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## Focus: Skill Development

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Skill Development and Emerging Issues in Vocational Education and Training

Skill Development: A Necessity for Leading India

Importance of Skill Development for Women Entrepreneurs in India

Skill Development Programmes: Some Reflections

Constraints to Linking into Global Value Chains

Empowering Women through Skill Development

Impact of Patent Filing on Growth of the Country

Doubling Farmers' Income in Gujarat State

Implementation of Material Flow Cost Accounting

Regional Differences in Growth of Employment Generation by MSMEs

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# Skill Development Programmes: Some Reflections

**BHARTI KUREEL AND BHAVNA VERMA**

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*Skill development is a milestone for the upliftment of the weaker section of the society—especially the unprivileged, unemployed youth. Indian government is specifically focused on providing skill to the Indian youth and its objective is to enable, mobilize and make them professionally knowledgeable so that they can have some livelihood through these programmes. But, these programmes have certain shortcomings at its implementation level, coordination with government and non-government agencies, and also lack of participation at community level. Taking in to consideration of this situation, an attempt has been made in this article to see some reflections of this skill development programmes on the basis of secondary data. The article is divided into three parts—firstly, dealing with the need of skills in different sectors; secondly, showing the status of skill India programmes; thirdly, showing the problems, gap and suggestions for effective implementation of skill development programme.*

## **PART - I**

### ***Status of Skill Development Programmes:***

Before drawing any conclusion, we must know what is skill. According to the dictionary, skill is an ability and capacity, acquired through deliberate, systematic and sustained effort to smoothly and adaptively carryout complex activities or job functions involving ideas (cognitive skills), things (technical skills) and /or people (interpersonal skills). Today's age is the competitive age of globalisation, where skill is an important tool and instrument to increase the efficiency, efficacy and quality of labour for productivity and social and economic growth. Skill is a very strong tool for empowerment of an individual and to have social acceptability in the community he or she belongs. But when we try to find out the status of skill development programmes run by the government, we have to think over it again since there are so many lacunas in from starting of this schemes and programmes, execution and implementation and evaluation level. India has a unique proposition in terms of the youth population, which constitutes the largest portion of its workforce. India will have about 63 percent of its population in the working age group by 2022. However, our youth unemployment rate is 6.6 percent which is well above overall unemployment rate which is 2.2 percent. Every year, almost 10 million people enter labour force in India. 58 percent of our population is below 29 years.

Our country is on developing stage and 25 percent the population are at very young stage below the age of 25, but are unskilled. Being unskilled youth, they are not avail to attain appropriate employment. Twelfth five Year Plan indicates educational support system and resources as well as sustainable development. If this population

*Bharti Kureel, Assistant Professor, Department of Social Work, Mahatma Gandhi Kashi Vidhya Pith, Varanasi.*

*Bhavna Verma, Professor, Department of Social Work, Mahatma Gandhi Kashi Vidhya Pith, Varanasi.*

change into productive population then our country can be economically empowered at the world. But our system is very slow to identify the power of young population. We can see in the below the table where is India stand.

**Table 1: Status of Country in Skill Development**

Country	%
South Korea	96
Japan	80
Germany	75
UK	68
USA	52
<b>India</b>	<b>4.69</b>

Source: Ministry of Skill Development and Entrepreneurship, Annual Report 2015-16,

The above table indicate the status of India, which is poorer than the countries where skills and knowledge are driving forces of economic growth and social development as well as indicate the country's status. It indicates that if country has better standards of skills development then it can be in more competitive, effective to maintain the standard of job opportunities at the level of domestic and international market. It is a big challenge, as it is estimated that only 4.69 percent of the total workforce in India has undergone formal skill training as compared to 68 percent in UK, 75 percent in Germany, 52 percent in USA, 80 percent in Japan and 96 percent in South Korea. So our government should be more attentive to use the energy of Indian youth in a right way and right manner because India has a large amount of young population. Yet problems of unemployment exist in Indian youth in every sector of government and non-government sectors. The skill development issue in India is pertinent both at the demand and supply level. Generating employment is definitely a challenge, given the enormity of population entering workforce each year. From the supply side, the issue is primarily related to employability of the workforce due to various reasons—ranging from poor education, lack of training facilities, inadequate skilling, quality issues leading to mismatch of skill requirements, and poor perception of vocational skilling, vis-à-vis formal education. These have inadvertently created skill shortages and also contributed to higher unemployment. Hence, both employment and

employability are key factors of concern today. Whereas, as per the report of NSSO 2011-2012, Usual Participal Status (UPS) approach shows the unemployment rate for different categories. (Refer Table 2).

**Table 2: The unemployment rate for different categories based on UPS approach is given below**

<i>All India (In percent)</i>				
Sector	Male	Female	Transgender	Person
Rural	4.2	7.8	2.1	5.1
Urban	3.3	12.1	10.3	4.9
Rural + Urban	4.0	8.7	4.3	5.0

Source: Annual Report Fifth Report on Employment –Unemployment Survey (2015-16) Volume I, Ministry of Labour & Employment, Labour Bureau, Chandigarh, Pg No. V.

The above table related to unemployment rate in India, which shows that problem of unemployment exists in India till now, although various skill development programmes and employment programmes are run by the Govt. of India. At present time, the Indian youth are going in to web of unemployment. Every year, our government launches many programmes in rural and urban population regarding to provide employment. Delay in induction system, distribution system of employment in government and non-government sector, corruption, contract etc. causes to unemployment in India. As National Sample Survey Organization (NSSO) mentions in its 61th reports that National Skill Development Agency( NSDA) has the most important role to forming, implementation and evaluation of the policy on skill development. That's why in 2009, skill development policy was introduced. This policy have the provision that 50-crore people can be skilled till 2022 and focused on the capability of employment through various programmes—but lack of quality education, corruption, lack of utilization of resources, lack of professional education, dropout rate of education, imbalance between demand and supply etc. These reasons do not provide positive outputs for the whole development. Our Ministry of Skill Development and Entrepreneurship can play its role with analytical intervention in every programme.

## **PART - II**

### **Administration Working on Skill Development Programmes in India:**

Skill development is the most important aspect for the economic growth and social development in India, as it

can secure the future of youth in global era. That's why the youth need to be equipped with necessary skills and education. Therefore, The National Policy on Skill Development was first formulated in 2009 to promote and create a skills-oriented education in India. This policy acted as a guide to formulate strategies by addressing the different challenges in skill development and its aim was to fulfil the required knowledge and skills in Indian workforce so that productive population can be able to compete on global era. New National Policy on Skill Development and Entrepreneurship was launched on 2015 by the nodal

agency of Ministry of Skill Development and Entrepreneurship. Objective of this policy is to promote all type of skills in different work areas like business, technical fields, tourism, manufacturing, management, beautician, embroidery, stitching etc. It works as an umbrella to provide employment to the youth. It will provide training to the youth with an emphasis on employability and entrepreneur skills. It will also provide training and support for traditional professions like welders, carpenters, cobblers, masons, blacksmiths, weavers etc.

**Table 3: NSDC's Performance (2016-17)**

S. No.	Item	Detail
1.	Proposals Approved	290
2.	SSC Approved	40
3.	Candidate trained this year (data includes loan model TPs, PMKVY-1, Udaan, Innovation TPs and SSC Non-PMKVY certification till 30 <sup>th</sup> nov,16)	10,18,572
4.	Centres Active (Break UP) (this includes 625 mobile centre)	4,821
5.	State Covered	29
6.	UT Covered	5
7.	Placement Percentage (this percentage is based on training through NSDC funded training partners and does not include training under special schemes such as STAR and Udaan)	49%
8.	District Covered	540
9.	Courses Active (As on 8 Dec,2016)	2,263

Source: Ministry of Skill Development and Entrepreneurship, Annual Report 2016-17, Pg. No. 50

The above table shows the NSDC performance, which indicates that there is huge gap between demand and supply of skill development training module. Episode of Prime Time of NDTV on dated 30 June, 2017 also express the ground reality of Pradhan Mantri Koshal Vikas Yojna (PMKVY) and its implementation in various part in India. The Ministry of Skill Development and Entrepreneurship is propounded by Prime Minister Narendra Modi in June 2014. It is conceived to encompass all other ministries to work in a unified way, set common standards as well as coordinate and streamline the functioning of different organisations working for skill development. Ministry has different departments like State Skill Development Mission

(SSDM), National Skill Development Corporation (NSDC), National Skill Development Agency (NSDA), Sector Skill Councils (SSCs), National Council for Vocational Training (NCVT), State Council for Vocational Training (SCVT), Labour Laws, Minimum Wages Act, Financial Institutions, apprenticeships Act, which deals with programmes and policy implementation. They work on the level formulation and planning, implementation and intervention, evaluation and covered the area of mapping and certifying skills, market research and designing curriculum, encouraging education in entrepreneurship, make policies for boosting soft skills and computer education to bridge the demand and supply gaps are among the other goals.



## PART - III

### **Status of Implementation to Evaluation of Skill Development Programme:**

According to the 2007-08 Economic Survey, 64.8 percent of India's population would be in the working age of 15-64 years in 2026 up from 62.9 percent in 2006. Other projections also indicate emergence of young India with 800 million in the productive age group by 2015 compared to 600 million in China. Skill Development is most important for the individual growth of any Indian youth. In India various programmes are running in the field of skill development for the youth who are unskilled, poor and unemployed in urban as well as in rural areas. Currently, over 40 skill development Programmes (SDPs) are being implemented by over 18 Ministries/Departments of the Government of India like Swarna Jayanti Gram Swarajgar Yojna (SGSYSP), Swarna Jayanti Shahri Rojgar Yojna (SJSEY), National Urban Livelihood Mission (NULM), Entrepreneur Skill Development Programme (ESDP), Integrated Skill Development Programme (ISDS) and Pradhan Mantri Koshal Vikas Yojna (PMKVY) etc.

#### **At the Planning and Policy formulation level**

Our government planned for skilling the youth only but not to provide them employment after it. If most of the population are skilled but unemployed then what about the plan and policy. Before planning, government must survey at the grass root level and collect the data on various dimensions of employment sector in rural as well as urban sector. People Participation method can be very useful in success of Skill Development Policy as well as achieved the goal of employment. But there is no any space for commonly people in this process by focus group discussion or others. Government planned policies only on superficial level, which gives impression in that they will get some permanent job or money after training that is because of unawareness.

#### **At the promotion level of the programme**

Government spent huge money in promotion of programme and policies on skill development programmes but these policies and programmes are not at the supervised at different levels— also a social audit must be done before implementation. Promotion strategies are very effective in India but lack of resources and illiteracy of rural population are away from benefits. Government should recognize the mediums, which are effective for rural or urban area. The

educational institutions do not have any programmes and policies, which can help student to gain decent salary or employment whether from self-employment and serve in any governmental and non-governmental sectors and private sector since they are unable to fulfil the requirements of markets.

#### **At the Implementation level of Policy and Programmes**

Currently, there are at least 20 different government bodies in India running skill development programmes with no synergies and considerable duplication of work. For instance, both the Ministry of Labour and Employment (MoLE) and the Ministry of Human Resource Development (MHRD) created their own sector skill councils last year to identify skill development needs in the country, even as the National Skill Development Corporation (NSDC) has been setting up Sector Skill Councils since 2011. A Labour Market Information System (LMIS) that should have been one centralised resource has been developed in different forms by at least five government agencies. Implementation of the policy and programmes is the main part of the whole process because there is mentioned about the resources, infrastructure, manpower in whole for the output of policy and programmes. NSDC is a nodal agency, which plays the role only on the surface of the policy implementation not to the grass root level. There is a very strong gender bias in the enrolment for some type of vocational courses. Many skills are culturally and historically associated with a specific gender, such as home science and secretarial skills with women and industrial skills with men. Teachers who are responsible for giving training in skill development training they must be accountable for performance. Higher education and college education comes under the Ministry of Human Resource Development. Higher education wings are responsible for all college education (Arts, Science, Commerce, etc.), while engineering education, polytechnics, etc., fall under the category of Technical Education. The vocational education system is largely irrelevant to the needs of the labour market employment. The University Grants Commission (UGC) provides funds and grants for research and developments, but the outcomes of these projects and research never ever referred anywhere. It becomes a waste of time and money. The Central Government too do not take interest to publish these reports, which could be helpful to give real picture of grass root level problems and forecast the outcomes of the policies and programmes of the government. Hence

all higher education institutes and implementing authorities do not have coordination. All the higher Government can have the provision at promotion level like focused group discussion, individual talks, Camp, *Nukkad Natak* or street plays in regional languages etc. at the grass root level.

