

## **CHAPTER 1**

### **INTRODUCTION AND NEED FOR RESEARCH**

#### **INTRODUCTION**

Skills and knowledge are the driving force of economic growth and social development of any country. They have assumed even more importance with increasing pace of globalization and technological changes that are taking place in the business environment all over the world. Countries with higher and better levels of skills adjust more effectively to challenges and opportunities of globalization-

As India moves progressively towards becoming a knowledge economy it is very essential that our national plans/programs should focus on advancement of skills and more so the skills have to be aligned with the market needs. In old economy skill development mostly meant development of manual and shop floor skills, which have undergone a sea change towards automation and our skills have not kept pace with the advancement of technology in new or knowledge economy.

Skill sets range from professional, conceptual, operational, behavioral and interpersonal and inter domain skills which multiply and become more and more complex. To cope with fast changing business environments and to remain competitive in the global market the nation has to accord highest priority to mass scale development in different trades / occupations, both hard and soft skills through freshly developed training channels and modules to meet varied requirements of four major segments of economy, namely –

Service segment constitutes 60% of GDP and employ 25% of our manpower  
Manufacturing and production based activities constituting 25% of GDP and employing 20% of our manpower.

Agriculture and agro products constituting 15% of our GDP and employing 55% of our manpower

Power Sector employs less than 2% but is critical for entire economy. The national sample survey in its 65<sup>th</sup> round shows that in India amongst persons of age group of 15-29 only 8 to 10% have received formal vocational training and another 8 to 10% informal vocational training, indicating thereby, overall less than 20% of young

person's enter their occupation with some kind of formal, informal training which is one of the lowest in the world as shown in the graphical presentation in the next topic of need for Vocational Education. The corresponding figures for the industrially developed countries as explained in the text vary from 60% to 90 %. The number of skills imparted in India are around 200 in number as against 3000 to 4000 in countries like China, Japan and Korea which is hardly 5% to 6%, in quantum and that too, with questionable quality. In this section we shall deal with following important aspects of vocational education, to highlight our criticality -

- 1.1 What is Vocational Education
- 1.2 Current status of VE in country and projection of next 10 years
- 1.3 Major problem being faced in the existing systems
- 1.4 Status of V E in four economic sectors of country-
  - Service Sector
  - Manufacturing Sector
  - Agriculture Sector
  - Power Sector
- 1.5 Magnitude of Task

## **1.1 WHAT IS VOCATIONAL EDUCATION**

It implies imparting employable skills from schooling, generally from 9/10<sup>th</sup> standard onwards, Analysis indicates that 80% of the students enrolled in academic streams, do not want to pursue college education and thus putting them through vocational training improves employment opportunities in different vocations contributing towards their personal and national welfare. Vocational Education is imparted at 3 stages of career –

- 1.1.1 Pre vocation, generally at schooling stage along with academic streams.
  - Skills could be technical skills like electrician, plumbing, fabrication, welding etc.
  - or soft skills like computer training, programming, selling skills etc.
- 1.1.2 During vocation- induction, apprenticeship training, upgradation of skills etc.
- 1.1.3 Post vocation- retraining, off the job training, additional skills

## **1.2 CURRENT STATUS OF VOCATIONAL EDUCATION AND PROJECTION OF NEXT 10 YEARS**

1.2.1 In last two decades addition to work force have increased from 10 to 13 million hands per annum, while skill development capacity has increased from 1 million to 3.1 million i.e. from 10 to 20% of total demand leaving, huge gap of 80% skill deficit, which is alarming in meeting economic growth and social development.

1.2.1 In case of Power industry - 75% skills are common with other industries, the deficit affects the performance of this core industry which is highly skill oriented. 80% of power distribution is in public sector where there is lack of dedicated training and development facilities and the workers learn the skills through traditional practices of hit and trial resulting in poor quality standards and overall lower working efficiency. Only 20% of power distribution is in the hands of private sector who have set up training and development centers to upgrade the skills and achieved far better performance compared to the public sector. Research report contains two live case studies which highlight these aspects and the complete analysis is placed in this report.

1.2.2 Projections of Next 10 Years show that, Work force availability shall remain far in excess Of Demand

Secondary data has been analyzed, to understand projected workforce availability viz a viz demand at macro level. The table below gives the following important information

Projection of year wise population-(2009-10 to 2020-21)

Projection of year wise work force in % and in numbers

Projection of year wise incremental manpower availability.

