towards ASEAN integration and global recognition of qualification TESDA continued to build up of the on-line register of Philippine quality assured qualifications, including benchmarking of TRs with those of foreign countries.
    - The country also participated in the implementation of the ASEAN Quality Reference Framework (AQRF), training and accreditation of master assessor and ttrainer under the Mutual Recognition Arrangement (MRA)
- Training Regulations and Competency Standards – continuous review of existing Training Regulations (TR) and standards, development of TRs for new priority qualifications, enhancement and facilitation of the utilization, deployment and alignment and benchmarking of TRs and Competency Assessment Tools (CATs)
- Program Registration and Accreditation – TVET Programs registered under the Unified TVET Program Registration and Accreditation System (UTPRAS) provide assurance to students/ trainees that the program/qualification offered by the training provider had complied the required resources, facilities and equipment to ensure delivery of quality assured training.
- Compliance Audit – is TVET program tool for the independent examination whether the UTPRAS registered programs are continuously complying with the government's policies and guidelines in the delivery of TVET programs.
- Assessment and Certification – ensures that the TVET graduates and skilled workers have the necessary competence to perform the tasks consistent with the required standards in the workplace. Certification is provided to those who meet those standards.
- Quality Management - As part of TESDA's Quality Management System as the government's arm to oversee TVET implementation in the country continuous improvement is emphasized to further strengthen the effective and efficient delivery of TVET programs and explore opportunities for innovation. This is realized through development of various mechanisms and adopting recognized certification systems such as:

- ISO Certification – In February 10, 2012 TESDA was awarded ISO 9001:2008 certification for Program Registration and Assessment and Certification. In 2012, the coverage was expanded to include the process of Standards Development.
- Philippine Quality Awards (PQA) TESDA recently was awarded with the Recognition for Commitment to Quality Management of the PQA now belongs to the roster of government offices and private organizations in the Philippines recognized for their performance excellence

- APACC Accreditation – The Asia Pacific Accreditation and Certification Commission (APACC) is a commission established by Colombo Plan Staff College that aims to accredit and certify institutions for human resources development through the standardization and harmonization of education and training systems which will facilitate the mobility of the workforce across national borders in Asia and the Pacific region.

  APACC has already granted accreditation to 24 TESDA Technology Institutions of which six (6) were granted SILVER level and eighteen (18) are in BRONZE Level.

- STAR Rating System – aims to enhance the capability of TVET providers in delivering and managing quality TVET programs. It recognizes the accomplishments, innovations and improvements that the TVET Providers have instituted beyond the minimum requirements set in the UTPRAS. The System categorizes TVET programs into Good, Better and Best with corresponding STARS. The STAR Rating System was initially utilized by TESDA – NITESD as a way of assessing the current situation/condition of 23 TESDA Technology Institution (TTIs) identified as Center of Excellence (CenTexes). The assessment was conducted simultaneously nationwide.
- As a result, 4 of 23 CenTexes were rated 2 STARS; 11 were rated 1 STAR; 5 were able to earn a CANDIDATE STATUS while 3 TTIs were not able to meet the minimum points to qualify for STAR Rating. The adoption of STAR Rating System manifests the country's commitment to continuously provide/deliver quality assured TVET programs to its clients and partners.

TVET Challenges

The country is facing a new challenge as the world advances with the advent of more modern technology. Hence, new generation of workers with new skills are required. In this regard, the TVET sector must be able to respond and deliver to serve the need of its clients. With this situation TVET needs to confront the following challenges:

Timely and useful labor market information - TVET's relevance is largely dependent on the information and signals it get from industry, whether primary or secondary. The competency standards for example is set by industry. But who is industry? We are working with industry associations who nominate the experts who formulate the competency standards and the assessment packages. Are we getting the right experts? Do the experts consider the national requirements as well as regional requirements? Are they informed of emerging technologies?

Keeping up with technological changes and knowledge requirements - TVET is not only skills. The workplace has become knowledge-based and so is TVET. This year, TESDA have started innovating the units of competencies. It placed its focus on what previously they have termed the "underpinning knowledge to required knowledge". This then put pressure on trainers and academic supervisors to constantly upgrade and research on their trade.

Globalization of the workplace- When we started writing the competency standards, the knowledge and skills required were for the local workplace. Now, the standards are for the local industries but then the local industries are part of a multinational system or a multi country operation in a value chain. So the standards have to be global. The globalization put pressure on the trainers, the training providers and the providers of resources.

Competitiveness of the workforce- depends on competitiveness of the educational system. Innovation and reinventing the Philippine education system for the here and now requirements and the future requirements. New and old concepts. What apply to us now and in the future? What are available and tested systems where? Importantly, how does the Filipino worker compare with others?

Recommendation

To respond to this global challenge of work excellence and productivity, the sector must adopt a quality management system (QMS) that would propel it towards attaining this objective. Assuring quality through continuous improvement to attain internationally accepted levels of performance is an inevitable process in the development of principles and practices and to achieve the best practices in TVET operations, and in recognition for organizational performance for the sector.

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National Vocational Qualification Framework and Certification of Sri Lanka

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General Education System

Sri Lanka has a 13 year system of general education. The admission of grade 1 is 5 years. Compulsory education comprises grade 1 – 9. Public sector accounts for about 93% of primary and secondary education and 95 % of student enrollment. Each year 331,000 students enter the education system in grade 01. Of this base, 279,000 students available for vocational training each year in Sri Lanka including dropouts and failures from the primary and secondary education system.

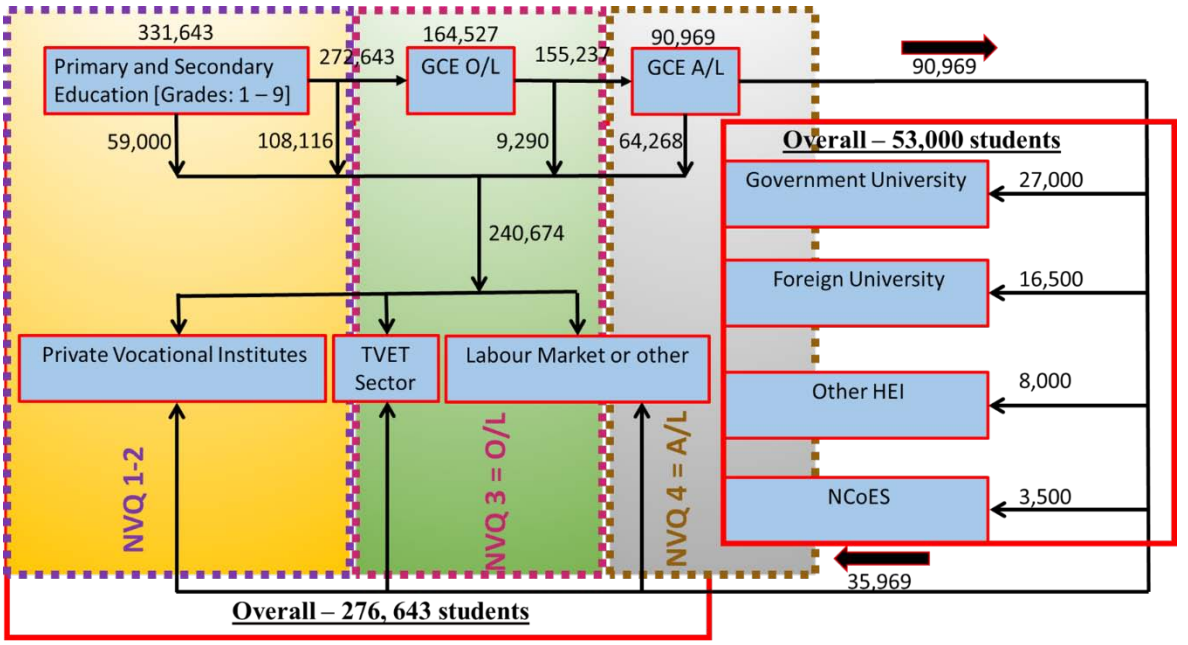


Figure 1: Process Flow of Education in Sri Lanka

Structure of General Education System

All public schools follow the National Curriculum. Schools are classified into five types.