As it well depicted in the done table no 4 that 62.18 percent people got certification but only 8.5 percent people have been which is need to justify. All administrative

authority has lots of provisions and rules to follow from intake to termination stage for enhancing the skills of youth or productive population in India but there is dearth of opportunities in employment sector because its nature changed time to time and lack of consistency in employment, demand and supply concept also affects the change. Institutions have resources but there is no any stakeholder, most of the institutions have number of stakeholders but no developed infrastructure to train them.

**Table 4: People trained, Certified and placed by NSDC ecosystem under STAR Programme**

(Figure in mn)

Status of Skilling India	People Trained	People Certified	People Placed	People Certified (%)	People Placed (%)
	1.4	0.9	0.1	62.18	8.5

Source: Standard Training Assessment and Rewards (STAR) was Operational between August 2013 and September 2014.

There is need to identify which training is most reliable, useful and job oriented and not needed in specified area like tribal areas, hilly areas and dessert. Sectorial approach is needed which can be fit to identify the opportunity in selected sector like Farming and Agriculture, Education, Tourism etc. Sector wise planning can be helpful to achieve the goals of skill development.

#### At the Evaluation Level

At the evaluation level, if we evaluate the whole process of formulation, implementation of skill development policy, its shows lack of coordination, bonding, resources utilization among agencies. Those trainers who have completed their training the have to be certified and verified as Post successful training, assessment and certification of the trained candidates is not available in all institutes which is also a big hurdles in effective implementation. There is lack of strong political power and leadership to determined that these agencies

working for training should be in coordination and smooth working environments. Not only this fact Institutions have limited capacity to manage and take decisions by themselves. Institutes need to be supported to develop this capacity.

As in the Table No. 5 showed that people got enrolment but not job in that proportion. In the present time skill development programme are running to skill youth but institutions which are providing training to youth without their interest also in only selected specialization or fields where no job opportunities are available after completion of training. So through all programmes money has been spending in skilling the youth population but outcome is waste of money, time, resources and manpower. Certification distribution system is very poor who are not presented during the programme they got certificate because of only increase number of enrolment and presentation but not employment.

**Table 5: Status of Skilling India under Short Term and Recognition of Prior Learning (RPL) 2017-18**

Nature of Skilling	No. of people enrolled	Ongoing training	Trained/ Oriented	Assessed	Passed	Certified	Placed
Short Term	913,811	293,264	602,552	490,011	416,711	397,362	72,858
RPL	427,026	2,076	413,917	346,433	316,623	310.187	NA

Note: Under Recognition of Prior Learning ( RPL) already employed youth are re-skilled but are not given job.

Source: PMKVY

## **Role of Social Work Profession in the effective implementation of skill development programme**

Social work is a dynamic profession, which has the knowledge of many social sciences. It has a scope of policy formulation and implementation in every field especially in social development issue. Skill development also is one of the issues of social work profession. Social work can deal with this issue and challenge with their method and techniques as community organization, social research, social action, social welfare administration, social case work and social group work. Social work profession deal with this type of problems of various sectors and area with the support system of government and non-government organization. In 2014, IFSW and IASSW introduced new vision that Social Work is a practice-based profession and academic that promotes social change and development, social cohesion, and the empowerment and liberation of people. Principles of social justice, human rights, collective responsibility and respect for diversities are central to state work. Underpinned by theories of social work, social science, humanities and indigenous knowledge, social work engages people and structure to address life challenges and enhance wellbeing. Now we can note that social change and development of the people is more important in the profession of social work. Social work practice is based on government and non-government agencies there is a system of the programme planning and intervention of the ministry or institution in the skill development programme. In Social work trained social worker can use their knowledge and skills in the area of skill development on the top to bottom level. Social worker follows the techniques and tools in the implementation of policy and programmes. Social worker can play their major role in skill development programme in various dimensions as administrative, grassroots level and stakeholders also. We suggest some key areas of social work profession in skill development at different level as:

**Central Level:** Social work can play their role as policy maker, advisor, representative of state and local bodies etc. in the ministry of skill development and entrepreneurship because social worker is a key person who deals with feeling and emotions of skilled and unskilled people through their professional skills training they can gain livelihood by the government and non-government agencies. MSDE, NSDA, NSDC, SSCs and other directorates has powerful scope of social work profession from policy planning to evaluation of various types of programmes in skilling India. But our Indian government neglect this profession and

don't recognition to it potentials. Social worker can be helpful in formulating the policy based on facts of approaches in the right way in implementation at grassroots level of rural and urban areas.

**State level:** Social worker can play their role as skill development consultant, mediator, programme manager, implementer, analyst, researcher etc. in skill development programme, and with administrative body of state government. At the state level social work can make the plan on the basis of environmental needs with basic approaches and design for the model of a better skill output from the stake holders. Social work invests their knowledge to better service for the client in their convenient. At administration level social work can follow the process of planning, strategy, structure, implementation, outcomes and future planning on the basis of outcomes regarding success of skill development programmes. Social worker are better able to influence policy change and development and to advocate on a larger scale for all underprivileged people in India as well as intervenes in disputes between parties to help them find compromises, reconcile differences and reach mutually satisfying agreements. The mediator takes a neutral stance among the involved parties like between central and state government, state and local government bodies, local bodies and stakeholders. Social work profession find the new methods to deal with systematically. Social work professionals evaluate practice intervention and with others evaluates programme outcomes. The researcher critically analyse the literature on relevant topics of interest and uses this information to inform practice and extends and disseminates knowledge, and seeks to enhance the effectiveness of social work practice in skill development programmes on state level.

**District Level:** Social work practice is totally different with others profession because there is space for local government and stakeholders. At the district level social worker can lobby with the government and non – government agencies with use of focus group discussion, participatory research for the implementation of programmes at grass root level. Skill development is also the part of local government that's why there is social worker can play their role as guide, as a specialist, advocate, social mobilizer to aware the unemployed people and responsible for identifying, locating and liking of unemployed population to needed resources in a timely manner. Once the client need are assessed and potential services the most appropriate service option and assists in negotiating the terms of services delivery. In this role

social worker is also concerned with the quality, quantity and accessibility of services.

**Block Level:** Local government are playing major roles to assess the needs of skill development programme in local areas and which type of training and profession is suitable for local population if they are unemployed. Social worker is trained in identifying the problem and solution of rural urban youth. Social worker can play their role as an educator, facilitator, mediator, counsellor, community change agent, broker etc. Social worker participates as part of a group or organization seeking to improve or restructure some aspect of community service provision and working with others, uses a problem-solving model to identify the problem. A community change agent acts in a coordinated manner to achieve planned change at multiple levels that helps to shift the focus of institutional resources to meet identified goals. Social worker can help needy youth to express their needs, clarify their problem, explore resolution strategies, and applies intervention strategies to develop and expand the capacities of these people to deal with their problem more effectively. A key function of this role is to empower people by affirming their personal strengths and their capacities to deal with their problems more effectively. It will help the disadvantaged youth to find their existence in the society with vocational support and skilling through rehabilitation method and social worker fights for those disempowered youth with society with the goal of empowering the unskilled population and alleviate the problem of unemployment from the society. Social worker speaks on behalf of these issues when others will not listen or when needy youth are unable to do so. Also professional social worker can develop project based activities, group based activities, field based activities case studies, social worker can find out problematic scenario, he can propound problem solving strategies, decision making strategies, evaluation and analysis strategies, planning based strategies for effective implementation of the programme.

## Conclusion

Our India has majority of young population, which is a big sign for power of nation. If this power is converting in productivity then development of the India can take place of developed country. Skill development is the present need of the hour. Government of India had set for itself a target of achieving skill development for 500 million people by 2022, but as of now we barely achieve over the 10 percent of the targets yearly. Clearly there is a need of initiatives to get desired goals. One of the important

dimension is to search the way of innovation in the various fields, in order to search for effective skill development, so that people can develop innovative skills to keep up with market requirement. From the above-mentioned facts we can see that at the planning and policy formulation level, formulation of policy, people participation is not done properly and there is lack of common consensus. Need based job opportunities and planning at central, state, district and village and block level is not effectively done as there are geographical differences in our country. For example, a job, which is provided to an urban youth, is not beneficial for a tribal youth since in India people are from different caste, creed, sects—language not only interest and socio economic environment different but also there is huge discrepancies at the individual, group and community level. It is observed that government is providing skills and training to youth but not providing the job after completing it. So the result is we are multiplying the number of skilled unemployment youth population increasing day by day which stopping the government to achieve its goal. Without identify the areas of jobs government is giving training. This is the wastage of time, money and human resources. Only providing skill training is not enough. Government should think beyond it. There is needed to take an effective action and measures to minimize the differences of skill development programmes at various levels. Social work profession is a noble profession because it deals with lots of problem with empathy which is far away from our government in the ways of implementation the policy and programme in prone areas. Government should recognize it and take the place in formulations of policy and programmes. The society development mandate is based on the premise that social work intervention takes place when the current situation, be this at the level of the person, family, small group, community or society, is deemed to be in need of change and development. The profession is equally committed to the maintenance of social stability, insofar as such stability is not used to marginalize, exclude or oppress any particular group of persons.

## References

- Annual Report 2015-16**, Ministry of Skill Development and Entrepreneurship, Pg. No. 5- 9.
- Annual Report 2016-17**, Ministry of Skill Development and Entrepreneurship, Pg. No. 50.
- Annual Report Fifth Report on Employment—Unemployment Survey(2015-16) Volume I**, Ministry of Labour & Employment, Labour Bureau, Chandigarh, Pg. No. V.

**The Hindu**, TheNuts And Bolts Of Skill Development, March 23, 2015 02:14.

<http://ifsw.org/get-involved/global-definition-of-social-work/access-date-26/10/2017:12:47pm>

[http://www.business-standard.com/article/economy-policy/why-india-s-skill-mission-has-failed-117090200098\\_1.html](http://www.business-standard.com/article/economy-policy/why-india-s-skill-mission-has-failed-117090200098_1.html)

<https://www.slideshare.net/DinnekaR/roles-of-social-workers>  
access date 26/10/2017: 12:35pm

<https://www.youtube.com/watch?v=o1-2X-JEnVM>

**National Policy for skill Development and Entrepreneurship**  
2015, Ministry of Skill and Entrepreneurship, Pg. No-31.

**Report on Skill Development in India, 2015**, FICCI, Pg. No 3-16.

**Reports of Sub-Group of Chief Ministers on Skill Development**, Sep,2015, Pg. No. 13

**Sandhi, Sunita, Sensarma, Kuntal.** (2013). 'Koushal Sab Ke Liye', *Yojna*, ISSN -0971-8397, Pg. No. 19.

**Union Budget 2016-17**, Highlights, Pg. No. 5.

*"Skill and confidence are an unconquered army."*

*– George Herbert*

# Constraints to Linking into Global Value Chains: Do Indian Industries Lack Capacities and Skills?

NEHA GUPTA

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*The article uses primary survey to enumerate the constraints that Indian industries face while linking into global value chains (GVCs), from the perspective of both labour-intensive textiles and clothing and capital-intensive machinery industries. Eighty Indian firms and industrial associations have been interviewed. Main reasons for low participation of Indian firms in GVCs include weak domestic value chains, fragmented manufacturing units, skills mismatch, low R&D, and poor infrastructure. Particularly, fabrics and garments are India's weakest links and they face tough competition from China, Bangladesh, Vietnam, etc. India does not have enough capacities to produce big and sophisticated machines, along with small machine tool segment. Accordingly, the article provides policy directions for skill development in India, along with strengthening of domestic value chains, that is, those strategies that can help to develop India's GVCs in these two industries.*

## 1. Introduction

Over the past two decades, policymakers are struggling to find traction in the issue of trade-led growth. Some success stories in terms of upgrading in global value chains (GVCs), such as in South-East and East-Asian countries, particularly China, support the debate. Global value chains proved beneficial in terms of allowing many developing countries to speed up their growth process, get access to new markets, diversify exports, increase income and create jobs, and acquire more knowledge and training for local firms. Conversely, many countries have become captive participants in GVCs with low-value added and narrow ability to upgrade. In times to come, countries are likely to face tougher economic environment that would require more brainstorming to identify challenges in upgrading and to anticipate changes and form strategies (World Bank, 2017; Taglioni and Winkler, 2016; Orgun, 2014).

