

[DOI: 10.20472/IAC.2016.024.022](https://doi.org/10.20472/IAC.2016.024.022)

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## **SKILL EDUCATION AND TRAINING IN INDIA**

### **Abstract:**

By the next decade India would be the youngest country of the world. All countries then would look towards India for supporting their aging population and economy. It is imperative for India that by then youths of India should sufficiently develop themselves in not only taking care of their country but be prepared for the whole world. In India the Vocational Education is being implemented under Human Resource Development, and Vocational Training is being implemented under Ministry of Skill Development and Entrepreneurship to provide skilled manpower in different vocations. For driving any economy competent manpower is a prime success factor. India needs large base of skilled and competent manpower to become superpower and developed nation. India has underscored the essential need of preparing skilled human resource through skill development programme, for enhancing the productivity of the youth and for a sustained and faster growth of economy. India needs many changes in Vocational Education and Training to be at par with the developed nations of the world. Thus it calls for urgent initiatives to be under taken, to fulfil the skill deficit and mismatch in quantity and quality. This paper discusses the initiatives undertaken for quality assurance in Vocational Education and Training (VET). It identified the need for Industry Institute collaboration for identification of manpower requirement, sector-wise skill profile, identification of courses, and development of modular competency based curricula and learning material, competency based training, assessment and joint certification.

### **Keywords:**

Technical Vocational Education and Training System , Skill Education, competent manpower, Qualification Framework.

**JEL Classification:** A00

## 1.0 Introduction

Because of resource constraints and lack of will power of policy makers and VET providers Skill Education and Vocational Training (VET) in India suffered resulting into poor quality skilled work force. Since inception Vocational Education and Training is imparted with parental system and it is hereditary in nature and transferred as family vocation, in India. It had very strong network of artisan base, where each village as a unit had at least 08-10 artisans. They were competent, leading good quality of life and were respected in the society as they were prime mover of village economy and national economy. In the liberalized, privatized globalised economy, quality of VET became prime concern and for double digit economic growth, skill deficit needs to be removed. A strong Technical Vocational Education and Training System (TVET) needed which can transform Indian work force to become knowledgeable, highly skilled and adaptable to the demand of the new labour market.

## 2.0 Vocational Education And Training System

Irrespective of all efforts, only 5% of youth in the age group of 20-24 years are found to have undergone formal vocational training and has not grown to the expected level for various reasons. The international comparison of developed and developing country is given in Table-1

**Table – 1: Vocational-Technical Secondary Education in different countries**

Country	Secondary Enrolment Ratio	No. of Voc.-Tech. Students ('000s)	Share (percent of total secondary Enrolments)
Russia	88	6, 277	60
China	52	15,300	55
Chile	70	652	40
Indonesia	43	4,109	33
Korea	93	2,060	31
Mexico	58	-	12
Malaysia	59	533	11
India	53	-	05

Source: World Bank report, 2006

Driven by urgency to start earning at younger age, most of youths resort to acquiring employable skills informally in the trade that fetches them very low income. This has resulted in huge shortage of a skill trained work force in India. The 61st round of NSSO suggest that almost 97% of individuals in the age bracket of 15-60 years had no exposure to technical education which is another indicator of low skill set among Indians. At present VET is provided by 24 ministries/departments and total yearly capacity is about 3.5 millions whereas training capacity requirement is about 15.0

millions youths every year. Thus there is large gap in demand and supply of skilled manpower.

### **3.0 Qualification Framework Requirement In India**

General education and vocational education & training have been operating as separate verticals, with very little interaction between the two, in India. This leads to hesitation amongst the youth in opting for vocational education and training as it is presumed that this avenue would preclude the concerned individual from being able to acquire higher degrees and qualifications. In order to facilitate mobility from vocational to general education, and vice-versa, a qualification framework for India, i.e. the National Skill Qualification Framework (NSQF) will help make qualifications more understandable and transferable in various part of country.