1. Schools offering general certificate of education – Advanced Level (GCE A/L) classes.

2. Schools offering GCE A/L Art and Commerce classes.
3. Schools offering classes up to year 11 general certificate of education Ordinary Level (GCE O/L)
4. Elementary schools offering classes up to year 08
5. Primary schools offering classes up to year 05.

The government education system is free from grade 1 to university degree level. Pre-primary schools generally cater to children aged 3 to 5 and offered by private individuals and institutions, local government authorities and nongovernment organizations. Primary education (grade 1 to 5) lasts five years. At grade 5, students face a Scholarship examination and those who pass will qualify for admission to popular schools and granted monthly financial support.

Secondary education is consisted of 2 stages; Junior secondary which encompasses grade 6- 9 and senior secondary education which encompasses grade 10 -11, Junior Secondary level offers common curriculum comprises 9 subjects; first language, English , Mathematics, Science and Technology, Social Studies, Life Skills, Religion, Aesthetics, Health and Physical Education.

Senior secondary education lasts 2 years (Grad12 -13). After this students take GCE (A/L) examination which is the selection examination of University admission. Studies are usually consisted of 04 subject streams; Biological Science, Physical Science, Arts and Commerce. As a results of educational reforms in 2013, Technology Stream was introduced to the GCE (A/L).

Students who passed GCE (A/L) can be applied for university education. The University Grant Commission (UGC) which is established in 1978 is the apex body of Sri Lanka University system. UGC annually enroll only about 27,000 students for national universities.

Technical and Vocational Education and Training (TVET) in Sri Lanka.

Formal technical education began in 1893, with the establishment of Colombo Technical School in Maradana district. Currently, it is now known as the College of Technology, Colombo yet it still remains as one of the premier technical training institutes in the country. Later, several technical colleges were established in major towns throughout the country.

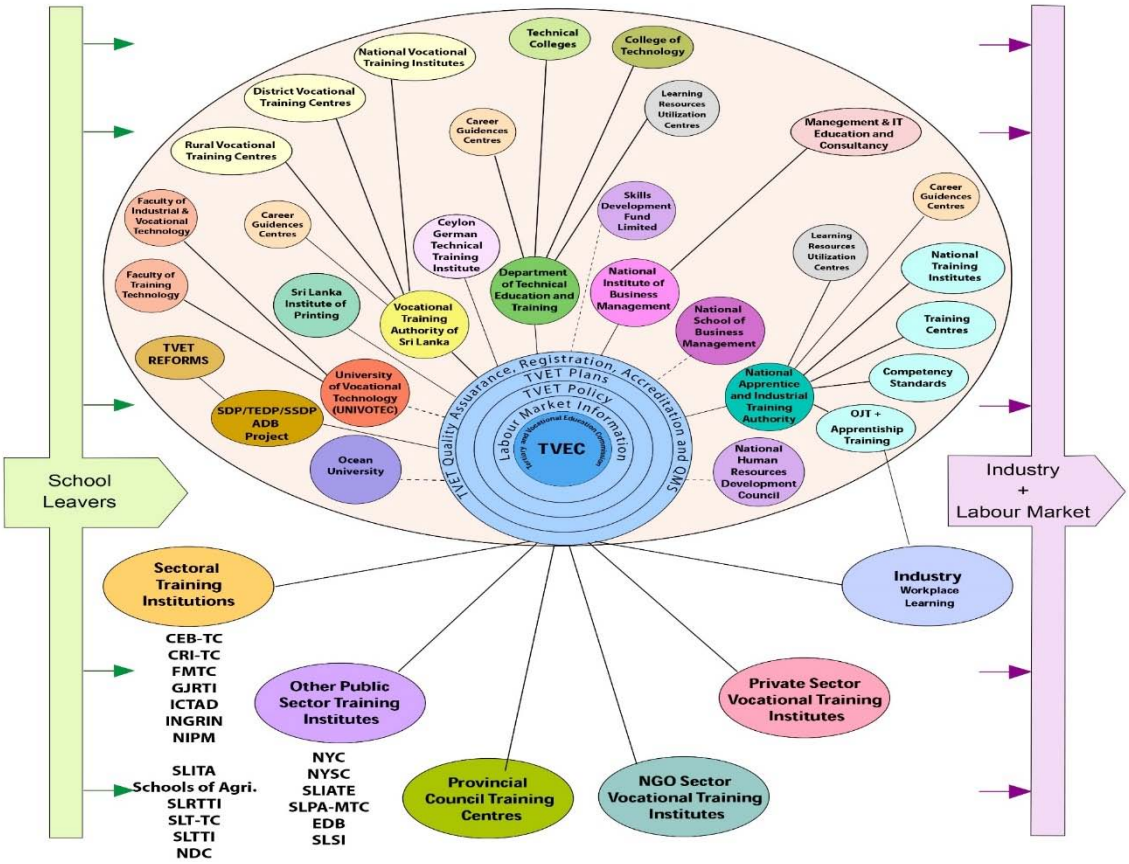
In 1964 Ministry of Education established Department of Technical Education and Training (DTET) to administer the technical colleges. In 1971, the National Apprenticeship Board (NAB) was established by the National Apprenticeship Board Act No. 49 to establish a formal scheme for industrial apprenticeship to deliver craft training through state and private sector industrial establishments.

In 1990, the Tertiary and Vocational Education commission. Act No.20 was enacted, established the Tertiary and Vocational Education Commission (TVEC) which is the apex body of the entire TVET sector of the country, Same act also established National Apprentice and Industrial Training Authority (NAITA), as the successor to NAB.

Another milestone in the TVET sector was the establishment of a separate ministry for TVET in 1994 (Ministry of Vocational and Technical Training).

In Sri Lanka, TVET comprises public, private and nongovernment providers. The public sector continues to be the dominant player. Public TVET service provides account for 71 % of the total enrollment compared with the private sector (19 %) and NGOS (10 %).

TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET) SYSTEM OF SRI LANKA



Ministries and Respective Vocational Training Institutions

There are 13 government training institutes in Sri Lanka under the administration of 4 different ministries. 10 out of the 13 institutes are government-funded while the other 3 are self – funded. 7 of the 13 institutes provide conventional vocational trainings like ICT, Engineering and languages. 2 focus on youth development while the other 4 specialize in management of Higher National Diplomas (HND) and Degree Programs offering higher level of technical training than other conventional institutes.