Evidences show continual low participation of various African and South-Asian countries, mainly for emerging economies like India (see studies like Hoda and Rai, 2014; Dimaranan, Ianchovichina, & Martin, 2009). Gereffi and Guler (2010) mention the challenges continued to be faced by India and China in terms of economic and social upgrading such as skill shortages, urge to reach higher ends of value chains, etc. Falling domestic value added (DVA) content of exports in gross exports of many Indian manufacturing industries is further complicating the trade scenario (Banga, 2014), be it the case of capital-intensive machinery segments or labour-intensive textiles. For instance, share of India's DVA exports declined for its textiles industry from 90 percent in 1995 to 80 percent in 2011; 84 percent to 67 percent during the same period for machinery and equipment and from 85 percent in 1995 to

68 percent in 2011 in case of electrical and optical equipment. However, enough opportunities are also reported for India in these two industries to compete and lead in the upper ends of GVCs due to their higher forward linkages and net gains (Gupta, 2016). Gereffi and Guler (2010) have specifically emphasized on India's labour-intensive manufacturing. Both India and China have potentials to change rules for others owing to their huge domestic markets and large workforce. Global value chains have in fact provided them significant likelihoods for generating high-quality jobs.

Nevertheless, it is still to be determined why value chains of Indian industries are not much integrated, while China has. Even India's textile industry is linked at lower ends in GVCs, and machinery industry's integration is although steadily rising but still very less (Gupta, 2015a; Gupta, 2015b). This, thus, necessitates understanding in detail the key constraints faced by India particularly in these important industries. Are industries not able to reap required production capacity for exports? Is sufficient level of skill development really not being achieved? These issues can no longer be ignored by developing countries like India for achieving competitiveness. This is because GVCs are continuously reallocating resources and jobs with demand for higher skilled workers. Global value chains participation and functional or economic-social upgrading requires high labour productivity and more skill-intensive activities (viz., design, R&D, etc.), along with large capacities and infrastructural development. Skill requirement may vary across industries, but the outcome depends on how government promotes this domestically and in various niche markets. Technological progress also significantly affects value-added and skills (World Bank, 2017; Taglioni & Winkler, 2016; Vries, Chen, Hasan, & Li, 2016; Orgun, 2014). Recent "Make in India" programme also aims at improving skills in its way of integrating India with world GVCs.

Based on this background, the article aims to find out 'how India can upgrade into GVCs by particular focus on skill development and get maximum gains' by using the case of Indian textiles and clothing (T&C) and machinery industries. Accordingly, industry-specific primary surveys have been conducted across India during 2014–2015 using semi-structured interview schedule.<sup>1</sup> They covered 80 Indian firms and industrial associations (40 interviews from each), covering 16 States/Union Territories of India. They focused on understanding the existing value chains and the constraints that firms face while entering into GVCs as well as government policies relating to trade, skills, and integration.

- Respondents for T&C industry: Twenty-seven manufacturing companies, one textile consultancy firm, twelve industrial associations related to textile machinery, synthetic fibres, man-made fibres, Tirupur exporters, textiles mills associations of North India and South India, export promotion councils for cotton textiles and apparels, federations of textile industry and of art silk weaving and power looms.
- Respondents for machinery industry: Thirty-three manufacturing companies, two engineering, procurement and construction service providers, five industrial associations related to the machine tools, automotive components, tool and gauge, construction equipment, and export promotion council for engineering goods.

## 2. Survey Responses: Differential Approach in Trade

On the basis of surveys, T&C is reported to be an industry whose customers are retailers and brands (that is, buyers), who ultimately retail the clothing to the final users. Based on price requirements and lead delivery time, they place orders to the main exporter who send garments to them. The exporter (say Country A) decides from where to source material like fabrics, say from Country B and places order, and Country B in turn decides from where to buy inputs like yarn (say from Country C or even Country A). The country who gets order for yarn then decides from where to get fibre and other essential raw materials (viz., raw cotton). This way entire textile value chains work. On the other hand, unlike T&C industry, machinery is a heterogeneous industry and covers almost the entire manufacturing. Manufacturers have more control over production of machines in comparison to textiles/garments where buyer drives the industry. This concurs with the famous theory that producer-driven commodity chains are more prevalent in case of capital and technology intensive industries like automobiles, heavy machines, etc., and buyer-driven commodity chains are more prominent in labour-intensive industries like garments, leather, etc. (Gereffi, 1999).

*Survey however shows low level of linkages of Indian industries despite good potentials:*

- A. Over 90 percent of Indian T&C firms mentioned that their imports as very low, while they have been more connected to global markets through exports (Appendix 1). India exports various types of yarn, as well as fabrics and garments. Weaving and fabric

processing are more knowledge-intensive as compared to spinning where India has more competitive advantage. Majority of the firms undertake in-house production (some are fully-integrated textile mills) and outsource only few production processes, that too mostly within the country. Many firms supply through brands of international retailers of the US, Europe, etc. However, imports are largely need-based and their proportion in total value of output is less than 5 percent for many firms. Very few companies use imported inputs to produce goods for exports; rather, these are mainly used to satisfy domestic consumption. The industry mainly imports speciality fibres and dyestuffs like Indigo. Raw materials like PTA, MEG, etc., are imported for making fibres, although their production capacities within India are also expected to rise.

- B. Primary survey for Indian machinery industry reveals that many firms are undertaking most of the production activities in-house, particularly of critical components (see Appendix 2), including A-class activities like design, integration, testing, assembly, etc. At the same time, several activities are also outsourced like basic manufacturing (B- and C-class activities), but mainly to Indian suppliers. Imports are also undertaken by some firms for getting the necessary parts and components. Many firms are exporting as well, but the exports mainly consist of finished machinery. Importantly, this industry makes quite good use of imported inputs in exports' production.

### 3. Constraints Under GVCs for Indian Industries

This section discusses main findings and implications from industry-wise primary survey. Indian T&C and machinery industries face number of common constraints in trading (highlighted by 90 percent of the firms and industrial associations).

- Massive infrastructural bottlenecks and weak logistics affect the timely transit of goods. Roads and railways are in poor conditions and lack proper system for handling export consignments. Highly inefficient port network increases costs. Goods keep on lying on the ports and Inland Container Depots (ICDs) do not operate professionally or at very small scale. Few respondents raised vendor management inventory as optimal solution, but this is not

effectively developed in India. Some argued that if ICDs work efficiently in terms of timing, inventory costs, etc., this can improve the cost competitiveness of the products as well as real export values. Further, power is a big problem for industrial development mainly in South India, where many industrial centres are located.

- There is lack of trained and highly skilled professionals. Interviews highlighted limited role of government in the field of skill development, despite existence of National Skill Development Mission. Many respondents also argued that India's educated youth are moving out from manufacturing to other avenues in services which provide quick returns.
- Unskilled labour is not also easily available, viz., for garments industry. Some firms considered Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA) as big hurdle in the way of industrial development and responsible for shifting workers away from the factories. Some industry members suggested limiting the scheme to unemployed only. Alternatively, some other members opined that there should be proper link between employment in industries like textiles and MNREGA, so that industry gets more workers and the scheme also continues to grow.
- Strict hiring and firing rules in India compel the firms to hire more number of contract labourers. As instance, T&C requires huge manpower, mainly on seasonal basis, but presence of rigid labour laws particularly prevents setting up of large garment manufacturing plants. Further, the law requires the firms employing more than 100 workers to take state permission for laying-off workers. As a result, a single garment manufacturer set up number of small factories rather than one large factory. Labour efficiencies are also low as compared to countries like China. Firms have demanded from Indian government for rationalizing outdated and rigid labour laws by bringing in proper exit policy, which could help to create more formal employment in the economy, raise workers' efficiency, and scale up operations.
- Survey brings out problems in 'doing business' in India, such as, long procedures in land acquisition, getting power connections, pollution certification,



etc., which entail huge investments. Export requires cumbersome documentations, licences, and clearances. This leads to inordinate delays in granting approvals and claiming tax benefits.<sup>2</sup>

### 3.1 Constraints Specific to Indian T&C Industry

1. Garment manufacturing is one of the weakest links in India's T&C value chain, as supported by over 75 percent of the respondents. They opined that India lags behind in quantum and productivity levels of garments as compared to Bangladesh, China, Vietnam, etc. Major cause reported as rapid fragmentation of labour-intensive production processes in the last three decades. Many developing countries during the late 1970s and early 1980s supplied fabrics in the supply chains, but the clothing used to be stitched by brands and retailers in their own garment factories located onshore in the developed countries, that is, the USA and the EU. Over time, as their labour costs increased drastically, they shifted garment making operations to low-cost Asian countries. Backed by big fabric manufacturing base, countries like China and Pakistan invested in world class garment making facilities and offered one window solution to these top retailers and brands. However, India's garment manufacturing did not improve much as expected.

- For many years till 2005, large investments were not made in garment manufacturing due to its reservation for small sector industries. Thereafter, it was too late as already many other countries had made their mark and captured lot market share, especially because of abolition of quotas. Even major Indian textile companies found it difficult to be part of GVCs of large retailers and brands, despite huge investments in state-of-the-art fabric manufacturing facilities and high amount of automation. The lack of direct link with these retailers affected the Indian garment manufacturing. The latter had to route their fabrics through garment manufacturing countries such as Bangladesh, Sri Lanka, etc. Therefore, inefficient supply chains in Indian textiles with higher costs and long lead times tend to lose orders.

- East Asian countries such as China and Korea work as per quantities and avoid smaller orders. Bangladesh has cheap labour. On the other hand, India has not been a good market in terms of both huge quantity orders and cheap labour, and thus buyers prefer other countries. Additionally, Europe gives Generalised Scheme of Preference advantage to Bangladesh. Hence, most of the Indian orders have diverted to Bangladeshi companies.
  - There is a lack of proper environment for conversion of fabrics into garments for exports in India. Garments are, therefore, cheaply imported from Bangladesh. This has adversely affected not only the Indian garment manufacturers, but also the Indian textile producing companies. India provides duty free access to Bangladesh, but latter imports fabrics mainly from China and converts them into garments, and sells to India at duty-free rate. There is no corresponding sourcing by Bangladesh from India, which is a concern. Other countries like Vietnam, Sri Lanka, etc., also get raw materials from China, Thailand, Pakistan, etc., add value to them and supply to the rest of the world. Many of them have also signed preferential trading agreements with other countries and got most-favoured nation status, which India does not have. Many respondents have suggested that in case of garment industry, government needs to keep Indian companies as competitive as other countries by giving additional support.
  - In garment industry, fashion changes very fast with short lead time, therefore, European customers prefer sourcing from Turkey, Egypt, Tunisia, Morocco, etc., as these have duty advantages and require lesser number of days to supply garments to Europe due to their proximity to the markets. In contrast, such facilities are not available while sourcing from India due to longer period for executing the orders. Therefore, less number of garment products are sourced from India.
2. Survey pointed out limited manufacturing of fabrics in India, unlike China and Korea who are able to manufacture new fabrics owing to higher R&D activities. Although their fabrics are expensive, these

cannot be manufactured in India. Fabric manufacturing in India would mean extra huge costs as their demand is low and such activities are also not regularly done.

Many respondents argued that 90–95 percent of the fabrics are produced by handlooms and powerlooms who have been protected for 60 years. However, productivity level of handloom sector is still very low in producing good-quality fabrics. Many firms and associations supported that handlooms are unnecessarily being subsidized by the government, which if continues for a long time can lead to incompetitiveness. However, this industry may also not be able to survive sudden opening to the competition as huge workforce, of about 35 million, is employed therein. Thus, many respondents recommended that the concessions must be strategically withdrawn for handlooms/powerlooms and the fabric industry must survive on the basis of efficiency.