Following additional reasons also suggest need for the NSQF: 1). In the vocational education and training pathways of learning and progression are generally unclear and there is no clear provision for vertical or horizontal mobility. The NSQF will make the progression pathways transparent so that institutes, students and employers are clear as to what they can do after pursuing a particular course and address the issues of inequity and disparity in qualifications. This will eradicate the negative perception associated with vocational education and training as the development of quality qualifications will also permit acquisition of higher qualifications, including degrees and doctorates. 2). Different qualifications across institutions have different outcomes associated with their own duration, curriculum, entry requirements as well as title. This often leads to problems in establishing equivalence of certificates/diplomas/degrees in different parts of the country, which in turn impacts the employability and mobility of students. The credit accumulation and transfer system that will be integrated in the NSQF will allow students/trainees to move between education, vocational training and work at different stages in their lives according to their needs and convenience. It will be possible for a student to leave education domain, get some practical experience in industry and return to studies to gain qualifications to progress higher in his chosen career. 3). Education and training has been almost entirely on inputs until now. Each level in the NSQF is defined and described in terms of competency levels that would need to be achieved as NSQF is based on an outcomes-based approach. Job roles corresponding to each of these competency levels would be ascertained with the involvement of industry, through the respective Sector Skill Councils (SSCs). Majority of Indian qualifications are not recognized internationally and vice-versa and therefore students and workers face problems as their international mobility is adversely affected and they often have to undergo a course again to get a qualification that is recognized in the host country. The NSQF will also help alignment of Indian qualifications to international qualifications in accordance with relevant bilateral and multilateral agreements. Many countries are already in the process of aligning their qualifications to international qualifications through qualification frameworks. 4). Large section of people do not have the necessary formal certifications to attest to their skills but have acquired skills in the informal sector. As a competency-based and outcomes based qualification framework, NSQF will facilitate Recognition of Prior Learning (RPL) that is lacking in the present education and training scenario.

## 4.0 Indian Qualification Framework

India recognized the need for the development of a national qualification framework that would transcend both general education and vocational education and training through the National Policy on Skill Development in 2009. The Policy envisioned that the framework will stimulate and support reforms in skills development and facilitate establishment of national standardized acceptable internationally. Individual Ministries started working on development of the framework, which were to subsequently be subsumed in the National framework, when available. The Ministry of Labour and Employment developed the National Vocational Qualifications Framework (NVQF) and the Ministry of Human Resource Development developed the National Vocational Educational Qualification Framework (NVEQF). The Ministry of Human Resource Development also launched a pilot of the NVEQF in Haryana at the secondary school level. Realising the need to have a unified framework, an Inter-Ministerial Committee was formed by the Cabinet Secretariat to use the work already done by the two Ministries as the foundation of the National Skills Qualification Framework. With the formation of the National Skill Development Agency, the mandate to anchor and operationalise the NSQF to ensure that quality and standards meet sector specific requirements was transferred to the Agency.

## 5.0 Learning From Other Qualification Frameworks

Education based on inputs based education and training is shifting towards education based on learning outcomes is taking place. Outcomes-based learning is a widely used term. The shift to learning outcomes is important for a number of reasons. 1). It shifts focus from providers to users of education and training. 2). By explaining what a learner is expected to know, understand or be able to do at the end of a learning process, individuals are better able to see what is offered in a particular course and how this links with other courses and programs. 3). It increases transparency and strengthens accountability of qualifications – for the benefit of individual learners and employers. The vast majority of the world's industrialized and transition countries are reforming their qualifications, while at the same time developing frameworks to relate these qualifications to each other and to generally reflect new demands in society and the labour market. The development of these systems is often linked to changes in higher education, technical and vocational education and training (TVET) and lifelong learning.

