SKILLING INDIA
Initiatives and Outcomes

V. Mohankumar
B. Sanjay

भारतीय प्रौढ़ शिक्षा संघ
Indian Adult Education Association

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With the introduction of NSQF, learners in India would now be able to realize that 'sky is the limit' whether in acquiring skills or knocking the threshold of job market that too at par with anybody else in the world.

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Foreword

The world countries are divided into three distinct divisions and they are developed, developing and under developed. This division is made based on productivity, economic progress and social development. If the countries have strong economy due to good productivity, the fruit of progress is shared to all the common people that enhance the quality of life. For production it is not enough that a large number of industries or factories are opened but also it is important that trained manpower is employed so that productivity is at high range. Trained manpower is not only better skilled but also with better knowledge which directly helps in quality production.

India a few years before was categorized as developing nation but due to industrial advancement and increased social index it has slowly moved into developed nation. Advancement in many fields including science and technology India matches with many of the Western countries which had the privilege of being developed in the beginning itself. The ills which pull India back are illiteracy and inadequacy of trained manpower. It is not that we have no training facilities. We have but not adequate with the result not able to meet the demand. The training facilities are available both in the technical and vocational skill development institutions which are located in formal and informal sectors.

This book deals with skill training, policies, programmes, institutions and performance which will be of use to all those who are working in the related fields. As part of standardization of vocational skill development training programmes, the Govt. of India has introduced National Skill Qualification Framework (NSQF) in December 2013 which has directed the institutions to provide training as per the prescribed standard norms for various positions. This arrangement will help India to have not only trained but also skilled manpower, particularly for 'Make in India' campaign which is one of the flagship programmes of the Government of India.

The book is brought out on the occasion of Platinum Jubilee Year of Indian Adult Education Association (2014) and has been jointly written by Dr.V.Mohankumar who has rich experience of working in the field of vocational education and Shri B. Sanjay who is a thinker and writer. I congratulate both of them for the efforts taken.

I am sure the book is of use for all those working in the field of vocational Education and the researchers.

K.C. Choudhary

President
Indian Adult Education Association
New Delhi

Acknowledgements

The Indian Adult Education Association (IAEA) is now 75 years old and is celebrating its Platinum Jubilee Year. Dr. Zakir Hussain rightly observed when he was the President of India that "the History of Indian Adult Education Association is the History of Adult Education in India" as he himself was the Vice President of the Association for ten years and closely worked not only for the development of the organization but also contributed a lot for policy planning and advancement of programmes.

Right from the beginning the Association has always channelized its cumulative energy in favour of all the policies and programmes conceptualized and implemented by the Govt. of India for the benefit of non-literate, neo-literate and deprived sections of the society. In the post 1990 era when liberalization and globalization became the order of the day and India too has decided to march in tune of the same, the policy planners of the country had a new challenge to match the ability, efficiency and quality of the emerging workforce of the country with that of the international standards. Consequently, all the governments at the centre focused a lot on recognizing, improving and imparting desired skills and technical knowhow to the manpower engaged in productive work irrespective of the nature of industry in order to reap the dividend of population explosion.

India set forth a target to generate at least 500 million (50 crore) workforce capable of engaging itself both in domestic as well as international market by the year 2022. In order to realize this cherished goal the planners at all levels worked for providing a hassle free learning environment to the youth specifically in the age group of 15-29 and beyond so that knowledge acquired through traditional and non-institutionalized methods can be recognized, accredited and learners interested in acquiring higher, diversified skills and technical knowhow for achieving higher prospect and salary can be duly encouraged.

As academics working in the field of developmental perspective of the country we had a chance to engage ourselves with the day by day development occurring in the field of vocational education, conceptualization of National Skill Qualification Framework, role of 'Make in India' campaign in employment generation in the manufacturing sector and other related areas, we thought of jotting down the ideas and experiences in the form of articles most of which have been published in the classified Indian Journal of Adult Education from time to time.

As part of Platinum Jubilee publications, this book is brought out and we are sure that it is useful equally for the field functionaries and researchers. We will be very happy to receive any comments or observations from the users.

We sincerely thank Prof. B.S. Garg, Patron, Shri K.C. Choudhary, President and Dr. Madan Singh, General Secretary, Indian Adult Education Association for all the support extended and encouragement given to bring out this book.

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V. Mohankumar

B. Sanjay

Abbreviations

AICTE	All India Council for Technical Education
AICVE	All-India Council for Vocational Education
AKIC	Amritsar – Kolkata Industrial Development Corridor
ASEAN	Association of Southeast Asian Nations
ASI	Annual Survey of Industries
ASSOCHAM	Associated Chambers of Commerce & Industry
ATS	Apprenticeship Training Scheme
BCG	Boston Consulting Group
BEA	Bureau of Economic Analysis
BFSI	Business Correspondent & Facilitator
BJP	Bhartiya Janta Party
BLVI	Block Level Vocational Institutions
BMEC	Bengaluru-Mumbai Economic Corridor
BPM	Business Process Management
BPO	Business Process Outsourcing
BRICS	Brazil, Russia, India, China and South Africa
BSE	Bombay Stock Exchange
CABE	Central Advisory Board of Education
CAD	Computer Aided Design
CAGR	Compound Annual Growth Rate
CAM	Computer Aided Manufacturing
CBIC	Chennai-Bengaluru Industrial Corridor
CBSE	Central Board of Secondary Education
CCEA	Cabinet Committee on Economic Affairs
CCEP	Comprehensive Computer Education Plan
CDC	Centre for Curriculum Development
CEO	Chief Executive Officer
CFTRI	Central Food and Technology Research Institute
CIVE	Central Institute of Vocational Education
CII	Confederation of Indian Industry
CLRI	Central Leather Research Institute
CoE	Centres of Excellence

CPs	Community Polytechnics
CRL	Computational Research Laboratories
CSS	Centrally Sponsored Scheme
CTE	Career and Technical Education
CTS	Craftsmen Training Scheme
CVIC	Chennai-Vizag Industrial Corridor
DAE	Directorate of Adult Education
DFC	Dedicated Railway Freight Corridor
DGET	Directorate General of Employment and Training
DIPP	Department of Industrial Policy and Promotion
DMIC	Delhi-Mumbai Industrial Corridor
DMICDC	Delhi-Mumbai Industrial Corridor Development Corporation
DoPT	Department of Personnel and Training
DTP	Desktop Publishing
ECEC	East Coast Economic Corridor
EGoMs	Empowered Groups of Ministers
EU	European Union
FDI	Foreign Direct Investment
FICCI	Federation of Indian Chambers of Commerce & Industry
FTAs	Free Trade Agreements
FY	Financial Year
GDP	Gross Domestic Product
GOI	Government of India
GoMs	Groups of Ministers
GST	Goods and Service Tax
HUDCO	Housing and Urban Development Corporation Limited
IAEA	Indian Adult Education Association
IAMR	Institute of Applied Manpower Research
ICT	Information and Communication Technology
IGNOU	Indira Gandhi National Open University

IIP	Index of Industrial Production
ILO	International Labour Organization
IMC	Institute Managing Committee
IMF	International Monetary Fund
INR	Indian Rupee Rates
IST	Indian Standard Time
IT	Information Technology
ITCs	Industrial Training Centres
ITES	Information Technology Enabled Services
ITESM	Information Technology & Electronics System Maintenance
ITIs	Industrial Training Institutes
JCVE	Joint Council for Vocational Education
JICA	Japan International Cooperation Agency
JSSs	Jan Shikshan Sansthans
KPO	Knowledge Process Outsourcing
KVIC	Khadi and Village Industries Commission
LEE	Life Enrichment Education
MCRDCE	Madras Centre for Research and Development of Community Education
MES	Modular Employable Skills
MHRD	Ministry of Human Resource Development
MITIs	Central Model Industrial Training Institutes
MNCs	Multi-National Corporations
MNP	Minimum Needs Programme
MoLE	Ministry of Labour and Employment
MoU	Memorandum of Understanding
MSME	Micro, Small and Medium Enterprises
NASSCOM	National Association of Software and Services Companies
NCERT	National Council of Educational Research and Training
NCVT	National Council of Vocational Training

NDA	National Democratic Alliance
NETAP	National Employability through Apprenticeship Programme
NGOs	Non-Governmental Organizations
NIFT	National Institute of Fashion Technology
NIOS	National Institute of Open Schooling
NITs	National Institutes of Technology
NITI	National Institution for Transforming India
NMCC	National Manufacturing Competitiveness Council
NMIZs	National Manufacturing and Investment Zones
NMP	National Manufacturing Policy
NOS	National Occupational Standards
NPE	National Policy of Education
NPSD	National Policy on Skill Development
NSC	National Steering Committee
NSDA	National Skill Development Agency
NSDC	National Skill Development Corporation
NSQF	National Skill Qualification Framework
NSS	National Service Scheme
NSSO	National Sample Survey Organization
NVEQF	National Vocational Education Qualifications Framework
NVTI	National Vocational Training Institute
NYK	Nehru Yuva Kendra
OBC	Other Backward Castes
OER	Open Educational Resources
ORG	Operation Research Group
PIB	Press Information Bureau
PMJDY	Pradhan Mantri Jan-Dhan Yojana
PMO	Prime Minister's Office
POA	Programme of Action
PPP	Public-Private Partnership
PSSCIVE	Pandit Sunder Lal Sharma Central Institute of Vocational Education

PV	Photovoltaic
QP	Qualification Packs
RCE	Regional College of Education
RCT	Randomized Control Trial
RDEs	Rapidly Developing Economies
RMSA	Rashtriya Madhyamik Shiksha Abhiyan
ROT	Read Only Terminals
RPL	Recognition of Prior Learning
RVTI	Regional Vocational Training Institutes
SAARC	South Asian Association for Regional Cooperation
SC	Scheduled Castes
SCERT	State Council of Educational Research and Training
SCVE	State Councils of Vocational Education
SCVT	State Council for Vocational Training
SIT	Satellite Interactive Television
SIT	Special Investigation Team
SIVE	State Institutes of Vocational Education
SOS	State Open Schools
SOUs	State Open Universities
SSA	Sarva Shiksha Abhiyan
SSCs	Sector Skill Councils
ST	Scheduled Tribes
SUPW	Socially Useful Productive Work
SVP	Shramik Vidyapeeth
TEQIP	Technical Education Quality Improvement Programme
TIFAC	Technology Information, Forecasting and Assessment Council
TRYSEM	Training Rural Youth for Self-Employment
TTTI	Technical Teachers' Training Institute
TVET	Technical and Vocational Education and Training
TVT & E	Technical Vocational Training and Educational
UGC	University Grant Commission

UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organization
USA	United States of America
USD	US Dollar
UT	Union Territory
VA	Voluntary Agencies
VE	Vocational Education
VEP	Vocational Education Programme
VET	Vocational Education Training
VRCs	Vocational Rehabilitation Centres

CHAPTER ONE

The Need for Vocational Education: Changing Economic and Labour Market Scenario

All through the ages man worked for his livelihood, and learnt through different experiences how to face and control natural forces and how to live within the limited physical resources for the good of all. This rich experience achieved through hard work has encouraged and stimulated man to seek means and methods of increasing his efficiency in work. As a result, the method of learning through organized experiences has come into use. Apprenticeship or training under guild organization originated during ancient times and continued during the middle ages was among the first forms of organized learning. The vocational institute or school, which is relatively of recent development, is a modern example of institutionalized learning to work through structured organized instruction.

From the beginning the occupational and vocational knowledge and skills have, in one form or other, been transmitted from man to man and from generation to generation. This transmitting process, whatever its forms of organization, has developed into the educational process that has now given rise to expansions and developments of what may be termed as vocational education. The diffusion of the occupational knowledge and transfer of manipulative skills may be interpreted as the forerunners of the various concepts of vocational education. In this broad sense, vocational education becomes that part of the total experience whereby man learns to carry on a gainful occupation proficiently and efficiently. The term "Vocational Education" as used in this broad sense is meant to cover both unorganized and organized methods of transmitting knowledge, skills and competencies. The unorganized form is the age-old method of learning on the job with no or little assistance and supervision while learning vocational education or

acquiring vocational skills through the institutionalized process is the organized form. Hence, vocational education or skill development training implies a series of organized and controlled learning experiences used to educate or train any person or persons for a given employment.

For long one way for the unskilled worker to learn to do his work is pick-up method in which observation, imitation and individual initiative constitute the sole means of training. It is only in the recent years that any serious attention is given to training of the unskilled workers to do their tasks efficiently. The unprecedented developments in science and technology have tended to expand vocational areas for which organized education or training is required. Vocational education and training has thus become both a consequence and a cause of progress.

Traditional educational programmes have failed to prepare the right products for entry into the employment market. The courses are very much divorced from the actual needs. The prevailing academic preparation is very theoretical and disregards the utility aspects. Nevertheless, there is much attraction and charm for university education with the result a large number persons seek admission into higher education, and more and more colleges and universities are opened every year. Students who complete school education after passing the secondary and higher secondary level aspire to enter the university, irrespective of their level of performance at the school level and pass a few most precious years of their youthful life till they realize that the efforts will not lead them to any gainful employment. On the other hand, the vocational education is likely to bridge the gap between the educational courses and the requirements of industrialization. The underlining fact is that if the vocational education programmes are given greater emphasis at the school level, a great many number of the young generation can be directed to the world of work instead of futile channelization through higher education.

Vocational education has therefore been considered as a wise business investment both for the nation and the individual. In its broadest sense Vocational education pertains to all the occupations and all people. In a world where science and technology are opening new dimensions and extending the horizons, it is logical to think that if the human potential is to be fully

explored and utilized, it requires the people to be educated properly with the employable skills, motivation and the spirit to enquire further so as to make effective partners, because the leaders can always be very few in any society while the number of partners and participants in even a single venture can be unlimited. Moreover, the impact of technology on occupations, the tendency of employers to set higher educational requirements, and the need for employees with specialized training have made vocational preparation imperative.

Vocational Education vs Vocational Training

Vocational education and vocational training are always used in an interchangeable manner all over the world. It is difficult to find a country in which these terms are employed as exact synonyms in referring to industrial and vocational activities involving instruction. Yet it is equally difficult to find a country where the two different terms are not used to describe identical education and/ or training activities. The dualism exists and they are closely related to organization, governance, and the institutional framework identified with the education or training.

Traditionally, education has been more closely identified with intellectual activities occurring in a school setting whereas training has been more closely identified with manual activities in a non-school instructional setting. Since all forms of vocational preparation for work roles involve the shifting of the burden of humans from their backs to their minds, these additional separations have lost validity. Nevertheless, the dualism persists and it is an important element of the conceptual and environmental setting of vocational education. This dualism exists with varying intensity in different countries or with varying intensity among different groups within the same country. Nevertheless, the expressions in terms of 'vocational education and training', 'vocational and industrial education', and 'vocational and technical education' are also in practice to take-up the field of knowledge and skill in a broader perspective and to avoid any sort of ambiguity.

The idea of discussing dualism is only to illustrate the existence of types of diversities which are common in vocational education and the extent to which the field can be understood by inquiring into the existence of such

dualism and, by questioning the basis for the premises or the assumptions which support the dualism.

Vocational Education: Concepts and Meanings

There are different concepts and meanings of vocational education or training and most of these have arisen from traditional practices and the meaning of terms used and their implications. An examination of these will reveal the basic differences for certain practices and relationships in vocational or occupational education, which are fundamental in nature and in programmes.

One such concept is that vocational education is the education or training of workers. Its origin may be traced to the early apprenticeship training practices. This concept implies that any kind of education or training in which a worker participates is vocational education. It also suggests that humans have dissimilar abilities and the persons having neither the capacity nor the desire to study the traditional curriculum be prevailed upon to opt for vocational trades more adapted to their taste and abilities. Implicit in the concept is the meaning that working class children be trained for factory work simply because that is their destiny. This kind of thinking does not fit in with the principle of equal educational opportunity.

Another concept is that vocational education is the education for manual work. This concept centers round the ideas of ability to work with hands rather than mind - with a curriculum of certain manual activities like leather work, wood work, metal work, drawing work, for example. The knowledge and skills learned from such education or training just underlie mental activities relevant to the curriculum but without relevance to specific occupational competence. This concept has resulted in the present-day practice of placing drop-outs, physically handicapped and socially disadvantaged young people in vocational courses without considering learners' interest and ability. A sizeable proportion of vocational institutions in our country (other than Industrial Training Institutes) may perhaps be described as manual training institutions.

Yet another concept is that vocational education is education in certain specified subjects, which may be of vocational or technical in nature,

generally confined to secondary stage of education. This concept implies that a specified part of the curriculum is vocational or technical, the remaining part falling under general or liberal education coverage. Here vocational education is not designed to take the place of general education but to supplement it. The essential merit of the idea is that the total education imparted has both cultural and utility values fitting an individual for progressing in his chosen field of activity with inbuilt opportunity for vertical mobility-for example Technical high schools.

One more concept is that vocational education is that education which is craft-oriented. The major objective of craft-oriented education or training is to aid learners in greatest work efficiency possible in earning their living by providing special instruction in single crafts or trades. The education or training given in this manner lacks academic or cultural aspects of education. Educators, therefore, feel that any craft or trade-centered system of education or training is a process of division, segregating vocational education from general education mainstream. The learners that are unable to profit from the traditional academic learning generally opt for this sort of industrial training, as is given in Industrial Training Institutes (ITIs). Although the institutions are equipped to offer practical training for most of the recognized trades, the courses are not in accord with the objectives of a mass system of common or comprehensive schools as in vogue in UK, USA and Japan.

Finally, there is the concept that vocational education is education for productive purposes or socially useful productive work. When the object is a product or a service for consumer use, the work involved is termed as productive work or socially useful productive work. Implicit in this modern concept is the meaning that as the individual seeks and finds new and improved ways of working through education or training, he increases his vocational efficiency. Gainful pursuits, regular occupations or vocations are becoming increasingly important in our industrialized society. Vocational education for productive work basically provides learning experience of a vocational nature, training learners to fit the requirements of a hierarchical work force. This concept is in accord with the present-day movement of "education for individual needs", education with the purpose "to prepare persons who would contribute to industrial, agricultural and commercial

efficiency". This concept also leads to the theme that "all education, when considered in relation to the great masses of the people of a country, must be measured finally by the single test of usefulness and utility". Education imparted in this manner should aim at the development of proficient workers as well as good-citizens.

Hence, vocational education is an inclusive term covering all those experiences whereby individual learns to carry on successfully any useful occupation. These experiences may be organized and institutionalized or unorganized and more or less haphazard. In a narrow sense, vocational education may be defined as a series of controlled and organized experiences arranged to prepare a person for socially useful employment.

Vocational Education in Five Year Plans

The Constitution of Indian places education in the concurrent list, conferring responsibility of providing education to the citizens on both the central and state governments. However, for convenience the constitution has defined the spheres of responsibility of the central and state governments.

So far twelve Five Year Plans have been formulated by the Planning Commission. They are First Plan (1951-1956), Second Plan (1956-1961), Third Plan (1961-1966), Fourth Plan (1969-1974), Fifth Plan (1974-1979), Sixth Plan (1980-1985), Seventh Plan (1985-1990), Eighth Plan (1992-1997), Ninth Plan (1997-2002), Tenth Plan (2002-2007), Eleventh Plan (2007-2012) and Twelfth Five Year Plan (2012 - 2017).

Vocational Education in First Five Year Plan (1951-1956)

Right from the beginning of the First Five Year Plan, the purposeful availability of vocational education at different levels of education had been an important policy consideration, and the trend continues till now.

The Plan set a clear-cut guideline for the administrators that, "Vocational and technical training will be emphasized in all the stages of the educational programme. Training facilities will be provided for imparting improved techniques to existing artisans and technicians, both in urban and rural areas. Training centres which already exist in any area,

will be strengthened and developed, and new ones established to meet the requirements of the project area." Under the Central Government programmes the Plan made a provision that at least one Multilateral High School will be opened as a pilot institution in each State, if necessary with suitable Central aid. These schools will have not only sections for liberal arts and sciences but also sections for technical education, commerce, agriculture, etc. Occupational schools, particularly for children between the ages of 14-18 years will also be established, where possible, for experimental purposes. Grants will be given on a non-recurring basis to such experimental schools conducted by the States if they satisfy the necessary conditions. Research Bureaus devoted to the study of problems of secondary education will be established at secondary training colleges or universities. Merit scholarships will be provided in existing public schools to enable the poor students to obtain the benefits of these institutions." Under the programmes of State Governments, "Schemes of technical and vocational education include those for encouraging technical and vocational education at all levels. At lower levels there are schemes for opening craft schools, converting craft schools into junior technical high schools, for survey and opening of junior polytechnics, for organizing technical and vocational education in middle schools, for conversion of secondary schools into technical high schools for organization of diploma courses, for opening industrial schools and agriculture based schools, etc." In 1950-51, there existed 260 technical and vocational schools (excluding industrial schools) training 26,702 students and 365 industrial schools training 14,750 and the First Five Year Plan projected it to increase to a level of 407 technical and vocational schools with 43,603 students and 456 industrial schools with 21,797 students in 1955-56 with an absolute increase of 57 percent and 25 percent respectively in terms of number of institutions, and 63 percent and 48 percent respectively in terms of students.

A sum of Rs. 2145.4 lakhs (990.4 lakhs for States and 1155.0 lakhs for Central Government) was allocated for technical and vocational education which was 14.2 percent of the total allocation on education of the First Five Year Plan.

Vocational Education in Second Five Year Plan (1956-1961)

The principle objective of the Second Five Year Plan was rapid industrialization with particular emphasis on the development of basic and heavy industries and with that a large expansion of employment opportunities. Hence, the impetus of the Plan with regard to the educational development was mainly on technical, engineering and management education.

With regard to the Craftsmen training, the Second Five Year Plan was of the view that, "It is not enough to plan for training only at higher levels. The running of establishments, public or private, requires support at all levels of skill and experience. The training of craftsmen, therefore, becomes equally important. But there are some inherent difficulties in assessing the supply and demand for craftsmen. These difficulties exist in respect of estimation of supply because it is impossible to get the magnitude of training in crafts imparted within families from father to son, brother to brother and so on. On the demand side, difficulties arise because the requirements usually lack precision though trade definitions are specific. The best that can be done, therefore, is to list facilities provided for institutional training, to indicate possible supplies and to continue efforts to improve the assessment of demand.

Stipends for vocational and industrial education had also been included in schemes sponsored by the Labour and Industries Departments in the States and by the Ministry of Labour at the Centre.

With regard to the vocational education of girls, the Plan realized the fact that, at the secondary stage, the education of girls lagged seriously behind. And therefore, planners felt the need for special encouragement to be made in this regard and recommended for special scholarship schemes to enable girls to take up careers for which openings exist and are likely to increase (such as Gram Sevikas, Nurses, Health Visitors and Teachers).

With a view to prepare the adolescents for entering the world of work and training of the existing workers, the Second Plan made wide ranging arrangements of development programmes, some of which are mentioned hereunder:

- Expansion in the training facilities of craftsmen to provide 19,700 new

seats in addition to 10,300 seats already available at that time

- Increase in the period of training to improve its quality
- Establishment of National Council for Vocational Training
- Increase in the scope and coverage under Apprenticeship scheme for training the skilled craftsmen from 450 apprentices in the first year to 5000 in the final year of the Plan
- Training around 20,000 workers already serving in industry for higher posts through evening classes either in the institutions being run by the government or in the training centres to be established by the undertakings
- Establishment of a new training institute similar to the one at Koni in Madhya Pradesh to meet the shortage of competent trained instructors. Also to move the existing centre to a suitable industrial area to attach it to a training centre for craftsmen

The Second Plan set apart Rs. 50.00 crores for the expansion of facilities in technical education and some of the programmes included were development of various technical courses relating to printing technology, town and regional planning, architecture, strengthening of existing technical institutions, establishment of higher technical institutions, expansion of Indian School of Mines and Applied Geology, organization of refresher courses for serving engineers, etc. The plan also visualized for the production of qualified engineers, supervisors, overseers and other categories of personnel.

During the Second Plan, in addition to setting up of a Central Bureau of Educational and Vocational Guidance, State Bureaus of Educational and Vocational Guidance were also established in 12 States. These Bureaus carried out programmes of training of career masters and counselors, test construction and guidance services to schools. The guidance movement, however, did not make a significant impact on secondary schools. It was, therefore, proposed to carry the guidance programme farther into the field and also to ensure a minimum programme of career information service in as many secondary schools as possible.

With regard to the technical and vocational education, the Second Five Year Plan made a provision of Rs. 48.00 crores (15.6 percent of the total

allocation for education) as against Rs. 23.00 crores (13.6 percent) in the First Plan.

Vocational Education in Third Five Year Plan (1961-1966)

Approach of the Third Plan was more of the continuation of the Second Plan (with regard to education and training), than to devise/start new schemes for educational reorganization. However, the Plan laid more emphasis on technical, vocational and secondary education that was in the Second Plan.

The planners realized that developments of the past decade had created a momentum for economic growth; yet, there were large deficiencies in the sphere of education, which must be removed speedily if progress is to be sustained and enduring. In view of the planners this was one of major aims of the Third Plan to expand and intensify the educational effort and to bring every home within its fold, so that from thereon, in all branches of national life, education could become the focal point of planned development.

During the first two Plans 2115 multipurpose schools were established which offered one or more practical courses in Technology, Agriculture, Commerce, Home Science and Fine Arts in addition to humanities and science. Although the concept of the multipurpose school had been readily accepted and the scheme expanded rapidly, certain difficulties were encountered, such as the lack of teachers trained to teach the practical subjects, insufficient teaching material, especially text-books and handbooks, limited range of elective courses and inadequacy of educational and vocational guidance facilities. During the Third Plan, therefore, it was proposed to concentrate on the consolidation of the scheme by strengthening the institutions already established, and the programme of expansion being limited to about 331 new schools. In order to undertake integrated teacher training programme four regional training colleges were proposed to be established to prepare teachers for the multipurpose schools through in-service and pre-service training programmes both in the practical and scientific subjects. Steps were also taken to stimulate greater experimental work in multipurpose schools for providing courses of study suited to different levels of ability, including special programmes of education for gifted students.

The Third Plan provided to increase the number of Industrial Training Institutes and Centres from existing 167 in 1960-61 with a further addition of 151 during the plan period so as to increase the intake correspondingly to 1,00,000 from 42,000 at the end of the Second Plan.

The National Apprenticeship Training Scheme, which was to be implemented by industry on a voluntary basis with a measure of support from Government, did not make much progress during the Second Plan. Therefore, the Third Plan provided for making arrangements for training of about 12,000 persons by introducing legislation for placing apprenticeship on a compulsory basis.

The programme for evening classes for industrial workers was also proposed to be expanded from about 2000 at that time to over 11,000 seats.

Vocational Education in Fourth Five Year Plan (1969-1974)

The Craftsmen Training and Employment Service programmes, which were treated as Centrally Sponsored Schemes upto 1968-69, were transferred to States under the Fourth Plan and the Directorate General of Employment and Training was made responsible for the overall coordination of the programme in States and Union Territories. The Directorate was entrusted with the responsibility of laying down standard for training and syllabus and for the control of technical quality. It was also given the responsibility to conduct the training for highly skilled craftsmen, apprenticeship programme in Central establishments and training programme for instructors in the Central Training Institute.

Only a marginal increase in the intake of students in the Industrial Training Institutes (from 1,47,000 to 1,50,000) particularly to cover new trades such as tool and die making, electronics and chemicals was envisaged in the Fourth Plan as it was considered adequate to meet the likely requirements of craftsmen. In view of this, large additional capital investment was not felt to be required. It was also proposed to diversify the existing seating capacity by reducing certain trades where there was inadequate demand, introducing more popular trades and consolidating the facilities in the existing institutes.

Vocational Education in Fifth Five Year Plan (1974-1979)

A major upheaval on the international economic scene distorted the financial and physical magnitudes of the Plan. Escalation in costs, higher outlays on public consumption and non-development expenditure in the early 1970s affected the planned structure of the Indian economy. The Fifth Plan document was, in fact, a mid-term review of the Plan, as it was submitted in 1976 while the plan period ranged from 1974 to 1979. However, the Government declined to admit that there was a Plan holiday.

The emphasis of the Fifth Plan was actually on checking inflationary tendencies and giving the economic situation a promising turn and very short reference was made to education. In fact it was the most compendious document till date as regard the Five Year Plans.

However, the Plan pledged to cover during the period 1977-79 in the Central sector for the craftsman training and Labour Welfare were:

(i) meet the requirements of the major on-going training institutions such as the Central Staff Training and Research Institute, Foreman Training Institute and the Central Training Institutes for instructors;
(ii) strengthen/expansion of the Advanced Training Institute;
(iii) expand the Apprenticeship Training Programme;
(iv) Vocational Training in Women's occupations; and schemes relating to research, surveys and studies to be undertaken by various institutes. and in the States/UTs sector:
(i) meeting the requirements of the industrial training institutes;
(ii) expansion of the Apprenticeship Training Programmes in the establishments;
(iii) strengthen the employment service organizations;
(iv) set-up labour welfare centres, and promote safety measures, and
(v) Employee's State Insurance Scheme.

Vocational Education in Sixth Five Year Plan (1980-1985)

The Sixth Plan basically emphasized on universalisation of primary education. It was even featured as number one item in the Minimum Needs

Programme (MNP). Developmental programmes for vocational were more or less neglected by the Planning Commission while finalizing the Sixth Plan. However, some ideological underpinnings were still found in favour of vocationalisation of education in the Sixth Plan document.

Secondary and higher education are important terminal stages in the system of general education and provide a first stage for linking education with the world of work. It is at this point that options are exercised by the youth to enter the world of employment or to go for technical training or to pursue higher education. With the expansion of the need based education at the elementary stage, increasing number of students, including a large number of first generation learners, would reach secondary education. Hence, it was felt that facilities need to be provided for their education since such education is the only means of social mobility and economic independence, particularly among the socially disadvantaged. It was also felt that care should be taken to ensure that secondary education also prepares them for a long-term career as part of the stock of national manpower. Keeping these in view, facilities for secondary education were planned to be extended to rural and backward areas and access provided to the weaker and more backward sections of the people, particularly the first generation learners.

The importance of secondary education to prepare manpower for economic development enabled the need for paying special attention to the quality of education at this stage. This would cover, apart from improving the internal efficiency of the system and enhancing the employability of its products, updating the curriculum and syllabus, production of better text-books and instructional material and creating in the young generation awareness of the emerging development perspective and associated in the fields like energy conservation, population stabilization and environment protection but at the same time, they should not be alienated emotionally or culturally from the society.

One of the important links between education and development is provided by manpower development through vocationaliation of secondary education related to employment. However, this needs to be carefully designed, based on the detailed survey of existing and potential work opportunities and of available educational and training facilities. It should also keep in view the specific roles and responsibilities of the different agencies and ensure

coordination at the operational level between the developmental programmes and the educational system. Such a differentiation would normally commence after the secondary stage and may cover varying periods depending upon the vocational area, groups of occupations and the nature and level of skills needed. It envisaged deepening of practical bias in the school education to be supplemented by appropriate apprenticeship in actual field, either farm or factory. It is not necessary to follow a rigid sequence in the order of acquiring several skills and it should be possible to supplement exclusive vocational training courses with necessary educational component. It was felt that in this way, suitable linkages can be established within the system for occupational mobility and career development over one's employment/working life. To provide practical skills provision was made to utilize the institutional facilities already available with Krishi Udyog, Van Vikas Kendras and other vocational training centres, particularly for learning by doing. Similarly, the services of experienced craftsmen and practitioners of the arts already available were proposed to be used for imparting operational skills without undue insistence on pedagogic certificates. At the same time wherever new facilities need to be created, they were to be located, to the maximum extent possible, in the rural areas.

The plan also envisaged creation of opportunities for integrated education, vocational training and economic rehabilitation in order to integrate the disabled with the main stream of socio-economic life. The schemes of scholarships, both at the Centre and the States, proposed to be expanded further to offer financial support to the students pursuing educational and vocational pursuits. Extension of Apprenticeship Training Scheme to all categories of disabled proposed to substantially expand and develop in-plant training. The Vocational Rehabilitation Centres (VRCs) were already undertaking evaluation and adjustment training for rehabilitation of the physically handicapped, primarily the orthopedically handicapped. This was proposed to be expanded in scope by imparting 'skill training' to the physically handicapped and 'providing job oriented experience' in close collaboration with local industry to promote employability of the disabled.

The plan proposed to revamp the existing ITI training which was mostly oriented for the service sector to make it self-employment and production oriented.

The areas having potential for self-employment for ITI trainees properly identified, orientation courses organized, project profiles prepared and credit needs tied-up. Hence, it was decided to enlarge the training programmes in ITIs and other institutions by including project formulation as an essential part of the curriculum along with management, accounting and marketing.

The Plan visualized the National Scheme of Training Rural Youth for Self-Employment (TRYSEM) to provide short training programmes to the rural youth and give them incentives to set up their own ventures and expand the training facilities available at different organizations like Handicraft Board, Dairy Development Board etc. It also had provision for post-training tie-up to be provided through a package of assistance for promoting self-employment apart from linkages to be maintained between the trainees and training institutions until the trainees become self-reliant.

The various innovative educational programmes which are intended to aid developmental activities would require close coordination and joint action between the educational system and the developmental departments and sectors. For example, the work experience programme would require the secondment of students to places of work which come within the purview of agencies other than educational institutions. The vocationalisation programmes at the higher secondary stage require coordinated action of all educational and training facilities and the services of developmental agencies for suitable placement for apprenticeship and/or employment of students.

Vocational Education in Seventh Five Year Plan (1985-1990)

In view of the growing importance of linking education with productivity or in other words, linking the world of knowledge with the world of work, it had been imperative for a massive policy-guided, plan-based effort in this direction; and it was the first time, in a real sense, when a major impetus for vocationalisation of education was given in the five year plan.

The Seventh Plan recommended for diversification of facilities for vocational education to cover a large number of occupational areas in agriculture, industry, commerce and services.

The Seventh Plan laid a lot of emphasis on upgradation of quality of training and provided for modernization of it. For development of village and small industries also, the Seventh Plan emphasized the importance of training and work oriented education for women was given special attention.

Vocational Education in Eighth Five Year Plan (1992-1997)

The Eighth Plan thrust areas in the Education Sector were universalisation of elementary education, eradication of illiteracy in the age group of 15 to 35 and strengthening of Vocational Education (VE) so as to relate it to the emerging needs in the urban and rural settings. Utilization of formal, non-formal and open channels of learning was the strategy for this purpose.

In view of the employment orientation of the Plan and the need to establish linkages between the world of work and the world of learning, vocational education was considered a priority area. This was not proposed to be confined to Higher Secondary stage but permeate the whole area of Secondary Education and Non-Formal Education/Training. A combination of Vocational and Academic courses was visualized at secondary stage with open education as an important channel, preparing the students for wage and self employment. The Plan also visualized emphasis on expansion of health related courses having a rural orientation in the service sector apart from developing agro based and technology based vocational courses for rural areas by combining the strength of existing institutional structures and open education institutions.

The Plan proposed to cover under vocational education about 15-20 percent of students in higher secondary stage by the end of the Plan period.

The Eighth Plan committed to consolidate the courses which have already been started and also to give special attention to para-medical vocational courses to meet the needs of health manpower. In addition to vocational courses forming part of the higher secondary courses, the Plan assured to take all efforts to offer varied courses of suitable duration to women, rural and tribal students and deprived sections of the society through Krishi Vigyan Kendras and organizations which offer training for self employment. In order to meet the vocational skill needs of neo-literate youths who have completed

primary education, school drop-outs, persons engaged in work and the unemployed or partially employed persons the Plan proposed non-formal , flexible and need based vocational programmes through institutions of open education. Special emphasis was given to start suitable programmes for the handicapped.

In order to provide ample opportunities for career improvement and professional growth for those who have completed vocational courses bridge courses were proposed for higher technical and professional competence. As part of experimenting other vocational education models it was proposed to try out pre-vocational education at the lower secondary level and exposure to various occupations right from the primary level for attitudinal change. In order to achieve the desired goals it was also proposed to involve major industrial houses and all large projects and to prevail on them to include human resource development as part of project cost and also to utilize the services of commercial agencies and NGOs.

Vocational Education in Ninth Five Year Plan (1997-2002)

The policy statement of the Ninth Plan clearly stated that a part of the unemployment problem was due to the mismatch between the skill requirements of employment opportunities and the skill base of the unemployed. It was also expected that mismatch may become more acute in the process rapid structural changes in the economy. Hence, it was felt necessary to orient the educational and training system towards improving its capacity to supply the requisite skills in the medium and long terms, so as to enable it to quickly respond to labour market changes in the short run. Besides, it was also felt necessary that the system should be in a position to impart suitable training to the large mass of workers engaged as self-employed and wage earners in the unorganized sector for upgradation of their skills, as an effective means for raising their productivity and income levels.

The policy recognized the role played by training institutions like Industrial Training Institutes for meeting a significant part of the requirements of the skilled manpower of the organized industry. However, it was felt necessary to restructure and reorient their courses to respond to the labour market and

greater involvement of industry in planning and running the training system. To upgrade the skills of workers in the unorganized sector, it was suggested to introduce flexible duration, suitable timing and convenient location of training centres and introduction of soft skills like entrepreneurship, management and marketing in the training courses alongwith the hard skills suitable to trades.