(annual report ministry of labor & employment, 2009-10)

Projections of employment based on different employment

Growth rates of 2, 2.25, 2.5% which will depend on growth in value addition/ increase in labor productivity

**TABLE1.1workforce Projections for Next 10 Yrs-2009 To 2021**

**(In millions)**

Year	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2020/21
Population	1173	1193	1208	1224	1239	1254	1380
Work force %	44.2	44.5	44.8	45.1	45.4	45.6	46.8
Work force nos	520	530	541	552	556	572	627
Incremental no/yr	10	10	11	11	12	13	14
Growth 2%	506	516	526	537	548	559	611
Growth 2.25%	506	517	529	541	553	566	622
Growth 2.5%	506	519	532	545	559	572	629

1.2.3 Employment potential for different employment growth rate of 2 to 2.5% we need to plan growth of 2.5% PA with elasticity of 0.29 achieved in earlier decade of 1995-2005, however due to increase in higher value added services the elasticity may fall to 0.25. Thus to absorb the additional manpower it would need higher GDP growth of 9% plus to achieve full

### **1.3 MAJOR PROBLEM FACED IN EXISTING SYSTEM ARE**

1.3.1 Need is to align skill development from labor intensive to skill intensive of higher value addition, thus enhancing our national Productivity. Training needs to be augmented as per market needs currently the IT companies are crying hoarse for non- availability of trained manpower and most of them have set up in house training facilities to cope up with this inadequacy. Due to short supply of quality manpower, attrition rate / remuneration are higher by 30 to 50% of comparable professions which adversely affects competitiveness in global market. (Employment opportunities year 2020, 2012)

1.3.2 Studies indicate that we produce over million technocrats pa, surveys indicate that only30% are employable- a colossal national waste. Unless corrective steps are taken promptly, these issues may prove detrimental to our national interests. (What is wrong with our Vocational Education, HT article , July 10, 2011)

1.3.3 Importance of skill development and education in ensuring continuance of India growth story and to facilitate youth transition to productive employment cannot be overemphasized. With this view, a framework for imparting vocational education and skills has become a necessity, especially in the areas of technology,

communication, financial services, supply chain, banking services, mergers and acquisitions, marketing services, healthcare services, hospitality and tourism, etc. We will discuss the need of such a vocational education / skill framework in 4 economic segments under next topic.

#### **1.4 STATUS OF VOCATIONAL EDUCATIONAL IN FOUR ECONOMIC SECTORS OF COUNTRY**

1.4.1 Service sector- Share in GDP nearly 60% employs 25% of manpower growing at phenomenal average rate of 10-12% pa and serving as backbone of our economy, due to abundant availability of technocrats for service industry covering mostly IT/ITe's, Tourism, Hospitality, Health care, Pharma and other services. After initial thrust, need is to move to higher level of growth through value added services at global level. India has unique advantage of labor arbitrage of skilled manpower at 1/4 to 1/5, cost of developed countries and high caliber English language skills, making it global leader in knowledge based services. Top 10 or even more Indian companies have pioneered this business by setting up world class training centers as per global standards.

(Report on Skill Dev Service Sector, 2011)

In view of promising returns, more developing countries like Brazil, Russia, Indonesia, and China (BRIC) which have similar cost advantage are building capabilities to compete with India, in this fast growing global business.

Through VE there is need to focus on higher value addition, continuous learning of higher skills to meet ever increasing global standards of technology, innovations in knowledge based services in areas of technology, communication, financial services, supply chain, banking services, mergers and acquisitions, marketing services, health care services, hospitality and tourism etc. The challenge is to keep up scaling our skills and remain ahead of competition (NSDC VE Projection for year 2020, 2011)

#### **1.4.2 Manufacturing and Production Sector**

Constitute nearly 25% of GDP Employ 20% of manpower, growing around 3 to 4% per annum which is highly inadequate to meet our economic needs. Over last 2 decades there has been tremendous technology up gradation in engineering field

especially in automobile, pharmaceutical, power and petroleum industries. Surveys indicate that most foreign company's which has established their manufacturing facilities, joint ventures/ technical collaborations in India, are not satisfied with our vocational Skills. They have established intensive training centers to overcome this deficiency. There is a regular emphasis on up gradation of skills which forms integral part of their work culture

(Maruti Vocational Training School, Jan 2013)

Since 80% of power sector is managed by public sector utilities where training and development including soft skills have not received due attention resulting in poor man management and poor performance. As mentioned only 20% utilities are managed mostly in metro towns by private sector / large business houses. Data shows that they have achieved considerable success by emphasis on performance management primarily through skill building and development of hard and soft skills