Qualification frameworks is being introduced by many countries worldwide. The theoretical principles of all frameworks remain largely similar but the objectives of launching the frameworks vary whether the emphasis is on increasing the relevance and flexibility of education and training programs, easing recognition of prior learning, enhancing lifelong learning, improving the transparency of qualification systems, creating possibilities for credit accumulation and transfer, or developing quality assurance systems. Governments are increasingly turning to qualifications frameworks as a policy tool for reform. In some cases national developments are propelled by the emergence of regional frameworks (such as the European Qualification Framework). In many cases the implementation of qualification frameworks has been widely supported by international organizations and is often linked to aid sanctions and even loans. There is increasing activity from international agencies in the area of qualifications frameworks: the Organisation for Economic Cooperation and Development (OECD), the International Labour Office (ILO), the

World Banks (WB) and the European Union (EU) have current qualification framework projects.

## **6.0 Indian National Skills Qualification Framework**

Indian National Skills Qualification Framework (NSQF) organizes qualifications according to a series of levels of knowledge, skills and attitude these levels are defined in terms of learning outcomes which the learner must possess regardless of whether they were acquired through formal, non-formal or informal learning. The NSQF is a nationally integrated education and competency based skill framework that will provide for multiple pathways, horizontal and vertical, both within vocational education and vocational training and among vocational education, vocational training, general education and technical education, Thus linking one level of learning to another higher level with quality assurance framework.

The key elements of the NSQF provide 1). National principles for recognizing skill proficiency and competencies at different levels leading to international equivalency. 2). Multiple entry and exit between vocational education, skill training, general education, technical education and job markets. 3). Progression pathways defined within skill qualification framework. 4). Opportunities to promote lifelong learning and skill development. 5). Partnership with industry/employers. 6). A transparent, accountable and credible mechanism for skill development across various sectors. 7). Increased potential for recognition of prior learning. The qualification framework is beneficial to schools, vocational education and training providers, higher education institutes, accrediting authorities as well as industry and its representative bodies, unions, professional associations and licensing authorities. The biggest beneficiaries of such a framework are the learners who can judge the relative value of a qualification at a particular level on the framework and make informed decisions about their career progression paths. NSQF Objectives, Quality assurance framework and Implementation Issues are stated below.

6.1 NSQF Objectives: The objectives of the NSQF are to provide a framework that: 1. Accommodates the diversity of the Indian education and training systems. 2. Allows the development of a set of qualifications for each level, based on outcomes which are accepted across the nation. 3 Provides structure for development and maintenance of progression pathways which provide access to qualifications and assist students/trainees to move easily and readily between different education and training sectors and between those sectors and the labour market. 4. Gives individuals an option to progress through education and training and gain recognition for their prior learning and experiences. 5. Underpins national regulatory and quality assurance arrangements for education and training. 6 Supports and enhances the national and international mobility of persons with NSQF-compliant qualifications through increased recognition of the value and comparability of Indian qualifications.

6.2. NSQF- Quality assurance framework - NSQF facilitates awarding of credit and supports credit transfer and progression routes within the Indian education and training system. It seeks to help everyone involved in education and training to make comparisons between qualifications offered in the country, and to understand how these relates to each other.

### 6.3 - Implementation Issues.

6.3.1. The levels are defined by criteria expressed as learning outcomes. The NSQF is composed of ten levels, each representing a different level of complexity, knowledge and autonomy required to demonstrate the competence commensurate for that level. Level one of the framework represents the lowest complexity while level ten represents the highest complexity. Volume of learning denoting national time taken to acquire qualifications may also be indicated for some levels and some sectors, but it is important to note that the NSQF Levels are not related directly to years of study they are defined by the extent of demands made of the learner in broad categories of competence, i.e. professional knowledge, professional skill, core skill and responsibility. Over a lifetime of learning, individuals will move to higher from lower levels or across levels of qualifications as they take one new learning and acquire new skills.

6.3.2. Each NSQF level is defined by a set of descriptors expressed as learning outcomes. The level descriptors are designed to allow broad comparisons to be made between outcomes of learning. However, it is not the case that every qualification will or should have all of the characteristics set out in the level descriptors. Each qualification at an NSQF level may be further defined with reference to curriculum, notional contact hours, subjects, duration of studies, workload, trainer quality and type of training institution, to indicate what is expected of the learner in terms of ability to do or apply at the end of the learning process. The positioning of two or more qualifications at the same level only indicates that they are broadly comparable in terms of the general level of outcomes. It does not indicate that they necessarily have the same purpose or content.