The policy also clearly stated that due to rapid expansion of education, particularly of higher education they are found to be a mismatch in the labour market. As the middle level technical and supervisory skills are often experienced, graduates and post graduates in arts, commerce and science constitute the large portion of educated unemployed. Hence it was felt that efforts should be made to divert the school leavers to vocational scheme and place an appropriate mechanism in their training employment system to ensure the persons graduating from vocational and middle level training courses have adequate opportunities to upgrade their qualifications and skills by undergoing training in higher level courses during their employment career for their vertical mobility in profession.

The scheme of Vocationalisation of Education at 10+2 stage was introduced to regulate admissions at college level by diverting at least 25% of the students to self employment or wage employment. However, the scheme did not take off well due to logistic and academic constrains which required streamlining and strong industry – institution linkages. Hence, only 4.8% of the students opted for vocational stream against the target of 25%. Hence, the Ninth Plan committed to restructure the scheme at 10+2 stage to provide employability to the target group. For this purpose it was proposed to constitute an Empowered Committee with the members representing government, industry and trade to promote a meaningful partnership and better inter-departmental coordination.

Vocational Education in Tenth Five Year Plan (2002-2007)

The Tenth Plan laid much emphasis on vocational education to the extent that it devoted a separate chapter for the first time in the Plan document on vocational education. The importance of the vocational education in view of

the Tenth Plan emanated from its own words, "Assertion of the dignity of labour and Vocationalisation of curricula are essential to ensure that a disjunction does not take place between the educational system and the work place."

Keeping in view the growing problem of unemployment, the Planning Commission constituted a separate Working Group on Vocational Education for the Tenth Plan in 2000. In line with the recommendations for the working group, the Commission proposed to recast the centrally sponsored scheme in the Tenth Plan with the following features:

- The vocational courses in schools should be competency-based and in modular form with a credit transfer system and provisions for multi-point entry/exit.
- There is a need to establish linkage between vocational courses at the +2 level and courses at the university level. The present admission criteria for entry into vocational courses at the graduation level also need to be changed.
- The existing scheme should be strengthened by involving industries through Memorandums of Understanding, in designing of the course, development of the curriculum, training of faculty/students and certification of the courses.
- In order to sustain the scheme, schools may consider charging fees and the courses may be designed on a self-financing basis.
- The apprenticeship training facility needs to be utilized fully and made compulsory. To achieve this, the placement of those who have completed vocational studies for apprenticeship and training should be decided by the Board of Apprenticeship Training immediately after the results of the +2 examinations are declared.
- Before vocational courses are started in schools, local business and industry should be closely involved in studying the need and for conducting district vocational surveys.
- Facilities for running vocational courses should become mandatory for the Kendriya Vidyalaya and Navodaya Vidyalaya school systems.
- Persons with disabilities should be given special treatment while designing vocational courses and their needs and integration into courses should receive appropriate attention.

- Financial assistance may be provided under the scheme for creating testing and certification system in states in cooperation with user bodies and professional associations.
- The All India Council for Technical Education's (AICTE) vocational education board needs to be reactivated for providing technical support to the school system and for establishing linkages with other technical institutions.

The growing problem of unemployment among the youth required recasting of the entire vocational education scheme. Hence, the Tenth Plan pledged that, the future policies on vocational courses must revolve around the following issues:

- There is a need to sensitize state governments and Union Territory Administrations on the importance of skill training/vocational education in the context of the problem of unemployment.
- There is an urgent need to cater to the Class VIII pass-outs whose numbers will swell with success of the Universalisation of Elementary Education and Sarva Shiksha Abhiyan initiatives.
- There is a need for careful assessment of the stage at which the trades of Fitter, Turner, Blacksmith, as also courses like Accountancy, Typing, Book-keeping and Secretarial practices are to be introduced.
- The duration of various vocational courses also needs to be carefully assessed.
- There is also a need for vertical mobility in the vocational stream. Students who complete +2 in a particular stream should be able to specialize and obtain diplomas and degree certificates so as to get value-added jobs and better employment opportunities.
- The vocational courses should be demand and need based, keeping in mind the constantly changing requirements of technologies/industries. Vocational courses must have an inbuilt flexibility to allow students to switch courses with changes in demand patterns.
- The existing scheme should be strengthened by involving industries through MoU in the designing and certification of courses and training of students and faculty.
- At present, most of the vocational courses are in the manufacturing sector.

Given the slow growth in this sector and the exploding opportunities in the services sector, vocational courses should concentrate more on the latter.

- There should be focus on convergence of schemes like the Sarva Shiksha Abhiyan (SSA), Adult Education, and Vocational Education Programme at schools, ITIs, polytechnics, community colleges etc.
- There is a need to have a relook at the vocational education scheme given the fact that a number of districts in Uttar Pradesh, Bihar, Haryana, Rajasthan and Madhya Pradesh have poor industrial base.
- The syllabi of vocational subjects should be updated on a regular basis to keep pace with changes in technology. This is especially relevant in trades like food processing, dairy technology, leather and tanning technology, etc.
- Vocational institutes should also be networked with professional institutes like the Central Food and Technology Research Institute (CFTRI), Mysore; Central Leather Research Institute (CLRI), Chennai etc. to keep abreast with technological developments.
- The vocational education scheme should focus on the capacity of the local industry to absorb students of a particular trade. Excess supply of students of a particular trade needs to be avoided. In this context, there is a need for diversification even within a trade.
- Urgent attention needs to be given to training vocational education teachers.
- There should be regular exchange of ideas/skills among vocational education teachers, master craftsmen and trainees.
- The apex industry associations like the Federation of Indian Chambers of Commerce and Industry (FICCI), Associated Chambers of Commerce and Industry (ASSOCHAM) and Confederation of Indian Industry (CII) need to be involved to a greater extent in the implementation of vocational education programmes and imparting of skills.

Dr. Manmohan Singh, Prime Minister and the architect of globalization in India for the first time stressed the need for strengthening vocational education in his address to the nation from the Red Fort on the occasion of Independence Day 2006. He again repeated its importance in his

Independence Day address in 2007 and the need to have a separate Mission for Vocational Education and Training to open a large number of vocational training institutions to increase the number of trained manpower.

Vocational Education in Eleventh Five Year Plan (2007-2012)

Before the start of the Eleventh Five Year Plan, a review was conducted with regard to performance of the vocational education in Tenth Plan. Accordingly it was felt that even though the Kothari Commission on Educational Reforms (1964-65) visualized 25% of the students at the secondary stage would go for vocational stream and the Kulandaiswamy Committee Report had targeted this figure at 15% to be achieved by 2000, the National Sample Survey Organization data revealed that only 5% of the population in the age group 19-24 in India have acquired some sort of skills through vocational education. However, the corresponding figure for Korea was 96%.

The Centrally Sponsored Scheme of Vocationalisation of Secondary Education at 10+2 level started in 1988 and revised in the year 1992-93 provides financial assistance to states for setting up administrative structures, carrying out area vocational service, preparing curriculum guides training manuals, organizing teacher training programmes, strengthening technical support system for research and development. The scheme also provides financial assistance to NGOs and voluntary organizations for implementation of specific innovative projects for conducting short-term courses. Under the scheme, enrollment capacity of 10 lakhs students in 9583 schools with about 21,000 sections had been created.

In view of the National Skill Development Mission on the anvil, the plan envisaged to evolve a comprehensive skill for creating a diverse and wide range of skills for the youth that would enable the country to reap the scientific and demographic dividend. Hence, emphasis for vocational education in the plan was demand driven vocational education programmes in partnership with in employers. At the same time it was proposed to restructure the current programmes with emphasis on hands-on training/exposure, vertical mobility and flexibility.

The plan also envisaged to give greater emphasis on the services sector and therefore on soft skills, computer literacy and flexi-time with more emphasis on development of generic and multiple skills so that persons may respond to changes in technology and market demands. Generic skills that cut across a number of occupations would enable an individual to transfer from one field to another during his/her working life. Other features enumerated in the plan where compulsory partnership with employers who could provide trainers and arrange for internships, give advice on curricula and participate in assessment and certification.

In view of the fact that only 5% of the population can receive skill training through the formal system, it was proposed to give continuous or further training for aggradations of skills of the remaining 4 crore unskilled and semi skilled persons, who were already working, through a variety of delivery systems, including part-time, sandwich system, day release system, block release system, open and distance learning system.

The Plan document clearly stated that vocational educational programmes preparing for occupations in farming, artisan trades, crafts, small and medium enterprises, particularly for self employment and should include entrepreneurship development and elementary training in ICT to enable the persons to take responsibility for production, marketing, management and rational organization of enterprise.

It was proposed to develop a National Vocational Qualification System in which public and private systems of vocational education collaboratively meet the needs of industry and individuals. This system to have modular competency based vocational courses with mechanism of testing the skills and bridge courses to facilitate people without any formal education to get enrolled in the regular system of courses developed through National Vocational Qualification System. It was also decided to review the functioning of Central Institute of Vocational Education, Bhopal and restructure to serve as a national resource institution for policy, planning and monitoring of vocational education programmes and for developing a National Vocational Qualification System in the country.

The plan envisaged to expand vocational education to cover 20,000 schools with the intake capacity of 25 lakh by the year 2011-12 with the provision of

mobility between vocational, general and technical education and also multiple entry and exit options.

Vocational Education in Twelfth Five Year Plan (2012 - 2017)

The Twelfth Five Year Plan document states that Skill Development Mission is being launched to skill at least 50 million individuals by the end of the Plan period. It has also been stated that skill development programmes in the past have been run mainly by the government, with insufficient connection with market demand. To ensure that skills match demand and the need for special efforts to ensure that employers and enterprises play an integral role in conception and implementation of vocational training programmes, including managing Industrial Training Institutes and in the development of the faculty have been proposed.

The Plan document states that there are four main priorities for education policy and they are Access, Equity, Quality and Governance. While committing to continue to prioritize these four areas, it will also place the greatest emphasis on improving learning outcomes at all levels.

It has also been stated that it is critical for the country to make secondary education much more job - relevant through skill training within the schools and proposed for higher investments to equip secondary schools with teachers/trainers who have technical skills and equipment (such as workshops, machines, computers) that can be used to impart technical and vocational training. It has been stated that in countries such as South Korea and Australia, 25-40 percent of high school students opt for vocational courses making them job-ready once they finish Grade 12. The vocational credits they earned in the secondary schools or recognized by the general education system and a high proportion of these students return to universities to pursue a college degree at a later age.

Vocational education at the secondary stage provides for diversification of educational opportunities so as to enhance individual employability, reduce the mismatch between demand and supply of skilled manpower and provides an alternative for those pursuing higher education. Hence, it is important that it is implemented from class nine onwards unlike the present provision for

its implementation from class eleven and proposed to be subsumed under Rashtriya Madhyamik Shiksha Abhiyan (RMSA). It has also been proposed that vocational educational courses will be based on national occupation standard brought out by the Sector Skill Councils (SSCs) that determine the minimum level of competencies for various occupations. Academic qualification would be assessed and certified by the educational bodies and vocational skills would be assessed and certified by the respective SSCs.

In the Twelfth Plan it has been proposed to create a mechanism for convergence of vocational courses offered by various ministries, private initiatives and vocational education institutions, and use schools as the outlet for vocational education of young people.

The process of revamping of the scheme of vocational education at the higher secondary stage has already been initiated. This is now aligned with National Vocational Education Qualifications Framework (NVEQF) (now it is renamed as National Skill Qualification Framework - NSQF) to create clear educational pathways from school to higher educational level and provide more options to students to choose vocational modules depending on their aptitude and economic requirements. The revised scheme has been designed to address the weakness identified in the current system of vocational education system.

The Plan Document also clearly states that the students pursuing vocational courses at +2 level would be provided facilities for apprenticeship training under the Apprenticeship Act. While skill formation has to be mainstreamed in the formal education system right from class nine onwards, skill creation outside the formal education system needs coordinated action and the innovative approaches for which a Vocational Education Cell has been established within the CBSE and similar cells in the State Boards. The National and State Boards would draw up a detailed scheme of evaluation to enable competency – based assessment of students. As the course design and development of teaching – learning materials get decentralized, Pandit Sunder Lal Sharma Central Institute of Vocational Education (PSSCIVE), the expert central institution has been entrusted with the responsibility of quality assurance in vocational education.

It has been proposed that vocational education at the secondary level would be aligned with skills training under the Ministry of Labour through Industrial Training Centres and Modular Training Programmes as well as short - term

training provided through National Skills Development Corporation. Skills training under the Jan Shikshan Sansthans and NGOs schemes of Adult Education Programmes would be aligned with the framework for vocational education at the secondary level. Appropriate institutional arrangements with linkage to National Skills Development Corporation for capacity development for professional certification and accreditation systems for institutions should also be put in place.

Globalization and Liberalization

It will be a misnomer if economic liberalization is taken as an easy path or a shortcut to development process. Usually economic growth is neither spontaneous nor instant nor can it be achieved without hard work, perseverance and determination on a national scale. The only significant thing is that the process of economic liberalization affords a significant opportunity to come forward to learn from the experiences of others, to interact on a global scale, to build up the country's own strength, to become world players and to excel.

After independence, India adopted Nehruvian model of economic development and preferred import substitution in place of export motivation for industrialization of Indian economy. So the planners of modern India preferred to build a wall around India and isolated her from the global economy. But, the winds of change which were blowing across the globe and transformed many economies from planned economy to market economy, from protection to integration with the international markets and from regulation to liberalization started sweeping across Indian economic scene since mid-eighties and gave the dream of launching the country into the 21st century. The long term fiscal policy, measures to augment all round productivity of the economy, rationalization and simplification of the plethora of controls were the major thrust areas to accelerate the growth momentum of the country.

The biggest metamorphosis in our economic climate came in July 1991 with the enunciation of the new economic policy which embarked the country on the roads to globalization, through privatization and liberalization, and since then India has been making a major shift in its developmental programmes – from command economy to market economy.

Economic liberalization has created an environment conducive to an enterprise, investment and innovation with an anticipated revival of the economy. New Industrial policy has boosted India's efforts at accelerated industrialization to improve international competitiveness and integrate with the global economy. Indian companies are attracting foreign portfolio investments or equity participation in new ventures and the government is committed to make foreign players feel at ease to invest directly and bring with it new technology and marketing skills. In this situation, it is but natural that MNCs are rising steeply and creating marketing and production alignments to leverage their strengths in Indian market through acquiring the existing concerns, franchise arrangements and formation of new organizations. In this situation to compete with increasing MNCs, at macro-level, our Captains of the industry are bound to actively modernize their production base, diversify into related/unrelated fields or to go for collaboration arrangements. These collaborations of international alignments are likely to benefit the country in the long-run as there is a concerted move on the part of western countries to shift their production activities to the east on cost considerations and large potential markets, like ours.

Conclusion

To conclude vocational education leads to economic progress. A vocation is a social institution. Men are identified in society chiefly by the vocation to which they "belong." A common question is "What is he?" The answer is, "He is a salesman," "He is an insurance agent", "He is a carpenter," etc. Men are thus thought of, classified, and dealt with in social and economic intercourse. That this has been the case through the ages is indicated by such names as Smith, Cooper, Fowler, Wright, Carpenter, Mason, Carver, Hunter, Cook, Shepherd, Farmer, Merchant and Carter. It is the sum of the vocations that constitutes the economic fabric of civilized communities, rather than the sum of the individual persons belonging to the community. A person is not significant in economic life except as a member of a vocation, and his status is determined chiefly by such membership. The traditional class distinctions of nobility, peasantry,

bourgeoisie, proletariat, capitalist, and labourer are, at base, occupational distinctions. For centuries men have organized themselves in occupational groups for the purpose of promoting the welfare of the vocations in the general competition among groups. Society continually legislates with reference to such vocational groups and, by dealing with the individuals as members of the group concerned, recognizes the vocations as social institutions.

Since organized society is, in the main, the coordination of the vocations and of organized groups of vocations, social progress depends, in large measure, upon the progress of the vocations. Progress in the industries is the result of the increased skill and efficiency of engineering, the mechanical trades, salesmanship, management, and other industrial vocations. Business develops as the merchants, bankers, advertisers, and others become expert. And so it is throughout economic life. Economic progress is but the total of the advances made by the various vocations.

India is a vast country with a large human power. The agrarian economy of the country over the years is slowly transforming into an industrial economy not only due to globalization and liberalization but also due to non-profitability of the agriculture sector. Over the years a large number of technical training institutions have been opened both in Government and private sectors but still there exists a wide gap. There is also a gap in between the skilled manpower needed and the training provided to the workers. The mismatch has made still employment a rare commodity to many of the trained workers. Hence, there is an urgent need to pluck these so that the vocational education/ vocational training given is directly in relation to demand in the industries/factories/production houses that helps all get full employment and training undergone does not go waste.

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CHAPTER TWO

Role of Vocational Education in India - An Understanding through Various Commissions and Committees

"What does the developed nation status mean in terms of the common man? It means the major transformation of our national economy to make it one of the largest economies in the world; where the countrymen live well above the poverty line, their education and health is of high standard; national security reasonably assured, and the core competence in the certain major areas get enhanced significantly so that the production of quality goods, including exports, is rising and thereby bringing all-round prosperity for the countrymen. What is the common link needed to realize these sub-goals? It is the technological strength of the nation, which is the key to reach this developed status."

- Dr. APJ Abdul Kalam
(India 2020: A Vision for the New Millennium, p.22)

What could be the core competencies of India, which could play paramount role in making the country one of the most leading economies of the world today? A thorough analysis and assessment carried out by experts at the Technology Information, Forecasting and Assessment Council (TIFAC), Department of Science and Technology, Government of India, while preparing the India Vision Document 2020 under the leadership of APJ Abdul Kalam (then Scientific Advisor to the Ministry of Defence, GOI and Chairman of TIFAC) and YS Rajan (then Senior Technological Advisor, Confederation of Indian Industries and Executive Director, TIFAC) says that excellent base for living resources, very rich biodiversity, abundant sunshine, varied agro-climatic conditions - almost a microcosm of the globe, from arctic cold to tropical green

to bare deserts - and plenty of rainfall are the basic competencies of India, tapping which can definitely transform the country into a mega economic power. But the greatest core competency of India underlined in this Vision Document, which was released on 2nd August 1996 by the then Prime Minister was, India's human resource base.

Human resource base is India's strength. If we can train an unskilled Indian, impart better skills to a skilled Indian, create a more challenging environment and build avenues for the educated, citizens will not only meet the targets but they will excel too. The Technology Vision document advocated that formation of a human resource cadre would finally lead us to the desired economic achievement.

In order to create this required human resource base and to provide a respectable wage/salary to each and every working individual, philosophers, educationists and all the committees constituted in post-independence India to evaluate the effectiveness of the existing educational structure in the country have reiterated the need to establish effective links between the world of school and the world of work.

Gandhi on Vocational Education

In keeping with his philosophy of basic education, Mahatma Gandhi said that our education system should be work centric. He specifically stressed upon the need for vocational education. He said, "Education does not mean mere spiritual knowledge, nor does liberation signify spiritual liberation after death. Knowledge includes all training that is useful for the service of mankind and liberation means freedom from all manner of servitude, which is essentially of two kinds: slavery to domination from outside and to one's own artificial needs." Explaining the ethos behind 'Nai Talim', he further said, "Craft, Art, Health and Education should all be integrated into one scheme. 'Nai Talim' is a beautiful blend of all the four and covers the whole education of the individual from the time of conception to the moment of death. Instead of regarding craft & industry as different from education, I will regard the former as the medium for the latter." (The Selected Works of Gandhi, Vol. 6)

This was reiterated by the University Education Commission (1949), chaired by Dr.S.Radhakrishnan, the All India Secondary Education Commission, under

the Chairmanship of Dr.A.L.Mudaliar (1953) and the D.S.Kothari Education Commission (1964-66). All of them advocated the need of work experience. Even in pre-independence period, Hunter Commission, officially known as the Indian Education Commission (1882) - which was the first Education Commission in the history of modern India specifically recommended vocational programmes. The commission categorically said that there should be two divisions of education in India - one, literacy education leading to the Entrance Examination for universities and the other should be a practical kind of vocational training. The Vocational training would enable the students to build a career in the commercial field.

University Education Commission

The University Education Commission (1949) chaired by Dr.S.Radhakrishnan underlined three vital aims of courses of study to be incorporated in the education system. The Commission categorically said, "The third aim of courses of study is Occupational Education, that is, preparation of the student for his life, work or for other specialized interests. Such courses are called vocational or technical or professional. While these phases of education are inter-related and seldom if ever should be pursued in isolation from each other, yet we can better understand the suitability of courses of study if we consider general and professional education separately." (University Education Commission Report, 1949, Page 118)

Secondary Education Commission

The Secondary Education Commission (1953) also emphasized the need for vocational education. The second most important point discussed under the topic 'aims of secondary education' by this Commission was 'Vocational Progress' which says, "By the end of secondary education, children should possess sound professional knowledge." Mudaliar Commission strongly favoured the inculcation of professional skills through technical education even at the secondary level. Based on its recommendations, many multipurpose schools/institutions were set-up throughout the country during the later years. Following were the specific suggestions of the Mudaliar Commission in this regard:

- Technical schools should be run, in large numbers, as multipurpose schools, or as a part of such institutions.
- In large towns, central technical institutes should be established so that the need of local schools can be met.
- Rules should be prepared for training through apprenticeship.
- Technical and Technological schools should be set-up in consultation with educationists.
- Acess for industrial education should be imposed.

Kothari Commission

The Kothari Commission accorded top priority to vocational education. Even the introductory letter of the Education Commission's Report written by Dr. D.S. Kothari to the then Education Minister had a clear mention of the need for 'Vocationalisation of Secondary Education'. The report dedicated an entire chapter to this aspect. Kothari Commission collected the details of the enrolments in vocational education courses in post-independence India. After a categorical analysis, it not only underlined the inadequate state of infrastructure available for vocational education in the country, it also recommended Central Government's special grants to various State Governments for enhancing the basic infrastructure needed for that. Following were the main recommendations of Kothari Commission regarding vocational education:

- By 1986, some 20 percent of all enrolments at the lower secondary level and some 50 percent beyond Class X should be in part-time or full-time vocational and professional courses.
- A strong effort, primarily by the Central Government is needed to encourage boys and girls particularly in the age-group of 14-18 to follow vocational and technical courses.
- A concerted and sustained programme by all Ministries and Departments is needed to interest parents and children in technical work, in vocational courses, in making technical careers attractive and in informing public opinion. Sponsored scheme of assistance to vocational courses, along the lines of the Smith-Hughes Act of the USA, under which direct subsidies are made from federal funds, could give an effective impetus to this programme.

- Schools themselves should be outward looking to the world of work and organize effective guidance programmes which can be assisted by vocational guidance committees at the district and state levels. These should be made up of representatives of interested Departments, employers – particularly industry – and teachers. They should develop guidance and career information material for headmasters, teachers and parents, organize courses on vocational guidance and provide career counsellors to act as a link between the schools and employers.
- The commission said that such courses at secondary stage will be predominantly terminal in character. There should always be opportunities for the exceptionally gifted child, through further study, to rejoin the main stream and move higher. But vocational courses should not be designed with the exceptional child in mind. Bridges can be built for him, but for the great majority these courses should be terminal, qualifying for direct entry into employment, and it should be clear to the parent, child, educator and employer what type of employment the trainee will qualify for.
- Children following the stream of general education should increasingly be introduced to the world of work through programmes of work-experience and applied science.

National Policy on Education (1969)

The need to establish operational links between the world of school and the world of work was mentioned in the National Policy on Education (1969) also. Subsequently, vocationalisation of education was propagated by the Central Advisory Board of Education Committee on Education Structure in 1972. It also found a significant place in the review of the education system done by the Janata Party in 1977 and the one done by Dr. Easwar Bhai Patel Committee, which suggested Socially Useful Productive Work (SUPW) at the State Education Ministers' conference in 1981. Repeated announcements of the protagonists of the scheme seem to have strengthened the idea of vocational education.

New National Policy on Education (1986)

Working on the same lines, the new National Policy on Education (1986) said, "It is important to view the programme of vocationalisation at the higher

secondary stage, as an important component of the overall school education both as a self-contained stage as well as feeder to the general and professional education at the tertiary stage." It further envisaged, diverting 10 percent of students at the plus two level to the vocational stream of education by the end of the Seventh Five Year Plan and 25 percent to the vocational stream at the end of Eighth Five Year Plan, with substantial assistance from the Central Government. It is noticeable here that Kothari Commission on Educational Reforms, 1966 felt that it should be possible to divert at least 50% of the students completing secondary education to vocational stream which will reduce the pressure on the universities and help the students in preparing themselves for gainful employment.

Kulandaiswamy Committee Report

The Kulandaiswamy Committee Report (The National Working Group on Vocationalization Education, 1985) had pitched this number at 15% to be achieved by the year 2000. However, at present only about 5% of the children of the age 16 to 18 are in the vocational stream. According to a recent NSSO data, only 5% of the population of the 19 to 24 age group have learnt skills through the vocational education stream. The corresponding figure for Korea is as high as 96% and there are several countries that have figures above 60%. Therefore it is imperative to impart sound vocational and skill education to those who require it to enable them to be part of the productive force in the interest of the growth of the Indian economy.

Vocational Education in View of New National Policy on Education (1986) as updated in 1992

The Programme of Action Document framed on the basis of the National Policy on Education, 1986 was further updated in 1992. This upgrade was the result of countrywide deliberations, consultations and consensus. The POA, reviewed in 1992, came out with a clear policy statement for vocationalisation of education and thoroughly charted out the actions to be taken in the years to come.

One should notice that all the policy statements made in the NPE, 1986 regarding the system for vocationalisation have been clustered with reference

to inter related objectives, priorities and programmes into four key areas so as to ensure logical development of programmes of action. These areas include "development of the system", "vocational education programmes", "programmes for special groups" and "out of school population" and "targets and preparations for development".

Following were the guiding principles put forth by the Programme of Action Document of the National Policy on Education 1986 in order to implement the Plan of Action for Vocationalisation:

Pre-requisites, Priorities and Guiding Principles:

- The policy clearly stipulates that a minimum of 10% of students at the +2 stage should be diverted to the vocational stream by the end of the Seventh Five Year Plan. This would be achieved largely by making use of the existing set up for administration, provision of research and developmental support, and certification of the vocational programmes. The existing system for this purpose will have to be suitably strengthened in order that it is functionally adequate to cope with the dimensions of the task during the Seventh Plan and could provide the nucleus for a more elaborate set-up needed for meeting greater challenges during the subsequent plans.
- A beginning, however, would have to be made during the Seventh Plan towards establishing the desired new structure because it will take some time for the structures to come into being and to develop professional competence and expertise for the task ahead. While the report of the National Working Group under the Chairmanship of Dr. Kulandaiswamy provides a suitable model, the principle of flexibility to suit the requirements of the respective States will be followed. It would allow the organizational structures to be modulated by the States according to the planned coverage, local contexts. It would be desirable to involve institutions of higher education in the vicinity of the target schools in the promotion and implementation of the vocational programme.
- While the target in relation to the +2 stage will be fulfilled and efforts will be made to exceed the target, modest beginning will be made during the Plan in the area of non-formal vocational education for drop-outs and other target groups. This will help to gain sufficient experience and expertise

before undertaking the expansion of the programme on larger scale in the 8th and subsequent plans. Greater account on the +2 programme in the current Plan will also create a pool of human resources needed for future expansion of vocational education both in the formal and non-formal sectors.

- In relation to the targets laid down in the Policy for the Seventh Plan it is necessary to recognize that there is a minimum level of funding below which a meaningful programme of vocationalisation cannot be implemented. A level of funding below this critical level will not make such impact and could indeed be counterproductive by discrediting the concept of vocationalisation.
- It is important to generate acceptability and respectability for vocationalisation of education. For this purpose (i) Efforts will have to be made by employment sectors of the economy to create a demand for vocationally trained manpower. Agencies and sectors will be expected to identify jobs which require vocational skills and in recruitment to these jobs preference will have to be given to the graduates of the vocational programmes. It may be recognized that access to such jobs by those holding higher but vocationally irrelevant qualifications has been a strong deterrent to the vocational education effort in the past. (ii) Linkages through bridge courses, modification of existing educational programmes, and other measures, should create a situation for greater professional advancement of the vocational graduates. Opportunities for higher education, continuing education and training will have to be created.
- The role of the +2 stage in schools vis-à-vis those of the polytechnics, ITIs and other certificate level institutions in providing vocational opportunities have to be outlined. While ITIs and polytechnics would cater generally to the organized industrial sector, the thrust in the school programme would be on the sectors not covered by them and on the potentially very much larger service sector. The school system would give greater attention to the areas of Agriculture, Agro-Agriculture, Agro-industries, Business and Commerce, Home Science and Health and Para-medical vocations. However, this demarcation is not meant to exclude institutions from taking up vocational programmes in other areas if a need is identified and other

institutional mechanisms are not available.

- On an average 10 additional schools will be taken up in each district by the end of Seventh Plan for vocational effort at the +2 stage with a minimum intake of 40 students.

The plan of action regarding the four areas mentioned earlier is given below.

Development of the System

- A Joint Council for Vocational Education (JCVE) will be set up by the MHRD, to be the apex body for policy planning and coordination of vocational education at the national level. In addition, a Bureau for Vocational Education will be established in the Ministry of Human Resource Development (MHRD).
- A Central Institute of Vocational Education (CIVE) under the NCERT will be set up to perform research and development, monitoring and evaluation functions.
- State Governments will set up appropriate bodies/organizations like State Councils of Vocational Education (SCVE), State Institutes of Vocational Education (SIVE), Departments of Vocational Education and district-level coordination committees as per their needs and requirements.
- Organizations like NCERT, CIVE, Regional Colleges of Education (RCE), SCERTs, Technical Teachers' Training Institutes (TTTIs) etc., will be strengthened by providing additional infrastructure and faculty positions to perform their functions effectively for the development of vocationalisation.
- State Councils of Vocational Education will organize district-wise needs assessment of vocational manpower, through area vocational surveys. NCERT will work out a scheme for need assessment, in collaboration with organizations like SCERTs, SIVEs, RCEs, TTIs, Industry and other technical institutions.
- Curriculum Development Cells/Centres will be set up to SIVEs/SCERTs and other selected professional institutions in specialized fields to design vocational programmes to meet identified needs and develop curricula. NCERT will develop model curricula and guidelines.
- Training and personnel for Instructional Resource Development will be

organized by NCERT, SCERTs, TTTIs, RCEs, CDCs, etc. The activity will be coordinated by CIVE at national level and SIVEs at state level.

- District Vocational Training Centres will be set up by MHRD with adequate facilities to impart skill training to vocational students in diverse vocations. Such institutions will have highly trained and skilled instructors. The facilities and faculty resources at these centres will be shared by vocational students from a number of schools in the area according to a coordinated plan.

Developing Links

- National Council of Educational Research and Training/Central Institute of Vocational Education will prepare a guideline document, listing the various organizations/agencies at National/Regional/State/District levels and indicating broadly the nature of their functions and responsibilities, to develop the right kind of linkage at state and at district levels.
- NCERT/CIVE, in collaboration with State Institutes of Vocational Education/ Councils of Educational Research and Training will evolve an information system for vocational education to ensure constant communication between the central and state governments, nodal agencies, directorates, district level authorities and the institutions along with participating employer organizations.
- MHRD will take steps to prepare a guideline document indicating the nature and functions of linkages between policy making bodies including Joint Council of Vocational Education, NCERT/CIVE, RCEs, TTIs, SCERTs/SIVEs, District Coordination Committees, Research and Development Organizations in education and training, District Vocational Training Centres, etc., The Ministry of Human Resource Development, the Board of Apprenticeship Training, Examination and various Certification Bodies including Boards of Examination.
- State Departments of Vocational Education will give directives and guidelines to vocational institutions to develop linkages between schools, employers and voluntary organizations in the community, to facilitate successful implementation of vocational programmes ensuring optimum resource utilisation of as well as effectiveness. State departments of

Vocational Education will prepare the scheme for the same.

Vocational Education Programmes

- Vocational programmes for 8+ students will be introduced on experimental basis on a limited scale in different states by State Departments of Vocational Education. SCERTs/SIVEs shall develop models in the light of the guidelines laid down by JCVE and NCERT. The models already in operation shall be studied by CIVE/NCERT for deciding about the need/justification for further expansion. In engineering trade, however, the Industrial Training Institutes (ITIs) whatever considered necessary shall continue to offer vocational programmes for 8+ students.
- Programmes at 10+ level will be formulated by SCERTs/SIVEs in the light of guidelines laid down by NCERT. The SCVEs shall facilitate the introduction of these programmes on the basis of result of area vocational surveys in selected schools in a phased manner keeping in view the national targets.
- To provide more opportunities to students for 10+ vocational courses in engineering and technology, 100 more vocational institutions shall be established.
- JCVE will provide in a phased manner 70% of the higher secondary vocational stream graduates stipend to undergo paid apprenticeship in appropriate industries. The implementation will be carried out by Regional Boards of Apprenticeship Training in collaboration with state departments of vocational education and other concerned agencies.
- Tertiary level programmes like Diploma in Vocational subjects, Advanced Diploma Programmes, and Degree Programmes will be introduced in selected polytechnics, affiliated colleges and universities, as well as in special Institutes setup for this purpose. JCVE and SCVEs shall develop schemes for creating such tertiary level vocational education facilities at non-university institutions. For the university level courses, the universities will develop model curricula in collaboration with NCERT/CIVE for starting programmes in vocational education at university departments and affiliated colleges.
- Entrepreneurial/self-employment skills will be developed in vocational

stream students, through curriculum, special training programmes as well as paid apprenticeship facilities.

- State Departments of Vocational Education and SCVEs will formulate necessary schemes for the purpose.
- State Directorates of vocational education will set up career guidance cells at district level. NCERT/CIVE shall formulate suitable norms for the purpose.
- NCERT/CIVE, SCERT/SIVEs, RCEs, CDC, TTTIs and other institutes will develop bridge/transfer courses in accordance with the guidelines laid down by JCVE. Suitable schemes for course offering shall be developed by SCVEs.

Programme for Special groups and out of school population

Involving Industry/Community

- Joint Council for Vocational Education will evolve schemes to involve the public/private sector industry in vocational education through appropriate incentives/rewards. Also, JCVE would arrange to bring about appropriate legislation to ensure their contribution.
- JCVE/SCVEs/State departments of vocational education will identify and support voluntary organizations engaged in the vocational education of special groups like women, tribals, handicapped and disabled etc. Suitable scheme for this will be formulated by JCVE.

Non-Formal Programmes

- All polytechnic institutions, ITIs, other vocational and technical training institutions, selected higher secondary schools, colleges and special institutes will engage themselves in imparting vocational education through non-formal programmes, to the rural and unorganized sector in a phased manner. Suitable schemes for the purpose, like the Community Polytechnic Scheme, will be formulated by JCVE for respective categories of institutions.
- Selected engineering colleges, Polytechnics, Industrial Training Institutes

and other Vocational and Technical Training Schools/Institutes will engage themselves in conducting part time vocational courses for the benefit of special groups and those already employed. State departments of Vocational Education will formulate necessary schemes for the purpose and promote their implementation. A suitable scheme for undertaking such activities in selected institutions will also be formulated by JCVE.

Setting up Special Institutes

- Special Vocational Training Institutes for women, tribals, and other weaker sections of the society to meet identified needs will be established by the State Departments of Vocational Education.
- Centres for vocational training of the handicapped will be set up in institutions like special institutes of relevant/useful Technology, District Vocational Training Centres, ITIs and Polytechnics to equip this section of the society with appropriate employable skills. State Departments of Vocational Education will formulate necessary schemes for the purpose and promote their implementation through them and/or other concerned departments, JCVE will formulate a central scheme for establishing such units.

Targets

- For 10% diversion by 1990, provision will have to be made for 2.5 lakhs. In view of the action already taken, additional requirements for 2.5 lakh students can be met by marginal expansion of the infrastructure and resources but for 25% diversion by 1995 advance action will have to be taken by the States and Central Governments in terms of building a requisite level of infrastructure and facilities.

Teacher Training

- A phased and coordinated programme for the training of teachers, principals and key officials in the vocational education system using the available infrastructures in organizations like NCERT, RCE, SIVEs, TTTIs, Centres for Curriculum Development (CDC), State Institutes of Education, will be undertaken. Scheme will be drawn up by concerned institutions in accordance with guidelines given by JCVE. Crash programmes will also

be organized by concerned institutions to meet the immediate requirements for which a scheme shall be formulated by JCVE.

- NCERT/CIVE and SCERT/SIVEs will evolve and implement phased programme for the development of text-books and other instructional materials on a large scale to meet the diverse needs of a variety of vocational programmes and to avoid duplication of efforts to the extent possible. JCVE/SCVE will formulate suitable guidelines for the same.
- State Department of Vocational Education will evolve schemes to utilize community resources, both in terms of part-time teachers and by way of training facilities to industries, KVIC, KRKs, farms, etc. to enhance the quality of instruction.

Facilitating Employment

- Steps will be taken to change recruitment rules for selection to Government Departments at Central and State levels and Public Sector in order to give due weightage to vocational stream graduates to posts appropriate to their vocations.
- A Monitoring and Evaluation Cell in the Bureau of Vocational Education will be set up with appropriate linkages to CIVE/NCERT, SIVE/SCERT and other agencies involved to facilitate implementation.
- NCERT/CIVE and SCERT/SIVE will formulate schemes for periodic review of vocational programmes in accordance with the general guidelines laid down by JCVE.