#### 1.4.3 Agriculture Sector

Third segment is agriculture, constitute 15% of our GDP, employs over 55% of manpower growing around 3% pa has expanded from traditional cultivation of grains to vegetables ,fruits, food processing, advanced dairy farming , meat, marine products etc. (Productivity Growth in Indian Agriculture - Globalization & Economic Reforms , 2011)

We need to accelerate growth to 4% plus. Our productivity of major Food crops is 1/2 of world average and 1/3 of China It is estimated that nearly 30% of our food grain, vegetables and fruits gets wasted for want of proper supply chain and organized marketing Our annual growth rate after green revolution touched a peak of 3.7% in 60's, 70's and started declining in last few years which needs correction despite two decades of economic reforms our skill building activities are still inadequate. If we reach world average of outputs, it would add revenue of approximate Rs 3lac crores per annum and augment income of farming community by about 50% and GDP by 10 -15 %. It would move over 200 million workforce above the poverty line. This needs good governance, and professional approach.

We need to capitalize on demographic dividend i.e. advantage of younger workforce which has great potential but is a big question mark. Projections show that India would be youngest nation in world by year 2020 with a median age of 29 years, and advantage of 10-15 years of age compared to developed countries. With this advantage India has potential to outsource manpower to meet global shortage of 56 million by year 2020 provided we have right skills and quality- a big “IF” average age in India (by2020) 29 years, China and US 37, Japan and Europe 45 years (ISAS Working Paper on Vocational Education in India, 2010)

#### 1.4.4 Power Sector

In terms of man power employment power sector employees nearly 1% of total man power i.e. about 5.5 million. However in terms of importance it is one of most critical sectors .Our Power sector compared to international standards from generation to distribution is inefficient by about 50%. Studies show that 60% of poor performance is due to lack of skilled and professional manpower and balance due to outdated technology and processes. Our power distribution losses which are around 26% of the total generation are one of the highest in the world which is around 8%,we are more than 3 times higher- a colossal waste.

In the research study we have studied the skill requirements in this sector through live case studies and results are revealing and tabulated in the report.

India will surpass China in population by year 2025 (1.40 billion) 83% of this is estimated to be in the age group of 15- 59 years and. India will have 25% of work force globally, its per capita income, currently 1200 dollars, can grow to 4100 dollars per annum by year 2025 and 20,000 dollars by year 2050 if we fully utilize the Potential.. (Vision for Vocational Education , 2010)

### 1.5 MAGNITUDE OF TASK

1.5.1 Manpower mapping show there is addition of 12/13 million work force yearly for employment. Challenge is if this is harnessed in productive use it can lead India to a super power in next 20 years. If we fail, this can lead to underutilization of valuable resource and can cause social unrest. Task ahead is to create proper framework to match market needs, there by optimize full Potential of our Human Resource.

1.5.2 In Power Sector, distribution losses are a serious malady, which adversely affect financial health of power sector. It is partly due to outdated equipment but mainly due to poor management of entire supply chain system.-Loss figures were alarmingly high around 40% in 1980's improved to 26% by year 2012.Target is to bring it down to below15% by year 2015 which does not look feasible, because system of governance adopted over last five decades has been so ineffective that as a nation we have failed to achieve acceptable standards. Through this research study, we have addressed this complex problem to evolve solutions.

1.5.2 Here skills/quality of manpower has important role to play. Compared to international standards our system of generation to distribution is inefficient by 40-45% studies show 60% is due to lack of skills, balance due to technology/processes- thus urgent need to address this issue through a research study

1.5.3 In our work culture, perhaps man management is the weakest link of our system. We as a nation have totally failed over last 50 years to correct the situation multinational companies in India like the Japanese (to quote Maruti Suzuki Ltd.) and Koreans (Hyundai Motor Co. and Samsung) have establish themselves as world leaders in optimizing manpower productivity and quality which has helped them to succeed in Auto and Electronic business in not only India but in global markets

1.5.4 Our role model to design and operate the Vocational Education system in the country should be Japanese and Koreans models which have established them as world leaders in optimizing human productivity and quality. It has thus helped them to achieve remarkable success in Auto and electronic business in global market a lesson which Indians needs to imbibe for themselves.

It is praiseworthy that they are achieving the same standards in their units in India, why can't we do it for ourselves?