Moreover, no policies or schemes are available for making Indian fabric industry competitive and for its integration into GVCs. Many firms also agreed that certain government policies are not relevant in current scenario like Hank Yarn Obligation,<sup>3</sup> Handloom Reservation Act, etc. This has prevented Indian fabric industry to move up in GVCs. It is mentioned that as fabrics forms the middle link, its growth can increase the demand for yarn and supply of garments, and can help India's entire value chain.

Fabrics are hardly sourced by India from the world, except high fashion brand and low quantity boutique item. But, the latter requires India to source fabrics from Korea, China, etc., add value within the country and thereafter export the product. Such activities are happening in India, but at a very slow pace and mostly carried out by very small units.

Interviews also revealed the constraints that Indian companies face while becoming vertical from exporter. For instance, if a company decides to undertake processing of fabrics, this will require huge capital investments which may be a big hurdle. This is feasible if company is product-specific such as only in ladies wear, only in polyester shirts, etc. This way, it has clear estimation of quantum of fabric it needs to process daily. But it becomes very challenging if company is not product-specific, like

the companies in north India. Product-mix and sales keep on changing constantly as per fashion.

3. Regardless of multi-fibre system in the country, cotton-centric fibres are largely used in India from raw material up to garment stage. India follows narrow fibre base till end of the chain. However, man-made fibres (MMFs) industry is future of India's textile value chains. But this industry faces disadvantageous position vis-a-vis Indian cotton industry (where former have been taxed much higher with no central excise/custom duties on cotton). China is the biggest manufacturer of synthetic fibres in the world and India is second, but both have huge differences. India still lacks proper fibre-neutral policy.

Further, MMFs industry faces shortage of essential raw materials in the country, that is, PTA and MEG which are primarily used for making polyester fibres. As a result, India is importing them for many years. Their import duty is also high. Accordingly, firms suggested reduction in prices of such raw materials. It is suggested that there should be fibre flexibility for ensuring level playing field, with same fiscal policy treatment throughout all fibres.

4. Several respondents argued that India is still surviving at the heritage of incentivized small-scale production. However, many other countries like Vietnam have large-scale integrated units. In India, there are numerous micro- and small-scale enterprises (MSMEs) which are not fully integrated or composite mills. That is, they are concentrated only on certain segment of value chains like spinning or weaving or may lack finishing. This is due to the requirement of long-term huge investments which are not considered viable by many small entrepreneurs. The MSMEs opined that import enquiries become outdated by the time they reach to them. Apex organizations and law must support them more.

Moreover, the buyers' requirements for non-production related issues are rising. Many of these keeps changing on labelling, chemical use, compliance, etc., and coping with them is a huge challenge for Indian textile industry as lot of it is in unorganized sector. Some apparel firms also mentioned that almost 85 percent of production is in SMEs. Manufacturing units are highly fragmented with problems in cost compliance, and thus many

are not operating at large scale. Hence, Indian T&C industry is not able to reap many benefits of upscaling.

5. Survey highlighted that India is still into low value items such as T-shirts, simple weaving, sports knitwears, etc., but not much into high value added products like suits, formal shirts, and trousers. This is one of the biggest constraints preventing India to gainfully link into GVCs. India has forte in spinning, yarn, and fibre, but lacks competitiveness in apparels, made-ups, and fabrics—high-end items which should be driving the industry. Although Indian firms are supplying to high fashion retailers, these are very few. Further, the growth in other segments of this industry does not match with the growth in spinning segment. The latter has updated technology and higher capacity to produce yarn of international quality as well as has potential to meet external demand after satisfying domestic needs.

Alternatively, regular exports of raw cotton is making Indian spinning and garmenting uncompetitive against competitors like Bangladesh, Pakistan, Vietnam, etc. Some firms argued that exports of cotton resources rather than value added products are detrimental.

Most importantly, firms and associations opined that India exports around 80 percent of textiles to the US and the EU, who are dominant players in the global market. It is not easy to diversify into non-traditional markets beyond a certain level, as these have limited shares in global trade. Moreover, eastern countries are very different markets due to cultural issues, and some of them are India's competitors. Some associations further suggested that India can be better integrated with African countries, some of which produce cotton, yarn, and even fabrics. However, this huge shift requires mature India's garment industry. It is questionable whether industry working on small scales can benefit from such shifts. Some firms have accordingly recommended incentivizing fabric manufacturers for moving into garments integrating production centres like through SEZ.

6. Government policies are a major impediment in running Indian T&C industry, as highlighted by 90 percent of the firms and industrial associations. Each

state has its own textile policy. Every entrepreneur has to go through all of them and constantly decides which is more effective for its firm. Respondents have emphasized on quick implementation of one Comprehensive New Textiles Policy and National Fibre Policy.

Further, lack of consistency in policy implementation or discontinuation of schemes at short notices has adversely affected the operations of T&C industry. One of the respondents illustrated that popular Technology Upgradation Fund Scheme (TUFS) announced in April 2009 was kept in abeyance on 1 April 2007 stating that scheme needs some modifications. Later the Modified Technology Upgradation Fund Scheme (MTUFS) was announced with effect from 1 November 2007 to 31 December 2012. This had resulted in a blank period from 1 April 2007 and 31 October 2007. However, the scheme was put on hold on 28 June 2010 stating that the entire allocation for the plan period has been availed. Restructured Technology Upgradation Fund Scheme (RTUFS) was announced again on 28 April 2011. But there was a time gap (29 June 2010 to 27 April 2011) in the announcement of RTUFS, with no scheme benefits available during this period. This had resulted in another blank period. It was highlighted by few firms that these blank periods not only affected on-going modernization and expansion projects of the industry, but also prevents new applications during the period. Second, policies can be changed anytime, such as, abrupt ban of exports of products like cotton yarn, etc. Although this helps to get cheaper price initially, but in the later stages, domestic production declines and become dependent on international prices.

7. Notably, most of the prominent textiles and garments clusters like Tirupur, Ludhiana, Chandigarh, Gurgaon, etc., are not cost-competitive. Tirupur cluster is facing environmental issues and its competitiveness is declining, especially in comparison to Bangladesh's cluster. The spinning industry in Punjab faces cost disadvantage due to geographical location. Respondents mentioned severe labour shortage in the clusters of Punjab as most of them have migrated abroad, and the workers from Bihar and UP have diverted away from textile mills.

Nevertheless, the exports of these clusters have increased, but this is value-driven growth and not volume-driven. Clusters need support and more infrastructural facilities for affluent treatment. It was mentioned that adoption of rational water treatment policy is needed rather than focus on zero liquid discharge for the growth of textile processing industry in India.

8. There are issues in skill development. Survey highlighted decline in the quality of well-established textiles and fashion designing institutes such as National Institute of Fashion Technology (NIFT). These institutes impart exclusive education and training in textiles designing and fashion management as well as produce fashion designers for the country. More of NIFT centres are opening, but there is no corresponding rise in number of experts/professional teachers.

Secondly, some respondents pointed out that India is largely copying the designs which the EU and the US provide for making end products. Thus, India's designing and R&D skills are largely underutilized. It is suggested that Indian designers need practical training in other countries as well in order to understand their tastes and preferences, and accordingly make products for them in India.

9. Difficulties in tapping huge capabilities in textile machinery and technical textiles—growth in these two segments can help the industry move up to higher level in GVCs.
  - Despite enough technical knowledge, India still does not manufacture high-technology machines, namely, air jet looms, computerized flat knitting and circular knitting machines, and world class processing machines. Many firms raised the issue of imports of second hand cheaper shuttleless looms for modernization. Due to prevailing duty structure in India, domestic industry lack protection and has no level playing field, that is, same technology Chinese looms are much cheaper. It was mentioned that China has not imported any second hand machine since 1990s and concentrated on domestic manufacture of textile machinery. Foreign shuttleless loom manufacturers also set up their production facilities in China, which provided it access to the technology.<sup>4</sup>

- Some respondents highlighted limited production of technical textiles in India, that is, those confined to clothtech, packtech, and sportstech. As this segment is mostly in decentralized sector, India lack presence in high-tech items. Most of the demands are met through imports and thus the potentials within India are largely untapped. Also, there is less demand for technical textile products due to lack of awareness among people about their uses for health and safety. Further, regulatory legislation and standards for regulating quality are absent. Investments are very low in R&D for developing technical textiles, despite several new initiatives of Government of India.

To conclude, many firms are involved in the domestic market and are not willing to be part of GVCs. It is argued that delinking from GVCs may save the negative effects of loss of employment, especially of low-skilled workers employed in labour-intensive industries. Accordingly, India's low participation in GVCs in its T&C industry may be justified. But the irony is that required skills are not available or not up-to-date to match the needs of industry.

Notably, in Bangladesh and Sri Lanka, government policies had created very conducive environment in 1970s–1980s by taking proactive and business-friendly steps to scale up their garment industry. Multi-fibre arrangement quotas truly helped. Bangladeshi government issued back-to-back LCs to solve the problem of working capital and bonded warehouses. It allowed duty-free imports of machinery to produce the goods meant for export purposes. It adopted innovative ideas of entrepreneurs (Yunus and Yamagata, 2012). Bangladesh has cheaper labour and duty-free access to big markets, as per survey. In Sri Lanka, economic reforms included incentives for garment producers under the Garments Factory Programme. There have been strategic shipping lines in the country, along with investor-friendly environment and cheap labour (Kelegama, 2005). China became successful example of integration into GVCs in T&C industry, especially when Newly Industrialising Economies shifted large amount of garment production to China. It benefited from abundant supply of unskilled low cost labour (Yang and Zhong, 1998). Survey underlined that China is highly cost-competitive and

producing almost all types of textile products. It has production skills and it can supply at lower prices than India.

Turkey has placed itself remarkably in the world's apparel exports, owing to export-oriented industrialization and close association with the EU. Government actively liberalized trade since 1980s with sound infrastructure. Private capital also played a key role which led to the development of strong textiles industry. Turkey has sufficient raw material base for the production of types of fibres and fabrics. For maintaining competitiveness as full-package supplier, Turkish firms met the requirements of improved quality standards and lower lead delivery times. They adopted several strategies, such as, invested in vertically integrating production processes. In early 2000s, they established triangle manufacturing arrangements with countries of Europe as well as Asia. Turkey has followed buyer-driven GVCs. Many business associations acted as influential actors in enhancing competitiveness of Turkey's suppliers, such as, Turkish Clothing Manufacturers Association, as well as Istanbul Textile and Clothing Exporters Association (Neidik and Gereffi, 2006).

### **3.2 Constraints Specific to Indian Machinery Industry**

1. Many large firms belonging particularly to heavy machinery, engineering goods, and machinery parts and components, air and ship transport equipment, face the issue of varying size of the suppliers. Many of these suppliers are small sized with low ability for capital investment. Also, suppliers mainly have unorganized labour force which lack required skills and training. In majority of the cases, they get the workers through a labour contractor which does not supply labour in line with the requirements of this industry.
2. Many engineering graduates enter into finance, IT, and consulting fields rather than into core engineering- or manufacturing-related jobs. This has led to a shortage of skilled professionals, which machinery industry urgently needs. Moreover, the respondents revealed that there is a lack of practical training in premier technical and engineering institutes like IITs. These institutes were originally set up to give training with more practical orientation and many skill development activities. But now due to greater

emphasis on theoretical knowledge, these institutes are not producing much good quality engineers. Hence, the core engineering is lagging behind in India and it is still dependent for technology from the developed countries such as Japan, Germany, etc.

3. Many firms mentioned that manufacturing bases are not well established in India with low competitiveness for new products. There are capacity constraints within the country and lack of sufficient product lines. Many manufacturing units lack enough facilities to produce higher number of big machines. This raises the imports of finished machinery. Firms producing heavy/sophisticated machines pointed out that they do not get competitive rates.

Exchange rate fluctuations and increase in crude oil prices have also hit Indian machinery companies hard as this has led to the rise in costs of all the imported intermediate inputs. Moreover, these inputs generally have long lead time and holding them in inventory for satisfying customers can increase the inventory carrying cost, especially when there are so many variants for different models of machines.