Emphasis accorded during Eleventh Five Year Plan

Last but not the least, Prime Minister Manmohan Singh in his Independence Day address in 2006, also marked the need for vocational education. He talked of setting up a Vocational Education Mission. He said that vocational and skill education has to be considered earnestly during the Eleventh Five Year Plan if we have to maintain high economic growth through increased productivity, which in turn will be possible through acquisition of necessary skills. Consequently, a Task Force was constituted by the Planning Commission.

Today with an annual growth rate of 2.01 for the total factor productivity (the efficiency with which capital, skills, labour and other inputs are

transformed into final output) the overall economy of India has shown a rapid growth over the past decade. Sustaining this economic growth too needs a continuous rise in the country's labour productivity. Technological innovations have also fuelled the demand for skilled labour/educated workers especially those having vocational/technical skills.

Creating adequate skilled human resource base, which can meet the ever-growing demand of skilled manpower in international as well as national markets, therefore, is an essential task before the nation. This mammoth task becomes more challenging when one has to compete with countries like China and Japan. The Eleventh Five Year Plan Document also reflects the urgency of creating skilled manpower. It says, "Millions of young women and men in the age group 15 to 24 join the labour force every year. Of these, many are unemployed, or underemployed, and not earning sufficient income to meet their family expenses. A vast majority of them are in the informal sector (formal sectors provide employment to hardly only 7% of the labour force). They lack requisite skill, knowledge, attitudes, social protection, security etc."

The National Knowledge Commission has also recommended the immediate need to expand the scope of vocational education and training in the country. It says, "An important aspect of India's rapidly growing economy is a skilled and educated workforce, and a demographic advantage over ageing Western societies. Technicians and other skilled workers and craftsmen form the backbone of manufacturing and infrastructure development. There is a growing demand for skilled workers but data suggests that this demand is not met by the existing system, since the skills imparted do not match employer needs. In order for the system to become more relevant in the changing context and to exploit this demographic advantage in the future, there is a need to create a model of imparting vocational education that is flexible, sustainable, inclusive and creative."

Some of the issues under consideration of National Knowledge Commission are:

- strengthening the current institutional structure,
- alternative delivery structures in order to expand capacity, including public private partnerships, computer based training, distance learning and a decentralized model that takes into account local needs and aptitudes
- meeting the increasing demand for skilled workers and provide training to

workers in the informal and unorganized sectors
- regulatory and accreditation framework
- national re-branding exercise to address the negative association of vocational education with manual labour.

Conclusion

It's a matter of relief that over the years the scope of vocational education and skill based training has acquired a considerable base in the country. Today the number of functioning polytechnics has gone up to 4,274 (1,654 in government sector and the remaining 2,620 in the private sector). In 1953 the number was merely 54. As on 31 March 2001, over 17,800 public / private sector establishments were covered under the Apprenticeship Act and the number of seats allocated were 2.20 lakh, out of which about 1.58 lakh seats were utilized. Today the Craftsmen Training Programme is being imparted in 43 engineering and 24 non-engineering trades to reduce unemployment. The Government has established the National Vocational Training Institute (NVTI) and 10 Regional Vocational Training Institutes (RVTI) exclusively for women. The present total capacity of these institutes is 2,068.

Still, in spite of available infrastructure and facilities, skill development and training in the country is highly inadequate. Every year, 5.5 million students pass out of Class 10, of which 3.3 million go to Class 11, leaving 2.2 million out of the education stream. There are, besides, those who dropout after Class 8, whose number is 19 million. These are the people who look for Vocational Training and Self Employment avenues. Therefore, immediate attention has to be paid to this 21 million-target group. As against this, available formal training capacity of the country is only 2.3 million students, which leaves a gap of 18.7 million. Therefore, the entire system of vocational education (ITI institutes, polytechnics, apprenticeship training programmes etc.) needs to be revamped to fill up this gap.

CHAPTER THREE

Vocational Education: A Core Strategic Sector Still Missing Top Priority

The education system in India predominantly follows the colonial pattern which was originally prescribed by Lord Macaulay under the British rule. The system was best suited for those days as the foreign rulers wanted to engage native Indians to work in different positions in the administrative hierarchy. Hence, the curriculum was drafted in such a way so that students passing out from the colleges with degrees in their hands could get the job of clerks and those who dropout from the schools go for menial jobs or recruited for military. There was no or very little importance given for vocational education. Fortunately, India had the tradition of learning vocational skills from their forefathers which for centuries did not allow the rich tradition of arts and crafts from dying.

Vocational education or training is always considered as a series of organized and controlled learning experiences through the institutionalized process used to educate or train any person or persons for a given employment. However, in India most of the vocational skill development training takes place in the non-formal sector with persons learning the skills on the job with very little assistance and guidance from their masters. This type of training goes for many generations and they are engaged in the informal and unorganized sectors as contractual labourers. A lot of ancillary industries mostly depend on such workers.

The traditional educational programmes have failed to prepare the right products for entry into the employment market. The courses are very much divorced from actual needs. The prevailing academic preparation is very theoretical and disregards the utility aspects. Nevertheless, there is such a charm for university education that more and more individuals seek admission into higher education, and more and more colleges are opened every year. Whosoever leaves

school after passing the senior secondary education, irrespective of his/her level of performance at the school level, aspires to enter the university and thereby passes a few most precious years of his/her youth till the realization dawns that the effort will not lead him/her to any fruitful employment situation. On the other hand, the vocational education is likely to bridge the gap between the educational courses and the requirements of industrialization. The underlining fact is that if the vocational education programmes are given greater emphasis at the school leaving stage, a great many number and a good proportion of the young genre may be directed directly to the world of work instead of its futile channelization through higher education. Hence, spending on vocational education has therefore, been a wise investment both for the nation and the individuals for creating trained manpower.

Vocational skill development training in its broadest sense pertains to all occupations and all people. In a world where science and technology are opening new dimensions and extending the horizons, it is logical to think that if the human potential is to be fully explored and utilized, it requires the people to be educated/trained properly with the employable skills, motivation and the spirit to enquire further so as to make effective partners in development. Moreover, the impact of technology on occupations, the tendency of employers to set higher educational requirements, and the need for employees with specialized training have made vocational preparation imperative. If we look into the Indian System of Education and compare the same with that of the most advanced industrialized countries like United States of America, United Kingdom or Japan we can certainly notice the remarkable difference, meaning lacuna or weakness as it does not give due importance to vocational education/training. As a result there is a mismatch between the skilled manpower required and skilled manpower available. Every year India produces millions of graduates who do not have the specific skills required for the employment market and if we allow this trend to continue it would certainly hurt/hamper our economic growth in the long run. To change this situation first we need to change our mindset as we generally look down on vocational education/training and greatly obsessed with obtaining a degree from a university. This has resulted in a situation where on the one hand there is a large number of unemployed graduates

available while on the other hand there is a huge shortage of skilled workers/trained manpower.

To rectify this situation vocational training programmes in India need to be promoted in a big way. These days we are very much engrossed into empowerment discourses but what we have to understand is that vocational education is one of the most important strategic sectors which demands top priority. Without harnessing it the discourses over national development, meaning nation's economic development and people's empowerment will lead us nowhere.

What is Vocational Education?

Vocational education is defined by many but the ultimate centre point reflected in the definitions is training given to persons on various vocations to enable them suitable for the jobs. The definitions are:

Wikipedia

Vocational education (education based on occupation or employment), also known as Career and Technical Education (CTE) or Technical and Vocational Education And Training (TVET) is education that prepares people for specific trades, crafts and careers at various levels from a trade, a craft, technician, or a professional position in engineering, accountancy, nursing, medicine, architecture, pharmacy, law etc. Craft vocations are usually based on manual or practical activities, traditionally non-academic, related to a specific trade, occupation, or vocation. It is sometimes referred to as technical education as the trainee directly develops expertise in a particular group of techniques. It is not, however, further education.

Vocational education may be classified as teaching procedural knowledge. This can be contrasted with declarative knowledge, as used in education in a usually broader scientific field, which might concentrate on theory and abstract conceptual knowledge, characteristic of tertiary education. Vocational education can be at the secondary, post-secondary level, further education level and can interact with the apprenticeship system. Increasingly, vocational education can be recognized in terms of recognition of prior learning and partial academic credit towards tertiary education (e.g., at a university) as credit; however, it is rarely considered in its

own form to fall under the traditional definition of higher education.

Vocational education is related to the age-old apprenticeship system of learning. Apprenticeships are designed for many levels of work from manual trades to high knowledge work.

However, as the labour market becomes more specialized and economies demand higher levels of skill, governments and businesses are increasingly investing in the future of vocational education through publicly funded training organizations and subsidized apprenticeship or traineeship initiatives for businesses. At the post-secondary level vocational education is typically provided by an institute of technology, Polytechnic, university, or by a local community college.

Vocational education has diversified over the 20th century and now exists in industries such as retail, tourism, information technology, funeral services and cosmetics, as well as in the traditional crafts and cottage industries.

Encyclopedia

Vocational education is the instruction intended to equip persons for industrial or commercial occupations. It may be obtained either formally in trade schools, technical secondary schools, or in on-the-job training programmes or, more informally, by picking up the necessary skills on the job.

AICTE

Vocational education or Vocational Education and Training (VET), also called Career and Technical Education (CTE), prepares learners for jobs that are based in manual or practical activities, traditionally non-academic and totally related to a specific trade, occupation or vocation, hence the term, in which the learner participates. It is sometimes referred to as technical education, as the learner directly develops expertise in a particular group of techniques or technology.

Generally, vocation and career are used interchangeably. Vocational education might be classified as teaching procedural knowledge. This may be contrasted with declarative knowledge, as used in education in a usually broader scientific field, which might concentrate on theory and abstract conceptual knowledge, characteristic of tertiary education.

Vocational education can be at the secondary or post-secondary level and can interact with the apprenticeship system. Increasingly, vocational education can be recognized in terms of recognition of prior learning and partial academic credit towards tertiary education (e.g., at a university) as credit; however, it is rarely considered in its own form to fall under the traditional definition of a higher education.

Up until the end of the twentieth century, vocational education focused on specific trades such as for example, an automobile mechanic or welder, and was therefore associated with the activities of lower social classes. As a consequence, it attracted a level of stigma. Vocational education is related to the age-old apprenticeship system of learning.

However, as the labor market becomes more specialized and economies demand higher levels of skill, governments and businesses are increasingly investing in the future of vocational education through publicly funded training organizations and subsidized apprenticeship or traineeship initiatives for businesses. At the post-secondary level vocational education is typically provided by an institute of technology, or by a local community college.

Team Lease Labour Report, 2007

Vocational education can be broadly defined as a training programme, which prepares an individual for a specific career or occupation.

The key objective of vocational education is to help develop individuals' skills in very specific fields by giving them applied or concrete experience in specific vocations or trades. This not only makes them employable but also helps create opportunities for entrepreneurship.

The term Technical Education and Vocational Training are sometimes used synonymously. However, as per present practice, the term Technical Education refers to post secondary courses of study and practical training aimed at preparation of technicians to work as supervisory staff. The term Vocational Training refers to lower level education and training for the population of skilled or semi-skilled workers in various trades and it does not enhance their level with respect to general education.

Main agencies involved in Technical and Vocational Education and Training (TVET) policy formulation and its implementation include:

- National Skills Development Council
- Ministry of Human Resource Development
- Department of School Education and Literacy (for TVET programmes in senior secondary schools)
- Department of Higher Education (for Technical Education)
- Ministry of Labour and Employment , Directorate General of Employment and Training (for Vocational Training)
- There are some 20 Central Ministries and Departments which run small TVET programmes.
- Directorate of Technical Education
- Private Sector
- NGOs

Opportunities for Vocational Education in India

India is emerging as one of the world's largest consumers of education services with a target population of close to 450 million. This number is expected to increase to 486 million by 2025, exceeding the combined target population of China (354 million) and US (91 million). In India, public and private spending aggregates to approximately US$ 100 billion per annum and private sector spends on education have grown at a Compound Annual Growth Rate (CAGR) of 10 percent since 1994. In fact, compared to other developed countries, private sector spending in India is relatively higher (4 percent of GDP, as seen in the table).

Education Expenditure as Percentage of GDP

Country	Public	Private
UK	5.0%	1.2%
USA	4.8%	2.3%
India	**3.5%**	**4.0%**
Russia	3.8%	2.3%
China	3.8%	1.3%

Source: National Bureau of Statistics of China, 11th Five year Plan (Govt. of India), OECD

India's economy has witnessed continuous positive growth, which has led

to a huge demand for a workforce in India. Recent economic surveys show that employment growth has been the largest in the Services sector, and this trend is in all likelihood to grow in the future. Also, technological product and service innovations have fuelled the demand for more skilled workers. This demand has not been met, due to non-availability and poor quality of skilled workers. There is also a lack of training facilities and skill development in as many as 20 high-growth industries such as logistics, healthcare, construction, hospitality and automobiles.

India has close to 5500 public Industrial Training Institutes (ITIs) and private Industrial Training Centres (ITCs) as against 5 lakh similar institutes in China. As against India's 4 percent formally trained skilled workers, countries like Korea or even Botswana have 96 percent and 22 percent vocationally trained workforce respectively. This leads us to believe that there are tremendous opportunities for vocational education and training in India. These opportunities favour the organizations willing to enter the vocational education market as well as the students wanting to take up vocational courses to increase their employability.

Manpower Requirements in Key High Growth Services

Services Sector	Market Size 2008 (US $ billions)	Market Size 2013 (US $ billions)	Additional Direct Employment 2008–13 (million)	% of Population Requiring Vocational Training
Retail	410	535	2 to 4**	90
Healthcare	40	80	3.5 to 4*	20
Banking and Insurance	28	47	3.35	80–85
Construction	71	114	18	30–40
Hospitality	23	39	1.6–2	65–70

**Doctors and nurses estimates of~2million jobs are not considered in this dataset*
*** Estimated only for organized retail*
Source: Technopak analysis, Industry sources

Current Need-gaps in Key Industries

Retail

There are about 1.6 million people employed in India's organized retail sector and another 2- 4 million new recruits are expected in the next 5 years. Almost 90 percent of these are expected to be in front-end jobs where vocational training is most required. The current in-house capabilities and outside training institutes are not equipped to impart skills to this large number. The biggest skill-gaps exist in areas such as:

- Sales and customer management
- Store maintenance
- Visual merchandising
- Merchandise planning
- IT (billing package, merchandise planning tool, bar-codes, etc.)

Construction

The construction industry can be classified into real-estate segment, which is growing at a CAGR of 30 percent and infrastructure segment, which is growing at a CAGR of 15 percent. There is therefore a need to mobilize manpower for these industries which are growing at a faster rate than the overall economy. The difference in skill-based manpower within the two segments is:

- Real Estate: It needs a relatively higher number of designers, carpenters, plumbers, electricians, i.e., semi-skilled professionals.
- Infrastructure: There is a greater need for high-skilled professionals such as engineers, though the need for semi-skilled workers such as supervisors, quality controllers, etc. is also significant.

Similar shortages of manpower and a requirement for skilled and trained workers are quite evident in other key growing sectors as well. In all, it translates into a big opportunity for private players to enter the vocational education and training segment to cater to the ever increasing demand for skilled manpower.

Since the government installed capacity is neither adequate nor fully utilized due to a plethora of reasons, ensuring private participation in vocational education and training would ensure far greater success in responding effectively to the needs of the economy.

Challenges for the Vocational Education and Training (VET) Sector

Though there is a growing demand for vocationally trained workers, the segment per se has not really picked up in India because of a variety of reasons.

Current Infrastructural Facilities and Poor Utilization

The Kothari Commission on Educational Reforms, 1966 had visualized that 25 percent of students at the secondary stage would opt for the vocational stream by the year 2000. However, the actual implementation of the plan has turned out to be quite poor. Less than 7000 schools have received grants and at present only about 5 percent of the children in the 16-18 age groups are in the vocational stream. Compared to India, these figures are far higher in not only developed economies but also in some developing economies as shown in the table:

International Comparisons on the Size of Vocational -Technical Secondary Education

Country	Secondary Enrolment Ratio	No. of students in thousands	Vocational -Technical Share (%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
South Africa	77	–	1

Source: World Bank Report

More recent information suggests that the enrolment figure is less than 3 percent of the students attending Grades 11-12. The weighted average capacity

utilization of the schools receiving grants is less than 50 percent. This implies that 3.5 lakh to 4 lakh students enrolled in vocational education comprise 3 percent of the 15 million students or more in Grades XI and XII. Thus, what it eventually means is that less than one percent of students who had entered in Grade one over the last decade or so would have eventually participated in vocational education. It is also widely recognized that the existing student capacity in ITIs/ITCs largely goes unutilized.

Societal Pressures

Historically, social stigma has been attached to vocational education and training as manual or industrial jobs are perceived as low paying and meant for low caste communities. Largely because of this, students who completed their higher secondary education are more inclined towards academic or professional courses. Due to this attitude, the vocational education and training segment has suffered from poor enrolment.

Training of Trainers

Good trainers have always been an issue with vocational education in India. Because of societal pressures, the segment has failed to attract good mentors. Teachers in general are poorly paid in India and the salaries of teachers in VET have been at the lower end of the spectrum. In many cases, in rural polytechnics or technical institutes, the teachers themselves have had only basic education.

Revision of Existing Curricula and Introduction of New Courses

In some states, the course curriculum has not been updated for twenty or more years, so even if students have completed VET qualifications, they may not be employable in modern industry. Due to the transition of the Indian economy from being agriculture based to knowledge based, it is all the more imperative to have new and revised courses which fulfill the requirement of modern industries. Of the trained candidates, the labour market outcomes as seen from placement/ absorption rates are reportedly very low. An ILO study done in 2003 reports that in the states of Odisha (Orissa), Andhra Pradesh and Maharashtra the percentage of graduates found to be in wage employment/self-

employment upon graduation from ITIs were 16.2 percent, 41 percent and 35 percent respectively. The corresponding percentages for those graduating from ITCs were 21.3 percent, 22.8 percent and 35.6 percent respectively.

Inflexible Approach

The current framework requires minimum qualifications, varying from Class VII to XII, for participation in formal vocational training. While this may be necessary for certain trades, it is unnecessarily restrictive in others. Additionally, once an individual leaves mainstream education for vocational training, there is no provision for him/her to return to the former at a later stage. This not only encourages a general view of work and study being mutually exclusive options, it also increases the perceived risk of taking up vocational training. Moreover, there is not enough emphasis on short training courses designed to impart specific skills. Vocational education and training in India rely exclusively on a few training courses of long duration (2-3 years) covering around 100 skills. In China, on the other hand, there exist about 4000 short-duration modular courses which provide skills more closely tailored to employment requirements.

Association with Industries

While there is a provision for the participation of industry representatives/experts in the setting of curriculum and hiring of apprentices, there is still a significant mismatch between industry skill requirements and the talent pool emerging from ITIs/ITCs. This has contributed to low success in the labour market for VET graduates. The private sector largely undertakes in-house training programmes but training to outsiders is very limited, restricted to catering to their own felt needs in the nature of captive skill development. This is largely because of the fear of losing trained skilled workers to competition which has resulted in constant shortage in private investment in this area.

The Road Ahead: Key Policy Initiatives

Encouraging Public–Private Partnership

The central government too has realized the importance of industries

in the creation of a suitably trained workforce for the country's labour requirement. The Directorate General of Employment and Training (DGET), Ministry of Labour) initiated a pilot programme 'Formation of Institute Managing Committee (IMC) for ITIs' in 1998 in collaboration with the Confederation of Indian Industry (CII) to improve cooperation between Industry and ITIs. Under this concept, Industry is associated as partners rather than advisors. An Institute Managing Committee (IMC) is formed at the ITI level, which manages some of the activities of ITIs. An IMC comprises members from State Government, Industry, ITI and others. The chairperson of the committee is a representative of the local industry. This committee works under the supervision and control of the Steering Committee formed at the state level. The concerned State Secretary in charge of the vocational training at state level is the chairperson of the Steering Committee. The IMCs have already been formed in 515 ITIs in 28 states. Major benefits from IMCs are active participation of industry, organizing campus interviews, arranging on-the-job training and industrial visits, training and development of faculty, vocational guidance and counseling, better upkeep of equipment, resource generation and utilization by the ITI itself.

Upgradation of 500 ITIs into Centres of Excellence (CoE)

A scheme for upgradation of 500 ITIs into CoE to produce world class technicians has been launched by DGET. Already 100 ITIs have been chosen for upgradation from domestic funding while another 400 are proposed to be taken up under a project with the World Bank's assistance for which negotiations are taking place. Multi-skill modular courses with active participation of industry are being introduced for different industrial sectors. The industry would also be involved for testing and joint certification.

Skill Development Initiative

To fulfill the budget announcement of 2005–06, a scheme-'Skill Development Initiatives' to train one million persons in 5 years and

thereafter one million every year is being taken up with a Public-Private Partnership model. It is envisaged to utilize available infrastructure with spare capacity to impart skill training to these persons.

National Mission for Skills

The Prime Minister announced the setting-up of the National Mission on Skill Training in his speech on Independence Day, 2006. The Ministry of Labour and Employment accordingly has undertaken the task of setting up a 'National Mission for Skills' under its control for a period of 5 years initially so as to ensure that envisaged targets are met and the workforce is equipped with the necessary skills to be competitive in the world economy.

Vocational Education Scheme of UGC: Objectives & Status of the Courses

Over the years the University system has done precious little to increase the employability of the students. Some of the students who passed out of the universities could find bank, clerical and office jobs etc. It has been observed that generally the degree level study was most un-focused. This in turn was not helping students to develop their critical perspective, commitment to a certain discipline neither an orientation aimed at contributing something in the future nor enable them in attaining a job. So a need was felt to re-orient the student community to develop capabilities required for self-employment. This was particularly so because of the limited absorption capacity of the organized sector and the withdrawal of the state from the position of provider of jobs since the beginning of liberalization in the late 80s. The need for re-orientation had become utmost important after 1991. New job opportunities and diversification of the informal sector since liberalization put further pressure on the student community for entry into gainful employment, particularly self-employment. This was the reason for introducing vocational education from the year 1994-95 at the under-graduate level. The basic purpose of the vocational courses introduced in 1994-95 was to develop capabilities of the students

required for self- employment. This was done while keeping in view the vast changes that has occurred in the economy ever since liberalization. This has also been done to address the problems faced by students who passed out the conventional degree courses. The conventional degree courses had to include one subject aimed at increasing the employability of the students. This has been done while keeping in view the revolution in information technology, computer applications, new modes of communications, giant leaps in electronic and scientific fields, new business practices and development of bio-technology and agro-processing. While introducing the courses, the university authorities were expected to look into local conditions and needs and to improve the employability of girl students also. Altogether there are 35 subjects in four different streams in the vocational curriculum. The four streams are:

1. Arts, Humanities and Social Sciences
2. Commerce and Economics
3. Sciences
4. Engineering and Technology

Emphasis during XI and XII Five Year Plans

The XI Five Year Plan Documents say that during this plan period Vocational Education and Training (VET) should be provided to those who need skills for sustainable livelihood and to meet the challenges of the world of work. The concept of "Vocational Education and Training to All" should be promoted through the formal education system and non-formal education system. It should cater to the needs of different target groups, with special provisions for disadvantaged groups viz., girls/women, scheduled castes, scheduled tribes, persons with disabilities, and persons living in difficult circumstances. It has also suggested a number of measures to be implemented in this regard.

The education policy in XII Five Year Plan not only places the greatest emphasis on improving learning outcomes at all levels but also prioritizes four areas - Access, Equity, Quality and Governance.

Conclusion

To conclude we wish to give the statement made by Dr. APJ Abdul Kalam, former President of India in his book "India 2020: A Vision for the New Millennium", p.22: To quote -

"What does the developed nation status mean in terms of the common man? It means the major transformation of our national economy to make it one of the largest economies in the world; where the countrymen live well above the poverty line, their education and health is of high standard; national security reasonably assured, and the core competence in the certain major areas get enhanced significantly so that the production of quality goods, including exports, is rising and thereby bringing all-round prosperity for the countrymen. What is the common link needed to realize these sub-goals? It is the technological strength of the nation, which is the key to reach this developed status."

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CHAPTER FOUR

Institutional Framework for Vocational Education & Training in India

Earning livelihood has always been the core concern of every adult individual across the civilizations. Hence, various educational philosophies enunciated by eminent philosophers have always advocated for such contents being part of education system which can impart skills/trainings to the learners so that they can sustain economically. Shri Aurobindo, an eminent philosopher and educationist, said that – "Each human being is a self developing soul, the educational curriculum should be designed in such a way that it should enable and help the learner to educate himself, developing his own intellectual, moral, aesthetic and practical capabilities and grow as a better human being. It should illuminate the darken areas and awaken the dormant centers of the brain." Another eminent philosopher and economist Adam Smith well recognized this aspect when he said, - "Education confers great indirect benefits even on the ordinary workman. (Gupta - 2001) It stimulates its mental activity, it fosters in him a habit of wise inquisitiveness, it makes him intelligent, more ready; more trustworthy in his ordinary work, it raises the time of his life in working hours; it is an important means towards the production of material wealth".An ardent advocate of the overall development of massages, Mahatma Gandhi in his educational philosophy emphatically said "For the all-round development of boys and girls all training should as far as possible be given through a profit yielding vocation." But practical capabilities or abilities or profit yielding vocation for the production of material wealth may vary with time and context.

In Indian context one can easily decipher that elders of the families working together with their wards have handed over these capabilities (craftsmanship) to the generation next since time immemorial. This tradition has continued effectively till the advent of British rule in India. It is a well known fact that India was having a well developed education system even before the British

entered India. During British period this centuries old time tested Indian education system received a big jolt. British rulers in order to proliferate their power and maintain their empire in India wanted such an education system which can create manpower suitable for enacting their nefarious designs in India. What Lord Macaulay said about India in British Parliament in 1835 aptly exposes the very design of the rulers behind the educational reforms they wanted to carry out later in India. Macaulay said, "I have traveled across the length and breadth of India and I have not seen one person who is a beggar, who is a thief. Such wealth I have seen in this country, such high moral values, people of such caliber, that I do not think we would ever conquer this country, unless we break the very backbone of this nation, which is her spiritual and cultural heritage, and, therefore, I propose that we replace her old and ancient education system, her culture, for if the Indians think that all that is foreign and English is good and greater than their own, they will lose their self-esteem, their native self-culture and they will become what we want them, a truly dominated nation."

Even during those days the process of educational reforms initiated by the British Government in India attracted much criticism from native scholars, leaders, philosophers like Mahatma Gandhi and Shri Aurobindo. British rulers laid down the foundation of state owned formal education system. The obvious output of this system of education was a group of English educated people skilled enough to support the clerical/administrative work in the country. It didn't take much time for the intellectuals of the country to notice the inherent inefficiency of the prevailing system. Hence, emerged the demand for opening new courses not only in the field of applied sciences and medicine but in general studies too. Day by day developing economics and newly emerging trades of industries also insisted the educational planners to design new and diversified courses. It can be reminded that Applied Mechanics, Computer Science & Engineering, Electronic Engineering, Humanities & Social Sciences are comparatively new than the classical fields of engineering like mechanical, electrical, civil etc. Similarly journalism, comparative literature, food & nutrition, social work, human rights, population education too are very recent developments.

Like higher education, the horizon for vocational education had also been

expanded enormously during the last couple of decades. A country committed itself to transform into a developed nation needs to harness maximum out of its own able and capable citizens. Hence, policy makers at the helm of affairs have changed the planning accordingly. Now vocational education in India is imparted both in schools and technical institutions. It would be necessary to clarify that vocational training and vocational education both serve the purpose of imparting skills for gainful employment to students from 8th to 12th standards, bear certain distinction from each other.

Vocational Training

Vocational training programmes in India fall outside the formal schooling cycle. It is institution-based with varying entry requirements as well as course durations. The proportion of practical to theoretical instruction in vocational training programmes is also higher than in vocational education. It is open to students who leave school after completing anywhere from Grade VIII to XII. Programmes are operated by Industrial Training Institutes (ITIs) and Industrial Training Centers (ITCs). It comes under the auspices of the Ministry of Labour and Employment (MoLE) and the administrative responsibility is held by the Directorate General of Employment and Training (DGET), located within the MoLE. ITIs and ITCs operate under the guidance of DGET, which formulates policies and lays down standards and technical requirements such developing curricula, instructor training, and skills testing. It governs a number of specialized training-related institutions.

Vocational Education

Vocational education in India refers specifically to vocational courses offered in school Grades 11 and 12 under a centrally sponsored scheme termed 'Vocationalization of Secondary Education'. Vocational education falls under the purview of the Ministry of Human Resources Development (MHRD).

In this article the authors tried to give as much information as possible about a few vocational institutions functioning in India. These institutions are Industrial Training Institutes (ITIs), Polytechnics, Community Polytechnics, Community Colleges and Jan Shikshan Sansthans (JSSs).

Industrial Training Institutes (ITIs) & Industrial Training Centres (ITCs)

It is important to recognize that with more than 35% of citizens aged below 15 years, 700 million young people below 35 years and population growing at 1.8% per annum, India is expected to become the global powerhouse of human resource by 2025. In the emerging era of knowledge driven society, declining workforce and aging population in developed countries, India with its large young population has the opportunity to position itself as a quality source of skilled manpower for the world. With this huge young manpower India can provide the workforce required for doing the skilled jobs in the Industries, indigenous and aboard.

The government owned Industrial Training Institutes (ITIs) and private establishment called Industrial Training Centres (ITCs) are the backbone of Vocational education in India. Enrolment-wise, the ITIs are much larger, while most private ITCs offer only a few trades. Therefore, in some states, the number of public ITIs is in dozens while the number of private ITCs is in hundreds.

Before going to the details of ITIs it may be appropriate to know how they came into existence and in what circumstances. For this, one has to know about the craftsmen training schemes first.

Craftsmen Training Schemes

The term craftsman is a broad one. Skilled Craftsman has been defined by the Planning Commission thus: "a worker who belongs to an occupation generally accepted as skilled and found in several industries". Some of the trades have higher skill elements. One end of the spectrum, we have trades where manipulative skills predominate, and on the other end, we have trades where conceptual skills predominate. With the development of high technology, we have a new category called technologically highly skilled persons. The planning of training facilities and policies of training are closely linked with the needs and demands of developmental activities. Indian economy is confronted with a dual economic problem. On the one hand we have abundance of unskilled labour, and on the other hand we have shortage of particular skilled categories needed for the development. Thus, we are faced with the problem of finding suitable avenues for unemployed skilled category and ensure training

or retraining them in sufficient number of particular skilled or high-tech areas.

Government of India started the `War Technicians Training Scheme,' in 1940, long before the new factory system of manufacturing took root on Indian soil. The concept of a trained apprentice 'antevasi' was well rooted in the craft guilds of the sub-continent. The new entrant received training from a 'guru' and was known as 'Karamkar', upon completion of training. The system was prevalent in the metal working, metal cutting, and weaving trades. Until the Second World War, this apprenticeship was the only system used in the skill training to train craftsmen and its application as a productive system was limited to Railways, Ordnance works, and few heavy industries. The Apprenticeship Act for training young workers established first in 1850 was brought out in a more comprehensive manner in 1961 as the Apprenticeship Act, by the Indian Parliament and approved by the President of India on December 12, 1961.

The War Technician Training Scheme was followed by the Technical Training Scheme in 1946. All these schemes were modified and merged into a comprehensive scheme known as Vocational Training Scheme, designed for training demobilized service personnel, but was wound up in July 1950. The Technical Training Scheme and the Vocational Training Scheme used to train about 70,000 persons annually, in the commercial, clerical, semi-professional occupations, agricultural, cottage and small scale industrial sectors. It was in 1950, after completion of the ex-servicemen's training schemes, the training of civilians was started on a national basis by establishing Industrial Training Institutes (ITIs) by the Government of India. In 1956 the day-to-day administration of these institutes were transferred to the state governments on the recommendation of the Shiv Rao Committee and from April 1, 1969 the financial control of the Industrial Training Institutes in the states as well as the Union Territories was transferred to the respective state governments/Union Territories. The financial assistance was granted to them in the form of bulk grant in consultation with Planning Commission and the Ministry of Finance.

It is to be noted here that under the Constitution of India, vocational training is a concurrent subject in which both the central and state governments have say. The development of training schemes at national level, evolution of policy, laying of training standards, procedures, conducting of trade tests, certification, etc. are the responsibility of the central government, whereas the

implementation of the training schemes largely rests with the state/UT governments. However, in order to avoid confusion the responsibilities of both the governments have been clearly defined. They are:

Central Government

- To frame overall policies, norms, and standards for Skill Development.
- Formulation of new training schemes for Skill Development of youth.
- Development/revision of course curriculum
- Affiliation of Industrial Training Institutes/ Centers.
- Trade testing & certification
- Conducting instructor training course for serving & potential instructor of ITIs/ITCs.
- Conducting courses for skill up gradation of industrial workers by offering short term & long term courses in specialized field.
- Implementation & regulation of training for trade apprentices under the Apprentices Act, 1961.
- Organizing vocational training programmes for women.
- Bilateral agreements and cooperation in the field of vocational training.

State Government

- Day-to-day administration of Industrial Training Institutes/Centres.
- Implementation of Craftsmen Training Schemes in the ITIs/ITCs.
- Conducting training courses in ITIs
- Setting-up new institutes, addition of trade units in the existing institute as per the requirement of local industries.
- Conduct of trade test and award of certificate.
- Implementation of Central Schemes.
- Processing application for affiliation of new ITIs/ITCs and addition of trades/units in exiting ITIs/ITCs, carry out inspection and forwarding these application to DGE&T for affiliation from National Council from Vocational Training.

At the national level a tripartite body having representatives from employers, workers and central/state governments has been constituted by the Central Government as advised by the National Council of Vocational Training (NCVT)

and State Council for Vocational Training (SCVT) is constituted by the respective state governments at the state level.

As per allocation of business Rule, 1961, the Ministry of Labour & Employment is charged with the responsibility of vocational training of the labour. The responsibility is discharged through the Directorate General of Employment and Training (DGE&T), which is an attached office of the Ministry of Labour & Employment. This office was earlier called the Directorate General of Resettlement & Employment (DGR & E) set-up in 1945 for resettling demobilized Defence Service Personnel and discharged War Workers in civilian life. After independence in 1947, the Directorate General was also called upon to handle the work relating to displaced persons from Pakistan. Subsequently, the scope of the Directorate General was extended to cover employment service to all categories of job seekers in early 1948, and training services to all civilians in 1950. The training institutes, both public and private, operate under the general guidance of DGE&T.

Aims and Objectives of ITIs / ITCs

The Craftsmen Training Scheme (CTS) was introduced by the Government of India to ensure a steady flow of skilled workers in different trades for the domestic industry, to raise quantitatively and qualitatively, the industrial production by systematic training, to reduce unemployment among the educated youth by providing them employable skills, to cultivate and nurture a technical and industrial attitude in the minds of younger generation. The Scheme, the most important in the field of vocational training, has been shaping craftsmen to meet the existing as well as future manpower need, through the vast network of ITIs in the various states/Union Territories in the country.

Industrial Training Institutes and Industrial Training Centres being the integral part of the Craftsmen Training Scheme are supposed to fulfil the below mentioned objectives laid down for the principle scheme itself:

- To equip the human resource with appropriate skills / multi skills required by the various sector of economy.
- To make youth productive by providing employable skills both for wage and self-employment.
- To produce craftsmen of high quality

- To ensure steady flow of skilled workers in industrial /service sectors.
- To raise the quality and quantity of industrial production by systematic training of potential workers.
- To reduce unemployment among educated youth by equipping them with suitable skills for industrial employment.

Growth of Industrial Training Institutes

The Directorate General of Employment & Training initiated Craftsmen Training Scheme (CTS) in 1950 by establishing about 50 Industrial Training Institutes (ITIs) for imparting skills in various vocational trades to meet the skilled manpower requirements for technology and industrial growth of the country. The second major phase of increase in ITIs came with the oil-boom in West-Asia and export of skilled manpower to that region from India. Several new private ITIs were established in 1980s in southern states mostly in Kerala, Karnataka and Andhra Pradesh from where trained craftsmen found placement mainly in the Gulf countries. In 1980, there were 831 ITIs and the number rose to 1887 in 1987. During 1990s the growth of ITIs had been steep and according to the Annual Report 2010 -11 of the Ministry of Labour and Employment presently there are over 8687 ITIs / ITCs having a seating capacity of 12.14 lakh. Being the part of principal training schemes namely the Craftsmen Training Scheme (CTS) and the Apprenticeship Training Scheme (ATS) ITIs / ITCs deliver 116 nationally recognized trades. The CTS provides medium to long-term institutional training to produce semi-skilled / skilled workers for industrial employment, while the ATS is a combined training programme that offers both institutional and on-the-job training with the graduated apprentices being considered as skilled.

Following table shows the number of ITIs/ITCs in the country and their seating capacity:

Institutions	Number	Seating capacity
Government	2189	4,53,346
Private run ITCs	6498	7,60,702
Total	8687	12,14,048

Source: Annual Report 2010-2011, Ministry of Labour & Employment, GOI.