6.3.4. National Occupational Standards (NOS): NOS defines the measurable performance outcomes required from an individual engaged in a particular task, they list down what an individual performing that task should know and also do. These standards can form the benchmarks for various education and training programs and recruitment range of HRM practices. Just as each job role may require the performance of a number of tasks, the combination of all the NOSs corresponding to these tasks would form the Qualification Pack (QP) for that job role. The NOSs and QP for each job role corresponding to each level of the NSQF are being formulated by the concerned Sector Skill Councils (SSCs). In the event of there being no SSC for a given sector, or inability on the part of the SSC to produce the NOSs/QPs in a timely manner, this responsibility may be assigned by the National Skill Qualifications Committee (NSQC) to a relevant regulatory body or other entity have experience and knowledge of the sector.

6.3.5 Curriculum Packages: The competency based curriculum packages would consist of syllabus, student manual, trainers guide, training manual, trainer qualifications, assessment and testing guidelines and multimedia packages and e-material. These will be developed for each NSQF level, and where relevant, for specific Qualification Packs (QPs) identified by the SSCs. This may be done by such agencies as the Ministries/Departments, Sector Skill Councils and Regulatory Bodies may designate, or any other body, in accordance with the NSQF, NSQF curricula should be modular, allowing for skill accumulation and facilitating exit and entry. Curricula design will also be aligned to a credit framework that reflects credits earned and competencies acquired. Training of trainers would also be aligned to the NSQF.

**6.3.6 Industry Engagement:** Since the NSQF is based on an outcomes-based approach, participation of the industry and employers is a critical prerequisite for the success of NSQF. Vocational education, vocational training general education and skill development courses will be designed, developed, delivered and learners assessed and certified in accordance with the NSQF in consultation with SSCs, industry and employers. In addition to this the industry may also provide support in terms of providing training institutions.

**6.4 Horizontal and vertical mobility:** For horizontal and vertical mobility to take

place, the following are essential: Each level in NSQF is linked to the ones above and below it by a series of steps. If these steps in any industry sector or academic domain are missing, the NSQF would help identify and map these missing gaps. These gaps would have to be filled, and the key administrative ministry, regulatory bodies already operating in that sector, the SSCs and other stakeholders being part of the NSQC, would need to be consulted in the process. The degree of lateral mobility that is considered desirable would have to be identified by the NSQC, and the same would have to be facilitated through on-going credit accumulation and transfer.

Accordingly, the NSQF would require such regulatory institutions (e.g. UGC, AICTE, NCVT, Technical and School Boards etc.) to define each of their entry and exit parameters in terms of competencies ascribable to that level of the NSQF so that vertical progression in vocational education would be strengthened. If necessary, reservations for individuals, progressing through these channels can be considered and provided for. For instance, the system would permit vocational pass outs of class X-XII, it is and polytechnics to gain entry into higher education programs in vocational/technical/general education courses including degree level courses such as the Bachelor of Vocational Studies (B.Voc.), notified by the University Grants Commission. Taking into account the competencies acquired and the credits accumulated, it would also be possible to change courses, if desired. Further, persons with I skills shall have the option to move between vocational education, vocational training, general and higher education or vice versa at various stages, using pathways provided by the school boards, universities and colleges. If there are “competency gaps” identified in a candidate, a “bridge course” based on modular curricula to acquire those competencies may be imparted by the receiving Institution.

**6.5 International comparability:** The NSQF will provide a means of articulation and alignment of the Indian Skill Qualification levels with those of other countries and regions. This will help in the mobility of Indian NSQF-aligned Qualification holders to work in and/or relocate to other parts of the world. The NSQF will also be the means of interface with the various geographical frameworks that are developing across the world.