## **NEED FOR RESEARCH**

In this section we talk about challenges that emerge from the existing vocational education system both in engineering and power sector we also look at the evaluation survey of IFCCI and the World Bank regarding quality of our vocational standards and comparison of vocational trained work force in India Vs other developed countries to formulate our business problem which form the basis of our research studies – Highlights are as under

## **2 CHALLENGES THAT EMERGE FROM EXISTING VE SYSTEM**

- 2.1 Job opportunities not growing proportionate to economic growth, resulting in unemployment. After opening of the economy the pace of economic growth has accelerated to 8% plus pa next only to china, however analysis indicate , growth attained is primarily due to factored productivity and job opportunities are not growing proportionately to economic growth. There is a visible gap of 6% to 8% between the work force addition and job creation increasing unemployment which is currently estimated at 30 million. This trend unless reversed through policy initiatives, can lead to serious economic problems resulting in social unrest, besides loss of valuable human capital.
- 2.2 Under employment is another serious issue which is not getting adequately addressed, loss of productivity estimated at 15-20% of GDP. Optimum utilization of manpower is perhaps most serious concern in face of global competition. Under employment arises out of lack and mismatch of skills and non availability of full day`s work- more prominent when 80% work force is engaged in unorganized sector, majority of them without any skill training.
- 2.3 Major problem is that this loss is difficult to measure but reflected in productivity which is 1/3 to 1/4 of global standards especially in Agro and Engineering Sectors. Case study presented under data analysis of comparative labor cost and productivity of manufacturing distribution transformer in India v/s Korea, Japan, Germany, USA clearly show that our low labor cost are getting off set by low productivity. This neutralizes to a great extent, the low cost wage advantage vis a vis the developed countries. On rough estimate our productivity loss of all goods and services may work out to Rupees 3 to 4 lac crores per year a good 15%-20% of our GDP.
- 2.4 Poor quality of our workforce a serious concern.

Studies indicate that existing system of VE is totally inadequate in skill matching. Data shows even five decades of national vocational planning less than 20% of workforce entering profession have some kind of training, balance 80% are untrained, unaware of quality aspects. (National Sample Survey on Vocational Skills , 2005)

This is reflected in performance of power sector where power losses are nearly 3 times global average besides quality of supply and service is poor

#### 2.5 Looking at overall literacy level

39% of workforce is illiterate\

25% schooling upto primary level

24% upto secondary

12% higher secondary level

Again this poor level of education affects our quality of work, out of trained hands, nearly 70% need good amount of retraining, due to skill mismatch/outdated training, which is a big drain of Human Resource

#### 2.6 Our vocational programs are outdated

Currently there are nearly 200 skills, imparted, through network of public/private institutions. Survey indicates most are of poor quality and not updated with market demand. Most neglected sector is unorganized that employs 80% man power of which 50% work in agro sector and balance in construction, transport, micro, mini business, industries etc. (World Bank & FICCI Report on Vocational Skills , 2008)

#### 2.7 In contrast China has 4000 odd trades/skills closely linked with business and Industry, separate rural vocational schools and their food grain productivity is 2-3 times higher compared to us.

#### 2.8 **Summing up**

These parameters results into colossal wastages of human resource, loss of productivity, poor Quality of goods and services and affects our competitiveness in global markets. Based on success stories of developed countries, we need to revamp vocational policy to match fast changing environments and demographic profile.

### **3 CHALLENGES OF POWER SECTOR IN INDIA**

Transmission and distribution losses in India are a serious malady, they are 3 times higher than the global average and 5 times than China, which is comparable in size and complexities, our national target is to achieve a level of 15% by year 2015,

which does not seem achievable, excessive losses not only impose heavy financial burden on our economy but severely affect our industrial productivity.

**Table 1.2 T & D Losses India Vs Other Important Countries—year 2012**

<b>Country</b>	<b>T&amp;D Loss (%)</b>
India	26.00%
Brazil	15.44%
Russia	12.47%
UK	7.65%
Australia	7.00%
USA	6.00%
China	5.05%
<b>World Average</b>	<b>8.17%</b>