Salient Features of the Scheme

- Candidates of 14 to 40 years of age are eligible to seek admission in ITIs/ITCs. In case of women candidates there is no upper age limit in exclusive women ITIs/women wings in general ITIs.
- Admissions in ITIs/ITCs are done twice a year i.e. in month of August & February.
- Tuition fee in the ITIs is decided by the respective state govt. as deemed fit based on the recommendation of the concerned State Council for Vocational Training. Tuition fee in case of institutes under DGE&T / UT Administration is Rs.100 p.m. per trainee. However no fee is being charged from SC/ST candidates and persons from disadvantaged groups.
- There is a provision for grant of stipend to the trainees of Govt. ITIs.
- Trainees are also provided with library, sports and medical facilities. Some state governments levy a nominal fee for the purpose
- Seats are reserved for SC/ST candidates in proportion to their population in respective state/ UT. Guidelines for reserving 3% seats for persons with disability and 30% for women candidates have been issued to
- State governments and these could be filled based on the general reservation policy of each state/UT and total reservation is limited to 50%. Seats are also reserved for the wards of defence personnel. Seats for OBC candidates have also been reserved in proportion to the seats reserved for them in Govt. Services in the respective states.
- For optimum utilization of infrastructural facilities available, there is a provision of second and third shifts in ITIs/ITCs with segregated timing. They are encouraged to introduce second shift by appointing one additional trade instructor and additional trainee kit for trainees.
- A Placement Cell in every ITI / ITC is set up to facilitate the graduates in getting placement in different industries.
- Institute Management Committee (IMCs) have been formed for ITIs' in consultation with apex Industry bodies to improve cooperation between Industry and Industrial Training Institutes (ITIs).
- Seats are reserved for SC/ST candidates in proportion to their population in respective state/ UT. Guidelines for reserving 3% seats for Persons with disability and 25% for women candidates have been issued to state

Governments and these could be filled based on the general reservation policy of each state/UT and total reservation is limited to 50%. Seats are also reserved for the wards of defence personnel.

- Broad-based modular training is offered in four Central Model Industrial Training Institutes (MITIs). This pattern of training has the advantage of re-orienting the training modules as per the changing skill requirements of the Industry.

Structure of Training Programme

Training under the scheme is imparted in 114 trades. The duration of training for various courses is 6 months, one year, two years and three years. The entry qualification varies from class 8 pass to 12 pass, depending on the trades. The courses are designed to impart basic skills and knowledge in the trades so as to prepare the trainees for employment as semi-skilled workers or for self-employment. As 70% of the training period is allotted to practical training and the rest to subjects relating to Trade Theory, Workshop Calculation & Science, Engineering Drawing, the emphasis is on skill building. In order to give awareness the trainees are also taught general knowledge on the issues like workers rights, family welfare, energy conservation and the compulsory subject of "Social Study".

Information Technology (IT) literacy has also been made mandatory for all the trainees of ITIs/ITCs. For over all personality development of trainees, a course on "Life Skill" covering topics like Occupational Safety and Health, Quality Management tools, Communication Skills, Team work Entrepreneurship, etc. is being introduced which would replace the existing subject "Social Study".

Scheme to upgrade existing Government ITIs into 'Centres of Excellence'

In its bid to provide skilled manpower to industries, Government of India embarked on the strategic objective of modernizing the ITIs and improving the quality of training in the Government run ITIs with involvement of stakeholders. Upgradation of 100 ITIs with domestic resources has been undertaken and 400 ITIs are being upgraded through World Bank assistance.

The highlights of the scheme are introduction of multi-skilling courses during the first year, followed by advance and specialized modular courses in the second year by adopting industry wise cluster approach, multi entry and multi exit provisions and Public-Private Partnership (PPP) in the form of Institute Management Committee (IMC) to ensure greater and more active involvement of industry in all aspects of training.

This was amply reflected in the 2007-08 budget speech of the Union Finance Minister in which he announced that 1396 ITIs would be upgraded into Centres of Excellence in specific trades and skills under public private partnership. The state governments as owners of ITIs continue to regulate admissions and fees except in case of 20% seats which is determined by the Management Committees of the institutes. Also the new management has been given academic and financial autonomy and the Central Government provides an interests free loan of upto Rs. 2.5 crore per ITI. It was targeted to upgrade 300 ITIs every year beginning from 2007-08 under the Public Private Partnership (PPP) mode. Upto November 10, 2010 around 924 ITIs had been covered under the scheme and an amount of Rs.2310 crore had been released.

Steps for Quality Improvement

With the objective of maintaining quality of training in ITIs/ITCs, a number of measures had been suggested by NCVT including guidelines for starting new institutes/trades and their affiliation to NCVT. Strict norms for affiliation of ITIs with NCVT are adhered to ensuring that the infrastructure facilities, qualified staff, etc. are provided for imparting training. There is a procedure for evaluation of affiliated ITIs/ITCs which has a provision for de-affiliation of Institutes / trades that are found not complying with the prescribed norms. Syllabi of various trades are periodically revised by the respective Trade Committees to keep pace with the rapidly changing technology in industry. A trade in emerging area of Information Technology namely "Information Technology & Electronics System Maintenance (ITESM)" has been introduced under the "Craftsmen Training Scheme".

Main Problems of ITI Education in India

1. It is inferred from an Exploratory study carried out based on the recent

trends in technical education in India that technical education is mostly classified into three main categories, graduates, diploma holders and ITI certified. It could be represented through a pyramid structure in which the top most layer consist of graduate engineers, middle layer the diploma holders and the bottom layer ITI certified technicians by the ratio 1:3:10. 9.5 lakhs students appear for board examination, out of which only 3.5 lakhs students appear for higher secondary education, 1.5 lakhs join diploma courses and 1.8 lakhs go for ITI training. Therefore, there are at least 3 lakhs drop outs that lose the opportunity to avail education.

2. In spite of huge number of ITI's present in India the quality of training at the ITIs is rather uneven. Skill development and training in the country is highly inadequate associated with rigid training structure, inefficiently trained vocational instructors, lack of state of the art infrastructure and weak linkage with industry which leads to a large skill gap between the demand and supply of man power.
3. Craftsmen training in the ITIs needs to be made flexible for creating scope for employment opportunities as well as to respond to the demands of the industry / business. Flexibility involves multi-functional skills and multi-craft skills as well as mental/intellectual skills, which call for logical/abstract thinking and willingness/ability to learn new things quickly, as the technological changes are expected to be continuous in future. The course structure, curriculum pattern, training mode for both the teachers and the taught and industry-ITIs collaboration need to be refurbished, so as to open the scope for employment opportunities in the market. Some of the highlights are Industrial/field training for both the faculty and the students, Flexible training system for imparting of multi-functional and multi-craft skills, Refresher training programmes on technological development, management and utilization and Developing courses and programmes for self-employment and entrepreneurship development.
4. There needs to be greater attention into the various aspects of entrepreneurship development and self-employment which include finance and credit linkages for trainees who are desirous of setting-up specific enterprises in their trade areas, programmes on attitudinal orientation and

motivation for entrepreneurship development, enterprise creation and self-employment among the trainees, programme on practical training on industrial behaviour and communication to deal with the real work environment, i.e. team spirit and work, just in time, zero defect, discipline, cleanliness, and orderliness, focus on Total Quality Concept and Total Productive Self-initiated Maintenance for continuous improvement in the work process and elimination of wastes and overall equipment effectiveness, focus on self-evaluation and analysis to achieve zero rejection/first time OK self-Inspection and self-certification, external evaluation and certification for learning trades/skills of the trainee and cause-effect analysis with inputs on work environment and on mechanism of a machine or equipment to understand the effect, its functioning and tool requirements for quality output/product.

5. There is a need for Institutionalized Collaboration between ITIs and Industry/Business.10 The collaboration encompasses at the level of the management, admission, course design, instructions, evaluations and placement on a reciprocal basis.

The industry/business would assist the ITIs in the development and up-gradation of course structure and curriculum, candidates admission, selection and fixing of minimum eligibility criteria, faculty upgradation and development, industrial visits of Trainers and Trainees and actual hands-on experience, In-plant training of faculty/students, resource generation, mobilization and utilization for the institute, providing faculty support for various programmes of the ITIs and organizing trainers training programmes and assistance in placement.

At the same time the ITIs are required to reciprocate by developing upto date training module on total quality, total productive maintenance, industrial behaviour & communication, developing programmes for industrial/field training for faculty and students, revenue generation through consultancy, market driven bridge courses, refresher training programmes on technological development, management and utilization, maintaining the physical infrastructures and workshops of the institute and developing courses and programmes for self-employment and entrepreneurship development.

Polytechnics

What exactly is a Polytechnic? The term 'poly' comes from the Greek word meaning 'many' and 'tekhnikós' meaning 'arts'. In short, Polytechnic means an institute that offers a variety of professional courses, which is mainly technical and vocational in nature. The aim of the polytechnic education is to create a pool of skill based manpower to support shop floor and field operations as a middle level link between technicians and engineers. The pass-outs of Diploma level Institutions in Engineering & Technology play an important role in managing shop-floor operations. It is further an established fact that small & medium Industry prefer to employ Diploma Holders because of their special skills in reading and interpreting drawings, estimating, costing & billing, supervision, measurement, testing, repair, maintenance etc.

Polytechnic education in India contributes significantly to its economic development. Most of the polytechnics in the country offer three year generalized diploma courses in conventional disciplines such as Civil, Electrical and Mechanical Engineering. During the last two decades many polytechnics started offering courses in other disciplines such as Electronics, Computer Science, Medical Lab technology, Hospital Engineering, Architectural Assistantship etc. In addition, many single technology institutions are also offering diploma programmes in areas like Leather Technology, Sugar Technology, and Printing Technology etc. Many diploma programmes are also being offered exclusively for women in Women's Polytechnics such as in Garment Technology, Beauty Culture and Textile Design. Polytechnics are meant to provide skills after class 10 and the duration of diploma programmes is 3 years, which means, the trainee becomes employable at the age of 19 years. Polytechnics are also offering post diploma and advanced diploma programmes of 1-2 years duration in different specializations.

Inception of Polytechnics in India

In pursuance of the Resolution of 1935 of the Central-Advisory Board of Education (an advisory body set up in 1921), two expert advisers, Messrs. Abbot and Wood were invited in 1936 to advise the Government "on certain problems of educational reorganization and particularly on problems of vocational education". The Abbot-Wood Report, submitted in 1937, suggested

a complete hierarchy of vocational institutions parallel with the hierarchy of institutions imparting general education.

As a result of their recommendations "a new type of technical institution called the polytechnic has come into existence". The provinces also started technical, commercial or agricultural high -schools conducting non-literary courses. The Abbott and Woods Commission also underlined the inadequate expansion of technical education, lack of an integrated policy and coordinating agency in India for the proper development of technical education. Keeping in view the suggestions and recommendations of the Abbott and Woods Commission the All India Association of Principals of Technical Institutions was formed in 1941 for coordination and standardization of courses in technical institutions. The first polytechnic in India was established in Delhi in 1941 as recommended by the same commission.

At the time of independence there were only 52 diploma level technical institutions with a total intake of 3670 students a year. To carry out ever growing development plans, the country required expansion of the system of technical education, especially to provide human power for industries and technical services. The central and state governments in the subsequent years, therefore, provided funds to increase the technical education facilities in 1950s and early 1960s which resulted in the establishment of a large number of government and government aided private institutions in the country. The government also adopted a policy of heavily subsidizing the technical institutions to attract meritorious students. The aided institutions received 50 to 70% of the capital cost and 80 to 90% of the recurring cost.

Expansion of Polytechnic Education

During the last decade, India has seen a tremendous increase in the number of Engineering Colleges at Degree level throughout the country. However, the growth of technical institutions has not been uniform as far as the number of polytechnics and degree engineering colleges is concerned. The present student intake in degree and diploma level technical institutions is 6.53 lakhs and 3.54 lakhs respectively. The ratio of degree to diploma holders is around 2:1, whereas ideally it should be 1:3. This is because of more private participation in the engineering sector compared to the diploma sector. There is also a societal

perception that degrees command a premium in the job market rather than diplomas.

The Ministry of Human Resource Development has launched a Nationwide Scheme on "Sub-Mission on Polytechnics" under Coordinated Action for Skill Development in order to augment skilled manpower requirement in the country by providing assistance to state govts. Under this scheme 1000 new polytechnics will be set up in every district not having one already with the emphasis to cater to the needs of un-served, underserved areas and disadvantaged sections of the Society. Of the 1000 polytechnics, 300 polytechnics are to be set up with a onetime central grant of Rs.12.3 crore per polytechnic to meet the capital cost. Similarly, about 300 polytechnics would be set up under Private-Public Partnership (PPP) mode with partial funding of Rs.3.00 crore per polytechnic from the central government. The rest 400 polytechnics would be set up through private funding.

Besides the financial support for the setting up new polytechnics, it has also been decided to strengthen the existing polytechnic system by granting funds upto Rs.2.00 crores per polytechnic for 500 polytechnics. As one of the components to incentivize the skill development among Women, grants are also proposed for construction of Women's Hostel in more than 500 polytechnics at the cost of Rs.1.00 crore each.

All these new polytechnic institutes will have a community polytechnic wing. Women's Hostels will also be set up in all the government polytechnics. The existing Government Polytechnics will be in incentivized to modernize in PPP Mode. Efforts will also be made to increase intake capacity by using space, faculty and other facilities in the existing polytechnics in shifts. There is also a shortage of qualified diploma holder in several new areas. Therefore, engineering institutions will be incentivized and encouraged to introduce diploma courses to augment intake capacity. Diploma programmes could be run in evening shifts when the laboratory, workshop, equipment and library are free. The sum total intake capacity of polytechnics in the year 2009-10 was around 5.09 lakhs.

Growth of Polytechnics in India

Over the years, the number of polytechnics increased as per the following:

1990-91	2003-04	2004-05	2005-06	2009-10
879	1105	1171	1274	2324

Source & footnotes: Ministry of HRD, Dept. of Secondary& Higher Education & UGC

Main Problems of Polytechnic Education in India

Over the years, the diploma programmes have deteriorated losing the skill components, which has resulted in their being just a diluted version of degree education. The organizations employing them have to train them all over again in basic skills. Major problems being faced by the polytechnic education system are non - availability of courses in new and emerging areas, Inadequate infrastructure facilities and obsolete equipment, system unable to attract quality teachers, inadequate financial resources, Inadequate or non-existence of state policies for training and retraining of faculty and staff, lack of flexibility and autonomy to the institutions, inadequate industry institute participation, lack of Research and Development in technician education and antiquated curricula.

Community Polytechnics

The Working Group on Technical Education of the All India Council for Technical Education (AICTE) in February 1978 recommended that selected polytechnics should act as focal points to promote community/rural development on scientific lines through technology transfer. The scheme of Community Polytechnics (CPs) was started under the Direct Central Assistance Scheme in 1978-79 in 35 polytechnics. The scheme envisaged the community polytechnics to act as important centres for the application of science and technology in rural areas and generate self and wage based employment opportunities, through non-formal training, towards and competency and need based courses in various trades and multiple skills. The major objectives of community polytechnics are to assess the needs of rural areas so that development programmes are designed and carried out, train village youths for self and wage employment, enhance production and productivity in rural areas to raise their standard of living, make available repair facilities at the door-step,

start people's participation in development and increase awareness of various development schemes floated by different agencies.

The following are the main aims of the Community Polytechnics:

Socio-Economic Survey: To interact with the rural community, make a survey and obtain information's to ascertain their needs and identify the direction in which rural development efforts are likely to bring quicker results.

Transfer of Technology : To organize programmes to enable the villagers to indicate the normal methods adopted by them in their daily activities, develop a better techniques and implements and teach them to adopt the modem developed techniques and implements.

Manpower Development: To impart training and teach the local people the basic skills, knowledge and attitudes to practice any occupational activity that will lead to gainful employment in their own village, and also training for upgrading the skills in their own fields. This sort of training is crucial in the context of technology transfer, and it helps the people in equipping themselves with the adoption and use of modem techniques and implements and maintenance of equipments.

Technical Service: To organize technical service camps at regular intervals, and undertake minor repairs on the jobs at site, through trained man-power. To also promote service centres and repair shops to be set-up by the villagers themselves and also consultancy services at village levels through trained man-power.

Support Service: This is in addition to the technical service mentioned above, the villagers may need support of other kinds to improve professionally, to widen the scope of activities and enhance productivity. Such need may be more encouragement/boost, guidance in getting loans, supply of raw materials, development of marketing facilities etc.

Dissemination of Information: This involves publication, distribution of technical literatures containing information on improved, adopted and new technologies suitable for rural needs, and also include guidance as to where to obtain the required raw materials etc. how to get loans etc.

Co-operatives/Self–Help Group: Helping the villagers to organize self help group and co-operatives overall departments, improvement in lifestyle, beautification of the environment and enrichment of social and cultural life.

As on date there are 617 AICTE approved polytechnics covered under the scheme of community polytechnics.

The rationale for choosing polytechnics for implementation of the scheme of Community Polytechnics is based on the fact that polytechnics are equipped with adequate infrastructure in the form of Buildings, Lecture Halls, Laboratories, Workshop, Hostel, etc. which could be used for linking such centres of knowledge to the rural community. Besides, polytechnics have qualified and trained faculty whose services could be utilized for vocational training and transfer of technologies.

Community polytechnic scheme is run by the Ministry of Human Resource Development, Government of India, New Delhi. They have been established as entities within polytechnics rather than as autonomous institutions. To that extent CPs are part of the formal system. However, they provide training within communities and their approach can be considered as informal. There are now 675 CPs (approved and unapproved both), training about 4,50,000 people a year. Courses are of 3 to 9 months duration and there are no entry pre-requisites. The MHRD intends to incorporate CPs into all AICTE-accredited institutions in the years to come.

Community polytechnics deliver the same types of courses – in a community environment – that are delivered through vocational education in schools, but the focus would seem to be on the informal sector of the economy. The content of CP courses is different to those in schools. For example office management and fashion design courses are covered within six months duration by a community polytechnic where as courses with such titles are offered for two years under vocational education programmes. Participants in CP courses gain no special qualification and no particular credit toward any further training in ITIs or polytechnics. CPs does not therefore fit into any qualifications framework. According to the X Five Year Plan document the courses and services of CPs were to emphasize the transfer of technology to communities, manpower development and rendering of technical and support services.

The community polytechnics impart short- term courses of 6 months duration in various trades, free of any charges and the intake of trainees is limited to 15 per batch per trade. Before starting any course the advertisement is given in leading local Newspapers to enable the aspirants to apply for the

same whish followed by selection of the trainees through personal Interview. Besides, the community polytechnics also undertake training in collaboration with government departments and agencies. The duration of such courses is decided jointly by the departments and the sponsored agencies.

The community polytechnics also used to provide direct community services like Mahila Mandal, rural roads, nutrition camps, social service camps, tree plantation camps, financial help for self employment, educational film shows, medical camps, safe drinking water, student counseling, village environment and Youth club

Taking initiative to strengthen the network of community polytechnics in the country MHRD has directed to open a new community polytechnic wing with all the one thousand new polytechnic institutes to be established by The Ministry under the Scheme on "Sub-Mission on Polytechnics". To provide skilled personnel at grass-root level as well as to facilitate appropriate technology transfer to the local community, under the revised scheme of community polytechnics, it is proposed to cover all the above polytechnics at a cost of Rs.737.82 crores. The total outlay for the entire scheme is Rs.6828 crores to be spent during 11th and 12th Plan period.

Impact of Community Polytechnics on Society

The main activity that the community polytechnic had rendered since the beginning is the man power development, which initially, is carried out only at the main centre, but subsequently carried out at the Extension Centre also. The community polytechnics design their own course curriculum.

Shortfall of Community Polytechnics

Many shortfall of the scheme have been assessed so far. There appears to be a compartmentalization between normal polytechnic and the community polytechnic activities. Very little attempt has been made to integrate these in curricular activities. At present only a handful of staff members seem to be involved in rural development work. Also, in most of the projects undertaken by the community polytechnics, very little attention has been paid to the costing and the economic aspects of it. The technical documentation of work done is also weak.

Notwithstanding the above shortfalls, overall the community polytechnics are improving their performance and particularly in the states of Kerala and West Bengal where they proved to be good models.

Community Colleges

The community college is an alternative system of education, which is aimed at the empowerment of the disadvantaged and the underprivileged through appropriate skill development leading to gainful employment in collaboration with the local industry and the community and achieve skills for employment and self employability of the above sections of people in the society. The community college is an innovative educational alternative that is rooted in the community providing holistic education and eligibility for employment to the disadvantaged.

The vision of the community college is of the community, for the community and by the community and to produce responsible citizens. The community colleges promote job oriented, work related, skill - based and life coping education. The community college initiative is in conformity with the Indian political will that prioritizes in education, primary education, information technology education and vocational education.

The key words of the community college system are access, flexibility in curriculum and teaching methodology, cost effectiveness and equal opportunity in collaboration with industrial, commercial and service sectors of the local area and responding to the social needs and issues of the local community, internship and job placement within the local area, promotion of self employment and small business development, declaration of competence and eligibility for employment.

The community college is a place that makes people fit for a job. It is an alternative system of education to empower the socially, economically, and educationally disadvantaged. Here, we concentrate more on skill development based on each individual. Anyone can join—school dropouts, degree holders who want to learn a particular skill– we even have students from the rural areas. Anyone from the age group of 16 to 47 years can enroll.

The community college movement started in South India in October 1995 with the beginning of the Pondicherry University Community College. It was

taken forward by the inauguration of the Madras Community College by the Archdiocese of Mylapore - Mylapore in August 1996. It was strengthened by the Manonmaniam Sundaranar University, Tirunelveli by giving approval to five community colleges in September 1998. It spread to Andhra Pradesh with the starting of JMJ Community College in Tenali in July 1999. It also spread to the states of Gujarat, Maharashtra, Kerala, Karnataka and Uttarakhand. Today there are 153 community colleges across 17 states. The movement has so far helped 35,000 students from the socially, economically and educationally backward groups. Thus it has become a national phenomenon.

Salient Features of Community Colleges

The community colleges are generally established by non-profit making, non-commercial and community based organizations with proven years of service to the local community. The establishment of the community colleges should be preceded by an extensive need analysis of the employment opportunities available in the local area and also the social needs of the community. The target group of the community college is XII standard passed students, school drop-outs, rural youths, rural women, existing workforce that wants to update its skills and all who want skill based and need based education at an affordable price.

There is no age limit for admission into community colleges. The close and active linkage between industries and community colleges is a must for the success of the community college system. The industrial partners help the colleges in designing the curriculum, providing part time instructors, serving as members of the advisory board and the governing board, taking students for internship and helping them to find job placement. The community colleges are multi-campus reality. The community colleges are permitted to the optimum utilization of the existing infrastructural facilities available to the community-based organizations that establish the community colleges.

The community colleges try to respond to the deficiencies of the vocational system through industry-institutional linkage, competence assessment, proper certification, training on site, life skills training and job oriented programmes decided on the basis of the local needs. It is in the above areas that the community colleges are an improvement and departure from earlier initiatives

such as it is community polytechnics and apprenticeship training. The curriculum of the community colleges has four distinct parts: life skills, work skills, internship and preparation for employment. The certificate programmes for the school dropouts consists of 28 weeks and the diploma programmes consists of 52 weeks for the 10th and 12th passed students and all others who want skill-based education.

Criteria for selection of industrial partners by the Community Colleges

Since the selection of right industrial partners is an important factor in the overall success of the community college movement. The following criterion is used by the community colleges for selecting the industrial partners:

- Willingness of the Industrial Partners
- Willingness to allow girls to work in order to gain experience
- Safety, distance and accessibility to the work spot
- Experience in Work skills
- Sharing of vision for the poor
- Interested to train our students
- Commitment for Job placements in their Companies
- Having good infrastructure
- Good Trainers
- Concerned with the upliftment of the students
- Frequency of the visits of the industrial partners to our college
- Serving as the members of the Advisory board
- Ready to provide apprenticeship training
- Skill based training
- Helping in the Designing the Curriculum
- Part time instructors
- Allowing the students to work with advanced equipments
- Authorized Service Centres

Functioning of Community College

The Directors of community colleges accept the responsibility of running

the community colleges by the Board of the Management of each college. The Governing Body use to have few industrial partners as its members. The entire system is kept going by the qualified life skills, work skill staff and guest faculty. The Advisory Board for each of the course should be in place in every college. The colleges send their students for internship for two months. Planning, Monitoring, Evaluation, Training and Placement all are done by the community colleges. The community colleges improve the living standards of those who are excluded and uplift the downtrodden. They also update the courses every year with the experts from different fields. Most of the colleges have nominal and flexible fee structure. Many colleges have past pupils association. All the colleges follow the pattern of life skills, work skills, internship and preparation for employment.

Courses Offered by Community Colleges

The community colleges offer diploma courses in health assistance/nursing assistance; pre-primary teacher training; DTP operation/computer application; fashion designing and garment manufacture; house electrical/electrical work; air-conditioning and refrigeration; four-wheeler/automobile mechanism; catering; plumbing technology; tailoring and embroidery; Tally accounting; medical lab technology; computer hardware; sales and marketing management; travel management; bakery and confectionery; cargo management; printing technology; hotel management, rural marketing; community enterprises; Information Technology; business accountancy and chartered accountancy, housekeeping, and so on.

Role of IGNOU in popularizing Community Colleges

In India, only 5% of the youth in the age group 20-24 years have obtained vocational skills through formal means, whereas the percentage in industrialized countries varies between 60% to 96%. Though about 12.8 million enter the labour force every year, only about 2.5 million vocational training seats are available in India. To address this 'Skill Gap' nationally, during the 11th Five Year Plan, the government aspired to create 70 million skilled jobs in different sectors.

For undertaking this massive expansion in capacity, besides current established approaches, many committees have suggested the need to institutionalize an alternative education framework such as community colleges. Community colleges, institutions rooted in the community for providing holistic education which is flexible and job-oriented, will offer post-secondary programmes leading to associate degrees in Arts, Science and Commerce.

The associate degree programmes through community colleges will focus on employability, with following features:

- Skill & job orientation
- 2-Year duration
- Vertical mobility into 3 year degree programme
- Flexible entry qualifications
- Fulltime face-to-face programme

The Indira Gandhi National Open University has begun an earnest move in providing this innovative alternative model of higher education. Since 2009 IGNOU is successfully running the scheme of Associate Degree Programmes through community colleges in various parts of India. The pilot programme for the scheme was launched with about 200 institutions across the country, particularly in rural areas, in the first phase. Today IGNOU is running around 443 community colleges across the country.

Suggestion to bring about the improvement of the System

The colleges need to access the need of the various potential employers. Government recognition is needed. If the colleges get government recognition the system would gain societal and national acceptance and the students' strength will go up. The need analysis of the employment and self-employment opportunities should be done every 3 years. Review meeting among community colleges to share their experience and problems should be arranged once a year by the Madras Centre for Research and Development of Community Education (MCRDCE). MCRDCE should conduct refresher training programmes for the teachers of community colleges. Professional Enrichment Workshop and sharpening the teaching skills and ways to improve industrial collaboration

should be explored. There should be monitoring, close and regular follow-up by MCRDCE of the community colleges.

The industrial partners feel that the question of recognition from the government is so essential for the survival of the system. They also feel the training period / internship should be extended for few more weeks. They advocate women entrepreneur training. Publicity for the system is urgently required to get better placement for the student. Some of them feel the duration of the course to be increased to two years and they want the uniform standard to maintain in all the community colleges through regular update of the syllabus and continuous interaction with the industrial collaborators.

Recognition and Accreditation

The community college system has been working successfully with 70% job placement without getting recognition from any approved educational bodies of the country. However most of the community colleges felt there is the need for recognition from the state and central governments to facilitate the horizontal mobility and the vertical mobility of the students of the community college. The MCRDCE has conducted seven consultations so far to further this cause. It is for the first time in the educational history of the country, the agencies that run community colleges have devised self-regulatory and autonomous guidelines to ensure credibility and accountability of the system. Thus the MCRDCE has succeeded in influencing the state and central governments for recognition and accreditation of the system and for the student centered funding. The issue of accreditation was examined closely by the National Institute of Open Schooling (NIOS), New Delhi at the direction of the Ministry of Human Resource Development (MHRD), Government of India. The NIOS has given accreditation so far to 18 community colleges in India. The MCRDCE is also trying its best to workout credit transfer with the Indira Gandhi National Open University (IGNOU), New Delhi for vertical mobility.

Suggestions and future directions to Community Colleges

A Research Study on "The Impact and Prospects of the Community College System in India" was conducted by the Madras Centre for Research and

Development of Community Education (MCRDCE) in August 2003 and the report was submitted to Socio-Economic Research Division, Planning Commission, Government of India which underlined the following suggestions and future directions to the community college movement in India that needs to be incorporated in the years to come:

1. The study shows that the problem of school dropouts can be handled by community colleges by providing those multi-skills since they already have the experience of atleast eight to ten years of schooling. These students can be given certificate courses.
2. Technical Vocational Training and Educational (TVT &E) Programme can easily be implemented by the community colleges. It could be started as a pilot project with the intake of 800 students – @ 40 students each for two trades in 20 community colleges from July 2004.
3. Lack of recognition has been the major problem faced by those who passed out from community colleges. Recognition by the Ministry of Human Resources Development, New Delhi and the Directorate of Employment and Training by the respective state governments will enhance the acceptance of the diploma given by the community colleges at national or regional levels. It will also ensure the horizontal mobility of the students in terms of getting employment all over the country.
4. The vertical mobility of going for further education in the respective trades could be ensured by the National Qualification Framework through credit transfer especially in the open universities of the country like Indira Gandhi National Open University (IGNOU).
5. The National Institute of Open Schooling (NIOS) has accredited 18 community colleges. Many more colleges would be accredited in the near future for the vocational courses already offered by NIOS. Efforts should be made to get the new courses designed according to local needs.
6. The model of the community college system could be replicated all over the country. Atleast one community college should be there in all the 600 districts of the country.
7. The community colleges should try to address the deficiencies in the vocational educational system in the following manner based on the findings of the above research study:

i. It should aim at the employability of the individuals trained.
ii. It should evolve a system to declare the competency level and duly certify the same.
iii. It should promote strong Industry – Institutional linkage and ties. It involves the Industry to articulate the skills it wants and works in close collaboration with the industries, to make the individuals skill oriented that is needed by the employer.
iv. It should emphasize the teaching of life skills, communication skills and English language to the takers of the system.
v. The community college system certainly lessens the burden on higher education.
vi. It is evolving a system of evaluation and assessment of skills, which are personal, social, language, communication, work and creativity.

8. The important problem community colleges are facing today is the financial viability. The fees collected from the students are very low (an average fee of Rs. 2500-3000) to make the system cost effective and reachable to the poor and the most disadvantaged. Hence it is recommended that the central and state governments could offer to the students from the socially, economically, educationally backward groups scholarships and stipends – Rs. 3000 by way of meeting the training cost of per student per year which will help the community colleges to strengthen the system. The Planning Commission could recommend the same to MHRD since the Planning Commission has already advocated strengthening of community college scheme in the Tenth Five Year Plan by stating that "there should be focus on convergence of schemes like Sarva Shiksha Abhiyan, Adult Education and Vocational Education Programme at Schools, Polytechnics, Community Colleges etc. (Tenth Five Year Plan, 2002-2007).
9. As the community colleges are predominant in South India, the concept of community college has to be propagated through regional workshops especially in the northern states of India in particular Bihar, Odisha, Uttar Pradesh, Madhya Pradesh, Rajasthan, Chhattisgarh, Punjab, Haryana, Himachal Pradesh, West Bengal and other North-Eastern states. These workshops can be conducted to popularize the concept among the service

minded organizations and NGOs with the help of respected state governments.

10. The various components of Life Skills Programme such as Life Coping Skills, Communication Skills, English, Basic Computing Skills, preparation for employment could be included in the whole stream of vocational education with the expertise of the community colleges and by training teachers of vocational schools. There is a need to promote active industrial partnership with agencies like Indian Chamber of Commerce, Confederation of Indian Industries etc in order to stabilize the internship and job placement.
11. The same Life Skills could be introduced as an integral component to Arts and Science college students to enhance their employability.
12. The whole movement has been a non-governmental initiative. Hence the governments could provide external support through recognition and awarding of scholarship and stipends to the deserving students. This help could come from the following departments of the government.
    a) Rural Development Department
    b) Social Welfare Department
    c) Health Department
    d) Women Welfare/Empowerment Department
    e) Youth Welfare and Sports Department
    f) The Quasi Government Organizations, Public Sector Agencies to ensure placements
    g) Funds of the Special Component Plan Programmes for the welfare of SC/ST population.
13. MCRDCE could function as nodal agency to help agencies to establish Community Colleges, to train teachers, to develop curriculum and evaluation methods in the overall direction of the Community College movement in India. This Centre could be recognized and supported by the Ministry of Human Resource Development, New Delhi.
14. The Study shows that adequate infrastructure facility is not available in most of the Community Colleges. Since the nature of courses is Vocational and Trade activities it is essential that adequate infrastructure, particularly for hands-on training is to be considerably and strengthened. While some

support could come through community contribution and fees collected from the students, there is need for government grant also to strengthen the community colleges.

Jan Shikshan Sansthans

Evolution of JSS

Jan Shikshan Sansthans were initially called Shramik Vidyapeeths, polyvalent or multifaceted Adult Education Centres.

The population explosion, industrial development and migration of people from rural to urban areas resulted in rapid urbanization, which in turn brought in its concomitant problems of lack of accommodation and miserable living conditions particularly for the migrants and the deprived communities who were forced to live in inhuman conditions in the slums, on pavements, in settlement and labour colonies. Lack of education and skills, left the migrants unemployed and under-employed. Unable to make both the ends meet they frequently fell prey to anti-social elements. Shramik Vidyapeeth was setup to impart specialized education integrated with awareness and functional improvement for such people. In the context of the country's overall development, this programme was conceived as responding to the educational and vocational needs of numerous groups of adults and young people, men and women belonging mostly to the unorganized, urban informal sector, living and working in urban and industrial areas and people migrating from rural to urban settings, were expected to derive substantial benefits from such a centre.

The introduction of the innovation of Shramik Vidyapeeth in the country was preceded by discussion between the Government of India and Unesco in 1960s. Unesco was interested in promoting this type of education in India. Yugoslavia had by then achieved some success in the experiment of polyvalent education. Therefore, Mr. K. Milinkovic, Director of a Polyvalent centre in Yugoslavia was sent to India as Consultant by Unesco.

Growth

The first Shramik Vidyapeeth was established in Worli Mumbai in March 1967 under the aegis of Bombay City Social Education Committee, a voluntary organization engaged in adult education for several years. Encouraged by the

successful functioning of this Shramik Vidyapeeth, the Government of India gradually expanded the scheme to other parts of the country. Today there are 271 Jan Shikshan Sansthans located in 29 States and Union Territories. These institutions are non-formal adult education institutions to impart literacy linked vocational courses. They offer training in a number of vocational courses with varying duration to different clientele groups. In view of the inherent strength of these institutions in the field of vocational education and training, they have become more popular and are in demand by the non-government organizations.

Salient Features

Jan Shikshan Sansthans are independently registered organizations under Societies Registration Act with their own Memorandum of Association and Rules and Regulations and run under the aegis of NGOs. The Govt. of India provides lump sum annual recurring grant to the Sansthans in a set pattern and prescribed the ceiling for each of the budget heads which include Emoluments, Programme Expenditure and Office Expenditure.

They cater practically to the need of all sections of the society with special emphasis on women, illiterates, neo-literates, SC, ST, OBC and Minorities.

While other technical institutions conduct limited number of skill based courses, Jan Shikshan Sansthans conduct a large variety of courses based on the local needs. The number of vocational courses conducted by the Jan Shikshan Sansthans put together comes to about 160 which can be broadly categorized as - Cutting, Tailoring, Dress Making & Designing, Knitting and Embroidery, Beauty Culture & Health Care, Cottage Industry Courses, Handicrafts, Cookery, Bakery, Confectionery & Food Processing, Art, Drawing and Painting, Agriculture & Allied Technology, Carpentry & Furniture Making, Leather Technology, Building Technology, Printing Technology, Automobile, Refrigeration & Air Conditioning, Health & Para Medical, Maintenance and Repair of Electronic Items, Electrical, Mechanical, Textile Technology, Secretarial Practice, Teacher Training, Miscellaneous and Computer Courses. In the recent time the National Literacy Mission Authority rationalized the courses conducted by the Sansthans which have employment/self-employment potential.

The curriculum, syllabus and teaching-learning material are mostly prepared by Jan Shikshan Sansthans themselves with the help of Resource Persons and

State Resource Centres. Hence, they vary from one Sansthan to the other. The same way each Sansthan decides about the duration of the courses which also vary from one to the other. This also has been rationalized in recent times by the National Literacy Mission Authority with the instruction that the Jan Shikshan Sansthans should follow the standardized curriculum prepared by NCVT (Modular Employable Skills), NIFT and Directorate of Adult Education (DAE). However, the Sansthans also can prepare the curriculum which necessarily has to be approved by a competent authority.