4. Lack of sufficient size of the domestic market for railway electronics, microwave electronics, and solar electronics has also affected the growth. The external factors like coal block and rising need for environmental clearances are hindering setting up of power plants. Further, the government has provided some relaxation in imports of items needed for strategic sectors like renewable energy, but benefits of duty are not available which raises the price of the products. Respondents have suggested that import duties should be minimized or removed for solar inputs because customs duty on end products like solar cells or modules is nil. However, in case of machine building, mechanicals and hydraulic vessels, import duties should be lowered so that more machines can be imported, especially from South-East Asia.
5. The Indian government has designed many schemes and provides export benefits from time to time for heavy engineering and capital goods, but there is a lack of governmental aid when Indian company bids in the export market with other countries. Many respondents argued that China, Brazil, many South East Asian countries, etc., get additional support

from their governments in terms of assurance, financing of the projects and easy lending rates of around 3–5 percent. While in India, these rates are mentioned to be as high as 11–12 percent and additional benefits for capital goods are missing. India lacks proper support in terms of subsidy or encouragement for exports. Many firms and associations also agreed that the existing policies of the government are not industry friendly. One of the respondents mentioned that when India exports the power equipment to China, they put high duty of about 30 percent; but India has allowed duty-free imports. Some firms mentioned that while importing the machines, they get EPCG<sup>5</sup> licence, but with minimum rate of duty.

6. Importantly, respondents revealed lack of any targeted policies for increasing the growth of India's strategic machine tools(MT) industry, such as, development funding or low interest subsidy, funding for port development or for upgrading technology, etc. Indian education system has no dedicated stream for MT at any level. There are constraints in getting personnel with specialized skills required for MT production, besides design and R&D functions. Many firms mentioned that India is relatively weak in linking into global supply chains and does not manufacture machine tools at a global scale. Though it exports both non-CNC and CNC(computer network controlled) machines, these are in small quantities. Technological gaps exist in high productivity, multi-function, high precision, heavy duty MT and metal forming machines of modern design. Further, MT industry is widely dispersed across the country, with regional variations in product ranges, quality and scales of production. The US, Europe, East Asia realized long back the urgent need to push this industry, but India's MT industry remains neglected due to its small size and lack of political will.

Almost all the firms and associations dealing in MT raised the concern for second-hand imports. Even if Indian firms make grinding machines and high end CNC machines, many of such second-hand machines are still imported. India is unable to compete with MT manufactured in China because of their low prices and many export-linked incentives available for their industries. Moreover, it is revealed that the goods produced in China in this segment

are cheaper even after adding overseas transportation costs and dealers' overheads. In contrast, Indian manufacturers are unable to offer such low costs as approximately 75 percent of cost of the products are due to overheads like duties, electricity cost, marketing cost, bank interest, etc. Respondents accordingly advocated the need to create fresh capacities in this industrial segment and develop higher technology products through R&D so as to reduce imports. As MT are fundamental for manufacturing of capital goods, proper fiscal measures must be adopted such as reduction of excise duty, removal of import duty on all critical inputs for CNC machine tools, etc., particularly for SMEs to invest in new tools. Curriculum at ITIs and polytechnic levels should cover the machine tools as subject.

7. Construction equipment firms highlighted that supply chain engagement of any of the Indian manufacturer or exporter is almost negligible in this segment. In fact, very few of them have their global logistics control centre. The low-tech., low-cost items which involve sheet metal fabrication such as chassis, body, cabin, boom/arm, buckets, forged parts such as tooth points for excavators, loaders, cutting edges for dozers, etc., some important castings that go in to manufacture of the boom/arm of excavators, and very few plastic moulded parts are only manufactured in India. Second, most of the imports by big players in this segment are used for sales in domestic market, after adding some value, and very few are exported.

It is particularly emphasized that there is no representation or separate forum for construction equipment (CE) industry in the government and it is considered as linked to automotive industry. There is an absence of any long-term plans for its growth. Apart from the constraints in terms of transportation logistics, the cost also rises for highly sophisticated products. Some respondents revealed that companies making small cranes of say 9–10 tons find it difficult to export as these are generally made as per Indian conditions. Further, construction equipment industry suffers from technology gap and obsolescence which makes it difficult to match user demands. Also, lack of any clear mining and mineral allocation policy has adversely affected this industry. Although India fares better than China in terms of

quality, it is highly expensive. Firms accordingly suggested that the government must give required financial support to CE, as well as provide subsidized finance to ancillary industries that can manufacture aggregates for this industry. Imports should be limited to those high-value equipment which are not made in India. Further, mining and construction machinery design, manufacturing process, operations and maintenance must be introduced as a separate stream in various technical institutes like ITIs or in diploma course curriculum as mandatory subject. This will help young talents to engage in this industrial segment.

8. India faces huge competition from China because of the prices in agriculture machinery, particularly tractors. China's tractor prices are although less, but Indian tractors are considered to be much more sturdy and reliable, which is an advantage. Huge duties and taxes and logistics costs on Indian tractors make it challenging to export to Latin America, which is a large market and Indian tractors can be a big success over there.
9. Firms and associations mentioned tools as the beginning of all production activities, but pointed out that the Indian government has been neglecting them, as tools do not form a part of any product and are used only as inputs in production. Firms argued that all cutting tools are the catalyst of progress, and because of promotion of this segment, Germany became the global leader. The largest segments of the cutting tools are the solid carbide and tungsten carbide, but these raw materials (mainly tungsten) are controlled by China.
10. In auto industry, many Indian companies prefer nearby location to their supply chain partners; but suppliers are highly scattered and located at far off places. Although India is improving quality standards and indigenously producing as well as exporting many such products, but there is a need to cover the gaps with respect to technologies, infrastructure, long trade cycle, and R&D facilities. There also exist high tariff rates and import duties. China is a big competitor due to its better infrastructure and well-built manufacturing houses. Respondents suggested the need to enhance innovation capabilities by properly leveraging mergers and acquisitions capabilities.

To conclude, supply chain in India at Tier 2–3 level is very weak.<sup>6</sup>This increases the imports of machines. India is also flooded with cheap and poor quality finished goods mainly from China. Continuation of this will not let India come out of the bottom end of the global precision source. There is a need to raise duties on imports of such finished goods. The respondents opined that academics are too theoretical which does not fit into industry's domain. As a result, new capability development is low. Research and technology development is slow. Further, capacities in Indian PSUs are not optimally utilized.

Notably, successful GVCs network have been formed in machinery industry of East Asian and South-East Asian countries (Kimura, 2006; Ando & Kimura, 2005). Governments of developing countries like Malaysia, Philippines, Thailand, etc., have been actively encouraging FDI, promoting industrial clusters or agglomerations where local firms are also engaged with MNEs to increase spillovers, and investing to improve the efficiency of manufacturing and trade infrastructure for cost competitiveness of its exports.

Low-cost labour and open policies towards FDI from advanced countries helped China to become epicentre of GVCs in the region. During the survey of Indian machinery industry, it was found, compared to India, that China has undertaken many labour reforms. Uniform tax structure is in force and, therefore, producers do not face difficulties in trading. Chinese government gives adequate subsidies in the form of skill development, training, and infrastructure which has helped in job creation. Further, China's ease of doing business is better. The government supports industries by giving good incentives for exports, subsidies on land, machinery and power, as a result of which manufacturers experience lower production costs as compared to India. Their power cost is although same as India, but their power reliability is far superior. China has well-organized and developed manufacturing industries for machinery parts and components, and, therefore, its speed of getting things done is higher with attractive pricing policy. Thus, in machinery industry, particularly capital goods, heavy and light engineering goods, parts and components, China has risen as a strong competitor to India.

#### 4. Policy Directions for Indian Industries

This section provides policy recommendations for strengthening and India's linkages into GVCs with respect to its T&C and machinery industries (Table 1). Learning lessons from other countries' experience is valid but with caution. Most Asian economies have followed export-led industrialization, but the Indian government has largely focused on the domestic markets with different socio-economic requirements. Like East and South-East Asia, India can follow industry-friendly policies free from cumbersome procedures. It can improve export finance by making available more LCs (like Bangladesh), and expedite customs clearance services where new WTO Trade Facilitation Agreement may also help. Goods and Services Tax (GST) implementation in July 2017 can boost Indian manufacturing and ease doing of business. Advantages of huge manpower and low wage levels can be utilized. Importantly, more investments are needed for improved infrastructure, skill development and industrial reforms to become a manufacturing hub for Asia and Europe. Schemes like Market Linked Focus Product Scheme (MLFPS), TUFS, EPCG, etc., which have provided good results to the industries should be continued for a longer period.

India needs a clear road map to implement these policy suggestions as most of the issues in GVCs are local and needs home-made solutions. Focus of the Indian government should be on long-term goals for global integration, rather than on short-term measures for export promotion. It is important to use effectively trade and FDI policies to improve export competitiveness of domestic producers and provide them with the world class technology and skills. Close interactions are needed among industries, academics, and government. All this corresponds to: 'Although GVCs open doors, they are not magical. Most of the hard work still has to be done at home, with domestic pro-investment, pro-skills, pro-jobs, and pro-growth reforms. Creating demand for a high-productivity workers must be matched with a supply of capable workers who have the relevant skills.' (Tagliani and Winkler, 2016).

#### 5. Conclusion and the Way Forward

The article throws light on the constraints faced by the two industries while linking and upgrading in GVCs, including poor infrastructure facilities, rigid labour laws and weak domestic value chains. Manufacturing units in India are highly fragmented with most of them being SMEs in unorganized sector. Gupta (2016) also consider it

responsible for low value-added generation in value chains of these two industries.

Surveys highlight that the manufacturing sector in India does not have enough capacities to produce big and sophisticated machines. Machine tool segment is still very small. In T&C industry, fabrics and garments are India's weakest links and they face tough competition from China, Bangladesh, Vietnam, Korea, etc. Importantly, firms pointed out that workers do not possess the required skills for development of these industries. It is even difficult to find them for employment in factories or mills. There is massive shortage of skilled manpower who are moving away from manufacturing towards the services sector like IT, finance, etc. There is mainly mismatch of skills available and skills needed. Moreover, R&D system is also still not much developed in India despite the rise in number of research centres. Export-oriented FDI has not been properly catalysed.

Improving domestic connectivity and harmonizing schemes across different states can help in strengthening domestic supply chains and provide the industry with available domestic raw materials at more competitive prices. India, being a labour-abundant country, needs to revive its large T&C industry by making it a part of GVCs and encouraging it to initiate its own GVCs. There is an urgent need to enhance India's designing skills to the world level and produce unique and high-end products. India has potential to lead GVCs in many of its machinery segments, where it is linking at higher-ends or has the capability to do so. Following are some policy directions for India which can help in developing India's GVCs:

- Brands of large Indian companies need to be established and promoted not only in traditional markets of developed countries, but also in the other developing and least developed countries (for example, African countries in case of selected products of textiles and agriculture machinery). For this, a thorough research is required for assessing the demand of various machinery and T&C products in certain selected countries. In other words, there is need to identify those products that are highly in demand in these countries, but lack supply capacity. Accordingly, large Indian companies can be encouraged to export these required product categories, including low-cost textiles and agricultural machinery, with high domestic value addition. This will help Indian brands and retailers to go global and acquire niche export markets.