These schools are the following:

a. Ministry of Skills Development and Vocational Training (MSD & VT)

1. Ceylon German Training Institute (CGTTI)
2. Department of Technical Education and Training (DTET)
3. National Apprentice and Industrial Training Authority (NAITA)
4. National Institute of Business Management (NIBM)
5. Sri Lanka Institute of Printing (SLIOP)
6. University of Vocational Technology (UNIVOTEC)
7. Vocational Training Authority of Sri Lanka (VTASL)

8. National School of Business Management (NSBM)
9. Ocean University of Sri Lanka (OUSL)

b. Ministry of National Policies and Economic Affairs

10. National Youth Corps (NYC)
11. National Youth Services Council (NYSC)

c. Ministry of Higher Education and Highways

12. Sri Lanka Institute of Advanced Technological Education (SLIATE)

d. Ministry of Tourism Development, Land and Christian Development Affairs

13. Sri Lanka Institute of Hotel Management (SLITHM)

Table 1 shows the enrolment rate of government training institutes across the country. It also indicates the pass-out rate and the number of courses being offered.

National Vocational Qualification Framework (NVQF) of Sri Lanka

In 1995, a presidential taskforce was appointed to make recommendations in the development of the TVET Sector. Their report in 1998 focused on TVET policies tackling issues such as the role of government,

Table 1: Government Vocational Training Institutes (2015-2016)

No	Code	Institite	Course and Student, 2015						
			No. of Courses	Applied in 2015	Enrolled in 2015	Enrolled %	Passout in 2015	Completed %	Contribution to total passouts %
1	NSBM	National School of Business Management	18	1281	1281	100%	1230	96%	1%
2	UNIVOTEC	Univeristy of Vocational Technology	20	2611	1870	72%	1444	93%	1%
3	CGTTI	Ceylon German Technical Training Institute	47	6751	4218	62%	3837	91%	4%
4	VTASL	Vocational Training Authority of Sri Lanka	216	28745	28745	100%	25501	89%	26%
5	NIBM	National Institute Buisness Management	263	10271	9572	93%	8490	89%	95
6	SLITHM	Sri Lanka Institute of Tourism & Hotel Management	19	2782	2782	100%	2379	86%	2%
7	SLIATE	Sri Lanka Institute of Advanced Technological Education	14	14865	6942	47%	3919	80%	4%
8	DTET	Department of Technical Education and Training	81	26524	19721	74%	15285	78%	15%

No	Code	Institite	Course and Student, 2015						
			No. of Courses	Applied in 2015	Enrolled in 2015	Enrolled %	Passout in 2015	Completed %	Contribution to total passouts %
9	NYSC	National Youth Services Council	101	19735	19735	0%	15177	77%	15%
10	NAITA	National Apprentice and Industrial Training Authority	308	25449	22974	90%	15847	69%	16%
11	NYC	National Youth Crops	8	7907	7907	100%	5380	68%	5%
12	OUSL	Ocean University of Sri Lanka	21	642	623	97%	357	57%	0%
13	SLIOP	Sri Lanka Institute of Printing	18	1018	1018	100%	571	56%	1%
	Total		**1,134**	**14,858**	**127,38**	**86%**	**99,417**	**78%**	

involvement of the private sector in training, linkages between general education and TVET and training for the self-employed and those in the informal sector. The Skills Development Project implemented thereafter, introduced major reforms. These include;

(a) Establishment of a unified Qualification Framework based on National Competency Standard

(b) Conversion of certificate level TVET courses into Competency Based Training Mode of Training.

(c) Establishment of a network of Career Guidance Centers and Learning Resources Development Centers with Learning Resources Utilization Centers.

The formulation and implementation of NVQF in 2006 was yet another significant achievement. Until then, individual training providers in both public and private sectors had conducted training programs according to their own standards and curricula, conducted their own examinations and assessments and issued their own certificates without any central control or regulation. This resulted to a considerable confusion among prospective trainees and employers.

The National Vocational Qualification (NVQ) Framework is a sevel-level qualification system. A qualification is generally a package of competencies to suit requirement in a particular position in the labor market. There shall be no upper age limit for acceptance of trainees. But students below the age of 16 will not be accepted on training courses.

Qualification Levels

Seven Level of NVQ framework are mapped to qualifications with general description given below.

Table 2: National Vocational Qualification Framework (NVQF) of Sri Lanka

Level	Qualification	Generalized description
Level 1	NVQ 1 in Building Career Skills	Introduces students to soft skills that will facilitate employment. These include communication skills in English which is required by tmost employers, along with cognitive skills and social attitudes that will enable employees to work together with others whilst understanding systems and routines and applying relevant knowledge.
Level 2	NVQ 2 in Developing Career Skills And NVQ 2 in Basic competencies for particular professions	Develops communication Skills in English and advanced cognitive skills, including time and task management, prioritization and organization. Basic work competencies develops an assistant worker able to function effectively under a qualified supervisor.
Level 3	NVQ 3, Certificate Introducing students to particular sectors And Competencies in a range of occupations for productive employability	Develops understanding of basic requirements for a career in particular fields with knowledge of fundamentals in such areas and positive attitudes for career development therein. Sector Skills Councils will work together with the TVEC to develop appropriate courses to encourage entry into each sector. Competent worker able to fulfil routine tasks in specific fields and work efficiently under a qualified supervisor.
Level 4	NVQ 4, Certificate in particular occupations	Professional with competencies to work independently and as head of a team
Level 5	NVQ 5, National Diploma	Professional competent to work independently and take administrative decisions, and to supervise processes at middle management level.
Level 6	NVQ 6, Higher National Diploma	Professional with problem solving capacity who manages processes at middle management level.
Level 7	Bachelor Degree	Professional with capacity to manage processes in a particular field and with the flexibility to develop capacities in other areas of work.

TVET Credit System

The credit system used in the NVQ framework in Sri Lanka is the European Credit Transfer and Accumulation System (ECTAS). The number of national hours per credit ranges from 20 – 30. This includes self-study with the basic supervised learning period being generally 15 hours.

Industry Consultations

NVQ qualifications are developed and delivered by TVET institutions to meet the skills demand of employers. TVEC which is responsible for validations of qualifications, must therefore work in consultation with employers and through active cooperation.

Traditionally, TVEC worked through NITA which had been responsible for apprenticeship programs and thus had the closet links to employers of state agencies in the field. Currently on Industrial Sector Skills Councils (ISSC) have been established as follows.

i. Construction
ii. Tourism and hospitality
iii. Manufacturing and (Light) Engineering Services
iv. Information and Communication Technology

National Competency Standards (NCS)

NCS are developed for NVQ level 1 to 6, as level 7 competencies are at degree level. NVQ levels 1 to 4 are to be awarded as certificates while NVQ 5 to 6 are to be awarded as diplomas. The institution-in-charge of developing NCS is TVEC. TVEC will entrust this task to the NAITA, which should look together with ISSCS.

Assessment

Assessment Systems are intended to judge the level of competence with regard to knowledge, skills and abilities. Under the NVQ framework competencies are assessed through various techniques.

(a) Formattve Assessments

This kind of assessment (also called continuous assessment) provides regular feedback to learners as to the status quo of their competence development. Teachers are required to give regular feedback and council students during the course.