Jan Shikshan Sansthans are primarily polyvalent education institutions. The beneficiaries also learn general knowledge relating to vocational courses and life. This is otherwise called Life Enrichment Education. The topics covered under this are:

Entrepreneurship Development	Self-employment opportunities development of self-confidence, market survey, sources of finance, project preparation, customer dealing, achievement motivation, enterprise launching. Achievement motivation, developing competencies, costing and pricing, marketing, book keeping, banks and loans, project report preparation.
Work Culture and Ethics	Effective workmanship, sincerity to the profession, harmonious relations with customers and the public.
Public Relation Skills and Customer Service	Importance of maintaining good relations with customers. Good interpersonal relationship with co-workers. Good social relationship.
Environmental Education	Various environmental issues and problems like water, air, sound pollution. Importance of proper disposal of waste and

	garbage. Necessary drainage system. Bio-diversity.
Human Values	Importance of value education. Friendly and courteous behaviour, commitment, sincerity, unity in diversity, religious tolerance, social responsibility.
Eye Care	Care of eyes. How to keep eyesight good and normal. Common disorders of eyesight. Nutritious food for good eyesight. Supplement food, vitamins.
Population and Development Education	Explaining demographic facts. Effects of population explosion. Development components like health, education, employment, housing in relation to population and development in the Indian context.
Nutrition and Health	Principles of Nutrition, balanced diet, basic principles of health, hygiene and environmental sanitation. Relationship between nutrition and health, preparation and use of low cost recipes and nutritious food.
Legal Awareness	Right and duties of a citizen. Lodging FIR. Insurance – personal and property.
National Integration	Rights and responsibilities of a citizen. Aspects of unity and diversity. Culture and heritage

	of India. Patriotism. Religious tolerance. Communal harmony.
Public Relations	Importance of maintaining good public relations. Need for inter-personal relationship with co-citizens. Politeness towards others and customers. Maintaining cheerful disposition. Smooth and soft behaviour. Maintaining congenial and firmly atmosphere. Effective communication, importance of maintaining harmonious relationship with customers and co-workers.
Responsible Parenthood	Responsibility of parents to bring up children with good health, education and human values. Children to be moulded carefully and tenderly to have freedom and all round development. Free movement in the family, school and in the society. Maintaining a happy and ideal family atmosphere in order to bring up children ideally. Ill effects of child labour. Knowledge about population and development concepts for the parents. Role of parents and children. Behaviour, dealings, education, awareness. Girl child and gender bias, educating parents about child

	labour. Mother and child care.
First Aid and Safety Measures	Various first aid techniques, methods and importance of first aid in life saving situations.
Health Education, Nutrition and Personal Hygiene	Principles of nutrition. Balanced diet. Relationship between nutrition and health and personal hygiene. Preparation and use of low-cost nutritious food.
Small Savings, Self Help Groups	Concept of forming cooperatives, self help groups. Legal aspects, necessary requirements and procedures.
Women Empowerment	Importance of women empowerment. Rights of a woman, self help groups, scheme floated by state and central governments for up-liftment of women. Status of women, importance of education, income generation, health, etc. Woman as member of family, society and as a citizen. Promotion of self esteem and dignity, steps against exploitation, legal aid, women's rights, economic independence, decision making powers.
Nutrition and Hygiene	Importance of cleanliness, preparing food in the hygienic conditions, the bad effects of unhygienic conditions (food, nutrition and health),stigma attached to food habits of pregnant women, child and aged, better cooking principles, etc.Importance of balanced diet.
Personal Health, Hygiene and	Importance of personal health, care of body, good food habits, principles of

Sanitation, and	basic health, principles, hygienic conditions, sanitation, cleanliness, ill effects of consuming intoxicating substances.
Preservation of Environment	Types of pollution – water, air, noise. Causes and effects thereof. Disposal of garbage and waste.

The courses include a lot of practical sessions with the result the trainees master the skill in comparison to others undergo such training in other institutions. In general the practical forms 65 percent of the total instructional hours while 25 percent of the time is devoted to theory and 10 percent to the LEE component. Learner evaluation is more on practical aspects.

Collaboration and coordination are again one of the important strengths of Jan Shikshan Sansthans. In view of the limited space available in the buildings in which the Sansthans are located and also the necessity of conducting vocational skill courses near the areas in which the clientele groups are living, they organize the courses in collaboration and coordination with other agencies where both the space and facilities are available. In view of this, the Sansthans could organize more number of courses and cover large number of beneficiaries.

Each JSS is a successful institution in its own way. They organize both traditional and non-traditional courses - on one side cutting-tailoring and another side computer and hospital helpers. This freedom of organizing market needed courses enabled the Sansthans to plan a number of new courses which directly benefit the trainees and the institutions in which such skilled persons are required.

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CHAPTER FIVE

Role of Vocational Education in Harnessing Outsourcing Opportunities

India with vast land area is one of the fastest developing nations in the world. With its growth of population and limited resources available computer technology has come as a great tool for social transformation. India is one country in the world which has already revolutionized the field of communication with the convergence of mobile and internet technology. It has enormous opportunities emerging from globalization and consequent lowering of tariff barriers information technology has given India formidable brand equity in the world markets. According to Thomas L. Friedman, one of the award winning New York Times Columnist in his writing in The World is Flat "clearly, it is now possible for more people than ever to collaborate and compete in real time with more other people on more different kinds of work from more different corners of the planet and on a more equal footing than at any previous time in the history of the world-using computers, e-mail, networks, teleconferencing, and dynamic new software. That was what I discovered on my journey to India and beyond".

India is in the forefront in the area of communication technology with the most powerful supercomputers, next only to United States of America, China and Germany. The computer facility at Computational Research Laboratories (CRL) is the fastest supercomputer in Asia and fourth fastest in the world. Such computing facilities are very much essential for statistical analysis as it offers a centralized facility for large computational requirements and for the country's growth in the field of remote sensing to analyze the images of the maps, in meteorology to build numerical weather models that can predict future weather patterns as they provide images and maps which help in weather prediction by collating all the information from different weather stations, satellites and weather balloons and for the defense by analyzing strategic essential data. The

supercomputers also help the government to use the statistics collected and analyzed for planning the programmes.

Outsourcing

Outsourcing is an important business practice in today's competitive environment. Due to globalization India has become one of the few countries which has enormous opportunities in the field of Information Technology and Business Process Outsourcing (BPO), particularly due to low tariff barriers. India has established Brand Equity in the global markets by providing efficient business solutions with the cost and quality as an advantage by using state of the art technology. With a large multicultural and highly ambitious work force of several million employees, the BPO industry has become one of the largest private sector employers in India. This industry comprises of over 16000 firms which includes more than 3000 software product firms imbibed with the ability to provide coverage of all technology engagements further reinforces India's unique position as the only country from where one can do everything.

As per Webster's Dictionary the meaning of "outsourcing" is "A company or person that provides information; to find a supplier or service, to identify a source". It essentially refers to how things are done rather than what is done. Very simply outsourcing can be defined as a process in which a company delegates some of its in-house operations/processes to a third party. Thus outsourcing is a contracting transaction through which one company purchases services from another while keeping ownership and ultimate responsibility for the underlying processes. The clients inform their provider what they want and how they want the work performed. So the client can authorize the provider to operate as well as redesign basic processes in order to ensure even greater cost and efficiency benefits.

In this framework companies very often turn to resources outside their organizational structure usually to save money and/or make use of the skilled professionals. For instance, a company might outsource its IT management because it is cheaper to contract a third-party to do so than it would be to build its own in-house IT management team. Or a company could outsource all of its data storage needs because it is easier and cheaper than buying and maintaining its own data storage devices. A business might also outsource its

human resource tasks to another enterprise instead of having its own dedicated human resources staff.

The National Association of Software and Services Companies (NASSCOM), the top IT-BPO industry body of India which represents over 1200 IT and BPO companies replaced the term Business Process Outsourcing with Business Process Management (BPM) to represent the competence of the mature Indian industry in offering skilled and specialized services and to denote the mobility of the sector up the value chain since its inception.

Outsourcing and its Impact on Indian Economy

Outsourcing is the strategic use of outside resources to perform activities traditionally handled by internal staff and resources. It allows companies to contract for services that are not within the scope of their expertise, so that they can focus their time, money and energy on their core competencies instead of wasting valuable resources trying to gain understanding of areas that are somebody else's expertise. This is a strategy by which an organization contracts-out major functions to specialized and efficient service providers, who become valued strategic business partners. All companies, small or large, in terms of various strategies put their best efforts to exploit their competitive advantage to improve their market share and their net profit. Out of these strategies outsourcing is one of the recent developments which were not recognized as a business strategy until 1989. It was year 1990 when large number of companies started outsourcing their various processes. This gave them enough space to concentrate on their core businesses. Initially it was started to save cost but later it became twin objective activity. This not only reduced cost but also increased quality as work was based on expert execution.

Evolution of outsourcing is passing through a stage which is based on strategic partnership. Companies are coming close in strategic partnership to outsource their most important processes precisely because they are so important. Over the year outsourcing has become a core business activity being performed by various countries and very recently India has emerged as a prominent outsourcing destination worldwide.

Over the last 10 years the Indian BPO industry has not only positively impacted the overall Indian economy but also has led to increased Business

Process Management (BPM) penetration across the world by establishing global deliver models and being at forefront of process and technology innovations through its diverse and wide ranging BPO services portfolio. The Indian BPO industry is at the peak of major transformation, having grown from US$ 3.4 billion in revenues in 2004 to US$ 19 billion in 2012. According to a report of NASSCOM (BPM 2020 A Roadmap for India) the Indian Business Process Management is expected to achieve US$ 50 billion by 2020. In 2012, industry contributed to urban job creation by employing one million professionals directly and more than 3 million indirectly. In the near future, the industry is expected to witness a shift towards alternate non-linear business models with innovations in service offerings, technology enablement, analytics and knowledge based services, transformational improvements, specialization and verticalisation with domain expertise.

Outsourcing in India has experienced explosive growth with overseas companies getting everything from their customer support work to tele-radiology done here. Its impact can be felt in different areas and spread over several countries.

The table below shows the revenue earned by BPO both through offshore and in India which clearly reflects the ever growing trend.

(revenue US$ in millions)

Revenue year	Offshore BPO revenue	Indian BPO revenue	Total
2002	1322	912	2234
2003	1825	1205	3030
2004	3017	1961	4978
2005	6439	3928	10367
2006	12563	7412	19975
2007	24230	13811	38041
2008	48220	19234	67454
2009	55234	26231	81465
2010	70432	32143	102575
2011	80145	38134	118279
2012	90150	44212	134362

Source: Gartner Dataquest

The IT-BPO industry has been significant in fuelling India's growth story. In addition to contributing to the country's Gross Domestic Product (GDP) and exports, the industry has played a big role in influencing the socio-economic parameters across the country. The industry has helped in providing employment (direct and indirect) and a good standard of living to millions. This sector attracts amongst the largest investments by venture capitalists and has been credited with enabling the entrepreneurial ventures of many in the country. It has placed India on the world map with an image of a technologically advanced and knowledge based economy.

The IT-BPO industry has contributed significantly towards the direct employment generation for the youth. Direct employment includes IT services exports, BPO exports and IT-BPO domestic. As per NASSCOM around 20.27 million persons have been engaged in direct employment from the year 2003 to 2012. Year-wise break-up of employment is given in the following table:

Year	Direct Employment Generated
2003	6,70,000
2004	8,30,000
2005	10,58,000
2006	12,93,000
2007	16,21,000
2008	19,62,000
2009	21,96,000
2010	23,00,000
2011	25,40,000
2012	28,00,000
2013	30,00,000

Based on the trends witnessed in productivity and the likely growth potential of the IT and ITES industry, it is expected that the industry would employ about 7.5 million persons directly by 2022. A large portion of this employment is expected to occur in the ITES (BPO/KPO) exports sector followed by IT exports and then in the domestic market.

The IT-BPO industry also provides indirect employment opportunities to

around 9.0 million in industries like construction, catering, security services, retail and transport. The increased earnings and employment further drive the spending in services like food, entertainment, telecommunication and healthcare apart from contributing to increased tax collection of the country.

Challenges before Outsourcing Industries in India

Today India is the absolute leader in the sphere of offshore programming by the number of export software development centers. According to Gartner Dataquest the revenue earned in the year 2012 by total BPO market was 2,20,121 million US$ out of which the revenue earned by India alone (offshore BPO + Indian BPO) was 1,34,362 million US$ which works out to 61.04%.

China is the country which is trying heart and soul to compete with India in this sector. It is pouring all its effort to grab a major share in the ever growing outsourcing industry worldwide. Though experts say it will certainly be a tough bargain for China because till today it is far behind the tally. However, China's outsourcing providers are improving their quality, setting the stage for the country to become a top world player. China has made major strides in laying the groundwork for a diverse and successful outsourcing industry in recent years. Central and local authorities have demonstrated a quiet determination to promote information technology (IT) and other business services industries across the country. They have also launched initiatives to develop education, training and other supporting infrastructure. As a result, China is quickly building a strong outsourcing industry and emerging outsourcing players already have strong credentials. Like India, whose emergence as an outsourcing location was export-driven, China has a strong export platform on which to build an outsourcing industry. But China also has the strength in its domestic market to create a deep services base and has already established strong ties in the Japanese and South Korean markets. In course of time North American and European countries also gave offshore business to China, the revenue of which grows leap and bounds in comparison to Japan and South Korea. Today Chinese outsourcing providers work with companies from around the world. The Chinese firms provide Multinational Corporations (MNCs) with a range of services from back office administrative work and customer service request to increasingly high-end IT, business-process and knowledge management activities.

Chinese venders also tapped Hong Kong to bring business from banks, insurance

companies, law firms, etc. as Hong Kong offers several key advantages – it is an avenue for raising funds, a hub for project management and a management support centre that understands international business requirements and expectations.

Despite China's significant progress in this area, a few challenges—such as a fragmented outsourcing industry and shortage of people with international business skills—remain. In addition, many domestic and foreign business leaders recognize that China's outsourcing industry could market its strengths to the international community better and that the industry lacks a unified voice to represent it and establish its credentials. Buyers of outsourcing services have a wide array of locations and vendors to choose from and, without realizing the outsourcing strengths of various cities in China, may choose to outsource work to another country instead.

To compete with China and to retain the top slot India needs to formulate a detailed policy to train its abundant human resource in order to capitalize the growing international market of outsourcing and to maintain the initial lead it has taken in this regard. Vocational education is one of the most sought for sectors these days to equip manpower with desired skills. But India is still lacking an adequate structure of vocational education although the need of providing vocational education for reducing the menace of unemployment is emphasized time and again through the various committees and commissions constituted since pre-independence period.

It is essentially, therefore the right time to raise some questions like, whether vocational education can contribute anything substantial to the outsourcing industry and can play a worth role in securing India's economic interest?, If yes, in what manner?

After the general election, the new government has taken over in May 2014 with Shri Narendra Modi as Prime Minister. A number of new initiatives have been proposed and many of them have been converted into action also. One of the important decisions of the new government is skilling India to enable the youth to get more employment opportunities. Both the President of India and the Prime Minister in their Independence Day Speech stressed a lot of importance on skill development. The clarion call was given by the Prime Minister from the rampart of Delhi Red Fort asking the entrepreneurs from all over the world to come to India and make products. This was sincerely followed by different Ministries to initiate action to give special importance for skill development courses. Infact, Govt. of India has

created a separate Ministry for skill development which will go a long way to create trained workforce.

What Constitute Vocational Education System in India?

Apart from the traditional method of artisanship where technical know-how were transferred to the generation next by the elders of the family engaged in a particular trade today in India we have a proper system to impart vocational education both through formal and informal system of education. Vocational education in India refers specifically to vocational courses offered in school Grades 11 and 12 under a centrally sponsored scheme termed 'Vocationalization of Secondary Education'. The Vocational Education Programme (VEP) was started in 1976-77 under the programme of Vocationalisation of Higher Secondary Education in general education institutions. The National Working Group on Vocationalisation of Education (Kulandaiswamy Committee, 1985) reviewed the Vocational Education Programme in the country and developed guidelines for the expansion of the programme. Its recommendations led to the development of the Centrally Sponsored Scheme (CSS) on Vocationalisation of Secondary Education, which started being implemented from 1988. Its purpose is to "enhance individual employability, reduce the mismatch between demand and supply of skilled manpower and provide an alternative for those pursuing higher education without particular interest or purpose." Vocational education falls under the purview of the Ministry of Human Resource Development (MHRD). The All-India Council for Vocational Education (AICVE), under MHRD, is responsible for planning, guiding and coordinating the programme at the national level. State Councils for Vocational Education (SCVE) perform similar functions at the state level.

Courses Offered under Vocational Education Vs Promotion of Outsourcing

The Government of India has assigned the responsibility of developing courses to be offered under the system of vocational education to Pandit Sunderlal Sharma Central Institute for Vocational Education (PSSCIVE) which has listed the following 104 courses under six broad disciplines:

Agriculture area of vocation

1. Poultry Production
2. Fisheries/Fish Processing
3. Dairying
4. Sericulture
5. Apiculture
6. Floriculture
7. Plant Protection
8. Agricultural Chemicals
9. Inland Fisheries
10. Plantation Crops and Management
11. Seed Production Technology
12. Swine Production
13. Vegetable Seed production
14. Medicinal and Aromatic Plant Industry
15. Sheep and Goat Husbandry
16. Repair and Maintenance of Power Driven Farm Machinery
17. Veterinary Pharmacist-cum-Artificial Insemination Assistant
18. Agro Based Food Industry (Animal based)
19. Agro Based Food Industry (Crop based)
20. Agro Based Food Industry (Feed based)
21. Post Harvest Technology
22. Fish Seed Production
23. Fishing Technology
24. Horticulture
25. Soil Conservation
26. Crop Cultivation/ Production

Business and Commerce area of vocation

1. Banking
2. Marketing and Salesmanship
3. Office Secretaryship/ Stenography
4. Co-operation
5. Export-Import Practices and Documentation

6. Insurance
7. Purchasing and Storekeeping
8. Taxation Practices/Taxation laws/Tax Assistant
9. Industrial Management
10. Receptionist
11. Basic Financial Services
12. Office Management
13. Tourism and Travel
14. Accountancy and Auditing

Engineering and Technology area of vocation

1. Civil Construction/Maintenance
2. Mechanical Servicing
3. Audio Visual Technician
4. Maintenance and Repair of Electrical Domestic Appliances
5. Building and Road Construction
6. Building Maintenance
7. Ceramic Technology
8. Computer Technique
9. Rural Engineering Technology
10. Materials Management Technology
11. Rubber Technology
12. Structure and Fabrication Technology
13. Sugar Technology
14. Tanneries

Health and Paramedical

1. Medical Laboratory/Technology Assistant
2. Health Worker
3. Nursing
4. Health Sanitary Inspector
5. Hospital Documentation
6. Hospital Housekeeping
7. Ophthalmic Technology

8. X-ray Technician
9. Physiotherapy and Occupational Therapy
10. Multi-rehabilitation Worker
11. Bio Medical Equipment and Technician
12. Dental Hygienist
13. Dental Technician
14. Multi Purpose Health Worker
15. Pharmacist
16. ECG and Audiometric Technician
17. Nutrition and Dietetics
18. Auxiliary Nurse and Mid Wives
19. Primary Health Worker

Home Science area of vocation

1. Food Preservation
2. Child Care and Nutrition
3. Catering and Restaurant Management
4. Pre-school and Crèche Management
5. Textile Designing
6. Interior Design
7. Commercial Garment Designing and Making
8. Clothing for the Family
9. Health Care and Beauty Culture
10. Bleaching Dyeing and Fabric Painting
11. Knitting Technology
12. Institutional House Keeping

Humanities Science and Education area of vocation

1. Library and Information Science
2. Instrumental Music (Percussion Tabla)
3. Classical Dance (Kathak)
4. Indian Music (Hindustani Vocal Music)
5. Photography
6. Commercial Art

7. Physical Education
8. Bharat Natyam
9. Cotton Classifier

All these 104 courses are listed under the Apprentices Act 1961. Now let us see the major services that are commonly outsourced now-a-days. As per the data provided by NASSCOM the major services outsourced include:

- Data Entry
- Data Capture/Scanning
- Data Processing and Database Management
- Data Conversion
- Data Entry
- e-CRM
- SCM
- Forms and Claims Processing
- Order Processing
- Indexing and Archiving
- Web site design, development and normal creation
- Software Programming, Development and Technology tools creation
- Call Center Activities
- Web Research and Data Mining
- Conducting market surveys or any other surveys
- Design and DTP
- Engineering and Design
- Multimedia and Animation
- Transcription (medical, legal and others)
- Medical Billing and Coding
- HR Services
- Internet Marketing, Search Engine Ranking and optimization
- Training
- Writing and Translation
- Proof-reading and editing
- CAD/CAM Services
- Bookkeeping and Finance
- Or any other service that can be executed from a remote location

- Agriculture (for example: veterinary pharmacist/technician; watershed management)
- Business and commerce (for example: taxation practices; stenography)
- Humanities (for example: classical dance; entrepreneurship)
- Engineering and technology (for example: lineman; cost effective building technology)
- Home science (for example: textile design; gerontology)
- Health and para-medical skills (for example: x-ray technician; health/sanitary inspector)

Hence, comparing the above two lists one can very easily conclude that although the courses enumerated in the first list can develop the capabilities needed for performing the operations mentioned in the second list up to certain extent they are not intended directly to address the same requirement. Hence, it is the time for the institutions which offer skill development courses to start more appropriate courses which are suitable for outsourcing industries so that all those who have got the skills with professional qualifications are employed.

Conclusion

In the above context, what the authorities concerned need to do, is to introduce certain new courses as well as restructure the course content of few existing courses in order to develop desired manpower equipped with the expected skills. There is another important aspect concerning the course design. The PSSCIVE, as on today, has developed course materials only for a quarter of those 104 courses. Seeing the rapid pace of technological advancement in the field of Information Technology Government of India needs to develop mechanism for regular upgradation of the course contents for which course materials have already been prepared. On the other hand it needs to speed up the process for developing course materials for the rest of the courses mentioned in the Apprentices Act 1961.

As on date India has to compete not only with China but also with Philippines which is equally popular for business process outsourcing by global companies.

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CHAPTER SIX

Jan Shikshan Sansthans: The Institutes of People's Education

After the National Democratic Alliance (NDA) came to power in Government of India in May 2014, a lot of importance is given for skill development with the result a separate Ministry has been created for Skill Development & Entrepreneurship. This effort is a fillip to make India abundant with trained workforce who will directly benefit increased production, quality improvement and opportunities for better employment with increased wages. This will also benefit the trained persons to get better employment opportunities abroad with more salary. It is not true that this is the first time skill development has got importance. Infact, every government felt the need and importance of skill development but the priority given varied in different degrees. So to say vocational skill development training got importance right from the beginning in independent India which can be seen in all the Five Year Plan documents. Unfortunately skilling people in a country like India with huge population are a difficult task as a vast majority is working in the unorganized sector. Illiteracy also has compounded the problem little more. However, India has one advantage, i.e. it is a country with young population. According to National Youth Policy 2014 the youth age group has been defined as 15-29 years. As per 2011 Census the total population of India was 121 crore in which the youth population alone was 33.33 crore which was 27.5% of the population. It is expected that the population of India may exceed 130 crore by 2020 with a median age of 28 which will be less than the median ages of China and Japan. Also India is expected to become the fourth largest economy by 2025 contributing around 6% to the world GDP, only after USA, China and Japan which face the risk of an ageing workforce. According to an estimate the working population of India is expected to increase to 59.2 crore by 2020 (China will have 77.6 crore) which will make a significant contribution to the economic development of the country.

The importance of skill development has been stressed by various

committees and commissions but the most important one is the Education Commission of 1964-1966 constituted by the Govt. of India under the Chairmanship of Professor D.S.Kothari. The report of the commission clearly states that India is in transition from a society in which education is a privilege of a small minority to one in which it could be made available to the masses of the people. The immense resources needed for this programme can be generated only if education is related to productivity so that an expansion of education leads to an increase in national income which, in its turn, may provide the means for a larger investment in education. In the same sprit the commission also said that the link between education and productivity can be forged through the development of four programmes which should receive high priority in the plans of educational reconstruction. They are science as a basic component of education, work experience as an integral part of general education, vocationalization of education to meet the needs of industry, agriculture and trade and improvement of scientific and technological education and research at the university stage. The commission in its foresighted recommendation also said that success in industrialization depends to a large extend on an adequate supply of skilled manpower. The wealth and prosperity of a nation depends on the effective utilization of its human and material resources through industrialization. The use of human material demands its education in science and training in technical skills. India's enormous resources of manpower can only become an asset in the modern world, when trained and educated.

Indian Tradition to Learn Skills

India has the rich tradition of learning skills and occupational knowledge from generation to generation and from man to man. Mostly the transmission happens from the elders in the family to the younger ones, particularly from the father to son and mother to daughter. In this process the trainer provides all sorts of skill related knowledge to the trainee by adopting oral methods and intensive hands-on. In this way the trainee gets mastery over the practical aspects of the skills and soon becomes an expert in the vocational trade. In course of time this learning process has developed into an educational process which is termed as vocational education which covers both unorganized and organized methods of transmitting knowledge, skills and competencies. The

unorganized form is learning on the job with no or little assistance and supervision while the organized form is learning vocational education in an institutional set-up. The unprecedented developments in science and technology and globalization have led to expansion in the vocational areas for which organized education or training is required. Hence, vocational education and training has become both a consequence and a cause of progress.

It is also to mention here that traditional educational programmes have failed to prepare the right products for entry into the employment market. The courses offered by the educational institutions are not linked to the actual needs of the job market and the prevailing academic preparation is more of theoretical orientated rather than practical utility. Unfortunately, school students who complete their senior secondary classes show keen interest to pursue university education without knowing that they are not only going to waste a few years of their life but also not going to get any fruitful employment at the end. But vocational education is the one which is likely to bridge the gap between the educational courses and the requirements of the job markets. The underlining fact is that if vocational education is given due emphases at the school level the students who have learnt the skills can directly get employment opportunities in the organized sectors. This will enable them to be the earning members thereby their families will have economic benefits. Hence, investment in vocational education is good both for the nation and for the individuals. Vocational education in its broadest sense pertains to all occupations and all people. In a world where science and technology are opening new dimensions and extending the horizons, it is logical to think that if the human potential is to be fully explored and utilized, it requires the people to be educated properly with the employable skills, motivation and the spirit to enquire further so as to make them effective partners of growth and development. Moreover, the impact of technology on occupations, the tendency of employers to set higher educational requirements and the need for employees with specialized training have made vocational preparation imperative.

The Birth of Shramik Vidyapeeths

Independent India started growing in all the fields through Five Year Plans. Big industries, steel plants, factories were established in large cities and towns

which gave opportunities for employment. Comparatively agricultural development was in slow pace because of traditional and outmoded practices and rain-fed lands. Eventhough, dams were constructed across perennial rivers to save and regulate the water to cover large areas; still agriculture was lagging far behind industrial development. Slowly big land owners started practicing mechanized farming due to which a large number of agricultural labourers were deprived of their wage employment. Poor labourers who were having the compound problem of not able to get employment in their traditional occupation and also low wages started looking for green postures in cities and towns where there was not only better employment opportunities but also attractive due to fast city life. Hence, migration started slowly. Unfortunately, neither had they known nor they were informed about the hard life of cities as they did not have the required skills to manage. Migrated population with no base in the new places started settling wherever there were vacant places including slums, pavements and roadsides.

New employment opportunities in industrial establishments could absorb only persons with required skills and almost rejected others who did not have skills which formed a large chunk of population. Eventhough, they were skilled in their own way, i.e. agricultural operations, they were not skilled in industrial operations. This created a unique situation in which they were not only problem to themselves but also to the city dwellers as already adult and young people were in search of employment but could not get for want of proper skills in their hands. This adjustment difficulty of a large chunk of people drew the attention of both the social workers and the administrators. Hence, Shramik Vidyapeeths came in. They were set-up to impart specialized education integrated with awareness and functional improvement. In the context of the country's overall development, this programme was conceived as responding to the educational and vocational needs of numerous groups of adults and young people, men and women belonging mostly to the unorganized, urban informal sector, living and working in urban and industrial areas and people migrating from rural to urban settings.

The introduction of the innovation of Shramik Vidyapeeths in the country was preceded by discussion between the Government of India and Unesco in 1960s. Unesco was interested in promoting this type of education in India. Yugoslavia had by then achieved some success in the experiment of Polyvalent

Education. Therefore, Mr. K. Milinkovic, Director of a Polyvalent Centre in Yugoslavia was sent to India as Consultant by Unesco.

The scheme of Shramik Vidyapeeths was one of the relatively new programmes for workers education. The scheme of setting-up a network of Polyvalent Adult Education Centres in the country and a Central Adult Education Organization Unit at the central level to plan and coordinate their work was developed in pursuance of an agreement signed between the Ministry of Education and Unesco in 1964. Prepared by the then Department of Adult Education, National Council of Educational Research and Training (NCERT) (now the Directorate of Adult Education) the scheme was finally approved for implementation in 1966 by the Ministry of Education, Govt. of India. Accordingly, NCERT sanctioned a Central Adult Education Organization Unit in the Department of Adult Education and also the establishment of two Polyvalent Centres. The first centre with its corresponding Indian name "Shramik Vidyapeeth" was set-up in Bombay (now Mumbai) in March 1967 followed by two more centres, one at Delhi and the other at Ahmedabad.

The basic idea behind the polyvalent approach to the education of workers was to meet the various inter-related needs of workers with specifically matched programmes. It gradually became clear that educational and training programmes oriented to particular workers needs (uni-sided programmes) were neglecting some important aspects of workers' life and labour's world. The polyvalent adult education for workers was aimed at removing this lacuna and it represented and attempted to provide knowledge and impart skills simultaneously and in an integrated manner.

At that point of time Workers Social Education Institutes were also functioning at Indore and Nagpur. Hence, the Govt. of India appointed a committee on 7th August 1976 under the Chairmanship of Shri Anil Bordia, then Joint Secretary, Ministry of Education and Social Welfare to review the scheme of Workers Social Education Institutes vis-à-vis the Scheme of Polyvalent Adult Education Centres (Shramik Vidyapeeths) which submitted its report on 26th March 1977. The committee in its report recommended that the two schemes of education for workers of the Ministry of Education operated under separate names should be merged into one single pattern and the scheme

may be called "Scheme of Non-formal Education of Workers through Establishment of Shramik Vidyapeeths". The committee also recommended shape of the Emblem, Functions and Priorities, Organization and Management, Programme Formulation, Staffing, Finance, Evaluation and Follow-up and Specific Role of the Directorate of Adult Education in the area of Monitoring, Training, Curriculum and Material Development, act as Clearing House and liaison with different Ministries/Departments/NGOs/other agencies relating to the programmes of Shramik Vidyapeeths. In the Sixth, Seventh and Eighth Five Year Plans the Government of India gradually expanded the scheme to other parts of the country and by the end of the Eighth Five Year Plan (1997) the number of Shramik Vidyapeeths established in the industrial cities and towns were 58. However, the programmes organized by them were limited to urban areas only.

The Shramik Vidyapeeths were established mostly under Voluntary Agencies (VAs) and a few under the state governments and universities. Each Shramik Vidyapeeth was an independent unit managed by its own Board of Management consisting of 14 members including Chariman (Vice Chancellor for SVP under university system, Education Secretary or his/her nominee for JSS under state government and Chairman/President for SVP under VA). The slots members represent included workers interest, employers, social workers, state government, labour department, Govt. of India, State Director of Adult/Mass Education, University NSS Programme Coordinator, NYK Youth Coordinator and Director of Shramik Vidyapeeth (Member Secretary).

As the vocational training programmes were organized to the deprived sections of the society including slum dwellers, the Shramik Vidyapeeths in the country almost had traditional and tailor made programmes of short duration. Popular courses conducted were basic electronics, power electronics, radio/tape recorder/transistor repair, refrigeration and air conditioning, wireman, battery charging, domestic appliances repair, house wiring, motor rewinding, cutting/tailoring/embroidery, carpentry, fitter, stove repair, watch repair, book binding, drawing and painting, agarbatti making, rexene articles making etc. As there was no standardized curriculum prepared centrally, the Shramik Vidyapeeths themselves prepared curriculum, which varied from one to the other. Many times the same course had different curriculum and duration

at different Shramik Vidyapeeths. Hence, no uniformity in the curriculum followed and duration adopted with the result the quality of the programmes suffered a lot.

At the end of each course, the Shramik Vidyapeeths conducted learner evaluation and issued certificates. Eventhough, the certificates were not recognized by any competent authority; they were found to be useful for the holders to get wage employment in unorganized sectors (a few could also get in organized sectors). This was mostly due to the Shramik Vidyapeeths establishing themselves as training institutions with proven ability. Also most of the people trained in these institutions used to pursue self-employment.

In the year 1993 the Shramik Vidyapeeths were evaluated by Tata Institute of Social Sciences, Mumbai (famously called Jacob Aikara Report) which upheld the principles for which the Shramik Vidyapeeths were set-up and applauded their performance. However, it also said that:

- There found to be no linkage between the adult education programmes and Shramik Vidyapeeths in the field.
- Stand-alone work by Shramik Vidyapeeths almost deprived the beneficiaries of literacy programmes getting vocational training.
- Quality of the training programmes conducted by the Vidyapeeths also suffered due to skeleton curriculum prepared by the Vidyapeeths themselves or no curriculum for the vocational courses.
- However, Shramik Vidyapeeths were popular in view of variety of vocational courses conducted by a single institution for different clientele groups and token fee collected from the beneficiaries.

Name change – from Shramik Vidyapeeth to Jan Shikshan Sansthan

When the National Literacy Mission was set-up in 1988, a new force was introduced in the field of adult education through campaign mode which was based on the success already made in Ernakulam, Kerala. The mass campaigns did not stop with imparting basic literacy skills to the learners but were essentially for social mobilization, awakening and arousing people in all walks of life. When more and more people started participating in

literacy campaigns their involvement in socio-economic activities also became more meaningful. When most of districts were covered under the campaign for basic literacy, a good number of districts have moved upwards to post literacy and continuing education. It is always believed that basic literacy can be meaningful for an individual only when he or she is able to use the skills acquired in day-to-day life and also is able to earn the livelihood. As skill oriented training was an integral part of continuing education programme and already Shramik Vidyapeeths were organizing vocational skill training programmes for the neo-literates in urban areas the Govt. of India found it necessary to change the name, widen area of operation and increase the segments of clientele for coverage. Hence, the name of Shramik Vidyapeeth was changed to Jan Shikshan Sansthan (Institute of People's Education) and expanded the operational area from urban to the entire district in which it is located including the rural areas. The clientele groups to be catered to also have been enlarged - apart from labourers/workers, the neo-literates, people belonging to weaker sections of the society, Scheduled Cates, Scheduled Tribes and women.

It was also decided that the Jan Shikshan Sansthans will function as registered voluntary organizations under the aegis of reputed voluntary agencies. In case, appropriate voluntary agency is not able to be located it will be sanctioned to university and will function only till such time a suitable agency is located. All these changes came into effect from April 2000.

Uniqueness of Jan Shikshan Sansthans

Vocational training programmes are organized by a number of institutions, many of which are either controlled directly or supported financially by different Ministries/Departments of the governments. Many more also function in the open market with self-financing. However, Jan Shikshan Sansthans are the vocational training institutions funded by the Ministry of Human Resource Development, Govt. of India under the Scheme of Assistance to Voluntary Agencies. As on date there are 271 Jan Shikshan Sansthans functioning in different states as indicated in the table below:

S.No.	State/UT	No. of JSS
1.	Andhra Pradesh	15
2.	Arunachal Pradesh	1
3.	Assam	5
4.	Bihar	14
5.	Chhattisgarh	7
6.	Delhi	4
7.	Goa	1
8.	Gujarat	11
9.	Haryana	6
10.	Himachal Pradesh	1
11.	Jharkhand	5
12.	Jammu & Kashmir	2
13.	Karnataka	11
14.	Kerala	12
15.	Madhya Pradesh	34
16.	Maharashtra	23
17.	Manipur	3
18.	Mizoram	1
19.	Nagaland	1
20.	Odisha	17
21.	Punjab	2
22.	Rajasthan	8
23.	Tamil Nadu	11
24.	Tripura	1
25.	Uttar Pradesh	56
26.	Uttarakhand	6
27.	West Bengal	11
28.	Chandigarh (UT)	1
29.	Dadra & Nagar Haveli (UT)	1

Eventhough, there are a number of vocational training institutions functioning in India, Jan Shikshan Sansthans are unique for the following reasons:

1. Though Jan Shikshan Sansthans organize vocational skill development training programmes they are called adult education institutions while similar such institutions are called technical training institutions.
2. This is one programme which is consistently supported and funded right from the Third Five Year Plan to till date by different governments which came to power in the centre.
3. Right from the beginning voluntary agencies have got the major share in the sanction of these training institutions. As Shramik Vidyapeeths, a few were given to state governments and universities but the Jan Shikshan Sansthans are sanctioned only to voluntary agencies.
4. Each sansthan is an independent entity with respective Board of Management. Hence, it has a lot of freedom to run the institution within the overall framework given by the Govt. of India in the guidelines of the scheme. The Board of Management is duly supported by Executive Committee, Programme Advisory Committee and Vigilance and Grievances Committee.
5. Sansthans cater to the vocational skill needs of different clientele groups – illiterates, neo-literates and people with rudimentary level of education. As their needs vary widely, training programmes are organized in a diversified manner with flexible approach.
6. No minimum qualification is prescribed for persons seeking admission to different training courses. Interest, keenness and capability are the underlining factors for admission.
7. The course fee charged from the trainees is the barest minimum and hence, courses conducted by the sansthans are popular among the poor and downtrodden.
8. For long the SVP/JSS had the freedom to decide the course curriculum and duration of the vocational training programmes. The curriculum was prepared by the respective Resource Persons of the training programme. However, the Directorate of Adult Education (DAE), Govt. of India in a first attempt standardized the curriculum for 36 vocational courses popularly conducted by the Jan Shikshan Sansthans. They are - Textile Designing and Printing, Batik and Tie & Dye, Helpers for Hospitals and Nursing Homes, Photography and Videography, Hand Pump Mechanism,

Interior Design and Decoration, Carpentry and Furniture Making, Electrical Technician, Handicrafts – Applique and Patch Work, Radio & Television Mechanism, Computer Applications, Handicrafts: Toy Making, Beauty Culture & Health Care, Fruit and Vegetable Processing and Preservation, Bee Keeping, Poultry Farming, Domestic Attendant, Screen Printing, Fabric Painting, Fashion Designing, Flower Arrangement, Dress Making, Designing & Embroidery, Watch Servicing and Repairs, Maintenance and Repair of Automobiles, Plumbing & Sanitary Work, Welding and Fabrication, Leaf Plate and Cup Making, Refrigeration & Air-conditioning Mechanism, Bio-Farming, Milk Products, Horticulture Assistant, Veterinary Assistant, Mushroom Cultivation and Marketing, Bakery & Confectionery, Jute Craft and Repair and Maintenance of Cycle & Cycle Rikshaw.