## **7.0 Level Descriptors**

Each level of the NSQF is associated with a set of descriptors made up of five outcomes statements, which describe in general terms, the minimum knowledge, skills and attributes that a learner needs to acquire in order to be certified for that level. Each level of the NSQF is described by a statement of learning outcomes in five domains, known as level descriptors. These five domains are Process, Professional Knowledge, Professional Skill, Core Skill, and Responsibility. The descriptors give broad, general, but meaningful, indicators of the learning outcomes at each level. The

descriptors can be used in a number of ways: To allocate levels to learning programs and qualifications, In validation and moderation of various qualifications and programs, As a basis for communication with learners and other users of qualifications, As a guide for mapping progression routes within and across the education and training sectors and by program designers when making entry requirements and recommendations for programs.

## 8.0 Credit System

The credit points give learners, employers and institutions a means of describing and comparing the learning outcomes achieved. Based on this, the additional learning outcomes to acquire a qualification at a higher NSQF level can be determined. Credits quantify learning outcomes that are subject to valid, reliable methods of assessment. The number of credits may be worked out on the basis of the number of notional learning hours that an “average” learner at a specified NSQF level might expect to take to achieve the learning outcomes, including the assessment. However, this is merely a guide and no credits are added or taken away if more or less time is taken to achieve the outcomes. No credits are ‘earned’ by a learner if the learning outcomes are not achieved or, in the case of RPL, demonstrated.

**Table – 1: Suggested Credits for Vocational-Technical Courses**

Qualification	Equivalence		Skill Certification Level	Competency based Vocational Skill Building (in Hrs) (approx.)	General Learning (in Hrs.) (approx.)	Total Hrs.
IX std.	IX	IX	1	250	750	1000
X std.	X	X	2	250	750	1000
XI std.	Diploma (Vocational)	XI (Vocational)	3	400	600	1000
XII std.	Diploma (Vocational)	XII (Vocational)	4	450	550	1000
Year I	Diploma (Vocational)	Degree (Vocational)	5	550	450	1000
Year II	Advanced Diploma (Vocational)	Degree (Vocational)	6	600	400	1000
Year III	Advanced Diploma (Vocational)	Degree (Vocational)	7	750	250	1000
Year I, II (PG)	--	PG(Vocational)	8,9	1600-1800	200-400	2000

*AICTE Guideline: 2011*

Credits can be used to assist learner to transfer between programs. This will also facilitate multiple entry and exit pathways at each level (or within a level) with the bundle of credits earned clearly certified by assessment and certification bodies which have been authorized to do so. Notional learning time may also be linked to the International Standard Classification of Occupations (ISCO 08), which includes reference to a nominal duration of learning and workplace training for each occupation. The transfer of credit points from one qualification or learning program into another helps to minimize duplication of learning. Credit transfer would facilitate



access and promote new learning opportunities without compromising learning outcomes associated with a NSQF level.

## **9.0 Qualifications Register**

To ensure that learner have access to all the qualifications registered and currently being provided by various training providers/institutions, a register of qualifications, that are approved and available, shall be maintained and regularly updated. The NSQF Register will be the official national public record of all qualifications aligned to NSQF levels, qualification pathways and accrediting authorities. The qualifications register will be made available on a web portal and regularly updated. Every institutions offering an NSQF-aligned qualification will have to keep details of its training programs updated on the portal.

## **10.0 Recognition of Prior Learning**

The NSQF will help individuals who have gained learning informally, such as through life, work and voluntary activities to have this learning recognized. This will include knowledge and skills gained Outside of formal learning situations, Through informal learning and training in the workplace, the community and/or the voluntary sector, + From continuing professional development activities and From independent learning. RPL will give an option for personal or career development or to gain credit towards other qualifications or learning programs to learners who have the skills but no certificate to prove it. It will help learners make clearer connections between the learning they have already achieved and future learning and/or career opportunities. Benchmarking an individual's learning against the NSQF Level Descriptors will help them to identify the appropriate level of options for progression. This will improve career progression and skill upgradation of learners as well as facilitate the engagement of the experienced practitioners as resource persons. Efforts for recognition of prior skills are limited. By introducing RPL through the NSQF, such efforts will gain momentum and allow learners to benefit on a larger scale. The NSQF will develop process for Recognition of Prior Learning/traditional learning for any given job role against the relevant level descriptors and notify the same for Skill Training Providers/Vocational Training Providers/Certificate awarding bodies for use in assessment and certification.