Table 1: Policy Suggestions for Indian Industries for Linking into GVCs

Policy Suggestions for Indian T&C Industry	Policy Suggestions for Indian Machinery Industry
<ul style="list-style-type: none"> <li>● Better connectivity between rural and urban areas so that unexplored talents of many craftsmen, weavers, etc., from small cities and villages can be used by the garment manufacturers and designers.</li> <li>● Encourage more sector-specific skill development centres for different segments like garments, home textiles, fabrics, etc., so that the existing gap between demand and supply of various types of skills is reduced and the industry benefits from the enhanced skills.</li> <li>● Properly implement fibre-neutral policy, along with comprehensive 'National Textiles Policy' to increase the scope of value-added products and strengthen India's value chains—proposed draft should promote consistency in schemes offered by states to this industry.</li> <li>● Initiate new government strategies to promote world-class fabric mills in India, mainly by promoting pooling of available resources—for example, the pool of big exporters' can be selected and given proper incentives so that they are able to undertake large investments in developing world-class fabric processing units and garment factories, where each exporter has certain share in the total invested amount.</li> <li>● Develop big export houses in every segment like spinning, weaving, processing, garmenting, etc., so that these can compete with other Asian countries—like Japan, Indian textile should support and consolidate their small export houses into bigger competitive export houses.</li> <li>● Incentivize more India's fabric and processing industry so that the domestic consumption of yarn, which is being exported, is increased. Downstream sectors like weaving, knitting, processing, garmenting, etc., need to expand capacity, upgrade technology and equip themselves to the extent that they should be capable of converting the domestic production of yarn into value added items and venture into exports.</li> <li>● Provide technical and marketing inputs to powerlooms and processing industries for upgrading and competing locally and globally—government can give special incentives to fabric manufacturers to integrate into garment manufacturing by providing them with required finance, technology, and market intelligence.</li> <li>● Encourage more PTA plants by the government for making polyester, with incentives like lower excise duty.</li> <li>● Set up more government training institutes like NIFT through special incentive schemes, but their quality of education and training must not decline—additional benefits can be provided to designers who start their own venture.</li> <li>● Attract investments for technical textiles<sup>7</sup> which are found to be the future of India with high export potentials. India can make use of more MMFs to produce high value added items in technical textiles apart from conventional wearable.</li> </ul>	<ul style="list-style-type: none"> <li>● Require more training centres and investments in ITIs on behalf of government agencies to impart better skills to the manpower.</li> <li>● Strengthen the linkages between research and industry in India, and encourage engineers from premier technical institutes like IITs to join manufacturing industries. More machinery making companies must be invited at the time of placements in these institutes; and salary structure should be improved to compete with services in attracting the skills.</li> <li>● Government can intervene both as an enabler as well as a facilitator - it should have interaction with academicians with respect to revising their curriculum by including more specialised fields such as machine tools, construction equipment, agriculture machinery, etc. for better industrial growth.</li> <li>● Reduce import duties for highly sophisticated engineering products and components which cannot be effectively manufactured within the country, as well as protect intermediate products, which are manufactured competitively, from cheaper imports - Regular industry consultations can help the Government to maintain a balance in import tariffs of intermediate products needed by the industry and produced competitively by the industry.</li> <li>● Need greater incentives for R&amp;D, investments in technologically advanced infrastructure and strategic acquisitions by Indian manufacturers – there is a need to develop critical raw materials for integration in GVCs.</li> <li>● Proper support to be given by the government in the area of tractors which holds lot of potentialities and are gaining popularity in USA, Europe, SAARC and Africa - with focus on food security programs in most African countries, they are looking towards Indian tractors for enhancing productivity of their farms, as mentioned during survey.</li> <li>● Develop a separate government forum for the construction and mining equipment industry, with clear policy on mining and mineral allocation and less dependence on imports -Government needs to provide the companies with adequate financial support so that both low-end as well as highly sophisticated machines can be manufactured in higher volume.</li> <li>● Encourage more investments in R&amp;D capacities of auto component industry, and encourage Indian suppliers to collaborate more with OEMs, and try to reach to their level and then to the stage of Original Brand Manufacturing. Clusters of auto products can be developed such that suppliers and manufacturers stay in close proximity and their tariff rates must be lowered.</li> <li>● Either reduce or abolish imports of second hand machines, or impose heavy import duties on them so as to protect local players.</li> </ul>

Continued...

With China's policy of 'Going Global' and its rising labour costs, it is important for India to forge deeper linkages with T&C industry of China to cater to big markets. India also can think of encouraging its own GVCs in the South Asia to increase its cost competitiveness. Survey mentioned that as far as fine counts are concerned where designing is involved, India is more competitive. But China still has additional advantages in terms of economies of scale. However, India is likely to be major beneficiary in what China vacates, as there is no other country with integrated textile chain, with long experience in international trade. China is already reducing its yarn and spinning activities, where India can capture the major share, as mentioned during survey.

- Consider machine tools as a priority industry by setting up Machine Tool Technology Parks on larger scale and by exploring their new varieties where India can become competitive but lacks capacity presently—it can be made mandatory for big firms to produce certain prescribed amount of high-end CNC machines indigenously, and small entrepreneurs could become a part of their value chains in producing some critical inputs for machines.

More attention to the precision and cutting tool industry by improving quality of their products.

- Domestic enterprises must be provided easy loans and finance in order to become lead firms. They must be given lucrative incentives to put their products in international exhibitions or export their products under brand names to other developing countries. Ministry of Skill Development and Entrepreneurship, National Skill Development Agency and NIFT can play a very important role in boosting their brand names.
- Government needs to create a level playing field in the country. If it signs FTAs with other countries, it should give deemed export benefits to domestic industries. Particularly for SMEs, government can provide capital at subsidised rates, and provide a platform like those available in some European countries where they can set up pavilion, visit other countries, and freely market their products at subsidised costs.
- Designing, R&D, and sophisticated production activities of big players must be connected with the manufacturing activities of MSMEs. This will help to improve the production capabilities and skills of the latter.
- It is essential to develop inherent strength in various segments of the two industries in order to match their demands and supplies. For instance, fabric segment should be made competitive and its demands should be connected to Indian yarn segment and its supply be linked to garment manufacturers located anywhere in India. Similarly, production of capital goods must be taken as per demands of other sectors, like, steel, metals, etc.
- Indian companies must strive to hire more number of engineers for designing and producing better

machines as well as trained fashion designers to make world class clothing products. Investments in upgrading the labour force is required if India wants to compete with other growing economies. Joint ventures in design studios can be undertaken to learn global designing and branding, especially from countries like Turkey, Italy, etc.

- Reforms in labour laws should be undertaken so that they improve labour productivity and formalization, and pay competitive wages. Cost of production can be lowered by reforms in areas like cumbersome customs procedures, poor infrastructure, etc.

Trade competitiveness cannot be sustained without building much-needed skills—this requires fresh creative thinking. Indian industries must enhance their production capacities and better utilize economies of scale by catering to larger markets. Engaging more in differentiated and specialized products with innovations and better strategies can help them initiate their own GVCs and become globally competitive. Strengthening domestic supply chains can surely help, and those segments where India is not competitive can be imported or manufactured in other countries. India should also improve productivity growth in manufacturing by indulging more into higher R&D and designing skills, as well as by capturing greater share in post-manufacturing sales/marketing services. This will help India to initiate, link, and upgrade better in GVCs particularly in its T&C and machinery industries.

## References

- Ando, M., & Kimura, F. (2005). 'The Formation of International Production and Distribution Networks in East Asia'. In Takatoshi Ito and Andrew K. Rose (eds), *International Trade in East Asia*. NBER-East Asia Seminar on Economics, Volume 14, Chicago and London: The University of Chicago Press, 177–216.

- Banga, R.** (2014). 'Trade Facilitation and "Hollowing-out" of Indian Manufacturing'. *Economic and Political Weekly*, XLIX(40), 57–63.
- Dimaranan, B., Ianchovichina, E., and Martin, W.** (2009). 'How will Growth in China and India Affect the World Economy?' *Springer*, 551–571.
- Gereffi, G.** (1999). 'International Trade and Industrial Upgrading in the Apparel Value Chain'. *Journal of International Economics*, 48(1), 37–70.
- Gereffi, G., and Güler, E.** (2010). 'Global Production Networks and Decent Work in India and China: Evidence from the Apparel, Automotive, and Information Technology Industries'. In Anne Posthuma, and Dev Nathan (eds), *Labour in Global Production Networks in India*, Chapter 4, Oxford University Press, 103–126.
- Gupta, N.** (2016). 'Domestic Value-added Growth is Vital: Are Indian Industries Gaining by Linking into Value Chains?' *South Asia Economic Journal*, 17(2), 271–294.
- Gupta, N.** (2015a). 'Is Indian Machinery Industry better Integrated into Global Value Chains vis-à-vis Other Asian Economies?' *Centre for WTO Studies*, Working Paper CWS/WP/200/32.
- Gupta, N.** (2015b). 'India's Textiles and Clothing Industry in Global Value Chains and its Linkages with Other Asian Countries'. *Centre for WTO Studies*, Working Paper CWS/WP/200/33.
- Hoda, A., and Rai, D. K.** (2014). 'Trade and Investment Barriers affecting International Production Networks in India'. *Indian Council For Research on International Economic Relations*, Working Paper No.281.
- Kelegama, S.** (2005). 'Ready-made Garment Industry in Sri Lanka: Preparing to Face the Global Challenges'. *Asia-Pacific Trade and Investment Review*, 1(1).
- Kimura, F.** (2006). 'International Production and Distribution Networks in East Asia: Eighteen Facts, Mechanics and Policy Implications'. *Asian Economic Policy Review*, 1, 326–344.
- Ministry of Textiles, Government of India.** (2013–14). *Annual Report 2013-14*. Retrieved from [http://texmin.nic.in/annualrep/ar\\_13\\_14\\_english.pdf](http://texmin.nic.in/annualrep/ar_13_14_english.pdf)
- Neidik, B., & Gereffi, G.** (2006). 'Explaining Turkey's Emergence and Sustained Competitiveness as a Full-package Supplier of Apparel'. *Environment and Planning A*, 38(12), 2285–2303.
- Orgun, B. O.** (2014). 'GVCs Participation as Development Strategy'. *Procedia - Social and Behavioral Sciences*, 150, 1287–1296.
- Taglioni, D., and Winkler, D.** (2016). *Making Global Value Chains Work for Development*. Washington DC: World Bank Group Publications.
- Vries, G., Chen, Q., Hasan, R., and Li, Z.** (2016). 'Skills and Activity Upgrading in Global Value Chains: Trends and Drivers for Asia'. *Asian Development Bank*, Working Paper No.496.
- World Bank.** (2017). *Measuring and Analyzing the Impact of GVCs on Economic Development*. Washington DC: World Bank Group Publications.
- Yang, Y., and Zhong, C.** (1998). 'China's Textiles and Clothing Exports in a Changing World Economy'. *The Developing Economies*, XXXVI(1), 3–23.
- Yunus, M., and Yamagata, T.** (2012). 'The Garment Industry in Bangladesh'. In Fukunishi (ed.), *Dynamics of the Garment Industry in Low-income Countries: Experience of Asia and Africa* (Interim Report). Chousakenkyu Houkokusho, IDE-JETRO.

"Your career success in the workplace of today - independent of technical expertise - depends on the quality of your people skills."

– Max Messmer

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**NOTES :**

- <sup>1</sup> The associations/councils interviewed represent around 50,000 firms in these states (mainly from north, south, and west India). Their top-level executives and officials were interviewed.
- <sup>2</sup> Firms also highlighted difficulties faced due to various taxes which need to be paid. They stressed on non-conducive internal payment procedures in India. People hardly work on Letter of Credit (LC) basis.
- <sup>3</sup> The Hank Yarn Obligation has added burden on the spinning segment. It stipulates that spinners must pack a specified percentage (around 40 per cent) of their yarn on hanks, so that sufficient cotton yarn is available for handloom sector. Also, most of the hank yarn is used by powerlooms and not handlooms.
- <sup>4</sup> "Earlier Europe was major producer of textile machinery, but now China is the biggest competitor for us. We do not produce industrial high speed sewing machines and other accessory machines which are required for manufacturing exportable quality and quantity garments." (Quoted from Survey, 2015)
- <sup>5</sup> Export Promotion Capital Goods (EPCG) scheme.
- <sup>6</sup> EPC service providers are placed towards higher end of value chains, but they also faced challenges in respect of timely availability of shipping documents, cargo consolidation, container detentions, quality related issues, strikes at ports and upkeep of warehoused materials, technological superiority of western countries, etc.
- <sup>7</sup> Ministry of Textiles, Government of India (2013–14) defines technical textiles as 'textile material and products that are manufactured primarily for technical performance and functional properties rather than aesthetic properties and decorative characteristics. These products have a presence in major areas of activity such as aerospace, shipping, sports, agriculture, defence, medicine/health, manufacturing, etc.' There are many investments by traditional textile players entering into this, but it is more for the domestic market. India needs to emerge in a big way. There is a need to create awareness for this segment.