These courses are in modular form and each module is an independent unit. Hence, there is no need for the trainees to complete one module to go to the other. The trainees can choose any module of their choice to complete the same for which the sansthan will issue the course completion certificate clearly indicating the name of the course and the module. However, in no way the Jan Shikshan Sansthans were prevented from following their own curriculum also for organizing the training programmes with the condition that such curriculum should be vetted by competent authority.

As most of the beneficiaries of Jan Shikshan Sansthans are less educated in the training programmes weightage is given more for practical work with 65%, theory 25% and Life Enrichment Education 10%.

Subsequently, the National Literacy Mission Authority recommended the courses based on Modular Employable Skills (MES) developed by M/o Labour, Govt. of India and the vocational courses developed by National Institute of Fashion Technology (NIFT). Eventhough, for most of the MES courses the minimum qualification prescribed is 5th standard pass, around 1500 courses are for those who have no qualification at all. However, all the courses developed under MES need to be completed step by step (meaning right from the first module to the last module) with no freedom for the trainees to choose the module as per their choice. Hence, MES courses are vertical in nature. At the same time NIFT

courses are basic in nature and more related to garments.

9. Sansthans not only organize vocational skill development training programmes but also provide general knowledge both related to the skill and for the promotion of national goals such as secularism, national integration, population and development, women's equality, protection and conservation of environment. This is called Life Enrichment Education. The same aspect was called Polyvalent inputs in Shramik Vidyapeeths. Infact, Shramik Vidyapeeths were called Polyvalent Adult Education Centres also. This approach attempts to provide knowledge and skills in an integrated manner and ensures the trainees to have continuous access to education and training throughout their life.
10. Collaboration and coordination with other organizations is one of the strongest points of Jan Shikshan Sansthans. As the sansthans operate with limited funds received from Govt. of India as annual recurring grant, many of the programmes are organized in collaboration with other organizations/agencies/departments where manpower and infrastructure facilities are available. This enables the sansthans to cover more beneficiaries year after year. The convergence also helps in pooling the resources for a common cause.
11. The sansthans themselves conduct learner assessment tests and issue course completion certificates.
12. Most of the beneficiaries of the sansthans pursue self-employment after completing their courses. Hence, the point of recognition for the certificate by any competent authority mostly does not arise.

Conclusion

Right from the inception till date the Jan Shikshan Sansthans have established themselves as one of the adult education institutions with vocational training as an integral component. They have almost created their brand name and are able to sustain themselves with annual recurring grant given by the Ministry. Now it is the time for them to fall in line with the National Skill Qualification Framework (NSQF) as no government grant will be available for those institutions which do not follow NSQF after March 2017. Hence, a lot of preparatory activities need to be taken by the sansthans to set them in the overall

framework so that the vocational training given by them is much more qualitative, recognized and employable. The preparatory activities may include identification of suitable courses prescribed by Sector Skill Councils in the areas of Agriculture, Automotive, Beauty and Wellness, Business Correspondent & Facilitator (BFSI), Capital Goods, Construction, Electronics, Gem and Jewellery, Health Care, Indian Plumbing, IT/ITes, Leather, Media and Entertainment, Retailers Association, Rubber, Security and Telecom, etc., appointment of qualified and experienced resource persons to impart skills, development of proper infrastructure including classrooms with suitable tools and equipments for hands-on/practical, procurement of suitable reading materials and conduct of learner assessment with the designated agencies. This will enable the Jan Shikshan Sansthans to establish themselves further as credible education and training institutions with trainees getting certificates which will open the employment opportunities for them both in India and abroad.

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CHAPTER SEVEN

NVEQF to NSQF: The Journey and Outcome

Youths have always been considered as an asset for the nation. If channelized properly their energy can transform the fortune of a country. But the same is not true with the unemployed youths who often think themselves as a burden on the society. India has entered into the second decade of the 21st century with a total 1210.6 million population out of which the proportion of economically active population (15-59 years) is 62.5 percent which comes around 756.6 million. Records show that the total work participation in the year 2011 was around 481.7 million. That means around 274.9 million people from the economically active population are simply out of job, may be due to lack of vocational and skill development training. Hence, the prime responsibility of the government is to cater to the training needs of this vast population.

The secondary and higher secondary stage of school education has always been considered as crucial one by the policy planners and academia since it is at this stage students acquire most of those basic skills and competencies that enable them to enter the job market or knock the threshold of higher education. Hence, right from the era of National Policy on Education till date, academia has very often come forward to advocate for the need of imparting skill education at the secondary and higher secondary level.

While the National Policy on Education, 1986 suitably recognized the need for introducing vocational education at higher secondary level and stated, 'The introduction of systematic, well planned and rigorously implemented programme of vocational education is crucial in the proposed educational re-organization.... Vocational education will be a distinct stream intended to prepare students for identified vocations spanning several areas of activity' the Ramamurti Committee constituted to review the NPE 1986 recommended that the provision for vocational education should be there just beyond Class VIII. The committee also recommended that the four-year secondary stage from

Class IX to XII should be viewed together so that courses could be planned of varying duration from 1 to 4 years in the academic and vocational streams. NPE not only accorded high priority to vocational education but also fixed a target to cover 10 percent higher secondary students under vocational courses by 1990 and 25 percent by 1995. This target was returned in 1992 and the Programme of Action -1992 targeted the diversification of students in vocational streams at + 2 level to 10 percent by 1995 and 25 percent by 2000.

Consequently, the Government of India in order to diversify educational opportunities for enhancing individual employability, reduce the mismatch between demand and supply of skilled human resource and to provide an alternative for those pursuing higher education launched a Centrally Sponsored Scheme of Vocationalisation of Secondary Education in 1988, which was implemented by the States/UTs for the formal sector and by the Non-Government Organizations / Voluntary Organizations in the non-formal sector.

Government got this scheme evaluated time to time by agencies such as Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE), Operation Research Group (ORG) and National Council of Educational Research and Training (NCERT).

The PSSCIVE, Bhopal conducted a 'Quick Appraisal Studies of the Implementation of Centrally Sponsored Scheme of Vocationlisation of Secondary Education' in the states of Goa, Karnataka, MP, Maharashtra, Himachal Pradesh and Delhi in the year 1990–91in order to assess the effectiveness of the implementation of the above programme. In the later years it also conducted evaluation studies in the states of Haryana, Tamil Nadu, Punjab, Assam and Maharashtra with the same purpose. The major findings of the studies conducted by PSSCIVE were as follows:

1. Students and parents both were found to have a psychological preference for academic education. This was mainly due to the poor quality and lack of employability of the pass-outs.
2. Lack of development of proper management structure in the implementing states, causing difficulties in several activities relating to planning, monitoring and providing academic support to the programme.
3. Non availability of trained teachers, adequate instructional materials and insufficient tools and equipments in the laboratories for conducting

practical and learning skills.

4. Lack of systematic school-industry linkages for effective implementation of the programme.
5. Adhoc selection of institutions and vocational courses, without assessing local needs or employment potentiality of the courses which, ultimately affects the employability of the pass-outs.
6. The Central as well as State Governments were found not modifying the recruitment rules to facilitate employment of graduates of vocational courses; and
7. Absence of Counseling and Guidance Services for helping students in making meaningful educational and career choices and for their placement in gainful employment.
8. Inflexibility in the contents, duration and delivery of the programme because of which, the programme is catering only to limited target groups of +2 students in the formal system.
9. Lack of opportunities of vertical mobility in the same or related profession though some states have made provisions for the vocational pass-outs to take admission into degree level courses. (Ref. Position Paper 'National Focus Group on Work and Education-3.7' by NCERT, January 2007)

The evaluation study conducted by Operations Research Group, the report of which submitted to MHRD in September 1996 reveals the following major findings:

1. States are according low priority to vocational education;
2. Directorate of School Education, by and large, is found to be working in isolation with little interaction with other relevant departments;
3. Part-time Teachers are usually unemployed graduates who are not experienced and not from industry;
4. State governments are reluctant to appoint full-time teachers because they are worried about taking on a long-term committed liability, in case the scheme is discontinued and
5. In almost every case, the Teachers/Instructors were not given in-service training.

Following were the major findings of the evaluation study conducted by NCERT in 1998:

1. The vocational courses should be provided in general schools in active partnership with industry and in close collaboration with the Block Level Vocational Institutions (BLVI) that may be established in rural areas.
2. The vocational stream should be treated like arts, science and commerce streams and students passing-out from this stream at the +2 stage should have direct access to the tertiary stage in a related discipline.
3. The National Curriculum Framework of NCERT should be restructured to give due emphasis to work experience, pre-vocational and generic vocational competencies at various levels of school education.
4. Full time teachers must be appointed on a regular and permanent basis as in the case of the academic stream.
5. All vocational courses at +2 level must be covered under the Apprenticeship Act, 1961.
6. The large infrastructure available in polytechnics and +2 vocational wings in the higher secondary schools, besides those of various departments and NGOs should be reviewed for optimal utilization of facilities in the existing vocational education programme.

In view of the findings of the evaluation studies carried out by PSSCIVE, ORG and NCERT and the ever growing problem of unemployment in the country Planning Commission of India constituted a separate Working Group on Vocational Education for the Tenth Five Year Plan in 2000. The Plan Document of the Tenth Five Year Plan proposed to restructure the existing scheme in tune with the recommendations of the Working Group Report. Following were the additional features suggested in the Tenth Five Year Plan document which were to be incorporated in the revised scheme of Vocationalisation of Secondary Education:

1. Vocational courses in schools should be competency-based and in modular form with credit transfer system and provisions for multi-point entry/exit.
2. There is a need to establish linkage between vocational courses at +2 level and courses at the university level. The present admission criterion for entry into vocational courses at the graduation level also needs to be changed.
3. The existing scheme should be strengthened by involving industries through Memorandum of Understanding in designing of the course, development of curriculum, training of faculty/students and certification of the courses.

4. In order to sustain the scheme, schools may consider charging fees and the courses may be designed on a self financing basis.
5. The apprenticeship training facility needs to be utilized fully and made compulsory.
6. To achieve this, placement of those who have completed vocational studies for apprenticeship and training should be decided by the Board of Apprenticeship Training immediately after the results of +2 examinations are declared.
7. Before the vocational courses started in schools, local business and industry should be closely involved in studying the need and for conducting district vocational surveys.
8. Facilities for running vocational courses should become mandatory for the Kendriya Vidyalaya and Navodaya Vidayalaya school systems.
9. Persons with disabilities should be given special treatment while designing vocational courses and their needs and integration into courses should receive appropriate attention.
10. Financial assistance may be provided under the scheme for creating testing and certification systems in states in cooperation with user bodies and professional associations.
11. All India Council for Technical Education's Vocational Education Board needs to be reactivated for providing technical support to the school system and for establishing linkages with other technical institutions.

The Steering Committee on Secondary, Higher and Technical Education set up for the Tenth Five-Year Plan also recommended that the vocational education at the secondary school level, polytechnic education and Industrial Training Institutes should come under one department of the state government for better networking, linkages, focused targeting and optimal utilization of resources.

Achievement of the Scheme of Vocationalisation in Secondary Education

According to the evaluation conducted by Operations Research Group (1996) the proportionate share of vocational students vis-a-vis total enrolment at the higher secondary stage was 4.8% and 28% of vocational pass-outs were employed/self employed and 38.3% vocational pass-outs were enrolled

themselves for pursuing higher studies. Against the national goal of diversifying 10 per cent of the students at the secondary stage to the vocational stream by the year 1995 and 25 per cent of them by the year 2000, only a meager 4.5 percent of students could be diverted within the stipulated time.

It shows clearly that the MHRD's intention to place 25 percent of all Grade 11-12 students into vocational courses by the year 2000 couldn't be realized (Ref.-Skill Development In India, The Vocational Education and Training System, Human Development Unit, South Asia Region, The World Bank, January 2006)

However, prior to the revision of the scheme on September 15, 2011 around 9619 schools with about 21,000 sections offering 150 vocational courses were created with an intake capacity of about 10.03 lakh students (SAARC Social Charter India Country Report 2012 , pg.22).

Need of National Vocational Education Qualification Framework (NVEQF)

It remains the fact that even after much initiative taken by the government there exist a huge gap between our collective capacity to impart vocational education and training and the number of enrolment in secondary/ higher secondary classes in the country which is reflected in the following table:

Population in the age group 14-16 as per Census 2011	75.9 million
Targeted enrolment in IX and X classes	30.9 million
Training capacity in vocational education as on date	2.5 million
Backlog against targeted enrolment	28.4 million
Backlog against population in the age group 14-16 yrs	73.4 million

The table above shows that as on date the population in the age group 14-16 yrs as per Census 2011 is 75.9 million while the targeted enrolment in classes IX and X is 30.9 million. That means 45 million people seeking training / employment in the

targeted age group will remain out of school. Even all of those students studying in the secondary/ higher secondary classes would not be able to avail any specific vocational training as our consolidated capacity to provide such training is around 2.5 million per annum. It is mainly due to our inability to harness the existing training opportunities in the country which is around 9.95 million people per annum as projected by Ministry of Labor and Employment, GOI. The department-wise projected training capacity of the country per annum is as follows:

Ministry/Department/ Organization	**Present Training Capacity National per annum (Million people)**
NationalSkills	-
Development Council Ministry of Labor and Employment	1.2
Ministry of Tribal Affairs	0.006
Ministry of Rural Development and IL&FS	0.548
Ministry of Human Resource Development	3.36
Construction Industry Development Council (under Planning Commission)	0.464
Other Ministries/ Departments	4.37
Total	**9.95**

It is therefore, that India direly needs a policy framework targeted towards neutralizing the existing obstacles in the educational arena of the country. The National Vocational Education Qualification Framework is nothing but the country's collective response to ensure a hassle free journey to its students/adult learners towards acquiring knowledge, skills and training.

National Vocational Education Qualification Framework

Inception

In 2007 i.e. at the outset of the XI Five Year Plan, the Ministry of Human Resource Development initiated the process of revamping the Scheme of Vocationalisation of Secondary Education and envisaged the need to develop a National Vocational Education Qualifications Framework (NVEQF) for establishing a system of clear educational pathways from school to higher education. It also suggested that the revamped scheme should be flexible in nature so as to provide greater options to the students for choosing modules, keeping in view their aptitude and economic requirements. Later the National Policy on Skill Development 2009 (NPSD), GOI also identified NVEQF as the main instrument for linking various educational and training pathways. The NPSD inter alia stated that "NVEQF would be created with an open flexible system, which would permit individuals to accumulate their knowledge and skills and convert them through testing and certification into higher diplomas and degrees. NVEQF would provide quality-assured learning pathways having standards, comparable with any international qualification framework. It will support lifelong learning, continuous upgradation of skills and knowledge" (NPSD-2009, pg.40).

Recognizing the high demand for skill in the country, the Central Advisory Board of Education (CABE) Committee in its 57th Meeting held on June 19, 2010 in New Delhi highlighted the need for NVEQF to provide a common reference framework for linking various vocational qualifications and setting common principles and guidelines for a nationally recognized qualification system and standards. The MHRD organized two meetings of the State Education Ministers on 14.12.2010 and 20.1.2011 to deliberate upon the various issues related to the implementation of the NVEQF. All the State Education Ministers unanimously supported the initiative of the MHRD in developing and implementing the NVEQF. It was agreed that NVEQF can bring about necessary changes in the education and training system of the country with an aim to bridge the gap between demand and supply of skilled work force, leading to increase in the employability of the youth. It was also resolved to set up Group of State Education Ministers to develop guidelines for such a National Framework. Hence, a Group of State Education Ministers was constituted to develop a road map

for the implementation of NVEQF. A Coordination Committee consisting of the representatives of Ministry of Human Resource Development, Institute of Applied Manpower Research (IAMR), GOI and National Skill Development Corporation was also set up for submitting a report on NVEQF to the Group of State Education Ministers.

The Fifty Eighth Meeting of the Central Advisory Board of Education (CABE) was held on June 7, 2011 under the Chairmanship of Union Minister of Human Resource Development. Union Minister of State (I/C) for Youth Affairs and Sports, Minister of State for Human Resource Development and Vice-Chairperson of CABE, Member (Education), Planning Commission along with 26 Ministers-in-charge of Education from various States/UTs attended that meeting. Eminent educationists, authors, artists, linguists apart from Heads of different autonomous organizations and senior officials of different departments of the Government of India also attended that meeting as its members.

In this meeting of CABE it was agreed upon that one of the critical challenges before the nation was to develop, recognize and enhance skills in youth to be productive members of society and the economy. The Chairman in his address accepted the essentiality of developing a set of nationally recognized qualifications which would match the requirements of industry. He said that the NVEQF proposed in the agenda items of the meeting was aimed to embed vocational education in the educational system that would provide horizontal and vertical mobility for youth ensuring seamless movement between general and vocational education. He also underlined the integral role of State Governments in preparing this Framework, as the levels of diversity in skill development in the States would best be addressed by the State Governments and stated that an element of diversity must be built into the education system to enable mobility; and the necessary unity that is also required will be provided by the standards set by a common NVEQF.

The Chairman stressed that our children should be given the choice of vocational courses so that they can contribute to the society, as also to their own families. He was of the view that what is required is to empower the child by various skills options to enhance his future employability. For this, an NVEQF that sets common standards, but with diversity within the system and has provisions for mobility, is the need of the hour. He felt that children should not be allowed to face discrimination on matters of belief, caste and creed. He also urged the State Governments to identify the areas

for skill development that would be relevant from regional to local context. He was of the view that the qualification framework should ensure mobility of the child to move from vocational to academics, and vice-versa.

The resolution regarding NVEQF which the CABE adopted in its 58th meeting after deliberations states, 'There was unanimous endorsement of the need for a NVEQF providing for a nationally recognised framework with vertical and horizontal mobility between general and vocational education. The Group of State Education Ministers already constituted will develop a road map for implementation incorporating the requirements and concerns of all the States. State Governments were urged to identify regional and local skills and develop curriculum content to feed into the NVEQF. The courses chosen should be locality specific to be implemented through plans devised by the States, which would be woven into a national grid within the parameters of NVEQF'. (Summary Record of Discussions of the 58th Central Advisory Board of Education, PIB, 07-June-2011 20:14 IST).

Timeline of the implementation of NVEQF in Secondary Education		
	Important steps	**Year**
1.	Inception of the Centrally Sponsored Scheme of Vocationalization of Secondary Education in India	1988
2.	First evaluation of the scheme by Operation Research Group (ORG)	1996
3.	Second evaluation by NCERT	1998
4.	Report of the Working Group on Vocational Education for the Tenth Plan	2000
5.	MHRD initiated the process of revamping CCS	2007
6.	Inception of the National Policy on Skill Development (NPSD) by GOI	2009

7.	57th Meeting of CABE	June 19, 2010
8.	Meeting of the State Education Ministers on NVEQF	January 20, 2011
9.	Constitution of a Group of State Education Ministers on NVEQF	February 25, 2011
10.	Planning Commission constituted Working Group on Secondary and Vocational Education for 12th Five Year Plan	April 8, 2011
11.	Submission of Draft Report by Group of State Education Ministers on NVEQF	May 31, 2011
12.	58th Meeting of CABE	June 7, 2011
13.	Setting up of Sub-Group on Vocational Education in Secondary Education for 12th Five Year Plan	July 12, 2011
14.	First Five days workshop for the content writers for the first phase of development of curricula for students of class IX (Level 1) for the pilot project of NVEQF being introduced in Haryana at the NCERT Bhavan in New Delhi	March 1-5, 2012
15.	Second Five days workshop for the content writers for the first phase of development of curricula for students of class IX (Level 1) for the pilot project of NVEQF being introduced in Haryana at the NCERT Bhavan in New Delhi	March 19-23, 2012
16.	Executive Order of MHRD for implementation of NVEQF	September 3,2012
17.	The Pilot Project under NVEQF was launched in the states of Haryana and West Bengal for the Academic Year 2012 – 2013	September 3, 2012
18.	Meeting to review the progress regarding the implementation of NVEQF	December 27, 2012

The first agenda item in the 58th CABE meeting was on NVEQF which was started with a presentation made by Dr. Santosh Mehrotra, Director General, Institute of Applied Manpower Research (IAMR) on NVEQF. In his presentation Dr. Mehrotra underlined the problem that the majority of Indian workforce is in informal employment in the unorganized sector, with low levels of literacy and numeracy, yet no mechanism was available for them to enter formal education system. Hence, it is desirable to focus on educational component to build a sound Technical Vocational Training and Educational (TVET) system. An element of general education needs to be introduced into vocational education and vice versa, to ensure a holistic approach towards human resource development for which a credit based semester system with periodical assessment and feedback for improvement of performance has been suggested. This would encourage performance based learning with definable competencies through internal and transparent assessment, based on unambiguous competency criteria. In this meeting it was also informed that the NVEQF would enable a unified system for the 17 Ministries/Departments offering different vocational courses in the country. They are Ministry of Human Resource Development, Labour and Employment, Agriculture, Food Processing Industries, Health and Family Welfare, Heavy Industries and Public Enterprises, Medium, Small and Micro Enterprises, Social Justice and Empowerment, Textiles, Tourism, Tribal Affairs, Urban Development and Poverty Alleviation, Women and Child Development, Rural Development, Department of Information Technology, Khadi & Village Industries Corporation and HUDCO and others in construction sector.

Implementation

As per the consensus arrived at in the meeting of State Education Ministers on the National Vocational Education Qualifications Framework (NVEQF) held on twentieth January under the chairmanship of the Union Minister of Human Resource Development a Group of State Ministers was constituted by the Ministry of Human Resource Development, GOI on February 25, 2011 to recommend a National Vocational Education Qualifications Framework and also to prepare a roadmap for its implementation. The members of this Group of Ministers were as follows:

1. Minister of Education (in charge of Vocational Education), Karnataka
2. Minister of Education (in charge of Vocational Education), Andhra Pradesh
3. Minister of Education (in charge of Vocational Education), Mahrashtra
4. Minister of Education (in charge of Vocational Education), Gujarat
5. Minister of Education (in charge of Vocational Education), Chattisgarh
6. Minister of Education (in charge of Vocational Education), Haryana
7. Minister of Education (in charge of Vocational Education), Punjab
8. Minister of Education (in charge of Vocational Education), Rajasthan
9. Minister of Education (in charge of Vocational Education), West Bengal
10. Minister of Education (in charge of Vocational Education), Bihar
11. Minister of Education (in charge of Vocational Education), Assam
12. Minister of Education (in charge of Vocational Education), Mizoram
13. Secretary (School Education & Literacy)-Convener
14. Secretary (Higher Education)- Co-convener

It was expected that this Group of Ministers would submit its report on a suitable framework for National Vocational Education Qualifications Framework (NVEQF) and a roadmap for its implementation latest by July 31, 2011.

Simultaneously, the HRD Ministry also constituted a Coordination Committee for drafting of the NVEQF with the following members:

1. Shri Ashok Thakur, Additional Secretary (TE), MHRD
2. Shri Sunil Kumar, Additional Secretary (HE), MHRD
3. Shri N.K. Sinha, Additional Secretary (TEL), MHRD
4. Dr. S.C. Khuntia, Joint Secretary (SE), MHRD
5. Chairman, UGC or his representative
6. Chairman, AICTE or his representative
7. Chairman, NIOS or his representative
8. Chairman, CBSE or his representative
9. Nominee of National Skill Development Corporation
10. Dr. Santosh Mehrotra, Director General, IAMR

This Coordination Committee was mandated to prepare a harmonized approach to the NVEQF by suitably incorporating the recommendations of the Committees constituted through the Sectoral Round Tables. This Coordination Committee was expected to present its draft to the Group of State Ministers for

approval by May 31, 2011(Ref. MHRD press release on PIB, 25-February, 2011 17:39 IST).

The Coordination Committee created by MHRD was chaired by the then Additional Secretary, Higher Education, MHRD, Shri Ashok Thakur. The coordination committee in January 2011 requested Dr. Santosh Mehrotra to chair a small group that will draft the NVEQF. Dr. Mehrotra coopted Shri Basab Banerji, NSDC, and Dr. Vinay Mehrotra, CIVE to work with him. The draft report was finalized by the coordination committee and then submitted to MHRD. The MHRD then submitted it to the group of state education ministers mentioned above. Dr. Santosh Mehrotra also presented it to the Central Advisory Board on Education (CABE) consisting of all the Education Minister of the states chaired by Minister, MHRD in June 2011.

The report entitled 'A Proposed National Qualifications Framework for Vocational Education for India(IAMR Occasional Paper No.4/2012)' by Institute of Applied Manpower Research, Planning Commission, Government of India was published in July 2012 which was authored by Shri Santosh Mehrotra, Director General, Institute of Applied Manpower Research; Shri Basab Banerji, Head, Standard and Quality Assurance, National Skill Development Corporation; and Shri Vinay Mehrotra, Reader, PSS Central Institute of Vocational Education, National Council for Educational Research and Training (NCERT). Hence, a 'working document on NVEQF' was prepared which outlined the areas where major initiatives have to be taken for establishment of NVEQF. It also enlists critical steps that the Government would have to take to realize the goals and objectives of the NVEQF. A multi-stage 'Action Plan' was also laid out at the end of this document.

The Centrally Sponsored Scheme of Vocationalisation of Secondary Education was approved on September 15, 2011 by the Cabinet Committee on Economic Affairs (CCEA). Thereafter, the Ministry of Human Resource Development issued an Executive Order dated September 3, 2012 vide F. No.–1-4/2011-VE for the implementation of NVEQF. However, prior to the implementation of NVEQF in Classes XI and XII across the country it was decided to undertake 2 pilot projects of the same in Class IX in Haryana and West Bengal.

The first pilot project was sanctioned to the state of Haryana for the

academic session 2012-13 in which 40 Government schools from 8 districts namely Ambala, Yamuna Nagar, Gurgaon, Rohtak, Mewat, Jhajjar, Faridabad and Palwal were expected to run vocational courses in four different sectors namely IT/ITeS, Retail, Security & Automobile in collaboration with MHRD and NSDC. This pilot project was implemented in partnership with Wadhwani Foundation.

Since, the NVEQF pilot is a resource intensive initiative and needs to be carefully analyzed with respect to long-term benefits and cost effectiveness before being implemented on a large scale. In order to establish a causal relationship between the programme and its outcomes, the Department of Education, Haryana, conducted an impact evaluation using the Randomized Control Trial (RCT) methodology. The recommendation of this study was that schools should be selected based on the existence of the Comprehensive Computer Education Plan (CCEP) facilities instead of Edusat alone and should be stratified for randomization on the basis of district characteristics and the availability of Satellite Interactive Television (SIT) and Read Only Terminals (ROT) in addition to other school characteristics. A list of 207 schools was proposed on the basis of the above criterion from all over the 21 districts of Haryana. The above 40 schools were selected based on the demographic information, socio economic status, student strength, school infrastructure and industries from that recommended list using a selection tool that laid out the School Selection Process and criteria to be followed for the same.

Implementation Strategy

Concerned authorities adopted a four phase strategy for the implementation of NVEQF as proposed in action plan in Section 14 of the National Vocational Education Qualifications Framework document.

In the first phase a National Steering Committee (NSC) for development of NVEQF was to be set up jointly by the Ministry of Human Resource and Development and Ministry of Labor and Employment to develop and establish NVEQF. Institutions for management of implementation of integrated education and training system were to be set up by the Government in collaboration with other stakeholders. The other major initiatives to be taken up for development and implementation of NVEQF in the first phase were:

- Establishment of Sector Skills Councils (SSCs)
- Development of Sector-wise Framework
- Development of Policies & Strategies governing NVEQF
- Development of National Guidelines
- Development of Sector-wise National Occupational Standards by SSCs
- Development of Sector-wise Qualification Pack by SSCs
- Modifications in the existing infrastructure and management structures
- Provision for quality education and training in institutions and workplace
- Quality assurance through monitoring and evaluation
- Encouraging various target groups, including workers to participate in NVEQF
- Provision and regulation of employment services

In the second phase it was expected that (a) the Draft Model of NVEQF prepared in the first phase would be circulated to various stakeholders for their comments and suggestions,(b) a nation-wide awareness campaign would be conducted to inform about the benefits of NVEQF, the implications it would have on education and training, and the opportunities it would provide to individuals, organizations, industries and other stakeholders and (c) a model NVEQ framework for sectors like Energy, Private Security, Retail, Information Technology/ Information Technology Enabled Services (IT/ITES), Media and Automobile which would describe the National Occupational Standards (NOS) and Performance Criteria for various qualifications, help develop `progression routes' for individual to follow and allow individuals to make the most of the opportunities to transfer credit points between qualifications would be developed for piloting.

In the third phase it was expected that in order to create a better understanding of the policy guidelines and roles of various key functionaries or key stakeholders, the model NVEQF would be presented in workshops and uploaded on website of MHRD and a series of consultation meetings would be held with the stakeholders of the sector to take their views and to finalize the NVEQF.

The fourth i.e. the last phase of the action plan has been dedicated to the implementation of the NVEQF. Since, NVEQF is a voluntary framework

there would be no formal legal obligations on the States/UTs to adopt the framework. However, it was recommended that 2014 will be the target year for States to relate their qualifications systems to the NVEQF to ensure that qualification certificates bear a reference to the appropriate NVEQF level. It was also suggested that a NVEQF Advisory Group will have to be constituted by the State/UT to advise and oversee the implementation of the NVEQF in the State/UT. It is expected that by 2016 all participating States/UTs will reference their education and training system against the NVEQF.

Operationalisation

Comprehensibly NVEQF conceptualizes a ten level qualifications framework preceded by two levels of Recognition of Prior Learning i.e. RPL-1 and RPL-2. It is a fact that the need of recognizing the prior learning of an adult that they might have acquired through informal or non formal mode of learning was pending for long which has been taken care of for the first time through the introduction of RPL- 1and RPL-2 in the NVQEF. Now adult learners can get their acquired skills certified by NIOS/ State Open Schools and SSC just by clarifying the equivalency exams conducted by these institutions and continue their education up to desired level.

Each of the ten levels under the broader framework of NVEQF has been meticulously designed to chart out the process needed, professional knowledge and skill to be acquired, core skills to be possessed, responsibilities to be undertaken and learning hours to undergo for both vocational and formal education for availing the competency certificate. It has also identified the level of competency certificate to be awarded and the agencies which will certify the competencies of the learner/students at each stage.

The tables below show the design and detail description of each level under NVEQF:

Design of NVEQF

Level	Vocational (in hrs)	Formal	Certificate	Case I Equivalence	Case II Equivalence	Certifying Body
10			NCC 8	Degree	Doctorate	University and SSC
9			NCC 7	PG Diploma	Masters Degree	University and SSC
8			NCC 6			University and SSC
7	700	300	NCC 5	Advance Diploma*	Bachelors Degree**	*Board of Technical Education and SSC **University and SSC
6	450	550	NCC 4			
5	400	600	NCC 3	Diploma*		*Board of Technical Education and SSC **School Board and SSC
4	350	650	NCC 2		Grade XII**	
3	350	650	NCC 1		Grade XI**	
2	200	800	NCWP 2	Grade X	Grade X	School Board and SSC
1	200	800	NCWP 1	Grade IX	Grade IX	School Board and SSC
RPL			RPL 2	Grade VIII	Grade VIII	NIOS/State Open Schools and SSC
			RPL 1	Grade V	Grade V	NIOS/ State Open Schools and SSC

RPL-Recognition of Prior Learning, NCWP-National Certificate for Work Preparation, NCC-National Competency Certificate, SSC-Sector Skill Councils to be established by National Skill Development Corporation, NIOS-National School of Open Schooling

Level Descriptors for NVEQF

Level	Process required	Professional knowledge	Professional skill	Core skill	Responsibility
RPL 1	Prepares a (adult) person to validate the skills acquired informally through a laid down assessment framework	Acquainted with common tools, equip-ment & process. The person is familiar with local specific termi-nologies specific to the profess-ion &basic numeracy with literacy skills	Identification & handling of appropriate tools,& equipments. Takes adequate steps on safety & security	Can demonstrate routine ,basic operating tasks	Can take independent decisions on the trade related activities.
RPL 2	Prepares a (adult) person to validate the skills acquired informally through a laid down assess-ment frame-work & help in his/her career progre-ssion	Acquainted with common tools, equipment & process.Understa nds the context of work & trade at basic level. Familiar with local specific profession and basic numeracy with literacy skills.	Handling of appropriate tools, & equipments. Takes adequate steps on safety & security. Possess soft skills required to deal with Profession efficiently.	Can demonstrate routine , basic operating tasks independently .	Can take independent decisions on the trade related activities and demonstrate the same in work situation.

1	prepares person to carry out process that are repetitive and require no previous practice	familiar with common trade related terminologies, words meaning & understanding	routine and repetitive, takes safety and security measures.	reading and writing, addition subtraction personal financing, familiarity with social and religious diversity, hygiene and environment	no responsibility, always works under continuous instruction and close supervision
2	prepares person to/carry out process that are repetitive on regular basis with little application of understanding , more of practice	Material tools and application in a limited context, understands context of work and quality	Limited service skill used in limited context, select and apply tools, assist in professional works with no variables differentiates good and bad quality	receive and transmit written and oral messages, basic arithmetic personal financing understandin g of social political and religious diversity, hygiene and environment	no responsi-bility, works under instruc-tion and close supervision
3 Semi skilled worker	person may carry out a job which may	Basic facts, process and principle applied in	recall and demonstrate practical skill,	Communicat ion written and oral, with	Under close supervision. Some responsibility

	require limited range of activities routine and predictable	trade of employment	routine and repetitive in narrow range of application	minimum required clarity, skill of basic arithmetic and algebraic principles, personal banking, basic understanding of social and natural environment	for own work within defined limit.
4 Skilled worker	work in familiar, predictable, routine, situation of clear choice	Factual knowledge of field of knowledge or study	recall and demonstrate practical skill, routine and repetitive in narrow range of application, using appropriate rule and tool, using quality concepts	language to communicate written or oral, with required clarity, skill to basic arithmetic and algebraic principles, basic understanding of social political and natural environment	Responsibility for own work and learning
5 Superv -isor	job that require well developed	knowledge of facts, principles,	a range of cognitive and practical skills	Desired mathematical skill,	responsibility for

	skill, with clear choice of procedures in familiar context	processes and general concepts, in a field of work or study.	required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information	understanding of social, political and some skill of collecting and organizing information, communi-cation	own work and learning and some responsibility for other 's works and learning
6 Master technician / trainer	demands wide range of specialized technical skill, clarity of knowledge and practice in broad range of activity involving standard non standard practices	factual and theoretical knowledge in broad contexts within a field of work or study	a range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study	Reasonably good in mathematical calculation, understanding of social, political and, reasonably good in data collecting organizing information, and logical communicati on	Responsibi-lity for own work and learning and full responsibility for other 's works and learning
7 Graduates	requires a command of wide ranging specialized	wide ranging , factual and theoretical knowledge in	wide range of cognitive and practical skills	good logical and mathematical skill,	Full responsi-bility for out-put of

	theoretical and practical skill, involving variable routine and non routine context.	broad contexts within a field of work or study	required to generate solutions to specific problems in a field of work or study	understanding of social political and natural environment good in collecting and organizing information, communicatio n skill	group and development
8 Honours	Comprehensive, cognitive, theoretical knowledge and practical skills to develop creative solutions, to abstract problem. Undertakes self study, demonstrates intellectual independence, analytical rigour and good communication.			Exercise management and supervision in the context of work/study having unpredictable changes, responsible for development of self and others.	
9 Master	Advanced Knowledge and skill. Critical understanding of the subject, demonstrating mastery and innovation, completion of substantial research and dissertation.			Responsible for decision making in complex technical activities, involving unpredictable study/work situations.	
10 Doctorate	Highly specialized knowledge and problem solving skill to provide original contribution to knowledge through research and scholarship.			Responsible for strategic decisions in unpredictable complex situations of work/study.	

All the ten levels envisaged under the NVEQF will be imparted in three stages. NVEQF levels 1 to 4 come under stage one which will be implemented in Schools/JSS/ITIs/ITCs/VTPs. Levels 5 to 6 come under stage two which will be implemented in Polytechnics/Colleges/Private TVET providers while levels 7 to 10 that comes under stage three will be implemented in colleges and universities.

It was also expected that Open Learning Institutions like National Institute of Open Schooling (NIOS), State Open Schools (SOS), Indira Gandhi National Open University (IGNOU) and State Open Universities (SOUs) would not only align their courses to suit the requirements of NVEQF levels, but they would also play a major role in offering bridge or foundation courses for seamless progression of students from one level to another.