(b) Summattve Assessments

This is summing up process to check the cumulative acquisition of competencies required for obtaining an NVQ at the end of a course.

Summative assessments is also used for Recognition of Prior Learning (RPL). This checks on competencies acquired through informal learning at the work place.

Quality Assurance System of TVET Programs

To maintain the required standards with regard to TVET institutions, 3 tier quality assurance system has been set in place.

(a) Registration of TVET institutions
(b) Accreditation of TVET courses to award NVQ certificates
(c) Installation of Quality Management System

5.6 Highlight and Best practices

Overall Sri Lanka has made progress is TVET since 1980. Several achievements were also noted in organizational and management effectiveness particularly in policy and institutional support. Major TVET achievements include;

(a) Creation of an integrated supervisory ministry (MSD &VT) and apex body TVEC
(b) Establishment of the National Vocational Qualification System (NVQ)

(c) Conversion of TVET Courses into competency based learning

(d) Adoption of procedure and criteria for registration/ accreditation.

(e) Establishment of one College of Technology (CoT) in each province

(f) Establishment of a university with degree programmes in technology.

(g) Developing TVET training plan for growing and important industry sectors.

(h) Providing industry consultations at the policy level through Industry Sector Skills Councils.

(i) Promoting private and industry participation in TVET

(j) Establishing a labor information system.

(k) Establishment of University Colleges (05)

(l) Introduction of GCE A/L Technology Stream June since 2013.

(m) Emphasis on soft skills development and promotion of teacher training.

(n) Free technical education

(o) Equalization of NVQ 3 to GCE O/L and NVQ 4 to GCE A/L with respect to the similar field.

Challenges

Even though the Sri Lanka has experienced several achievements in TVET. It still faces unresolved and emerging challenges such as the following:

(a) Difficulty in improving the quality and relevance of TVET programs to improve employability of graduates and increasing the accessibility, efficiency and effectiveness of training delivery system.

(b) Difficulty in the professional preparation of teachers and inadequate participation by industries (uses) in the design and delivery of TVET courses

(c) Inadequate quality assurance and quality control systems (there is need to strengthen the NVQ system)

(d) Inadequate emphasis on training for individuals seeking foreign employment

(e) Inadequate policy support, particularly to promote private and NGO sector participation.

(f) Difficulty in achieving organizational and managerial efficiency

(g) The need to further strengthen the implementation of a Management Information System (MIS), particularly on financing and costing.

(h) Difficulty in the Mismatch between training provision and industrial requirements and role of Industry Sector.

Recommendations

(a) Consolidation of established pathways in TVET Sector.

(b) Improvement of the National Vocational Qualification Framework (NVQF)

(c) Strengthening linkages between general education, higher education and TVET

(d) Strengthening the G.C.E (A/L) Technology Stream.

(e) Establishment of apex bodies for quality assurance, accreditation and career guidance.

(f) Introduction of Key Performance Indicators (KPIs) to Vocational Training Institutes.

(g) Obtaining International expertise in specialized areas that lack local experts

(h) Coordination among funding agencies to avoid duplication of projects

(i) Promote rationalization and seek international recognition for the TVET Sector in Sri Lanka.

National Vocational Qualification System (NVQS) of Thailand

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The System of Vocational Education in Thailand

Under the present education system, various types and methods of learning are offered to learners regardless their economic status or their social and cultural background. Education approaches in Thailand are classified as formal, non- formal, and informal. All types of education can be provided by education institutions as well as learning centers organized by individuals, families, communities, or private groups, local administrations, professional bodies, religious institutions, welfare institutes, and other institutions.

Formal education services are divided into basic and higher education. Basic education, provided free of charge, covers pre-primary education, 6 years of primary, 3 years of lower secondary, and 3 years of upper secondary education. The upper secondary level is further divided into two parallel tracks: general, and vocational streams. The current compulsory education requirement covers 6 years of primary and 3 years of lower secondary education, with the entering age of 7 until the age of 16.

Higher education at the diploma, associate, and degree levels is provided in universities, institutes, colleges, and other types of institutions (OEC, 2006). Carried out in accordance with the 1999 National Act and the 2002 Bureaucratic Reform Bill, the major reform of educational administration and management has been the merging of three main agencies. First, the Ministry of Education is responsible for promoting and overseeing all levels and types of education under the administration of the state, formulation of education policies, plans and standards; mobilization of resources for education; promotion and coordination in religious affairs, arts, culture and sports in relation to education; as well as the monitoring, inspection and evaluation of educational provision. Meanwhile, the administration of local education is under the Ministry of Interior. Other ministries undertake management of specialized fields of education for their specific purposes.

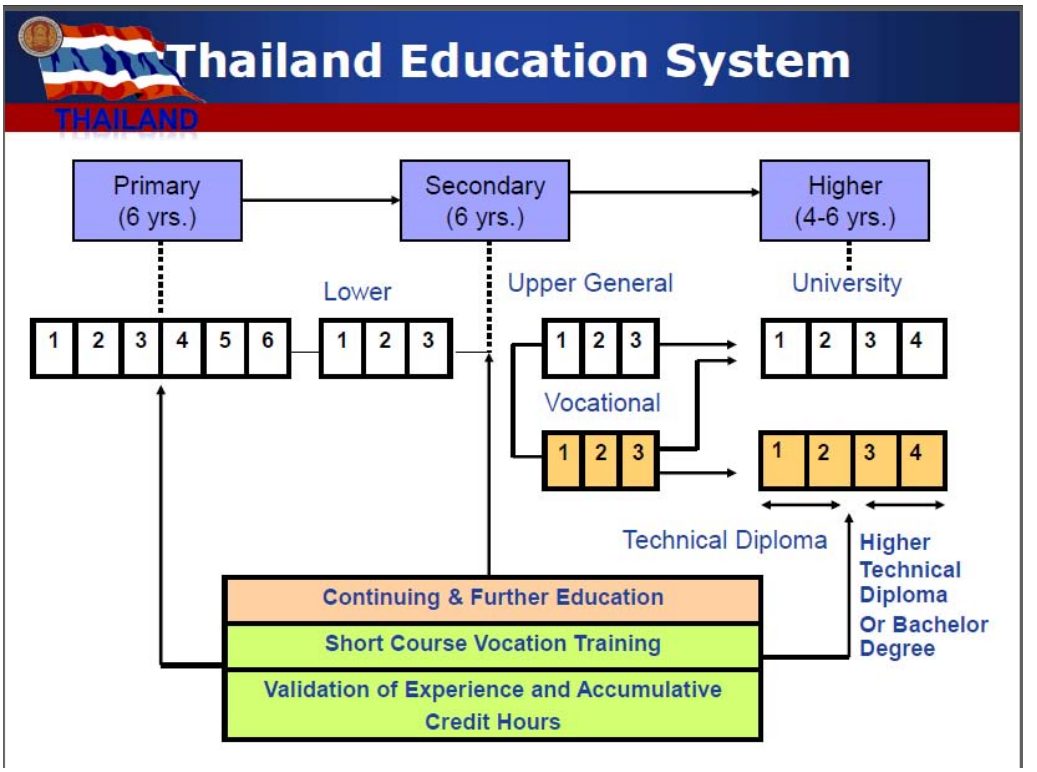

Figure 1. Vocational Education system in Thailand

Types and Levels of TVET

The provision of vocational education varies according to the types and programs of vocational education and fields of study, followed the Act and the Educational Reform. The TVET programs, therefore, are diversified and offered in formal and non-formal in institutions and in the work place or dual courses are as follows:

TVET Levels

1) TVET at upper secondary level (grade 10-12) this program is offered to those who have completed lower secondary education (grade 9).