## Appendix 1: Brief on Value Chains for Few Indian T&C Firms (from Survey)

Firm/Co. (Business)	Imports	Exports
Co.1 (Fully Integrated - bed sheets)	5% of value of total output: Fabrics not available in India, packing materials like trims	Most of production particularly to US; Pack in home brands and supply to all major retailers like Walmart, Target, Spotlight, etc., who sell directly to consumers under their own brands—they add marketing and merchandizing value
Co.2 (Processed Cotton Fabrics, Shirtings, garments)	Some specialty dyestuffs like Indigo and speciality chemicals in small quantities, but not any major raw materials	Fabrics to garment manufacturing countries (Bangladesh, Sri Lanka, Turkey, etc.), whose garment factories in-turn export garments to leading international brands of the USA and the EU  Also, garments manufactured in-house to leading international brands of the UK, the UAE, the USA and the EU
Co.3 (Integrated home textiles)	5% of total output: Good quality cotton, some type of fabrics not available in India like PVA yarn and PVA fabric, few dyes, and chemicals	About 90% of produce to the entire world, but mainly to the USA (60–70%); Use supply chain in 2 ways: Sell finished products directly to the customer; sell goods through its warehouses in the US, where the US Co. is retailer and owns brand
Co.4 (Home Furnishing, processed Fabric for curtains)	About 3% of production: Either spare part of machine or raw material (value addition of minimum 50%)	About 30% of production; of this, 60% is yarn used by buyers as intermediate goods; rest, Home Furnishing as final products—hardly use imported input in export except in coated fabric where 10% of input is imported
Co. 5 (yarn, fabrics, sewing threads)	Raw materials: nearly 6–7% of the value of total output; Convert imported intermediate goods into yarn, sewing thread, fabric	Exports own products (used as intermediate into the final product) mainly to Bangladesh, China, Japan, Korea, Brazil, Spain, Taiwan, Germany, Egypt, etc.; 15% of the proportion of imported inputs used in exports
Co.6 (polyester filament yarn, fibre)	About 50% of the raw materials, with value addition of 20%; 80% of the products made from imported inputs are sold to local market	About 20% of production with 25–30% value addition: Mainly PSF, DTY to textile and garment manufacturers who use products as raw materials
Co. 7 (mainly yarn)	Only intermediate goods (less than 5% of total purchase): polyester fibre, viscose fibre, yarn; mainly from South-East Asia, i.e., Thailand, China, and Taiwan; special type of nylon fibre, polyester fibre from Germany	About 15–20% value added products; total exports of 40–45% of total turnover to about 55 countries in Europe, South America, South-East Asia

## Appendix 2: Brief on Value Chains for Selected Indian Machinery Firms (from Survey)

Firm/Co. (Business)	Imports	Exports
Co.1 (Machine Tools, MT)	Approximately 40% of end product (in value terms)	Metal cutting machines to countries in Europe and Middle East, Russia, Thailand, etc. (nearly 40% imported content used in exported machinery)
Co.2 (MT)	Electronic equipment such as processors and ICs, critical components for plastic injection moulding machine, which are not manufactured in India; only raw materials; import content high at 30–50%	About 50% of business, and mostly to North America, Europe or South-east Asia and China (by Metallurgical division).  Around 10–20% mainly to Middle East and Africa (by Plastic division)
Co.3 (electrical components for automotive)	70% of cost of purchases; only raw material and convert into finished goods; Most of output serves domestic customers	Only 3% of total turnover (to Europe and Japan); sell products to OEMs (Original Equipment Manufacturers) only for use as intermediate goods; exported products made from domestic purchases only
Co.4 (electrical engineering infrastructure segment)	Out of total procurement, 40–50% is imported content; but most of these are not directly imported	Almost 50% of production (for transformers, even less than 2%); for some products, exports through its global feeder factory: 72 KV circuit breakers to Africa, Germany, China (with 3 factories)
Co.5 (Solar Photovoltaic Cells, Solar modules)	Around 32%; high value addition on imported goods	Solar systems mainly to Mali Afghanistan, Mozambique: used as final product by customers; Use 16% imported intermediate products in the exports of end products
Co.6 (Mining and Construction products)	Around 30%; use crusher and its components in manufacturing of Nordwheeler, Vibrating Screens	Around 30%: Both end and intermediate goods to Finland, the USA, Brazil, Australia, Malaysia, Thailand, South Korea, China, the UAE, etc.
Co.7 (nuclear reactors, power plant)	Almost 80% of raw material, not available locally, from Europe and Japan	Process plant equipment for sectors: Refineries, petrochemical, oil and gas, and steel; nuclear parts, but not much defence equipment
Co.8 (heavy engineering)	Very low: 2–3%, mainly electronic parts and automation items like switch, gears, etc.; No direct imports but through Indian channel partners	Mainly exporter, supplying to almost 75 countries
Co.9 (pumps)	Some special CNC (Computer Numerical Control) machines for production process, few special valves (accessories) for pumps and stainless steel food grade sanitary pump fittings; imports less than 20% of sales (output)	Mainly final products to more than 25 countries: the USA, Canada, Ecuador, Mexico, the UAE, Russia, Germany, England, South-East Asia, Bangladesh, Australia, etc.; use around 10–15% inputs (accessories)
Co.10 (tractors)	Only parts of tractors: around 3% of total value of output	About 300 crores per year: Mainly finished goods (tractors) and some spare parts (3 crores per year) to Africa, ASEAN, SAARC

# Skill Development: A Necessity for Leading India

RAGINI SHARMA

*n the age of globalization, knowledge and competition have intensified the need for highly skilled workforce in both the developing and developed nations, as it enables them to accelerate their growth rate towards higher trajectory. For India, skill development is critical from both socio-economic and demographic point of view. Focusing on the need of Skill Development for Leading India, our 15<sup>th</sup> Prime Minister Mr. Narendra Damodardas Modi, on 25 September, 2014 in Vigyan Bhawan, New Delhi, chanted the economic mantra—'Make in India', which is directly associated with the 'India Vision'. Mr. Modi unveiled 'Make in India' initiative aiming to project India as the manufacturing hub that will fuel India's economic growth. Such a growth-oriented initiative has led to the scope for research to find out its implementation, implication and sustainability. Since it is a recently launched initiative, very few researchers have published on the various factors that would be affected by the implementation of 'Make in India' initiative. Thus, around twelve research papers have been reviewed for the research of this article. After reviewing various papers, it is inferred that manufacturing from India, by foreign & domestic industries in various sectors, can generate employment opportunity. Therefore, the Indian labour and prospective employees need to acquire skill and knowledge to gain employability. Thus this article tried to find out the effectiveness of 'Make in India', on employability and scope for skill development. It is important to focus on the development of the skills of Indian labour force to become eligible enough to fit in to the industry requirement. After reviewing, it is found that only 10% of the workforce receives formal training to acquire the required skill. But out of the actual industrial training requirement of the 22 million workforces, only 4.3 million of workforces are actually getting formal training. If new job opportunities will be created by 'Make in India' project, then there will be higher demand of skilled labour. But it is found that there is a huge gap between these two in India. It is also found that for the successful implementation of 'Make in India' initiative, it is also important to implement various skill-development initiatives to lower down the skill gap between the available skills and desired skills.*

*Dr. Ragini Sharma, Assistant Professor, EAFM Kanoria P.G. Mahila Mahavidhyalaya, Jaipur*

## 1. Introduction

Today all economies need skilled workforce to meet global standards of quality, to increase their foreign trade, to bring advanced technologies to their domestic industries, and to boost their industrial and economic development. Thus, skills and knowledge becomes the major driving force of socio-economic growth and development for any country. As it has been observed that countries with highly skilled human capital tend to have higher GDP and per capita income levels, and they adjust more effectively to the challenges and opportunities from the world of work.

The 'Make in India' program laid the foundation of India's latest policy to bring an economic revolution by making India a global manufacturing hub and welcoming both domestic and international industrialists to invest in India, which in turn will generate employment and overall development of India. Manufacturing sector is the strength of an economy as it fuels employment generation, better quality of goods and services at cheaper rate, and economic growth and development, along with helping the growth of other sectors too. The main objective of 'Make in India' is to focus on employment generation and skill enhancement in 25 sectors of the economy. The initiative also emphasizes on high quality standards and lowering the affect on the environment. It also focuses on economic, infrastructure and technical development, which will lead to development of other Industries and sectors, giving a global recognition to the Indian Industries.

The said project aims to provide higher employment, better standard of living and high per Capita GDP to Indian Economy. Manufacturing sector needs huge investment to acquire latest modern technology, development and setting up of desired infrastructure, skill development of

its labour force to produce best quality products, and sustain in global market. If India wants to attract the investors to invest in India and transform in to a global manufacturing destination, its labour force should acquire the desired skill-requirement with skill development & enhancement along with accumulation of financial requirement. Around 51 percent of the workforce is engaged in agriculture, which contributes only 17 percent to India's GDP whereas 22 percent of the total workforce is engaged in manufacturing sector which contributes to 26 percent of the GDP of India. It has been observed that there is huge skill gap of industrial demand for skilled labour and available skilled labour force. There are a large number of challenges in attaining Government's target of 10 percent sustainable growth in manufacturing sector to make the vision of 'Leading India' a reality. This article aims to study the employability of Indian workforce to fulfill the Industrial skill requirement generated by 'Make in india' project.

## 2. Objective of the study

1. *To understand through the review of literature the effect of 'Make in India' initiative on employability.*
2. *To analyse through the review of literature if the Skill Development measures will help to bridge the gap of existing skills and required skills of workforce and Labour force in India.*
3. *To study the present skill capacity of India.*
4. *To study the challenges faced by skill development system in India.*
5. *To suggest possible solutions or ways forward.*

## 3. Methodology

The proposed study mainly is descriptive in nature. It solemnly based on secondary data and information which is collected from the concerned sources as per need of the research. The relevant books, documents of various ministries/departments and organisations, articles, papers and websites are used in this study.

## 4. Literature review

The current ranking of industrial output in the world is 10. The total GDP contribution of manufacturing sector is 28 percent, which engages nearly 17 percent of the total labour force. The basis of any manufacturing organisation is governed by the quantity of money it is willing to invest and the kind of

people who are going to work in it. For transforming the health of the manufacturing sector and in order to make it a most preferred destination for domestic as well as foreign investors and industrialists, it is important to promote both fund based and non-fund base of the services.

Data of the World Bank suggested that in 2014, the contribution of manufacturing sector to Indian economy was just 13 percent. The overall contribution to GDP by manufacturing sector was just 28 percent. India's contribution to world-manufacturing is also very low, with a contribution of just 1.8 percent. These statistics clearly indicates that India's stand in manufacturing is very poor (Goyal, Kaurand Singh, 2015).

If India will be transformed in a Manufacturing destination attracting investment from global and domestic industrialist, it will generate many employment opportunities for the Indian labour force (Goyal, Kaur, & Singh, 2015).

## 5. Present Scenario of Skill Capacity of India

In order to capitalise the demographic dividend, India will need to empower its workers with the right type of skills. Thus, this section depicts the present skill levels of the Indian workforce in the age group of 15-59 years, in the form of their general educational levels and vocational training levels.

- The drop-out rates of educational institution was estimated to be 50 percent in the age group of 5-14 years and 86 percent after 15 years of age. In contrast to this, the participation rate of the workforce rises rapidly after 14 years of age and it results in a semi-literate workforce, which finds it difficult to absorb higher form of skills.
- 38 percent of Indian workforce is illiterate, 25 percent has education below primary or up to primary level, and remaining 36 percent has an education level of middle and higher level.
- 80 percent of Indian workforce does not possess any marketable skills.
- Only about 2 percent have received formal vocational training and 8 percent non-formal vocational training, thereby implying that very few new entrants to the work force have any marketable skills as compared to developed economies, such as Korea (96 percent), Germany (75 percent), Japan (80 percent) and United Kingdom (68 percent).



## **6. Will 'Make in India' help India to be a Leading Country in the world?**

In the last decade, India has a impress economic growth rate but still it is not able to generate employment opportunities to meet the growing employable population. 'Make in India' focuses on creating 100 million new employment opportunities in manufacturing industry, lowering down the growing problems of unemployment in India. In India, only about 14 percent of the labour force is employed in formal jobs (Green, 2015). Other than initiatives, like Smart City development, Skill India, Digital India, Start up India, Entrepreneurship, National Investment and Manufacturing Zone, creation of Industrial Corridor will not only make India a global manufacturing hub but it will also generate a huge number of employment opportunities with growing Industrial demand. (Sharma, Kaul, Goel, & Narang, 2015).