Key elements to be provided

As per the Executive Order, MHRD, GOI the NVEQF is a descriptive framework that organizes qualifications according to a series of levels of knowledge along with skills. These levels are defined in terms of learning outcomes i.e., the competencies which the learners must possess regardless of whether they were acquired through formal, non-formal or informal education and training. Qualifications are made-up of occupational standards for specific areas of learning units. This would provide the stakeholders such as the learners, education and skill training providers and employers to gain information about the broad equivalence of qualifications across specific skill sectors. It is, therefore, a nationally integrated education and competency based skill framework that will provide for multiple pathways both within vocational education and between general and vocational education to link one level of learning to another higher level and enable learners to progress to higher levels from any starting point in the education and/or skill system. The key elements to be provided under the NVEQF are:

a) National principles for providing vocational education leading to international equivalency and transfer between vocational education and general education:

There is no mechanism for certification (recognition) of informal learning, which disadvantages the worker in the labour market, and constrains labour mobility and national and international level. Indian education system so far has been planned and organized primarily to cater to the needs of the organized sector, which employs less than 10% of the workforce. Unorganized sector, which primarily deals with serving the community to provide repair and maintenance and other services as per felt needs employ 90% of the workforce. With the demand for high quality services, India will need highly skilled workforce as well

as technician engineers, who have diagnostic capabilities and are able to provide repair and maintenance services. A majority of workers in the unorganized sector are with lower levels of literacy, as they have left the school at various stages of education. They face difficulty in returning to schools or training institutions to improve their skills, as the education or TVET system does not allow them to do so. The NVEQF will facilitate the recognition of informal learning, e.g., skills acquired at the workplace could be formally certified through an awarding body. It will provide opportunities to the people working in the unorganized sector to gain recognition of their competencies for National and International mobility or join the formal education and training system.

b) Multiple entry and exit between vocational education, general education and job markets and progression within vocational education:

At present a majority of Technical Vocational Education and Training (TVET) programmes, including those offered at School, Industrial Training Institutes, Polytechnics, and Private Training Institutes are terminal in nature, as they have been designed without any clear cut entry requirements and progression routes for vertical mobility and therefore, act as dead ends. In the absence of a National level approach to TVET planning, implementation and monitoring, the courses and programmes lack uniformity in terms of duration, entry requirements for the course / programme and nomenclature of qualification across institutions. Provision of clear progression pathways for the horizontal (across the courses) and vertical mobility (between lower and higher level courses) through clearly defined 'NVEQ levels' under the NVEQF will open up possibilities for the students to pursue higher education in the same or related vocation. Such provision will also enable addressing the issue of inequity and disparity between the vocational and general education courses. In addition the barriers to entry into universities for students going through TVET will to reduced and greater career options would be available to the students.

c) Partnership with industry/employers:

It is critical that there is a direct link between the educational inputs and the occupational employment outputs. Vocational courses should be demand and need based, keeping in mind the constantly changing requirements of technologies/industries/employers. The syllabi of vocational courses should be updated on a regular basis to keep pace with changes in technology.

Modularization of courses will reduce the drop-out rate in the school system as the modules are of short duration and as modularization makes credit transfer possible – so even if a learner drops out of a modularized training programme he/she may still accumulate credit and renter the learning pathway. In addition, modularization increases the responsiveness of curriculum to technological changes and skill demands of the industry, as it is possible to change and update specific modules instead of changing the whole programme. The modularization of courses/programmes under the NVEQF will create the possibility for changing only 'specific units' of the syllabus for cyclic updation of the courses in 2-3 years.

NVEQF is still undergoing through its experimental stage. Once the pilot projects being implemented in the state of Haryana and West Bengal is over, policy makers would be able to tune it further to suit the ground realities of the country in general and training expectation of the youth in particular.

Department- wise projected training capacity

Ministry/Department/Organization	**Target (Million people by 2022)**
National Skills Development Council	150
Ministry of Labor and Employment	100
Ministry of Tribal Affairs	30
Ministry of Rural Development and IL&FS	20
Ministry of Human Resource Development	50
Construction Industry Development Council	
(under Planning Commission)	20
Other Ministries/ Departments	130
Total	**500**

The table above also shows the estimated target to be fulfilled by the major players to keep the Prime Minister's assurance to provide at least 500 million trained manpower to the national/international job market by the year 2022. The success enroute through the effective implementation of NVEQF because without eradicating the existing barriers in the path of multi-dimensional

mobility of students in the arena of vocational education, training and academics achieving this much talked about target would not be possible. Hence, It is high time for meticulous and effective implementation of NVEQF across the country which will not only generate a hassle free opportunity for availing vocational education and training to most of the prospective hands but also rope in all the resources available in both the formal and informal sector for providing scope for a continuous qualitative improvement in the skills acquired by a learner.

Conclusion

While accommodating the major outcomes of all the previous efforts made on the line of devising a nationally accepted qualification framework capable to address efficiently the need of the hour, specifically that of the National Vocational Education Qualification Framework developed by the Ministry of Human Resource Development and National Vocational Qualification Framework by the Ministry of Labour and Employment, the Department of Economic Affairs, Ministry of Finance notified on 27th December, 2013 vide Part 1, Section 2, published in the Gazette of India Extraordinary, the details of the National Skill Qualification Framework (NSQF) in pursuance of the decision taken by the Cabinet Committee on Skill Development in its meeting held on 19th December, 2013. This National Skill Qualification Framework (NSQF) will not only supersede all the previous Framework but it will be mandatory for all the stakeholders to tune themselves and comply with the provisions of NSQF in a period of five years from the date of notification of NSQF.

The notification on NSQF is certainly going to usher in a new era in the field of education in general and skill education in particular by adopting an outcome based approach and credit transfer and accumulation system, recognizing prior learning, ensuring horizontal and vertical mobility, making the progression pathways transparent, establishing equivalence of certificates/diplomas/degrees and aligning Indian qualifications to international qualifications in accordance with relevant bilateral and multilateral agreements. With the implementation of NSQF, the learners in India would now be able to realize that 'sky is the limit' whether in acquiring education, learning skills or knocking the threshold of

national or international job market that too at par with anybody else in world.

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CHAPTER EIGHT

Make in India Campaign: Need for Strengthening Skill Development

Prosperity of a nation as a whole essentially does not mean that the same has been attributed to all its citizens for whom freedom often cease to have any functional meaning in the absence of economic sustainability. Hence, it becomes a necessary obligation for any elected government to formulate strategy to enhance the economic growth rate of the country as well as to adopt such means through which the outcome of the economic growth reaches to its citizens also. This can be ensured if the economic policy of the government, consequent growth in various sectors of economy and education policy, especially policy for imparting skill education to the population that comes under working age-group function in unison. This chapter attempts to explore intermediate linkages between the economic initiatives of the Government of India under new political dispensation, expected changes in the growth rate of manufacturing sector, scope of employment generated and consequent impact on skill education and training in India.

Right from May 16, 2014 the day on which the final results of the General Election India - 2014 were announced and BJP led National Democratic Alliance received a massive support and won a sweeping victory with a total of 336 seats in its bag the would be Prime Minister of India started taking proactive initiatives to instill a sense of jubilation and enthusiasm in the countrymen in general and opinion makers as well as those involved in policy making and its implementation in particular for striving hard to realize the cherished goal of overall inclusive growth and development of the country and also to catapult Indian emerging economy to the position of a superpower. Some of the important initiatives taken by Government of India which are expected to revive the growth and development trajectory of the country in the years to come are as follows:

1. Invited all the Heads of States of SAARC countries to attend the swearing-

in ceremony of the Prime Minister on May 26, 2014 the attendees of which included Afghanistan President Hamid Karzai, Sri Lankan President Mahinda Rajapaksa, Bhutan Prime Minister Tshering Tobgay, Maldives President Abdulla Yameen Abdul Gayoom, Nepal Prime Minister Sushil Koirala, Prime Minister of Pakistan Nawaz Sharif and Speaker of the National Parliament of Bangladesh Shirin Sharmin Chaudhury. Bangladesh Prime Minister Sheikh Hasina could not attend since she had a scheduled state visit to Japan and hence, the Speaker of National Parliament of Bangladesh attended the ceremony on her behalf. Along with them Prime Minister of Mauritius Navin Ramgoolam also attended the ceremony. This was the first of its kind when premiers of almost all the neighboring countries got assembled to grace the oath taking ceremony of their Indian counterpart. This calibrated diplomatic initiative of the then would be Prime Minister which had a very few or no buyer at the conceptual stage resulted into a great success so far as India's assertion to play a big role on the global plank in general and in Asian and South East Asian region in particular as well as the image building of the Prime Minister himself was concerned. This single diplomatic move could successfully communicate the global community about India's will to occupy a larger space and responsibility in the world affairs. In continuation of his previous experience as the Chief Minister of Gujarat, the Prime Minister started taking quick and confident decisions in order to create a hassle free environment for the growth and development of one and all. Consequently Government of India took a number of steps to bring back the progress of the nation on right track.

2. Decided to constitute a Special Investigation Team (SIT) under Justice M B Shah, a retired Supreme Court Judge to dig out the black money in the very first Cabinet meeting held on May 28, 2014. This decision was in compliance with the Supreme Court's directive on estimated Rs.50,000 crore ($8 billion) black money mostly offshore out of the country.
3. Setting a 10 point agenda for different Ministries to be implemented in the first 100 days. They were - building confidence in bureaucracy, welcoming innovative ideas and free hand to bureaucrats for implementation, priority for education, health, water, energy and roads, promoting e-auctions and transparency in government, evolving proper system for sorting out inter-

Ministerial issues, placing people oriented machinery in the government, addressing concerns relating to economy, increasing the pace of infrastructure and investment reforms, implementing government policies in a time bound manner and enhancing stability and sustainability in government policies.

4. Abolition of all Groups of Ministers (GoMs) and Empowered Groups of Ministers (EGoMs) to expedite the process of decision making and usher-in greater accountability in the system and facilitation of the decision making process, wherever ministries face difficulties, to the Cabinet Secretariat and the Prime Minister's Office. In fact this was probably the very first sign of change of guard that generated positive energy in the economy that had been the hallmark for over a decade under which important decisions got deferred to buy time and abate the consequent heat of contending parties likely to be hit by decisions one way or the other. A deadline of just a fortnight was set for policy discussions impinging on inter-ministerial issues so that the dilatory tactics of buying time to arrive at a consensus was jettisoned. This sent the right signal to the stakeholders that they need not get unduly hobbled by uncertainty as to the course of the policy decision and that investors need not get jittery over the attendant prolonged suspense. Simultaneously government announced the mulling of performance based incentives for government officials and the Department of Personnel and Training (DoPT) was asked to propose the same.
5. Prime Minister meeting the Secretaries of all the Departments of the Government of India in which they were given direction to simplify and streamline the administrative rules and procedures to make the government people-friendly and also to do away with "archaic" rules and procedures which hamper governance by creating "avoidable confusion".
6. Introduction of constitutional amendment bill in Parliament to establish National Judicial Appointments Commission for the appointment and transfer of judges to the higher judiciary replacing collegium system.
7. Reaffirmation of government's intension to get more leverage for the country by taking BRICS, the association of five major emerging national economies -Brazil, Russia, India, China, and South Africa to the next level

so that liberalization and globalization can be favorably utilized to increase GDP growth of the country and also to expand scope of employment.

8. Government's emphasis on the need to focus on skill, scale and speed to exploit the demographic dividend as according to 2011 Census 65 percent of India's population was below 35 years of age.
9. Launching of 'Swachh Bharat Abhiyan' to transform the lives of Indians – rich and poor. All the roads to this initiative pass through the thicket of reforms leading to the closure of open defecation and require strengthening public health services. Government vows to give Mahatma Gandhi the gift of a clean India on his 150th birth anniversary on October 2, 2019.
10. Clearing a five-year-old plan initiated during the Prime Minister's days as Gujarat chief minister for a new skill development plan called National Employability Through Apprenticeship Programme (NETAP) to push on-the-job training and boost job creation by aligning skills of the workforce to industry's needs. This is the first apprenticeship programme in the country that will give students academic credit for their on-the-job training towards diploma and degree programmes and creates a new connection between skills and higher education.
11. Launching of a website MyGov to help citizens give their opinions on relevant issues such as skill training and civic issues and bridge the gap between people and the government.
12. With 'Sabka Saath, Sabka Vikas' as the guiding principle, Government of India wants the development of all the states together. The same way all individuals should have financial stability and hence Pradhan Mantri Jan Dhan Yojana was launched under which Bank Accounts are opened for all the people with Rs. 1.00 lakh as life insurance.
13. The Union Government after extensive consultation across the spectrum of stakeholders, including state governments, domain experts and relevant institutions established NITI Aayog (National Institution for Transforming India) as a replacement for the Planning Commission of India on January 2, 2015. NITI Aayog to have a major impact on various policy initiatives of the government. Some of the important dimensions of NITI Aayog are as follows:
    - It seeks to provide a critical directional and strategic input into the development process.

- The centre-to-state one-way flow of policy, that was the hallmark of the Planning Commission era, is now sought to be replaced by a genuine and continuing partnership of states.
- It is expected to emerge as a "think-tank" that will provide governments at the central and state levels with relevant strategic and technical advice across the spectrum of key elements of policy.
- It seeks to put an end to slow and tardy implementation of policy, by fostering better Inter-Ministry coordination and better Centre-State coordination. It will help evolve a shared vision of national development priorities, and foster cooperative federalism recognizing that strong states make a strong nation.
- It will develop mechanisms to formulate credible plans to the village level and aggregate these progressively at higher levels of government. It will ensure special attention to the sections of society that may be at risk of not benefitting adequately from economic progress.
- It will create a knowledge, innovation and entrepreneurial support system through a collaborative community of national and international experts, practitioners and partners. It will offer a platform for resolution of inter-sectoral and inter-departmental issues in order to accelerate the implementation of the development agenda.
- In addition, it will monitor and evaluate the implementation of programmes, and focus on technology upgradation and capacity building.

Through the above, the NITI Aayog will aim to accomplish the following objectives and opportunities:

- o An administration paradigm in which the Government is an "enabler" rather than a "provider of first and last resort."
- o Progress from "food security" to focus on a mix of agricultural production, as well as actual returns that farmers get from their produce.
- o Ensure that India is an active player in the debates and deliberations on the global commons.
- o Ensure that the economically vibrant middle-class remains engaged, and its potential is fully realized.

- o Leverage India's pool of entrepreneurial, scientific and intellectual human capital.
- o Incorporate the significant geo-economic and geo-political strength of the Non-Resident Indian Community.
- o Use urbanization as an opportunity to create a wholesome and secure habitat through the use of modern technology.
- o Use technology to reduce opacity and potential for misadventures in governance.

Hence, the NITI Aayog aims to enable India to better face complex challenges, through the following:

- o Leveraging of India's demographic dividend, and realization of the potential of youth, men and women, through education, skill development, elimination of gender bias, and employment
- o Elimination of poverty, and the chance for every Indian to live a life of dignity and self-respect
- o Redress the inequalities based on gender bias, caste and economic disparities
- o Integrate villages institutionally into the development process
- o Policy support to more than 50 million small businesses, which are a major source of employment creation
- o Safeguarding of our environmental and ecological assets

14. In order to extract the desired outcomes, on the manufacturing front, Government launched a 'Make in India' programme on September 25, 2014 so that the Indian products would get a leg-up in terms of being competitive both in price and quality not only within the country but also abroad. The campaign, 'Make in India' is a major national programme designed to facilitate investment, foster innovation, enhance skill development, protect intellectual property and build best-in-class manufacturing infrastructure targeted to transform India into a global manufacturing leader.

Since this chapter primarily focuses on this high profile and highly pitched campaign 'Make in India' and its role in enhancing the overall performance of the manufacturing sector in the country and thereby its impact on employment generation and skill development, it would be pertinent to elaborate certain

important dimensions of this campaign, especially its context, aims and objectives, achievable targets set forth, role in improving the prospects of manufacturing sector and how it is going to accelerate employment generation and skill training in the country.

Context

This campaign has been conceptualized in the backdrop of last decade's experience which indicates a complete mismatch between the GDP growth rate and the growth in job opportunities. While country's Gross Domestic Product grew at an average annual rate of about 8% the growth in jobs remained below 1%. Not only that amongst all the labour force engaged during the period only 10% were found to have acquired some technical skill, of which just one fourth has received formal technical education. This kept the country's labour productivity low as compared to emerging economies like China and Brazil. This mismatch demanded an urgent policy intervention by the Government of India.

A report titled 'State of Urban Youth, India 2012: Employment, Livelihoods, Skills brought out by IRIS Knowledge Foundation in collaboration with UN-HABITAT says that every third person in an Indian city today is a youth. It has also been predicted that within a span of seven years, the average age of an Indian will be 29 years, making it the youngest country in the world. Hence, India is poised to experience a dynamic transformation as the population burden of the past will turn into a demographic dividend, but visionary approach and tremendous efforts are needed to harness its benefits. The volume of unemployed youth as per 2011 reports stands at 113 million (11.3 crore). Creating ample jobs for them and achieving high growth would be possible only if the manufacturing sector gets into a high growth trajectory. Make in India initiative should be seen in this perspective. Hence, the Government's initiative will bolster and help increase per capita income and will create jobs for over 10 million (1 crore) people, who join the workforce every year. 'Make in India' vision can empower youths who have skill and talent for it.

In the present scenario, India lags far behind in manufacturing. The share of manufacturing in India's GDP is low at 16% as compared to 36% in China, 34% South Korea and 22% in Germany. To change this situation, India has to

revive its manufacturing sector, which has been witnessing stagnation for the last many years. This also demands a strategy to improve the overall performance of manufacturing sector in India.

Aims and Objectives

The Department of Industrial Policy and Promotion (DIPP) which is the nodal agency with the task to execute the campaign has envisaged the same as an initiative for radical measures to make doing business in India easier with the help of technology, convergence and integration of departments across sectors. As per DIPP this campaign is destined to achieve some much focused aims and objectives which are as follows:

- The initiative basically promises the investors – both domestic and overseas – a conducive environment to turn 125 crore population strong-India a manufacturing hub and something that will also create job opportunities.
- It is also punctuated with two inherent elements in any innovation – new avenues or tapping of opportunities and facing the challenges to keep the right balance. This initiative is actually seen as a judicious mix of economic prudence, administrative reforms and thus catering to the call of people's mandate – an aspiring India.
- The policy programme of 'Make in India' also commits that the campaign "represents an attitudinal shift in how India relates to investors: not as a permit-issuing authority, but as a true business partner."
- This is a path-breaking venture. In fact, the vision statement of official website, www.makeinindia.gov.in commits to achieve for the country among other things an increase in manufacturing sector growth to 12-14 % per annum over the medium term, increase in the share of manufacturing in the country's Gross Domestic Product from 16% to 25% by 2022 and importantly to create 100 million (10 crore) additional jobs by 2022 in the manufacturing sector alone.
- The campaign is aimed at making India a global manufacturing hub and bringing about economic transformation in India while eliminating the unnecessary laws and regulations and setting up an ease of business environment in the country.

- This initiative also attempts to create a large number of employment opportunities for the youth of India.

Achievable targets for Make in India campaign

In order to achieve all the above specified aims and objectives Government of India desires to bring some attitudinal change in the prevailing mindset of the society towards its socio-economic and educational priorities. At one hand it wants to inculcate cleanliness as national priority for which it has launched 'Swachh Bharat Abhiyan' on the other hand it wants a clear and sound mechanism to ensure free, fair and smooth access to financial services, namely, Banking/ Savings & Deposit Accounts, Remittance, Credit, Insurance, Pension to each and every able citizen/families in the country in an affordable manner for which it has launched a National Mission for Financial Inclusion called Pradhan Mantri Jan-Dhan Yojana (PMJDY) and also set forth a time bound target to achieve the monitorable outcomes. One the same line has set forth a set of achievable target for 'Make in India' campaign which is as follows:

- Target of an increase in manufacturing sector growth to 12-14% per annum over the medium term.
- An increase in the share of manufacturing in the country's Gross Domestic Product from 16% to 25% by 2022.
- To create 100 million (10 crore) additional jobs by 2022 in manufacturing sector.
- Creation of appropriate skill sets among rural migrants and the urban poor for inclusive growth.
- An increase in domestic value addition and technological depth in manufacturing.
- Enhancing the global competitiveness of the Indian manufacturing sector.
- Ensuring sustainability of growth, particularly with regard to environment.

Eventhough, in India performance and growth wise service sector is far ahead than that of the manufacturing sector, the fact remains that worldwide manufacturing growth is considered as the driver of an economy and unless India ensures a quantum jump in manufacturing growth whatever economic growth rate it achieves would not be sufficient to create desired number of job

opportunities to reap its population dividend. Government of India must be conscious of the fact that with all said and done manufacturing sector in the country is yet to deliver the expected results. India's growth has been mainly on the back of a booming services sector which contributes 62.5% of the GDP instead of 16% contributed by the manufacturing sector. It clearly indicates that while manufacturing has not been the engine of growth for the Indian economy, it now needs to grow at a much faster rate.

Manufacturing sector in India: Performance, Challenges and Strength

India, in order to optimize the use of the inherent strength of its manufacturing sector, needs to revive manufacturing activity by addressing obstacles across infrastructure, labour reforms and the ease of doing business which are the three main pillars enshrined in the 'Make in India' campaign. But prior to exploring the impact of the campaign on this sector it is essential to have a thorough study of (1) the present state of Indian manufacturing industry and its performance over the years (2) challenges it is facing now and (3) its inherent strength based on which a future success story would be written.

1. Present State of Performance of Indian Manufacturing Sector

A study undertaken by the Boston Consulting Group (BCG) with support of the Confederation of Indian Industry (CII) the outcome of which was published as a report entitled 'Make In India: Turning Vision Into Reality' released in the CII 13th Manufacturing Summit 2014 reveals that over the last 20 years (1993-2013), Indian manufacturing has by and large grown at a pace almost equal to the pace of growth of its overall economy. The data furnished in the Table-1 shows that India's share of global manufacturing has grown from 0.9 to 2.0% during the period (1993-2013). In the year 1993 India's share of global manufacturing was just 0.9% which increased to 2.2% by the year 2009 but in the later years a sharp fall down in this share was registered as in 2013 India's share of global manufacturing came down to 2.0% only.

Table-1: **India's Position in Global Manufacturing**

	Share of Global GDP in Percent		
Country	**1993**	**2009**	**2013**
India	**0.9**	**2.2**	**2.0**
China	3.1	17.3	24.1
Japan	20.2	9.6	7.3
United States	24.4	19.2	17.8
Germany, UK, France, Italy	24.1	17.9	14.9

Source: World Bank, based on values in current USD

It is to be noticed here that during the same period India's share in the Global GDP increased from 1.2 to 2.5% as detailed in Table - 2. In 1993 India's share in the Global GDP was 1.2% which increased to 2.2% in 2009 and further increased to 2.5% in 2013.

Table-2: **India's Position in Global GDP**

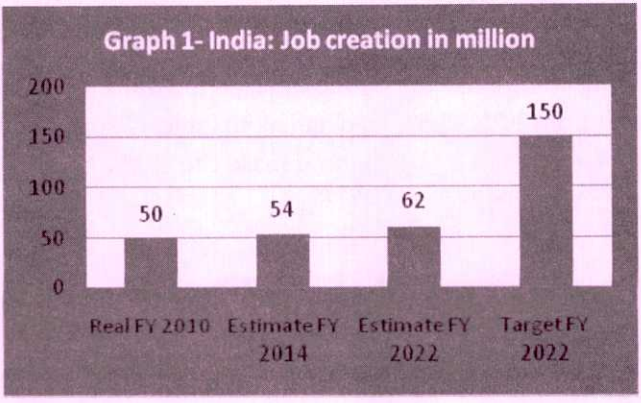
	Share of Global GDP in Percent		
Country	**1993**	**2009**	**2013**
India	**1.2**	**2.2**	**2.5**
China	2.3	6.8	8.5
Japan	12.2	8.5	8.2
United States	26.5	17.7	16.7
Germany, UK, France, Italy	21.6	25.5	24.9

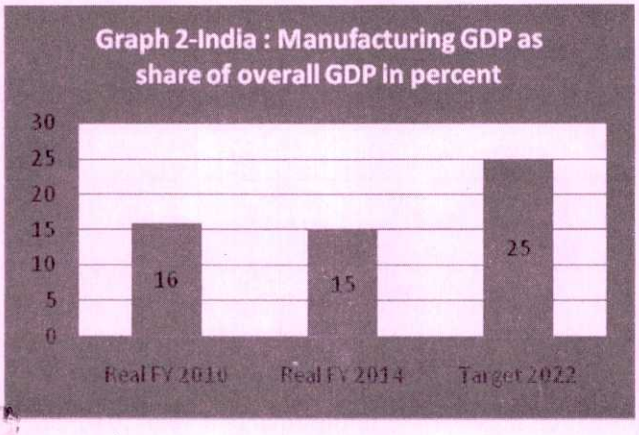
Source: World Bank, based on values in current USD

It is interesting to note that despite this encouraging growth in national GDP, the relative share of manufacturing in the Indian economy remained unchanged which eclipsed the hope of an economy based on manufacturing-led growth for the country. Manufacturing sector accounted for 15% of GDP in 1993. Except a minimal increase of 1% in the financial year 2010 when the share of manufacturing industries in India's overall GDP increased to 16% and the rate remains in the same till date. On the other hand several Rapidly Developing

Economies (RDEs) have increased their share of manufacturing above 20% of their GDP, e.g., Thailand nearly 34% of its national GDP in 2012, China owes nearly 34%, Malaysia 24%, Indonesia 24% and Philippines 31%.

Performance of export sector is considered as one of the best indicators of success for any manufacturing nation. Indian export sector also narrates the same bleak picture. Although its performance has improved with its share of global merchandise exports increasing from 0.5 to 1.7% over the past 20 years it remains modest if compared to China's performance, where manufacturing exports have risen from 2.4 to nearly 11.5% of global exports today.





Talk about employment opportunities created sector-wise in India, the number of jobs in the sector has also remained low over the last 20 years,

increasing only by 1.8% per year from 37 and 53 million (5.3 crore). This contrasts with the services sector, which has increased by 6.5% per year during the same period, growing its share of India's labour force from 22 to 31% and now accounting for 150 million (15 crore) jobs (compared to approximately 80 million (8 crore) in 1993). If the current rate of underperformance continues the sector will fall well short of the target set by the National Manufacturing Policy (NMP) of 2012. While the policy set out plans for the sector to reach 25% of GDP and create 100 million (10 crore) additional jobs by 2022 (Graph-1), the sector's contribution to GDP has fallen from 16 to 15% (Graph-2), with fewer than 5 million (50 lakh) incremental jobs having been added to the economy over the past 5 years.

2. Challenges faced by Indian Manufacturing Sector

World Bank after a detailed study of manufacturing sector of 189 countries brought out a document called "Ease of doing Business Index". As per this Index, India currently occupies 134th position. In South Asia, only Bhutan and Afghanistan rank lower than India with 141st and 164th position. The World Bank report notes that it takes 27 days to start a business in India. In Singapore it takes two and a half days. Registering a business takes less than a day in Singapore. Experts believe that even after 20 years of reforms, setting up a factory in India is a nightmare and creaking infrastructure, inefficient bureaucracy, corruption and governance issues are severely affecting the manufacturing sector. Many believe that from acquiring land to getting water and power connection, everything involves too much running around due to which many entrepreneurs look for easier ways of making a living and give up on manufacturing. The loss of manufacturing sector becomes the gain of service sector as people start choosing this sector to avoid unnecessary and unforeseen problems they face in the manufacturing sector. This decade long bleak performance of Indian manufacturing sector is due a plenty of reasons that include both national as well as international challenges which still continue before it. Some of these challenges are as follows:

(a) Cost War

To win global investors, India needs to win the global cost war in which industrialists, business tycoons or other investors decide manufacturing location for their products or invest money on the basis of lowest total

manufacturing cost. According to The Boston Consulting Group (BCG) Manufacturing Cost-Competitiveness Index 2014 amongst the top 25 exporting countries of the world India with the relative index of 100 (India taken as base) has the second lowest manufacturing cost after Indonesia (index of 95) on the dimension of cost competitiveness. However, many of its core competitors have their own added advantage. Indonesia has edged over India primarily on the back of its wages and low cost of the natural gas. Mexico has regained its status as a leading low-cost manufacturing base because of its adjusted labour costs. In 2000, labour costs in Mexico were roughly twice of that in China. In the last decade, while labour costs have quintupled (increased five times) for China, it has increased by only 67% for Mexico. In fact, productivity-adjusted labour costs in Mexico are now estimated to be 13% lower than those in China. Both for China and Russia the cost competitiveness has eroded over the last decade. In China it is due to rising electricity costs and in Russia it is due to growing political instability. The US is re-emerging as a preferred manufacturing destination mainly because of the competitive wage rates which have increased by only a third of the average across the top 25 exporting countries and for the fact that US has witnessed a price fall of around 25% due to the shale gas boom, flattening of natural gas demand and electricity costs though increased but with a much slower pace than other countries. Energy has now become the new goal maker which now conclusively decides the destination of global industries.

Experts are of the opinion that India has an excellent chance of outshining China and its other core competitors if it can increase its labour force participation rate (particularly women), increase the average level of education, improve the quality of its labour force through special training programmes, reduce impediments to let foreign capital participate in its development process, design policies to cultivate a culture of entrepreneurship and reduce corruption at all levels. Developing a coherent approach towards development in the policy makers of all the major political parties also owes a very important role in this regard.

(b) An inflexible and unpredictable regime

Unlike service sector, manufacturing sector doesn't enjoy that much of

flexibility in entry and exit. For example IT company can lease its premises and can shut operations easily whereas manufacturing in India is like a banyan tree, with fixed assets, owned premises and governed by rigid labour laws. It has no flexibility to change location, no matter how compelling the reason is. Manufacturers in developed countries are not so handicapped. Even in China, manufacturers enjoy much more flexibility, as provinces compete with each other to attract investment.

Unpredictability of political regime governing the country has also been a major cause of concern for the manufacturing industry in the country. In most of the developed as well as rapidly developed economies one can walk in with full confidence that the terms agreed to before making the investment will not change subsequently which is exactly not the case in India, where in the mid-stream rules of the game may change. In India an entrepreneur invests in a factory based on the commitment by the authorities to provide a certain fixed quantity of water and soon finds out that the municipal body has decided that it want water for other purposes and hence the water supply would be diverted from the factory. Another typical example is allotment of land by the ruling Left Front Government for starting small car factory at Singur in West Bengal which has not been operationalized due to strong opposition by Trinamool Congress which was the opposition party in the state. This made the proposers of the factory to move out of the state searching for better opportunity. The end result is that neither Singur got the car factory nor employment for the local people nor the people who sold their land for the factory could get back their land. Such erratic experience creates a negative environment for investment in manufacturing sector.

(c) Labour problems

Labour problems add to the woes of manufacturers. Because of the rigidity of the labour laws, manufacturers have relied increasingly on contract workers, which is neither good for organized labour nor for companies. Eventhough, over the years, labour unions have come to realize that for the long term welfare of labour, profitable operations are necessary, but political interference in the unions spoils the atmosphere. As a result of labour problems, the labour intensive manufacturing sector did not flourish

in India, which is precisely what the country needs. India has become competitive in higher skills-based industries, which is good, but it is not enough. The chaotic situation caused due to labor unrest in Maruti Udyog's plant at Manesar in Haryana may be sighted as the typical example of it.

(d) High and rising cost

Though India is considered a low-cost location, but in reality costs can be quite high. Even labour costs are rising rapidly and making manufacturing increasingly less competitive, if not unviable. Even in absolute terms, the cost of labour in India may be higher than in China or even Malaysia. And if productivity is brought into the equation, the comparisons become even worse. Other costs are higher than the competing countries. For instance, cost of power in India is much higher than in Pakistan or even Bangladesh. With no clear strategy for fuel linkages, it may get even worse. The plethora of taxes at central, state and local levels also add up to not just high rates, but also high costs of compliance. The introduction of Goods and Service Tax (GST) may improve the situation, but till then, it will be a significant handicap. Apart from these direct costs, manufacturing companies bear the additional cost of transaction and inefficiency of officials. A port will charge the exporter demurrage, even when the shipment is delayed on account of its inability to complete the documentation.

Hence, if we have to compete with the companies in the US, the European Union (EU), Singapore, and even Indonesia, then our infrastructure needs to match the standard of infrastructure provided there.

(e) Land acquisition

This could well be the biggest bug bear for manufacturing in India. As already said above Tata's small car project and several mining projects have faced land acquisition problems, leading to cancellation or severe delays, which drastically alter the economics of these projects in very recent times. The new land acquisition policy however, envisages companies directly acquiring land which appears to be quite impractical as manufacturing sector used to have specialists for fields that are core to its business, such as engineers and scientists, but often it does not have any expertise in land acquisition. Experts operating in the manufacturing sector believe that government should acquire land and once handed over to private enterprise,

should not be open to a reversal. Otherwise companies will not feel safe even after five years, as the acquisition may be challenged, much after a lot of investment has already been made.

(f) Industry aspirations

Traditionally, Indian entrepreneurs have been risk-averse. Manufacturing requires higher upfront investments and longer gestation periods than services. It requires aggression and initiative to invest in large capacities, which has sadly lacked in India, though it has been changing in recent times. This recent change may lead to some uptick in manufacturing.

Indian companies do not have the scale to be globally competitive. Except in a few sectors, there are hardly any global scale manufacturing plants in India. The reason is that Indian companies have traditionally focused on the domestic market and have lacked a global outlook, which in turn, stems from the millennia old culture of non-invasion in the country. Except a few like Tata group or AV Birla Group who have shown the path of becoming global leaders most of the business groups are still lacking the same. It is quite appreciable that smaller companies, such as United Phosphorous are now looking at the globe as their playing field. If this becomes a new trend of manufacturing industry India will be immensely benefitted. India so far also lacks global brands that are needed to catapult smaller manufacturers into the big league.

(g) Trade policy versus manufacturing

Many think that India embraced free trade too much too soon. This has taken the incentive for local manufacturing away, not just for multinational companies, but also for domestic companies, some of whom have already shifted manufacturing overseas or shut it altogether in preference to trading. The government has been signing Free Trade Agreements (FTAs), left, right and centre, and this has left Indian industry open to competition from manufacturers who operate in a much more supportive business environment. Indian industry is still not free to operate, and is severely constrained. If we look at China we find a much protected economy with its policies having definite and explicit bias towards domestic manufacturing, which they have achieved by forcing multinational companies to share technology and induct local companies as joint venture

partners. While negotiating FTAs, often the various ministries responsible for specific industries are not consulted. As a result, their interests are not protected. As far as buyers are concerned they compare the option of procuring locally with that from a country with which India has an FTA. The reduced tariffs and transportation may not provide enough barriers to overcome the higher cost of producing the goods in India.

A preference for trade has also prevented the growth of the capital goods industry in India. In any automotive plant in India, one will find that the majority of the equipment is imported. Like China, India also needs the order to be reversed and produce the equipments domestically. There are countries that always had policies that favoured indigenous capital goods. The Indian government needs to make up its mind about whether it wants to promote manufacturing or trade. If it is the former, then all the policies should be aligned with that objective.

Another consequence of the government's policies has been low value-addition in manufacturing in India. Eventhough, we have a booming market for cars, laptops and mobiles, there is no significant battery manufacturing industry in India. At best, there is assembly. Same is the case with electronics and several other industries. If the government had made local manufacturing as a condition for market access, things would have been different. There are several benefits of local manufacturing, eventhough in the short term, the cost may be high. Technology absorption happens by manufacturing, which is a pre-requisite for technology led innovation. If basic technologies are not mastered by an economy, it will be hard for it to develop cutting edge technologies later, thus ceding the pricing power and control to others. Clearly, no economy can master all technologies, but the wider the portfolio, better are the chances of innovation.

(h) Lack of scientific institutions

It is important for companies to develop and not just buy technologies, because either off-the-shelf technology is obsolete or there is restriction on its usage and further development. India lacks institutions with deep scientific and technological expertise, except in a few areas, such as space. India needs many technologies to solve its myriad problems, such as the thorium reactor, renewable energy, coal gasification, space, and water

among others. Some of the universities in the developed countries have a larger research budget than the entire budget of University Grants Commission (UGC) in India. This has to change and linkages between industry, academia, and research institutions need to be built and it will take a while to come about.

(i) Bureaucratic bottlenecks

The government has also to deal with an existing menace in bureaucratic functioning. The bureaucratic bottlenecks that hinder ease of doing business need to be removed.

(j) Looking beyond cost

While cost competitiveness is a critical criterion driving the attractiveness of a country, other factors play a key role too. Factors like infrastructure and those related to business environment, including operational ease, transparency and access to credit carry substantial weight. While India scores well on cost competitiveness, it is in some of these other factors that the country loses out.

Country	Direct cost relative to India[1]	Overall Business Environment[2]	Ease of doing business[3]	Logistics performance[4]	Corruption perception[5]
	in %	Rank	Rank	Rank	Rank
India		**57**	**142**	**54**	**94**
China	+10	50	90	28	80
Germany	+39	12	14	1	12
US	+15	7	7	9	19
Japan	+27	27	29	10	18
Thailand	+4	34	26	35	102

Sources: US Economic Census; BLS; BEA; ILO; Euromonitor; EIU; BCG analysis.