2) Diploma in Vocational Education (Dip. Voc.) Admissions are accepted through competitive entrance examination for those who have completed Cert. Voc. or upper secondary education. This program is offered in various types as in Cert. Voc. Level.

3) Higher Diploma in Technical Education This three-year program is designed for those completing a Diploma in Vocational Education who plan to teach in vocational education institutions and is offered at the university level, leading to a higher technical diploma or a degree.

4) Bachelor Degree in Technology / Performance This two-year program is designed for those completing a Diploma in Vocational Education which focus on dual system and start in 2011.

5) Short –Course Vocational Training At present, short-course vocational training program are offered by both public and private institutions and are designed to serve the needs for self–

employment and to articulate with formal program that encourage lifelong learning. Pre-employment training and upgrading courses range from 6 hours to 255 hours, depending on the content and objectives. Types of vocational training are as follows:

Types of TVET Institution and Areas of Specialty

There are 415 public TVET Colleges under Office of The Vocational Education Commission (OVEC), the main authority responsible for TVET, TVET is also offered at 464 private vocational schools which have been taking care by the Office of the Permanent Secretary, Ministry of Education. Furthermore, TVET is provided to adults and out of school youths through the non-formal or short course training. Non-Formal Education Department in the Ministry of Education, Department of Skill Development, Ministry of Labor and other ministries provide short-course vocational training as required by local areas. There are 10 Types of Colleges under OVEC which are 113 Technical Colleges, 39 Vocational Colleges, 43 Agricultural and Technological Colleges, 141 Industrial and Community Colleges, 52 Polytechnic Colleges, 3 Business Administration and Tourism Colleges, 3 Industrial and Ship Building Technological Colleges, 2 Arts and Crafts Colleges, 4 Fisheries Colleges, 1 Royal Goldsmith College and 10 Technology and Management Colleges.

Types of Courses

OVEC provides 11 types of courses which are Trade & Industry, Agriculture, Home Economics, Arts and Crafts, Commerce and Business Administration, Fishery, Textile Gems & Jewelry, Tourism and Hospitality, Ship Building and Information Technology.

Thailand National Vocational Qualification System

The establishment of a Thai National Qualifications Framework (NQF) was proposed by the Office of Education Council (OEC) of the Ministry of Education as part of the National Manpower Production and Development initiative during the Second Decade of Education Reform, 2009-2018. The Thai NQF builds on the existing Thai Qualifications Framework for Higher Education (TQF) and Thai Qualifications Framework for Vocational Education (TVQF) (OEC, 2013). It was approved by the Cabinet on 21 December 2010.

Challenges that the NQF would need to Address

Thailand's economy has attained high levels of growth in recent years. However, a study by the Thailand Development Research Institute (TDRI) on the qualifications of workers in the manufacturing and services sectors revealed that between 7 and 10 million workers in these sectors had no qualifications, 21.66 million had only primary education, and 5.94 million only lower secondary education (TDRI, 2010). Many workers had acquired competences on-the-job yet remained without qualifications.

The Thai NQF is intended to address this situation. The government sees the NQF as a tool for increasing manpower capabilities and competitiveness in order to meet the demands of production and services in today's rapidly changing economic climate. The NQF is thus designed to benefit both individuals and industry. By setting out unified standards for qualifications and clear learning outcomes, it will enable individuals to clearly visualize their own learning trajectories. Workers already in the labor market will be able to access learning pathways previously barred to them. They will also be able to validate their previous

experiences, whether formal, non-formal or informal. This will in turn benefit industries by providing them with a better qualified workforce.

A number of measures are envisaged to improve the quality of education and training in Thailand. These include improving the quality of content, inputs and standards, introducing assessment based on learning outcomes, and ensuring internal and external assessment of educational institutions at every qualification level (Choomnoom, 2011). The capacities of educational institutions and of public and private sector training providers to implement the NQF will be strengthened, making them better able to meet the needs of production and services. Training will also be introduced to raise the caliber of educational personnel.

The Thai NQF is designed to facilitate regional worker and student mobility, which is expected to increase in the imminent future. The Thai government has signed an agreement with ten countries with the aim to integrate into the ASEAN Economic Community (AEC) by 2015. Making Thai and foreign qualifications mutually recognizable, although crucial, will not be an easy task, and will entail harmonizing at all levels.

Main Policy Objectives

The Thai NQF is intended to:

- Make educational qualifications more relevant to industry needs, thus raising the quality of manpower in the manufacturing and services sectors.
- Raise the standard of Thai qualifications to international level.
- Make qualifications transparent and comparable across national borders.
- Enhance the competitiveness of both domestic and regional labour markets.

Involvement of Stakeholders

The OEC has been responsible for various NQF-related activities, including:

- Working closely with the Thailand Professional Qualifications Institute (TPQI) to communicate information about the skills required by industries to educational institutions.
- Appointing a working team comprising representatives from various education and training sectors and relevant agencies to begin drafting the NQF based on the already existing design of the TQF and TVQF. Bodies represented include the National Education Quality Assessment and Assurance Office and the National Testing Office.
- Undertaking research studies. One study, undertaken in collaboration with King Mongkut University of Technology during 2010-2011 (OEC, 2011), aimed to develop linkages between the skills standards required by key industry clusters and the learning outcomes of educational qualifications at secondary, vocational and higher levels. Employers, employees, educators and teachers were involved in the consultation process, providing in-depth analysis and synthesis. Key stakeholders from six industrial clusters1 first identified core competences at each qualification level. A further nine industrial clusters were then identified to review the reliability of the comparisons made between occupational standards and educational qualifications.
- Organizing three international conferences
- Appointing the NQF and ASEAN Qualifications Framework Development Working Group to study criteria for referencing the Thai NQF to the ASEAN regional qualifications framework and propose NQF development guidelines accordingly.

- Organizing four public hearings on NQF Development
- Organizing four regional conferences before presenting the Framework to the OEC and the Cabinet for approval and implementation.

Levels and Descriptors and the Use of Learning Outcomes

The Thai NQF has nine levels. Each level is described by a level descriptor based on learning outcomes. The level descriptors were arrived at by linking educational qualification levels (secondary, vocational and higher) with the competence levels required by various industry clusters, thus ensuring the closest possible fit between educational content and industry demands.

Formal Technical and Vocational education is conducted at three levels:

a. upper secondary, leading to the lower certificate of vocational education;

b. post-secondary, leading to a diploma or vocational associate degree;

c. University level leading to a degree.