## **11.0 Stakeholder's Functions/Responsibilities**

The NSQF is the joint responsibility of many stakeholders and each has its own role to play in its development, implementation and maintenance. The roles/responsibilities of the main stakeholders are as follows: The NSDA has been mandated to anchor and operationalize the NSQF to ensure that quality and standards meet sector specific requirements. The NSDA will also facilitate the setting up of professional certifying bodies in addition to the existing ones. In performing the above functions, the NSDA will be ensuring that the NSQF acts as a quality assurance framework and facilitates capacity building. Sector Skill Councils are industry-led national partnership organizations that will bring together all the stakeholders from their respective sectors. Based on the needs of the industries in concerned sector, the SSCs are developing

the NOSs and QPs for the various job roles in their sectors, and they will align the same to appropriate levels of the NSQF. They will work to supplement the existing vocational training and education system for the industry sector in meeting the entire value chain's requirements of appropriately trained manpower in quantity and quality across all levels on a sustained and evolving basis. The SSCs shall also provide inputs to the Central and State level implementing agencies in developing the curriculum packages, capacity building of institutions and training providers, and assessment and certification of the skill imparted. The Sector Skill Councils shall be licensed and regulated by the National Skill Qualification Committee.

The Central Ministries, being at the apex of the issues in their administrative control, will have to provide the leadership to ensure that all stakeholders align the programs being offered by institutions/bodies under their aegis to the NSQF in accordance with the Implementation Schedule in para 14.iv. The institutions/bodies under the control of the respective State Governments will be encouraged to align their learning programmes to the NSQF, as this would facilitate greater mobility for individuals holding such qualifications. The State Governments will also help determine the modalities for ensuring that while regional variations are provided for, the same do not undermine the quality assurance associated with the NSQF. All the existing regulatory institutions (e.g. UGC, AICTE, NCVT, Technical and School Boards etc.) would define their entry and exit competencies and qualifications in terms of NSQF levels so that provision of vertical progression in both general and vocational education would be strengthened and vocational pass outs are able to gain entry into the respective portals of higher education in the vocational/technical/general education courses including degree level courses. Thus, Regulatory/Awarding bodies while continuing to regulate their courses, programmes, affiliation, and accreditation system shall ensure their alignment and conformity with the NSQF. All training providers would have to organize their courses/programmes to ensure alignment with NSQF levels in accordance with the implementation schedule in para 14.iv.

## 12.0 Conclusion

Effective skill education in India can happen through outcome based education and training for which a strong framework matching with international standards is needed for implementation and control. This will leverage its demographic advantage in coming years. The level of the developed skills should match professional needs at not only national but international level, also. The present National Skill Qualification Framework has been planned with active involvement of industries, skill sectors, and therefore provides outcome based approach defining competencies at each level at par with bilateral and multilateral agreements. It also provides progression pathways which assist students/trainees to move easily between education and training sectors. In India youths have informal training, recognition for prior learning and experiences will be extremely beneficial for accreditation of their skills. Credit system along with transfer mechanism will ensure quality of internal process. With time skilled workforce require horizontal and vertical mobility for career progression, the NSQF will provide the same with international comparability promoting better career prospects abroad. This mammoth task requires support of regulatory, implementing and allied agencies their roles have also been defined properly. Recording of the skills will be done in qualification register which will help in meeting demand supply gap, scaling up and futuristic planning. This system could be also helpful in providing jobs to beneficiaries.

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