[1]Includes a selection of economies ranked from 1 to 25 on total export size.

[2]EIU ranking based on ten separate criteria or categories covering the political environment, the macroeconomic environment, market opportunities, policy toward free enterprise and competition, policy toward foreign investment, foreign trade and exchange controls, taxes, financing, the labor market, and infrastructure.

[3]*World Bank ease of doing business index*

[4]*World Bank logistics performance index*

[5]*Transparency International 2013 corruption perception index*

When compared on the basis of some of these non-cost parameters, India ranks poorly not only with respect to the developed economies, but most of the developing economies as well. As evident from the table given above India's rank on ease of doing business, logistics performance and corruption perception narrates a sorry tale. Administrative hassles form a key challenge in fostering greater manufacturing and industrial growth. For instance, critical delays are faced due to issues in seeking construction permits, utility connections and credit approvals. Even as India figures in the bottom half of the list of 175 countries on corruption perception, low judicial strength in India leads to significant delays in the settlement of court cases.

3. Inherent strength of Indian Manufacturing Sector

Manufacturing sector in India is yet to reach its optimum level. This would not be possible until all its inherent strength are taken into account and harnessed to its maximum. Following are some of the important strengths that may give desired boost to the sector if utilized properly:

(a) Government support for developing a skilled workforce

The country is expected to rank amongst the world's top three growth economies and amongst the top three manufacturing destinations by as early as 2020. This is far more ambitious scene than promised about 2050 sometime back in the context of India's role at the BRICS level and "favourable demographic dividends" for the next 2-3 decades and sustained availability of quality workforce for the same is another advantage.

India adds 500 Ph.Ds, 2 lakh engineers, 3 lakh non-engineering post-graduates and 21 lakh other graduates to its workforce annually. This ensures the availability of a pool of skilled manpower to support the nation's industrial development. However, industry sources have often expressed concern regarding the potential shortage of talent, given the fast pace of economic growth in the country. There are also concerns pertaining to employability with a recent Confederation of Indian Industries (CII) estimate based on a study conducted in 2008 released during 'Skills World 2008' summit organized by the CII and Aspire, a human capital management firm in India putting the share of employable graduates in the

country at 39.5%. Taking cognizance of such concerns, the government has acted in a proactive manner. The number of technical institutes (including IITs and NITs) has been increased and foreign direct investment in education encouraged.

The government also launched the Technical Education Quality Improvement Programme (TEQIP) towards making the technical education system more responsive to national as well as global economic and technological developments. The TEQIP was outlined as a 10-12 year programme to be implemented in three phases with the assistance of the World Bank. The First Phase of the programme became effective in March 2003 and closed on March 31, 2009. Second Phase of the programme was implemented from 2010-11. After the successful completion of Technician Education I and Technician Education II, projects were launched in the country with the assistance of World Bank for upgradation of Polytechnics.

(b) The National Manufacturing Competitiveness Council (NMCC)

To develop a coherent strategy for developing the manufacturing sector, the government set up the National Manufacturing Competitiveness Council. The role of the Council is to propose measures to increase the global competitiveness of the sector. Recently, this Council in coordination with the Department of Industrial Policy and Promotion and the Planning Commission has been instrumental in framing the National Manufacturing Policy (NMP). Key objectives of the NMP include:

- Raise the manufacturing sector's contribution to GDP to 25% by 2025 from the current share of 16%
- Encourage investments and competitiveness to make the country a global manufacturing hub
- Double employment generation in the sector from its current levels

In keeping with the objectives of the Council the government is also planning to set up National Manufacturing and Investment Zones (NMIZs) to encourage investments and thereby boost the share of manufacturing in GDP to 25% by 2022. According to the Prime Minister's Office (PMO) the NIMZs will be mega investment projects involving state-of-the-art infrastructure. The government is also toying with other policy measures to support manufacturing growth. Apart from encouraging FDI, other

measures to develop manufacturing include fiscal support for development of indigenous technology, training programmes for skill development and labour reforms.

(c) Technology development initiatives

Technology is the key to expanding the manufacturing base in the country and increasing India's presence in the global market. The government recognizes this fact and has therefore provided a number of incentives to facilitate technology development as per the following:

- Pharmaceuticals - No duty for upgrading technology through the Export Promotion Capital Goods Scheme
- Textiles - A maximum of US$ 438 million (43.8 crore) of subsidies on investment of US$ 10.4 billion (1040 crore) across the value chain under the revised Technology Upgradation Fund Scheme
- Food processing - No import duty on capital goods for 100% export oriented processing units

The government has also launched a number of schemes for technology development in Micro, Small and Medium Enterprises (MSME). These include:

- Lean Manufacturing Competitiveness Scheme - Implemented under the Public Private Partnership (PPP) mode with 42 Lean Consultants. The project aims to reduce manufacturing waste and increase productivity and competitiveness
- Design Clinic Scheme - This is a platform to enable MSME to avail expert advice and cost effective solutions to real-time design issues. The scheme includes two projects – Design Awareness and Design Project Funding
- Marketing Assistance and Technology Upgradation - The scheme focuses to upgrade technology for increasing competitiveness in marketing. Activities included in this scheme are technology upgradation for packaging, competition studies and development of marketing techniques
- Technology and Quality Upgradation - The scheme aims to encourage MSME to adopt global standards so as to improve the quality of goods produced.

A Technology Acquisition and Development Fund has also been proposed for the acquisition of appropriate technologies, the creation of a patent pool

and the development of domestic manufacturing of equipment used for controlling pollution and reducing energy consumption. This fund will function as an autonomous patent pool and licensing agency. It will purchase intellectual property rights from patent holders.

(d) Encouraging Foreign Direct Investment (FDI)

Over the years, the increasing attractiveness of the Indian market has lured investors from across the world. The country was among the top five preferred destinations for Foreign Direct Investment from Asian, European and North American investors as per The 2010 A.T. Kearney FDI Confidence Index. In this Index India is positioned second in the world with many developed and emerging countries lagging behind. Eventhough in the subsequent year India's rating in the FDI Confidence Index came down to 5 in 2013 and 7 in 2014 the 'more positive' outlook towards investment in India was as high as 30% compared to the 'more positive' outlook which was a mere 14%.

(e) Fortification in demand enabling sustainable growth of sector

Domestic demand fundamentals for the manufacturing sector in India have never been rosier as it is now. Strong growth in per capita income, a young and growing population, rapid urbanization and changing lifestyles will ensure that demand growth will keep the manufacturing sector busy for the coming decades. Per capita nominal GDP, for example, is slated to expand at a Compound Annual Growth Rate (CAGR) of 6.9% over 2010-2015. Demand-push from increasing incomes will be augmented by rising middle class and a young population, which currently has a median age of 25 years. According to McKinsey, India's middle class is likely to expand 12 times (to about 583 million i.e. 58.3 crore people) over the period 2005-2025. During this time, urbanization is likely to increase to 38% from 29%. As a result of these varied factors, India will emerge as the world's fifth largest consumer market by 2025 with aggregate consumption in the country slated to rise by about four times over 2005-2025.

Study conducted by the Office of Director General of Commercial Intelligence and Statistics, Aranca Research shows that the demand for India's manufacturing exports so far has been led by advanced economies consuming 29% of total products exported from the country.

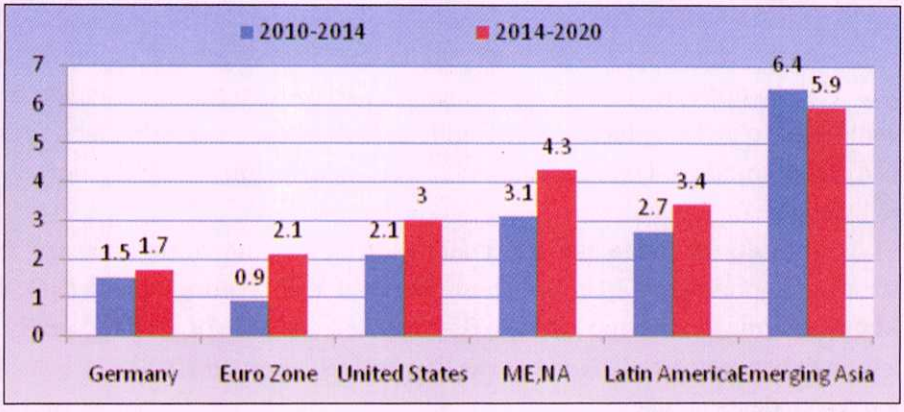
The US and Western Europe are the key destinations within advanced economies. However, this trend is likely to change as the growth in emerging economies of Asia, Africa and the Middle East is expected to outpace that of developed markets. Already some change is visible, with the Middle East emerging as a key market for a number of Indian products like engineering goods, readymade garments, and gems and jewellery. Closer trade ties with ASEAN nations, China, Latin America, and Africa in the coming decade will intensify the above trend.

While the historic performance of the manufacturing sector has been below par, with especially poor results over the past five years, the mood in India across the broader industrial sector has started to shift over the past few months. According to CII and BCG this hype is mainly because of two prime factors.

First, India's recent election outcome is widely considered to be good news for the industry for the fact that General Election 2014 was contested largely on the issue of development, rather than on social or community issues. Citizens of India gave a clear mandate to a single political party since 1984 and the newly elected PM enjoys high popularity within the business/CEO community.

Second, the overall economic outlook across the world has been improving. Several countries, especially in the developed economies where growth

had slowed down or contracted significantly in the wake of the 2008 financial crisis have started to show signs of revival. The graph prepared by Thomson Reuters data stream (IMF World Economic Outlook)/BCG analysis shows that all the major economies of world were of the opinion that 2014 onwards world economy will register a robust growth.



In addition to improving economic sentiment, since the beginning of July, the current government has developed a set of specific actions designed to rejuvenate manufacturing:

1. Government has announced a number of reforms to boost manufacturing growth to 10% per year by promoting 'Make in India', an initiative aimed at creating 100 million (10 crore) jobs over the next decade and bringing manufacturing up to 25% of Indian GDP. They include:

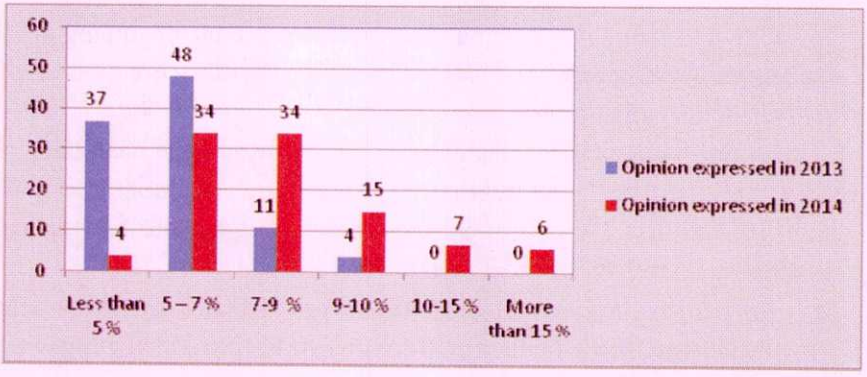
- Investment to foster innovation and new technology development, including a US$ 1.2 billion (120 crore) investment to develop smart cities and the creation of a US$ 16 million (1.6 crore) development fund;
- Action to facilitate Foreign Direct Investment including an increase of the FDI cap to 100% in railways and to 49% in defence and insurance;
- Action to foster project execution including the reforms of approval and clearance requirements and processes, rolling out of an online system designed to speed up approvals for development projects that

might have environmental impacts;

- New policies to facilitate the expansion of Micro Small and Medium Enterprises and increase the focus on innovation, including the launch of a INR 10,000 crore Venture Capital Fund dedicated to MSME; and
- Actions to enhance skills and job creation in leading manufacturing sectors including automobiles, chemicals and textiles.

2. The government has also made strategic visits overseas including Japan and US to drive increased investments. The Government of Japan has committed to invest in India US$ 35 billion (3500 crore) and US-India business body has committed US$ 42 billion (4200 crore) investment over the next two to three years.

As a result, the mood and expectations of the manufacturing industry are steadily improving. CEOs are more positive than before. The CII-BCG Manufacturing Leadership Survey 2014 revealed that 85% of the CEOs expect a growth between 5 to 10% over next five years whereas in 2013 only 65% of the respondents opined so.



Markets have started to rise in expectations of improved performance in the sector, and many indices that cover manufacturing companies have started to rise in value significantly. For example, between April and October 2014, the S&P BSE Consumer Durables index has recorded a growth of 45% and the S&P BSE Auto index growth of 10 %.

Manufacturing performance has also started looking up in many areas. India's Index of Industrial Production (IIP) has experienced a strong run in many of the recent months showing year-on-year growth levels of between 0.4 and 5.6% since April 2014. FDI has increased from US$ -0.1 billion (10 crore) in March 2014 to US$ 4.8 billion (480 crore) in June. Moreover, since April 2014, manufacturing exports from India have continuously exceeded export levels of 2013 with more than US$ 26 billion (2600 crore) worth of goods exported each month. The table below developed on the line of BCG Analysis and the data released by Reserve Bank of India Database on Indian Economy, Central Statistics Office shows the continuous increase of industrial production in India since April 2014.

Increasing growth rate of industrial production in India	
September 2013	2.8
October 2013	-2.0
November2013	-1.2
December 2013	-0.2
January 2014	-1.8
February 2014	-0.5
March 2014	3.7
April 2014	5.6
May 2014	3.9
June 2014	5.6
July 2014	0.4
August 2014	0.4

(f) Other steps

Adequate development of basic infrastructures –roads and the power chiefly, building up 'manufacturing facilities', developing

"industrial corridor" between Delhi and Mumbai, developing a strong political will, business-like approach of bureaucrats and the entrepreneurs, skilled workforce along with investment friendly policies are some of the other steps which is now being promoted by Government of India.

Contribution of Manufacturing Sector to Employment in India

The manufacturing sector is widely regarded as the transformational sector, for agricultural labourers moving from low skilled to more value added jobs. This is because, historically, economic development has followed a pattern of pulling people out of agriculture, moving them into non-farm activities such as manufacturing and services. The importance of the role of manufacturing (industrial sector) in absorbing surplus labour from agriculture sector has also been proved by the experience of many developed countries and lately in various South East Asian countries also. This makes manufacturing extremely important for India, where agriculture constitutes a minor share of GDP, but accounts for a disproportionately large share in employment. As per the Reserve Bank of India (GDP data) and Economic Survey (Workforce data) for the financial year 2011 the share of agricultural sector in national GDP was only 14.4% while it provided nearly 58.2% of India's total workforce. In contrary to that manufacturing sector the GDP share of which was 15.8% but its share in the job market was only 11.4%. Service sector had a GDP share of 57.7% and its share in the job market was 19.9%.

The table below reveals that there was a mismatch between the GDP growth rate and employment growth rate of the manufacturing sector in India. During the period 2004-2005/2009-2010 while the GDP growth rate was as high as 9.50% its employment growth rate was -1.06% which was the lowest ever growth rate recorded since 1972.

Manufacturing Sector in India:
GDP Growth Rate and Corresponding Growth Rate in Employment Generation

Period	GDP(at constant price) 1999-2000	Employment
1972-1973/1977-1978	4.83	5.43
1977-1978/1983	5.06	3.08
1983/1987-1988	4.62	4.66
1987-1988/1993-1994	5.15	0.05
1993-1994/1999-2000	6.90	1.62
1999-2000/2004-2005	6.46	5.06
2004-2005/2009-2010	9.50	-1.06

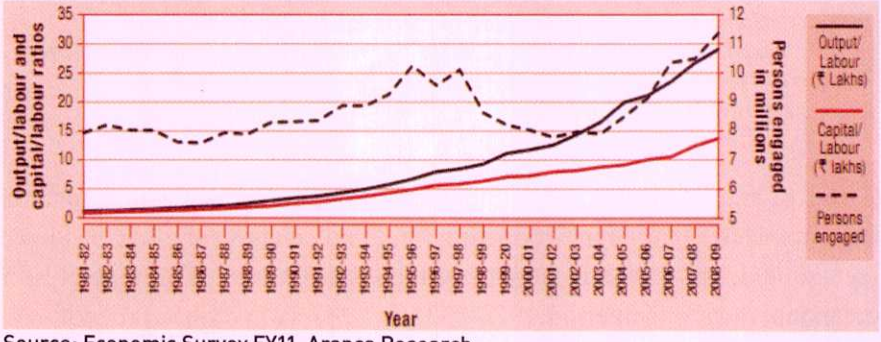
Note: Estimates based on data given by National Sample Survey (NSS) and National Accounts Statistics (NSSO 2011-2012 survey results got released in June 2013. As of now, neither the Planning Commission nor any other private researcher/research institutions have updated aggregate employment elasticity by using the 2011-2012 NSSO survey results. As regards organized manufacturing, ASI data for 2011-2012 got released recently in January 2014 only which has not been analyzed so far by any one. Hence, the growth rate in the period 2011-2014 could not be given in the table.)

Rate of employment growth in manufacturing sector as a whole, including both organized and unorganized segments, as noted above shows considerable fluctuation. Employment in manufacturing sector grew at an average of 5.43% per annum during the period 1972-1973 to 1977-1978. It has fallen down to around 3.08% during the period 1977-1978 to 1983. In the pre-liberalization-globalization period i.e. 1993-1994 to 1999-2000 the employment growth rate in manufacturing sector declined sharply as the rate came down to 1.62% per annum but it accelerated to 5.06% during the period 1999-2000 to 2004-2005 due to liberalization policy adopted by the government. But it declined during the period 2004-2005 to 2009-2010 and for the first time employment opportunities got depleted from the sector as the average growth rate came down to -1.06%.

There has been a rising perception that growth in the manufacturing sector has not been accompanied by growth in employment, as the sector

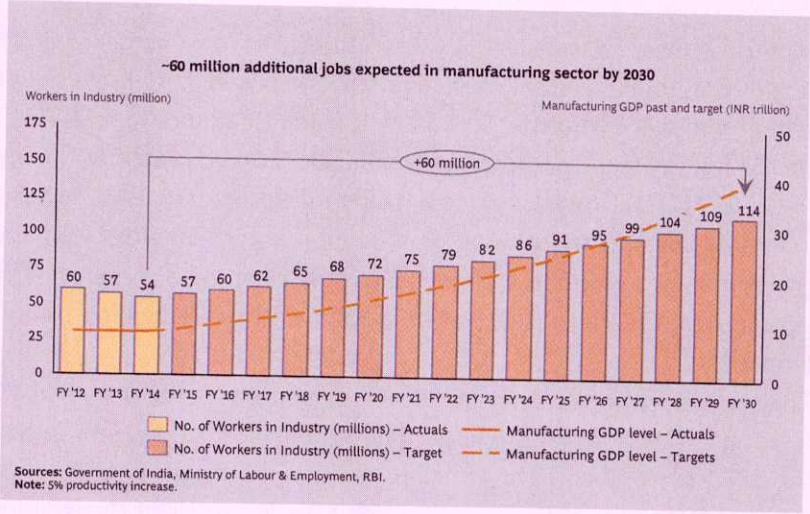
exhibits lower employment elasticity. However, according to the Economic Survey of Financial Year 2011, there has been a continuous increase in employment in the organized manufacturing sector since Financial Year 2005. The survey, based on data from the Annual Survey of Industries (ASI), suggests that employment in the sector decelerated over Financial Year 1997 to 2005; thereafter, there has been a continuous rise in employment. In the Financial Year 2009, the latest year for which ASI data is available, there was a constant increase in the number of people employed. This is in sharp contrast to the anecdotal evidence and various surveys that indicated a decline in employment in the organized manufacturing sector. While there was an increase in the capital employed per unit of labour and output per unit of labour during the same period, growth in labour absorption was at a faster rate.

Structural shift in organised manufacturing



Source: Economic Survey FY11, Aranca Research

According to National Manufacturing Policy 2011, the sector has a multiplier effect for job creation in the services sector as every job created in the manufacturing sector creates two-three additional jobs in related activities. Further the data given by the Ministry of Labour and Employment, Government of India and Reserve Bank of India shows if the opportunities available in the sector are utilized properly manufacturing sector in India would be able to create an addition of nearly 60 million (6 crore) jobs by the year 2030. The graph below shows the year-wise details:



For India, where provision of gainful high-quality employment has been a key element of goals under successive Five Year Plans including the XII Five Year Plan (2012–2017), robust growth in the manufacturing sector can be a potential panacea for providing employment to a vast majority of the population. Hence, it becomes essential to develop an apt strategy for boosting the growth rate of manufacturing sector as well as the quality of manpower by providing them appropriate skill education for this it is required to encourage growth in labour-intensive industries like wood, paper products and textile industries which require a large workforce, mostly unskilled with no special qualifications, give due focus on Micro, Small and Medium Enterprises which significantly contribute to the GDP, manufacturing output, exports and employment and labour reforms for harmonizing rules across the sector and make the labour laws more flexible so that companies are not compelled to outsource manpower instead of utilizing the domestic human resource.

As part of the its much sought for 'Make in India' campaign, Government of India in the recent period has undertaken a number of steps for harnessing the latent potential of the manufacturing sector which is also expected to boost the skill education in the country. Some of them are as follows:

1. There is an urgent need to improve the quality of training imparted in schools and colleges so that the overall quality of human resource in the

country is improved substantially. Government of India being aware of the fact of the human capital challenge has taken major initiatives such as setting up the National Skill Development Corporation (NSDC) to encourage private participation/management of Industrial Training Institutes (ITIs). However, there is scope for further initiatives such as: (i) to improve the quality of teaching in schools and colleges; (ii) to increase provisions for vocational training as well as its attractiveness; and (iii) to expand the availability and feasibility of vocational education for school dropouts.

2. The manufacturing sector cannot develop on its own without skilled labour force and in this context it is heartening to note the government's initiatives for skill development. The creation of appropriate skill would definitely set rural migrants and the urban poor on a track towards inclusive growth. That would be a vital step for boosting manufacturing. The New Ministry for Skill Development and Entrepreneurship has initiated the process of revising the National Policy on Skill Development.
3. Under the Rural Development Ministry, present government has undertaken another new initiative for skill development under a recast programme named after Pt. Deendayal Upadhyaya. This new training programme envisages setting-up of atleast 1500 to 2000 training centres across the country and the entire project would result in an estimated expenditure of Rs. 2000 crore and will be run on PPP model. The new training programme would enable the youths to get jobs in demand-oriented markets like Spain, US, Japan, Russia, France, China, UK and West Asia. The government proposes to train about 3 lakh youths annually in first two years and by the end of 2017, it has set a target of reaching out to as many as 10 lakh rural youths.
4. The government has also opened-up a vast range of sectors for foreign direct investment (FDI). It has opened up railways for 100% FDI; has deregulated the defence sector to the extent that 55% of the items now do not require licensing. It has enhanced FDI in defence manufacturing and has liberalized the construction sector in a major way. There is a focus on improving and enhancing infrastructure – industrial corridors, manufacturing cities and industrial clusters, and

then 'Make in India' also stands for cutting edge innovation.

5. It is important that while targeting for manufacturing boost, environment concerns are not left behind. Hence the government has included the policy of 'zero defect and zero effect (on the environment)' in the initiative.
6. It is vital that manufacturing driven development takes shape with pan Indian presence. It is necessary to connect village clusters with international markets and not only domestic markets by building physical infrastructure and virtual infrastructure so that all domestically produced goods and services are connected to all markets which will help to reach the fruits of growth to everyone. Hence, Government of India has planned to develop new industrial corridors covering a vast tract of land across the urban and rural habitat.
7. The Government of India is developing the Delhi-Mumbai Industrial Corridor (DMIC) as a global manufacturing and investment destination utilizing the 1483 km-long, high-capacity western Dedicated Railway Freight Corridor (DFC) as the backbone. The objective is to increase the share of manufacturing in the GDP of the country and to create smart sustainable cities where manufacturing will be the key economic driver. The project has been conceptualized in partnership and collaboration with the Government of Japan and is being implemented by the Delhi-Mumbai Industrial Corridor Development Corporation (DMICDC), an autonomous body with shareholding of Government of India through Department of Industrial Policy and Promotion (49%), Japan Bank for International Cooperation (26%) and Public Financial Institutions like Housing and Urban Development Corporation Limited (19.9%), India Infrastructure Finance Company Limited (4.1%) and Life Insurance Corporation (1%).
8. It has been planned to develop new manufacturing cities, logistic hubs and residential townships along the DFC incorporating the philosophy of sustainability, connectivity and development; each manufacturing city will have world-class infrastructure, convenient public transport, power management and an efficient water and waste management system.
9. Twenty four manufacturing cities are envisaged in the perspective plan of the DMIC project. In the first phase, seven cities are being developed, one each in the states of Uttar Pradesh, Haryana, Rajasthan, Madhya Pradesh

and Gujarat and two in Maharashtra. The manufacturing cities will provide international and domestic investors with a diverse set of vast investment opportunities. The initial phase of the new cities is expected to be completed by 2019.

10. Government of India is building a pentagon of corridors across the country to boost manufacturing and to project India as a Global Manufacturing destination of the world. Apart from DMIC the other four corridors which have been conceptualized are Bengaluru-Mumbai Economic Corridor (BMEC); Amritsar – Kolkata Industrial Development Corridor (AKIC); Chennai-Bengaluru Industrial Corridor (CBIC), East Coast Economic Corridor (ECEC) with Chennai-Vizag Industrial Corridor (CVIC) as the first phase of the project.
11. A total of 25 priority projects across various sectors have been identified for removing infrastructure bottlenecks in the CBIC region in the preliminary study conducted by the Japan International Cooperation Agency (JICA).

Impact of 'Make in India' on Skill Development

Employment is one of the most important yardsticks to gauge economic well being of any country. Better rate of employment in certainly implies to a better overall economic condition. But it requires qualitative human resource for enhancing the employment growth rate of a country. Hence, policy planners these days pay a lot of attention for the quality of human resource. Here comes the term "employability". Employability is defined as the development of skills, abilities and personal attributes that enhance students' capability to secure rewarding and satisfying outcomes in their economic, social and community lives.

Businesses around the world are reporting a skills shortage epidemic that is hindering the growth prospects of the nations. According to the Global Talent Index 2015 almost four in ten (39%) businesses around the world are struggling to recruit the right people as lack of technical skills has been cited as the primary problem (64%). The concern is that this lack of talent will dampen business productivity, ultimately threatening future growth and profitability. Infact for about 3/4th Indian businesses, one of the primary

challenges faced is the shortage of technical or specific skills. On the issue of skill gap in the country, the former Prime Minister Dr. Manmohan Singh remarked in 2006 that "As our economy booms and as our industry grows, I hear a pressing complaint about an imminent shortage of skilled employees. As a country endowed with huge human resource, we cannot let this be a constraint".

The success of 'Make in India' campaign which includes 25 sectors namely Automobiles, Automobile Components, Aviation, Biotechnology, Chemical, Construction, Defence Manufacturing, Electricity Machinery, Electronic Systems, Food Processing, IT and BPM, Leather, Media and Entertainment, Mining, Oil and Gas, Pharmaceuticals, Ports, Railways, Renewable Energy, Roads and Highways, Space, Textile and Garments, Thermal Power, Tourism and Hospitality and Wellness. Many of these sectors are labour-intensive where India has the core competency and competitive advantage to become a world leader, e.g. Textile, Leather, etc also depends on the ample supply of educated workforce. Unless skill development is stepped up, the manufacturing sector cannot scale-up its output beyond a certain point and hence, cannot become globally competitive. Identifying this need, the government has unveiled the landmark labour reform initiative 'Shramev Jayate', aimed at streamlining labour law compliance and emphasizing on skill development. Labour law compliance will help the ease of doing business whereas skill development will ensure no dearth of skilled manpower. As per the report of the National Skill Development Agency (NSDA), the target to develop the skill of individuals in the financial year 2014-2015 is 1,05,07,600 under 21 ministries and originations. Till October 2014 the achievement was 31.52%. The government is also targeting to develop skills of another 72 lakh individuals by the end of the financial year 2014-15. The current capacity of institutions of technical vocational education and initiatives, which are imparting skill development in the country is 3.1 million (31 lakh) per annum against country's target of skilling 500 million (50 crore) people by 2022.

As per a recently published report of the Ministry of Human Resource Development India has more than 620 Universities. Among these, 178 are privately managed, 7 universities are exclusively for women. In addition to

one Central and 13 State Open Universities, there are 95 Dual mode universities which offer education through open and distance mode. There are 225 affiliating universities and these have 32,974 colleges. Still the country is unable to produce required number of skilled workforce and almost all the sectors are facing a crucial shortage of "skilled" and "qualified" manpower which is mainly due to the lack of importance given to skill education in the academic curricula. Hence, the National Skill Development Agency is piloting the use of Open Educational Resources (OER) in the skill development sector. It becomes a success that the National Skill Development Agency developed a You Tube portal named "NSDAOER". As part of its activities, the NSDA is engaged in the creation of a directory of all available audio-visual content and publications pertaining to various vocational, technical and other skills, with the intention of making freely available training and educational resources for all users from one platform. With the assistance of Sector Skill Councils, NSDA has made an effort to classify the OER into sectors considering the various levels of 'Qualification Packs' (QP) and the 'National Skills Qualification Framework' (NSQF). QP refers to the job description to which the concerned video relates, and the details of the various Qualification Packs relating to each sector are available on the website of the concerned Sector Skill Councils.

The term "open educational resources" was first adopted at UNESCO's 2002 Forum on the Impact of Open Courseware for Higher Education in Developing Countries. 2012 Paris OER declaration emphasizes the definition of the OER as "teaching, learning and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions. Open licensing is built within the existing framework of intellectual property rights as defined by relevant international conventions and respects the authorship of the work". The concept of Open Educational Resources is still a new impression to the vocational education in India and so far only a few institutions of national importance and universities have adopted their policies towards Open Educational Resource which provides an excellent

route to provide skill training to millions. Being digital and online, it can complement and supplement face-to-face training initiatives. People can use OER for learning and attend hands on training sessions for polishing their skills. Moreover, creating a repository of OER on different levels and discipline areas would be huge resource that can be used by all the training institutions in the country without duplicating efforts on training materials.

Conclusion

Prime Minister of India in the year 2014 visited eight countries namely Bhutan, Brazil, Nepal, Japan, United States, Myanmar, Australia and Fiji. While interacting with all these heads of states barring a few, Indian premier put forth his agenda of regaining economic prosperity for the country emphatically which happens to be the enshrined principle of the 'Make in India' campaign. In his address to BRICS Summit at Brasilia (Brazil), General debate of the United Nations General Assembly at New York City (United States), East Asia Summit at Naypyidaw (Myanmar), G20 Summit at Brisbane (Australia) and SAARC Summit at Kathmandu (Nepal) Prime Minister of India tried his best to present the case of India emerging as a most suitable and favorable destination for foreign investment specifically in industrial sector in general and that of the manufacturing sector in particular. To foster this campaign and make it happen India has also tried to inform the global community about all the major key factors deemed necessary to woo the investors worldwide like changing needs of Indian society, the size of market available here, government's effort to provide a better access to market to all the producers/industries/investors, state of infrastructure which is reviving very fast, government's initiatives for ensuring the availability of most efficient and skilled manpower at the best available global competitive price, stable and competitive fiscal regime and also about government's initiatives to abolish the redundant laws as well as making the labour laws flexible to suit both the industry and workforce and how the ease of doing business in the country is improved further with a rapid pace. The same has been the case with all the visiting heads of the states who have recently come to India namely Tony Abbott, Prime Minister of Australia, Xi Jinping, President of the People's Republic of China,

Vladimirovich Putin, President of Russia and Barack Obama, President of the United States who was the Chief guest on the occasion of 66th Republic Day celebration at the Rajpath. India has strategically tried to persuade its mission and vision of exploring a global role for the country and an enhanced economic growth by realizing the goals of 'Make in India' with the help of both domestic and foreign participation.

As a result 'Make in India', though still in its nascent stage, has not only successfully created a positive atmosphere for the global investors but also revolutionized the mindset of Indian entrepreneurs and has boosted the confidence of domestic industries to enhance their performance qualitatively. It has also encouraged various state governments to take part enthusiastically in the campaign and create a pro-industry and pro-business atmosphere in the states so that they can also attract the investors favorably as a result a progrmmes like Vibrant Gujarat is now being organized by other states like Madhya Pradesh, North-Eastern states, Chhattisgarh, Rajasthan, Uttar Pradesh, Maharashtra also. But the shedding off the sense of monotony prevailing in India's industrial sector has come as the most important impact of the campaign. This campaign has generated an overwhelming expectation which cannot be delivered overnight or even in a year or two but if the same is continued with desirable pace and monitored properly at appropriate level it would not only boost the domestic industry, create ample amount of job opportunities, generate scope for furtherance of skill education throughout the manufacturing sector but also help the country to write a new success story that will help India to transcend the boundaries of a developing country and position itself as a developed nation on the global map. The economic impact of the campaign on the manufacturing sector will also create a rippling effect in the other sectors of economy which will go beyond direct employment. It would be creating jobs in the services sector and allied services like logistics, transportation and retail as well.

In this era of cut throat competition where political dispensation in each and every nation is maneuvering hard for best bargain in their favour, protecting domestic industries by means of tax regulation would neither be desirable nor be possible as the countries who are at the advantageous position (allegedly developed countries) due to World Trade Organization's

rules and regulation are keenly monitoring each and every development in the country. The recent objection registered by U.S. administration over government's announcement of a series of 1000-MW "grid-connected solar photovoltaic (PV) power projects" that has a "mandatory condition that all PV cells and modules used in solar plants set-up under this scheme will be made in India, shows the unhappiness of U.S. administration over indigenous production of the PV cells. It is understood that Mr. John Kerry, U.S. Secretary of State during his visit to the Vibrant Gujarat summit on January 11-13, 2015 has brought up U.S. worries over Indian government's push for use of indigenous technology, calling it the new 'Make in India law'. Also that official of US have further expressed their all-round unease with 'Make in India' campaign in other spheres of bilateral trade as well. These developments clearly indicate that the path of the campaign would not be that easy. It will require a well coordinated effort from all sections of civil society, industry, administration and other government machinery to realize the future course of action so that whatever has been proposed so far for the growth of industry, employment generation and skill education can be implemented well so that a smooth journey of 'Make in India' as a national imperative to keep India's pace with global growth can be ensured.

Finally, the 'Make in India' campaign will bring in a big boost to the tertiary sector wherein the employment opportunities will be available for those people who have the barest minimum skills relevant to the vocations in their hands. It may be appropriate that vocational training institutions like Jan Shikshan Sansthans funded by the Govt. of India tune in for a big role to play which can include assessment of the existing skills in the persons, identify the needed skills for the new employment opportunities and plan appropriate training programmes to impart those skills with proper certification. This will be in long run not only upgrade the skills but also increase in the income. This can be one of the major programmes assigned to/assumed by Jan Shikshan Sansthans as part of lifelong learning programmes.

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"Shramev Jayate"

is as much

significant as

"Satyamev Jayate."

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Dr. V. Mohankumar is working as Director in Indian Adult Education Association, New Delhi. He has got around 42 years of experience in the field of Community Development and Education.

He started his career in 1972 as Residents Welfare Officer in Tamil Nadu Slum Clearance Board Areas in Chennai and promoted as Assistant Executive Officer in the same office after 4 years. Then he served in the State Resource Centre for Non-formal Education, Chennai for 8 years as Head of the Department of Training. Thereafter, he joined the Directorate of Adult Education, Govt. of India by selection through UPSC in 1985.

In his long professional career he served both in the NGO sector and Government of India and specialized in the field of training, material development and skill development, evaluation and above all educational administration. The last post he held in Government of India was Additional Director (Grade: Director) in the Directorate of Adult Education, New Delhi.

Dr. V. Mohankumar is having Post-Graduate Degrees in Sociology, Political Science and Public Administration from Sri Venkatesawara University, Tirupati, Madurai Kamraj University, Madurai and Utkal University, Bhubaneswer and Ph.D in Population Studies from Sri Venkatesawara University, Tirupati. He also possesses two Post-graduate Diplomas, one in Social Service Administration from Madurai Institute of Social Work, Madurai and Personnel Management and Industrial Relations from Lajpat Rai Institute of Management, Chennai.

Dr. V. Mohankumar is a widely traveled person both inside the country and abroad to attend meetings, seminars, conferences, as a member of the delegation for inter-country visit and cultural delegation.

Sanjoy Kumar Bhagat, known as B. Sanjay amongst friends and academic circle, was born at Durgapur, West Bengal. He received school education in Durgapur and Diploma in Mechanical Engineering from Asansol. He went on to pursue a Bachelor's Degree in Arts from the University of Burdwan and Masters Degree in Mass Communication from Guru Jambheshwar University, Hissar. He also holds a Post Graduate Diploma in Human Rights from Indian Institute of Human Rights, New Delhi.

Sanjay started his professional career as a Project Associate in the National Commission for Youth, Ministry of Youth Affairs and Sports, GOI, New Delhi. He is now serving in Indian Adult Education Association as Research Officer. As a journalist he has been writing and speaking on socio-political and development issues for over a decade and half. He is also an academic and researcher and has undertaken several studies in various fields. A trained communication professional, he is also well-versed with human rights and empowerment issues. An important focus area of study for him is trying to understand how democracy is actually working on the ground and whether it is evolving. He is passionate about promoting participatory approach to democracy, wherein citizens play pro-active role in engaging with the state to ensure better governance, as against the long-established understanding of only voting in elections as citizen's contribution to democracy.