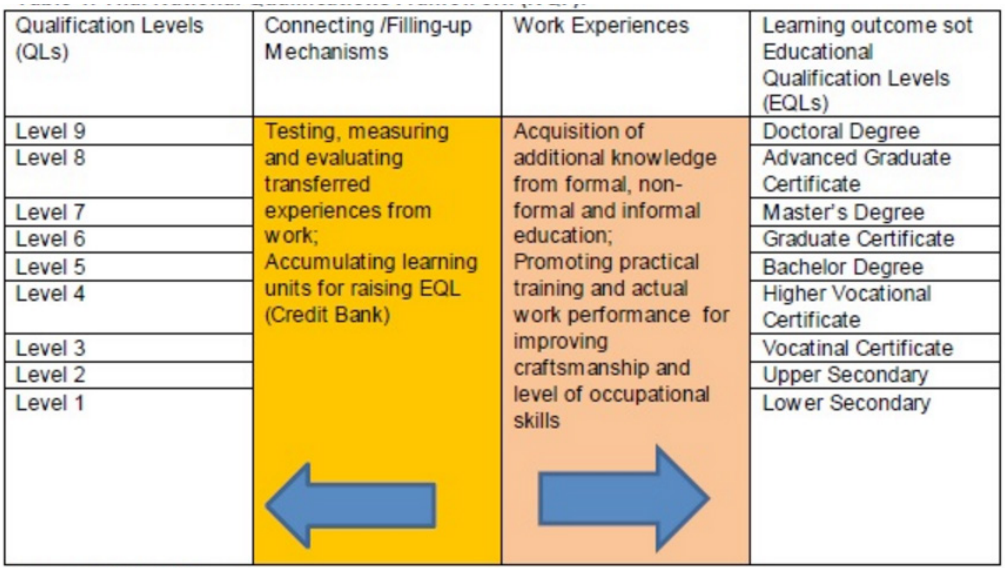

Figure 2: Levels of the Thai Qualification Network]

Source: Office of Education Council, 2013

Most recently, reforms are in place to remodel the system towards a Thai Vocational Qualification (TVQ) which provides a new competency based framework around industry practice and needs. These arrangements are facilitated by the Ministry of Education and the Office of Vocational Education Commission (OVEC).

Progression Pathways and Recognition and Validation of Non-Formal and Informal learning

One of the key aims of the Thai NQF is to give Thai citizens a greater understanding and control of their own education system by enabling them to match formal educational provisions with the learning outcomes and competences described in the NQF. Special attention will be paid to developing mechanisms of assessment

which will allow workers to put their existing learning towards a full qualification in combination with other measures such as additional education and training or workplace-based learning.

Referencing to Regional Frameworks

Thailand's goal of integration into the ASEAN Economic Community by 2015 provides a strong motivation for the timely and efficient development of the Thai NQF (Choomnoom, 2011). The launch of the AEC will turn the ASEAN region into a single market with a free flow of commodities, services, investment and labour. This is expected to boost regional competitiveness as well as cooperation, facilitating the sharing of educational resources and the development of common educational standards. The introduction of a single system for credit recognition and transfer throughout the ASEAN region will create opportunities for people wishing to work and study in other countries in the region. Regional referencing will also accelerate the process of bringing Thailand's own qualifications system up to international standards.

Best Practices of TVET in Thailand

OVEC is a leading organization which responsible for developing Technical and Vocational Education (TVET) policy and standards, allocating resources and coordinating projects to promote TVET. OVEC also produce required TVET manpower for the labor market and self-employment, provide social services and facilitate poverty alleviation. Important projects and activities of policy of OVEC are based on four main targets which is currently implemented by its network of 415. These targets are the following:

- Developing skills for employability
- Fostering new entrepreneurship or self-employment
- Serving society / local community
- Conducting research for new knowledge and innovation/technology

Developing Skills for Employability

TVE programs in Thailand are provided mainly in the areas of trade & industry, business, agriculture, home economics, arts and crafts, fisheries, textile, garments, jewelry, tourism and hospitality at upper secondary and post-secondary levels. TVE short-course programs are also offered to younger students and adults.

One of the national strategies is to increase its competitiveness, in order to facilitate that, it is necessary to identify manpower demand in some specific areas needed. For TVE, there are urgent requirements especially in the areas of Food Industry, Tourism Industry, Textile & Garments, Fashion Design, Software and Petro-chemical Industry both in terms of quality and quantity.

4.2 Strengthening Partnership with Industries

Joint committees between OVEC and industrial clusters are organized under cooperative projects to identify competencies required by each industrial cluster and career path. This is an attempt to develop sense of ownership in TVE of industrial clusters and encourage them to work closely with OVEC in developing and producing qualified TVE graduates.

Expanding Dual Vocational Education (DVE)

OVEC works closely with all stakeholders to increase the number of vocational education students as required by industrial, agricultural, and service sectors.

Enhancing the Changes in Teaching, Learning and Testing Methodologies

Strategies for changing in teaching, learning, and testing methodologies are enhanced in order that students will be provided with required competencies as identified by industrial cluster or occupational groups. Students learn to integrate and apply related subjects through project-based and problem-based assignments. Learning by doing in the real working situation is strongly emphasized.

Making TVE more Attractive

Incentives are provided to attract more TVE students by offering various models of learning as well as providing continuing counseling and guidance in order to make them keep abreast with the changing labor market and career path. The following are different means of TVE process to attract more students:

- Earning while learning in relevant areas of occupation
- Transferring and accumulating credit hours
- Offering TVE program in secondary schools
- Learning through distance program
- Learning in company or work-based learning
- Accrediting all prior learning and experiences

Promoting Brand "R People"

OVEC has enhanced an important project on improving the character of TVE students. The main objective is to provide good public image and new paradigm of TVE students. A number of TVE students from both public and private institutions are selected as prototype or models to represent other TVE students to the public. They must possess 5R characters which include: Relation, Responsibility, Refresh, Representative and Rescue: therefore they are called "R People" or prototype of TVE students.

Fostering Entrepreneurship or Self-Employment

OVEC has implemented the following activities to foster entrepreneurship or self-employment of TVE students

- Creating chains of business partnership to support OVEC programs
- Providing information in business opportunity
- Establishing incubator training centers in the colleges
  Developing capacity of staff
- Changing teaching, learning and testing methodologies
- Developing pilot projects on "One College One Business"

The students who are interested in self-employment will be provided with not only knowledge, skills and experiences in organizing and implementing small business but also facilitated to funding sources. Team working is also encouraged.

Creating Chains of Business Partnership to Support OVEC Programs

One of the strategies of OVEC is to strengthen the partnership with private and public organizations. The organizations cooperate with OVEC for supporting Entrepreneurship Programs are Stocks Exchange Market of Thailand, The Office of Transforming the Property to the Capital Investment Loans Administration, SME Bank, Saving Money Bank, Agricultural Land Reform Office and Agricultural and Cooperatives Ministry. The examples projects are presented in the following:

Developing the Curriculum

This was developed based on the cooperation between OVEC and Stocks Exchange Market of Thailand. The two subjects are established in the group of vocational basic subjects in the Certificate level since 2006. They are "The SME Management" and "The Value of Currency".

Project: "Planning for Entrepreneur through TVET"

This initiative was borne out of the cooperation among OVEC, the Office of SME Promotion and the Stocks Exchange Market of Thailand. This project is to provide training in preparation to become an entrepreneur and competing for the best business plan of the team from the colleges. The team consists of an advisory teacher and students. The winner team will receive the reward and also study visit in Singapore.