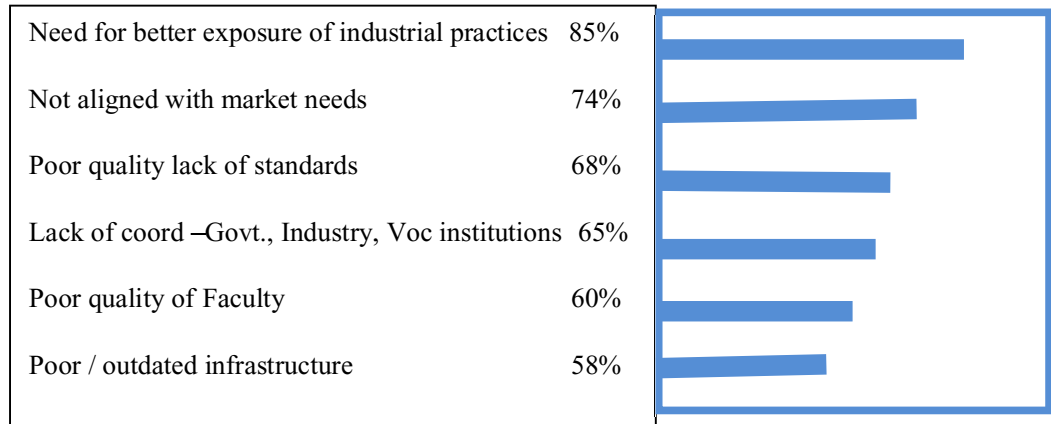
- 3.1 Power losses in India are 3 times the Global Average and nearly 4 times of China and the other developed countries.
- 3.2 Target set for India is to achieve 15% power losses by year 2015 which do not look feasible and would take 4 to 5 years to reach that level. In monetary terms it means almost saving of Rs. 25000 crore per annum. However in terms of opportunity cost in providing standby power it would be 3 times more.
- 3.3 Current gap between demand and supply is around 10% at national level. If we achieve the above level it would wipe out the demand and supply gap besides boosting our productivity.

**4. EVALUATION SURVEY OF VE OF WORLD BANK AND FICCI-WB REPORT 2009**

Survey was conducted on 6 important parameters of work culture namely-exposure of industrial practices, alignment with market needs, quality standards, poor quality faculty, and poor infrastructure. Survey was conducted for 200 industrial/ business enterprises. Response for different factors is tabulated below.

Average of response comes to 70%- which implies that VET practices are not upto mark and need a complete revamp.

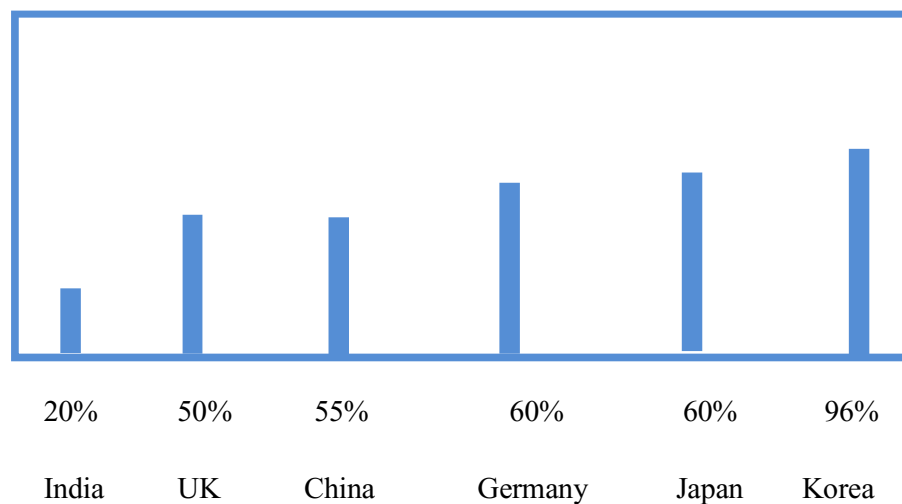
**Figure 1.1- Research Gaps - Qualitative parameters of Vocational skills**



**5. VOCATIONAL TRAINED WORKFORCE- ILO report on Vocational Trained Workforce - (India Versus Developed countries (ILO 2009))**

Presentation shows that India is barely at 1/3 level of developed countries of skill capacity. Our progress to move from 5% to 20% in last 50 years both in formal and informal sectors is completely inadequate and needs thorough Research to evolve a system to meet our national goals.

**Figure 1.2- Comparative study of Vocational workforce- India v/s other Countries**



## 6. SUMMING UP

In nutshell above studies indicate Vocational Education as the weakest link in our education system, Even after 60 years of Planning our skill development both quantitatively and qualitatively , is amongst the lowest in the world and it has not only affected our economic growth but created unemployment/ under employment and colossal wastage of our Human Capital

These factors clearly establish need for research to evolve a pragmatic and comprehensive system of Vocational Education and training tailor made to meet our national economic and social goals and improve our global competitiveness. This research study recognizes this as a business problem and addresses this issue.

### **IDENTIFICATION OF BUSINESS PROBLEM**

Based on above studies following business problem is established for our research

**“Our Inefficient vocational education system results in unemployment, poor quality, productivity and finally loss of valuable human capital which adversely impacts our national wealth and competitiveness in the global business environment”.**