The Project: "Smart SMEs"

This initiative was borne out of the cooperation between OVEC and SME Bank. The purpose of this project is to develop knowledge and competency of being an entrepreneur for the students who have the basic of a good business plan. In each year these students have to create their business plan for the competition. The top three students receive the reward and budget to support the start-up of a small business.

The Project: "Developing the Agricultural New Generation"

This effort reflects a strong partnership between OVEC and Agricultural Land Reform Office. The students are trained to be the new generation of agriculturists. He should possess qualities such as leadership ability, creative thinking and ready to accept new technology for integrating to make benefit and utilize the land. They have to live and study in the real situation on the land reform areas. They will have the right to hold the land in Sufficient Economic Union by legally when their work is satisfied with the Agricultural Land Reform Office.

The Project: "Transform the Occupational Skills to Capital Investment Loans"

This project is brought about by the cooperation of the Office of Transformed the Property to the Capital Investment Loans Administration, SME Bank, Saving Money Bank and OVEC. The purpose of this project is to target colleges as centers of knowledge and technology in producing, transfiguring, servicing, selling and working various products. This is to promote entrepreneurship, encouraging value-added goods and services and contribute in the creation of the sustainable entrepreneurial community.

Serving Society / Local Community

An important policy of the government is to eradicate poverty of those in the rural areas. TVET has become an important tool to achieve the objectives of this policy. The main target groups are students and people in the rural areas. Three main objectives for poverty eradication include:

- Increasing income through developing skills, finding markets and creating jobs
- Reducing expenses by increasing the ability of local people in areas such as repairing their own home appliances and building local public utilities.
- Extending opportunities for earning a better living by providing necessary information, developing quality of the products and providing skills required.
- OVEC has played important roles in serving government policy on poverty alleviation by the following activities.

Fix it Centers

OVEC has worked with local agencies in setting up "Fix It Centers" in rural areas. The purposes of these centers include:

- Integration of occupational training in specific areas
- Working cooperatively with other agencies
- Providing skills needed for earning a living in rural areas
- Providing advice and coaching in need of occupational areas
- Distributing information on skill training opportunities
- Organizing mobile training unit for remote areas
- Topping-up technology on "One Tambon, One Product (OTOP)"

Fix It Centers has made TVE become popular in helping rural people and as well as in turning communities into active practical classrooms for a greater learning experience for students. The activities and benefits include:

- Providing service in maintenance of occupational tools, agricultural machine and household appliances.
- Providing practical training in the real situation to students
- Enhancing student value on social services
- Providing good attitude toward TVE
- Providing "Problem Based Learning"
- Extending the life span of equipment and machines
- Developing occupational KM system in community
- Establishing occupational profile and learning system
- Promoting sufficiency economy

Repairing and Constructing Schools

In cooperation with the Basic Education Commission Office, TVE colleges have played an important role in repairing and constructing primary schools in rural and risky areas. This activity helps students to learn more on the job and earn income.

Conservation of Energy and Related Services

TVE Colleges also is active in helping to conserve energy. There are continuing projects with the Ministry of Energy in cleaning air conditions of public offices which would help to save electrical energy. At the same time, it will make the public realize the importance of energy conservation.

TVE students also provide services for safety traveling during long holidays. Car services such as checkup, fixing engines are offered to those travelers during the long holidays by working with PTT Public Company Limited and other private organizations.

Conducting Research for TVE New Knowledge and Innovation / Technology

OVEC has encouraged administrators and teachers to carry out research work for new knowledge and innovation / technology in order to ensure sustainable development. This is to inspire TVE teachers to continue to improve their performance through data collection and make use of the findings to achieve the desired outcomes. Students are also supported to work on project-based learning to create technology / innovation related to their areas of specialty. Apart from this they are also encouraged to create new inventions for national competition which is held every year. Cooperation with industries and other agencies on R & D is strengthened, especially in those required by the labor market. Knowledge Management Systems have also been developed to ensure and facilitate the exchange of TVET knowledge, experiences and best practices.

Challenges

According to Choomnoon (2011), the TVET system in Thailand faces challenges such as:

- Improving the quality and variety of TVET programs offered in the rural colleges;
- Developing stronger cooperation with the private sector in providing TVET programs;
- Enhancing the quality of TVET programs by moving away from specializations and ensuring that TVET students are also competent in Information and Communications Technology (ICT), English proficiency, and other relevant skills according to the 21st century skills;
- Improving the quality of the equipment and TVET teachers by organizing workshops and staff development programs; and
- Improving governance and accountability structures of the TVET institutions.

Conclusion

OVEC ensures that the TVET programs produce and develop skilled technicians and technologists for eleven major fields and various types of course. The programs of study are: (1) Short Course Vocational Training, Certificate in Vocational Education (3 yrs. after lower secondary level); (2) Diploma in Technical Education (2 yrs. after Certificate level / 2-3 yrs. after upper secondary level); (3) Higher Diploma in Technical Education or Bachelor Degree (3 yrs. after Diploma in Technical Education) and (4) since 2009, Bachelor Degree in Technology (2 yrs. after Diploma in Technical Education).

TVET programs are in line with the goals set out in the National Economic and Social Development Plan and the National Education Plans and the Thailand 4.0 new model. Specifically, the quality of TVET programs is monitored by the Quality Assurance and Education Standards Section of the Office of the Vocational Education Commission (OVEC).

Based on the Vocational Education Act, and in line with the Ministry of Education's announcement on system, criteria, and implementation on educational quality (2010) and related TVET standards set by OVEC and MoE, TVET colleges are encouraged to set their own TVET College Standards according to official regulations.

The Thai National Qualifications Framework (NQF) was proposed by the Office of Education Council (OEC) of the Ministry of Education as part of the National Manpower Production and Development initiative during the Second Decade of Education Reform, 2009-2018. The Thai NQF builds on the existing Thai Qualifications Framework for Higher Education (TQF) and Thai Qualifications Framework for Vocational Education (TVQF) (OEC, 2013). It was approved by the Cabinet on 21 December 2010. A number of measures are envisaged to improve the quality of education and training in Thailand. These include improving the quality of content, inputs and standards, introducing assessment based on learning outcomes, and ensuring internal and external assessment of educational institutions at every qualification level.

As consistent with the Constitution of the Kingdom of Thailand, the National Education Act, Vocational Education Act of 2008, the National Economic and Social Development Plans, and The Thailand 4.0 new model, the OVEC has been carrying out important projects and activities of OVEC which are based on four main targets as follows: 1. Developing skills for employability 2. Fostering new entrepreneurship or self – employed workers 3. Serving society and local community 4. Conducting research for new knowledge and innovation and technology such as; Expanding Dual Vocational Education, Making TVE more Attractive, Promoting Brand of "R People", Fostering Entrepreneurship or Self-Employment, Serving Society and Local Community and providing Fix It Centers.

Through the years, OVEC has been instrumental in ensuring

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List of Abbreviations

ADB	Asian Development Bank
AJ&K	Azad Jammu and Kashmir (Pakistan)
AMS	ASEAN Member States
ANSI	American National Standards Institute
APACC	Asia-Pacific Accreditation and Certification Commission
APEC	Asia-Pacific Economic Cooperation
AQRF	ASEAN Qualifications Reference Framework
ASEAN	Association of Southeast Asian Nations
ASQC	American Society for Quality Control
BA	Bachelor of Arts
BAM	Business, Accountancy and Management
BCSE	Bhutan Certificate of Secondary Education
BHSEC	Bhutan Higher Secondary Education Certificate
BSc	Bachelor of Science
BTE	Board of Technical Education (Pakistan)
BTEB	Bangladesh Technical Education Board
BTech	Bachelor of Technology
BuB	Bottom-up Budgeting
BVQF	Bhutan Vocational Qualifications Framework
CBT	Competency-based Training
CBT & A	Competency-based Training and Assessment
CGTTI	Ceylon-German Training Institute
CHED	Commission of Higher Education
COC	Certificate of Competency
CPSC	Colombo Plan Staff College
CQI	Continuous quality improvement
DAE	Diploma of Associate Engineering
DepEd	Department of Education (Philippines)
DOLE	Department of Labor and Employment (Philippines)
DTET	Department of Technical Education and Training (Sri Lanka)
DTS	Dual Training System
DTVET	Department of Technical and Vocational Education and Training (Myanmar)
DVE	Dual Vocational Education
E & T	Education and Training
ECTAS	European Credit Transfer and Accumulation System
EFA	Education for All
ELPS	English Language Proficiency School
EO	Executive Order

ESD	Education for Sustainable Development
ESTP	Employment Skills Training Project
ETP	Educational Training Providers
EU	European Union
FATA	Federally-Administered Tribal Areas (Pakistan)
FHEC	Fiji Higher Education Commission
FNU	Fiji National University
FQF	Fiji Qualifications Framework
G-B	Gilgit-Baltistan (Pakistan)
GCE A/L	General Certificate of Education- Advanced Level
GCE O/L	General Certificate of Education- Ordinary Level
GDP	Gross Domestic Product
GED	General Economics Division
GIZ	German Agency for International Cooperation and Development
GNH	Gross National Happiness
GTHS	Government Technical High Schools
GTI	Government Technical Institutes
HESS	Humanities, Education, Social Sciences
HNDS	Higher National Diplomas
HOTS	Higher Order Thinking Skills
HSC	Higher School Certificate
IAGs	Industry Advisory Groups
ICT	Information and Communication Technology
ILO	International Labor Organization
IPs	Indigenous Peoples
IQABCC	Inter-Qualification Awarding Bodies Committee of Chairmen
ISAC	Industry Standards Advisory Committee
ISSC	Industrial Sector Skills Councils
ITP	Industrial Training Providers
IZC	Institute for Zorig Chusum (Bhutan)
KG	Kindergarten
KM	Knowledge Management
KPI	Key Performance Indicators
KRIVET	Korean Research Institute for Vocational Education and Training
MAB	Maldives Accreditation Board
MDG	Millennium Development Goals
MNQF	Maldives National Qualification Framework
MNQF	Myanmar National Qualification Framework
MoE	Ministry of Education (Korea)
MoEL	Ministry of Employment and Labor (Korea)
MPO	Monthly Payment Order

MQA	Maldives Qualification Authority
MRSQ	Mutual Recognition of Skills and Qualifications
Mtech	Master of Technology
MSD & VT	Ministry of Skills Development and Vocational Training (Sri Lanka)
NAITA	National Apprentice and Industrial Training Authority (Sri Lanka)
NAQAC	National Education Accreditation and Quality Assurance Center
NAVTEC	National Vocational and Technical Education Commission (Pakistan)
NAVTTC	National Vocational and Technical Training Commission (Pakistan)
NC	National Certificate
NCACS	National Competency Assessment and Certification System
NCS	National Competency Standards
ND	National Diploma
NEC	National Employment Center
NEDA	National Economic Development Authority (Philippines)
NEL	National Education Law
NEPC	National Education Policy Commission
NGO	Non-Government Organizations
NIBM	National Institute of Business Management
NQF	National Qualifications Framework
NQNTC	National Qualifications of Non-Technical Categories
NSBM	National School of Business Management
NSDP	National Skills Development Policy
NSIS	National Skills Information System
NSS	National Skills Strategy
NTESDP	National Technical Education and Skills Development Plan
NTQ	National Technical Qualifications
NTVQF	National Technical and Vocational Qualifications Framework
NVQ	National Vocational Qualifications
NVQF	National Vocational Qualifications Framework
NVQS	National Vocational Qualifications System
NYC	National Youth Corps
NYSC	National Youth Services Council
OEC	Office of Education Council (Thailand)
OECD	Organization for Economic Cooperation and Development
OFW	Overseas Filipino Workers
OHS	Occupational Health and Safety
OJT	On-the-Job Training
OTOP	One Town/Tambon-One Product
OUSL	Ocean University of Sri Lanka
OVEC	Office of Vocational Education Commission (Thailand)
PBTE	Punjab Board of Technical Education

PDCA	Plan-Do-Check Act
PESFA	Private Education Student Financial Assistance
PPP	Public-Private Partnerships
PQ	Private Qualifications
PQF	Philippines Qualifications Framework
PRC	Professional Regulation Commission (Philippines)
PSA	Punjab Skills Authority
PTTE	Presidential Task Force in Education
PTQF	Philippine TVET Qualifications Framework
PTQCS	Philippine TVET Qualifications and Certification System
PVTC	Punjab Vocational Training Council
QF	Qualification Frameworks
QMS	Quality Management System
RA	Republic Act
RCC	Recognition of Current Competence
RMG	Ready-made Garments
RPL	Recognition of Prior Learning
RTO	Registered Training Organization
SC	Skill Certificate
SCQF	Scottish Credit and Qualifications Framework
SLIATE	Sri Lanka Institute of Advanced Technological Education
SLIOP	Sri Lanka Institute of Printing
SLITHM	Sri Lanka Institute of Hotel Management
SMEs	Small and Medium Enterprises
SMVTI	Singapore-Myanmar Vocational Training Institute
SQF	Sectoral Qualifications Framework
SSC	Secondary School Certificate
STEM	Science, Technology, Engineering, Mathematics
STEP	Scholarship on Technical Education Program
TCF	Technical College of Fiji
TDRI	Thailand Development Research Institute
TESDA	Technical Education and Skills Development Authority (Philippines)
TEVTAS	Technical Education and Vocational Training Authorities (Pakistan)
TITC	Timber Industry Training Center
TNA	Training Needs Analysis
ToT	Training of Trainers
TPQI	Thailand Professional Qualifications Institute
TQF	Thai Qualifications Framework for Higher Education
TQM	Total Quality Management
TR	Training Regulations
TTB	Trade Testing Boards (Pakistan)

TTI	Technical Training Institute
TTTC	Technical Teachers' Training College
TVET	Technical and Vocational Education and Training
TVQF	Thai Qualifications Framework for Vocational Education
TWSP	Training for Work Scholarship
UGC	University Grant Commission (Sri Lanka)
UK	United Kingdom
UMFCCI	Union of Myanmar Federation of Chamber of Commerce and Industry
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNIVOTEC	University of Vocational Technology (Sri Lanka)
USP	University of South Pacific (Fiji)
UTPRAS	Unified TVET Program Registration and Accreditation System
V&TC	Volunteer and Technical Certificate
VQS	Vocational Qualification System
VTASL	Vocational Training Authority of Sri Lanka
WB	World Bank

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