Thus, by addressing the issue of above mentioned initiatives our Govt. can pave a way for India to stand among the top nations of the world.

## **7. Relevance of Skilled Labour in manufacturing Industry:**

To match the pace of manufacturing revolution in the wake of 'Make In India', India need to attain a share of at least 25 percent contribution to India's GDP. To achieve this India needs skilled, educated and healthy workforce. According to World Bank, 2016, India's literacy rate measured to be only 73 percent in 2012 in comparison to the literacy rate of 95 percent in China & Mexico, 93 percent in Malaysia, 90 percent in Brazil which reveals that only 1 out of 4 person in India can read and write. (Deodhar, 2015)

Indian work force is immensely talented and adaptable. In order to develop an organisation and ensure its sustained growth, it is very much important to develop its human resource working in it. Continuous investment in up gradation of their skills, knowledge and competencies is essential for an organisation if it wants a guaranteed survival in the immensely competitive environment (Goyal, Kaur, & Singh, 2015).

In 2012, the first of its kind Manufacturing Policy was launched with prime focus on skill development as a strategy to enhance skill requirement India's manufacturing sector. In fact, it focused on skill enhancement of less educated unskilled labour in the unorganized sector and proposed a Modular Employable Skills (MES) scheme under DGE&T. The relevant industry designs the

educational courses to include the necessary skills requirement (Okada, 2012). Moreover, in private sector, industrial associations like CII (Chamber of Indian Industries) and FCCI (Federation of Indian Chamber of Commerce and Industries) have played a pivotal role in creating awareness on skill development by organizing seminars, workshop and creating liasons with Government agencies in bringing institutional reforms. Moreover Industry also realized the urgent requirement of skill development provision to solve their problem of lack of skill required by the Industry (Okada, 2012).

Along with universalization of primary education in India, skill development for manufacturing sector is also important. To make this process effective, retired employees from Armed Forces and Railways can be used as these two organisations have thousands of skilled and experienced personnel for the introduction, maintenance and up gradation of all kinds of mechanical and electrical equipments. Such experiences and skilled personnel can effectively contribute in strengthening Technical and Industrial Training institutes like ITIs.

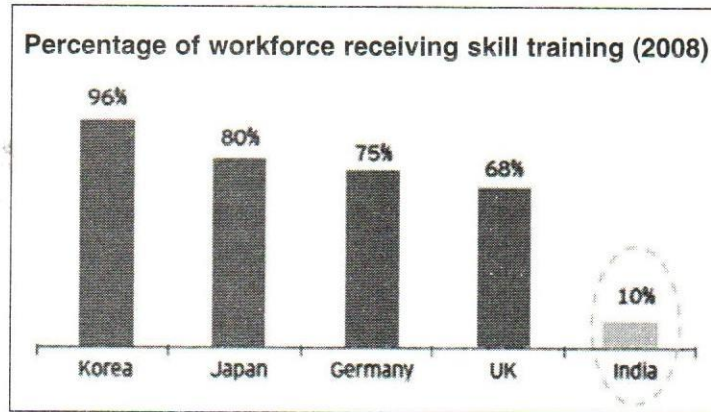
## **8. Government Schemes for Skill Development:**

In recent years, India has seen rapid economic growth with the growth of advanced industries and talented skills of Human Resource. With the growing economic growth, it is required to emphasize on acquiring and enhancing the knowledge and skill of the youth of the Nation. But India has a huge skill gap in comparison to rest of the world. In India, as shown in Table 1, only 10 percent of the total Labour Force get some skill training (2 percent with formal training and 8 percent with informal training). Moreover, 80 percent of the new addition into the workforce do not even have the opportunities for training for skill enhancement (FICCI, Ernst & Young, September 2013). With the new entrant of 12.8 million young labour force in the market every year, the government recognizes that India faces a serious skills shortage, as the majority of these new entrants are likely are unskilled (Okada, 2014).

## **9. National Skill Development Policy**

In 2008, a well design action plan was created with a three tier skill development institutional structure, which comprises of PMs National Council, National Skill Development Corporation (NSDC) Skill Development Coordination Board (NSDCB), in order to focus on skill enhancement of Human Resource of India (Jain, 2014).

**Table 1: Percentage of Workforce receiving Skill Training (2008)**



Source : Planning Commission Report (2008)

**Table 2: Strategic Initiative in National Skills Development (Das, 2016)**

Lead Initiative / Functionary	Launched By	Launch Date
National Policy on Skill Development (NPSD)	Ministry of Labour and Employment	23 February, 2009
National Skill Development Mission	Ministry of Labour and Employment	16 August, 2010
National Vocational Education Qualification Framework (NVEQF)	All India Council for Technical Education, MHRD	7 February, 2012
National Skills Registry for IT and ITES professionals	NASSCOM & NSDL	18 January, 2006
Prime Minister's National Council on Skill Development (PMNCSD)	Prime Minister's Office	1 July, 2008
National Skill Development Coordination Board (NSDCB)	Planning Commission	24 July, 2008
National Skill Development Corporation (NSDC)	Ministry of Finance	31 July, 2008
National Skill Development Fund (NSDF) (Trust)	Ministry of Finance	20 October, 2009
Office of the Adviser to the PM on Skill Development	Prime Minister's Office	31 January, 2011
National Skill Development Agency (NSDA)	Ministry of Finance	9 May, 2013

*National Skill Development Corporation (NSDC)*  
(Das, 2016)

As shown by Table 2, some key Skill Development initiative under 11<sup>th</sup> Five Year Plan (2007) by National Skill Development Mission, 2010 that focuses on building Institutions for skill enhancement across various economic sectors. Again the institution building process continued with the 12<sup>th</sup> Five Year plan (2012-2017), with special focus on reviewing and benchmarking in the creation of skill-development institution and infrastructure across the nation. Table 2 shows National Skill Development Initiative's strategic institutions by Government of India. Government of India initiated a 'Coordinated Action on Skill Development' in 2008, led by Prime Minister's National

Council on Skill Development (PMNCSD), National Skill Development Coordination Board (NSDCB), and newly formed National Skill Development Agency (NSDA) in 2013, which is a merger between PMNCSD, NSDA and officers of the Advisor to the PM on Skill Development. The aim of NSDA is to provide strategic guidance and inputs in upgrading and Infrastructure development of the existing Institutions like Industrial Training Institute (ITIs), Craftsmen Training institutes and Technical and Vocational Education and Training (TVET) systems to provide a skilled and enhanced labour force to fulfill the globally accepted accreditation and global standard of skill (Das, 2015).

**Table 3: Sector wise Total number of Trained persons by 2022**

No.	Ministry / Department / Organisation	Number of trained persons (in Millions)
1.	National Skill Development Corporation (NSDC)	150
2.	DGE&T (Industrial Training Institutes)	100
3.	MHRD Higher EducationMHRD Vocational Education	50
4.	Road Transport and Highways	30
5.	Agriculture	20
6.	Construction Industry Development Council(under Planning Commission)	20
7.	Rural Development	20
8.	Micro Small and Medium Enterprises	15
9.	Others (Power, Petroleum etc.)	15
10.	Urban Development	15
11.	Consumer Affairs	10
12.	Finance-Insurance / Banking	10
13.	Heavy Industry	10
14.	Health & Family Welfare	10
15.	Information Technology	10
16.	Textiles	10
17.	Women & Child Development	10
18.	Chemicals & Fertilisers	5
19.	Food Processing	5
20.	Overseas Indian Affairs	5
21.	Social Justice & Empowerment	5
22.	Tourism	5
	<b>Cumulative Total</b>	<b>530 Millions</b>

Source: <http://pib.nic.in/newsite/erelease.aspx?relid=90269>

(Das, 2016)

The National Skill Development Mission, 2010 made a strategic plan on skill enhancement and knowledge building of about 530 youth by 2022 by NSDC, DGE&T (Directorate General of Employment and Training under Ministry of Labour and Employment, MHRD, and other Ministries came together to initiate the Skill Enhancement process (Das, 2015). In the recent times, 59 Corporates/Private Companies/Private Educational Institutes coming together with NSDC to provide Vocational Training in Skill Enhancement in India. With the help from its private alliances, NSDC targeted to achieve 150 Million skilled labour by 2022 (Ernst & Young, 2012).

## 10. Challenges and Way Forward for Skill Development Programme in India:

Despite various concentrated efforts, there is still a long way to bring the skill development mission to completion, due to the presence of certain serious key challenges in the path of the mission. Some of these hindrances along with their possible solutions are outlined below:

**Demand & Supply Mismatch:** The demand made by the industries and supply of labour-force mismatch leads to aggravate all types of skill development initiatives of the government and its partner agencies as:

1. The number of people formally trained in a year is only 1,100,000 by Ministry of Labour and Employment and approximately 3,200,000 trained by 17 other central government ministries.
2. According to the Manpower Group (USA), in Germany, USA, France, and Japan, the percentage of employers who find it difficult to fill jobs is 40 percent, 57 percent, 20 percent and 80 percent respectively as compared to Indian employers (67 percent).

**Way forward:** Thus an ideal scenario is one in which supply of labour can be transformed into skilled workforce which is easily absorbed by the industrial-sectors. However, in India a small portion of labour force is actually undergoing for formal training. It has been observed that there are more people than the available jobs at the low skills level, while there are more jobs at the high skills level than those available for such jobs. This demand and supply mismatch indicates that there is a serious mismatch between the education and skills that the youth attain and what the labour market demands.

Therefore, in order to create a people-centric approach for skill development, it is required that the skill development initiatives needs to be coordinated with demand and supply scenarios across geographies, industries and labour markets so that new skills required by industry or changes in supply of labour are speedily adjusted with adequate and efficient training programs.

**Geographical Problem:** It is another serious problem plaguing the labour market and has a more serious impact in larger economies like India as the geographical set-up or outreach of the people for skills in India are uneven and in dismal share:

1. The states with much higher economic growth rates have more jobs with lower rate of labour-force; while on the other hand, the states with slower economic growth rates have higher population growth rates with fewer new jobs. Thus, laggard states need to rely on migrant workers so as to cope with this challenge.
2. Majority of formal institutions are located in urban areas as compared to rural areas and even private sector institutions are reluctant to operate in rural areas. Hence, large proportions of rural population do not have any formal vocational training institutions.
3. Districts notified as backward have serious paucity of formal skill training as majority of skill development institutions in these locations emphasized only on basic livelihood skills and that is generally provided by NGOs or provided by other agencies as a part of social development programs.
4. There is lack of block level mapping of employment demand, local economy activities, youth population profile, social demographic profile etc. This leads to sub-optimal planning of skill development initiatives resulting in a gap between skill development and local employment demand.
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**Way forward:** In order to combat the problem of large geographical and socio-economic conditions of the economy, the government along with its partner agencies should set-up more standardized skill-based institutions

or skill development centers across the country. It should particularly focus on the laggard/backward states with a view to provide equal access to all segments and sections of the society, so that the whole society gets the benefits of the skill initiatives and strategies.

**Low Educational Attainment:** Though the country has made progress on educational attainment as reflected below:

1. There are about 1.5 million schools in India with a total enrolment of 250 million students (from pre-primary to high/senior secondary levels) i.e. schools constitute the maximum number of enrolments.
2. Higher education sector comprises around 20.7 million. The total number of students enrolling for open universities and other diploma courses constitute 24.3 percent of the total students.
3. Vocational training in India is primarily imparted through the government and private industrial training institutes (ITIs). There are total 9,447 (in 2012), with a total seating capacity of 1.3 million. The total number of ITIs has increased at a CAGR (2007–2012) of 11.5 percent, while the total number of seats has increased at a CAGR (2007–2012) of 12.2 percent.
4. Current annual training capacity of India is 4.3 million, which is 20 percent less than the industrial requirement of 22 million skilled workers a year.

But the reality is that some regions are still lags behind as compared to other regions in terms of accessibility of education and skills in India are:

1. Higher drop-out rates of educational institutions mostly after the age of 15 years and above and especially in female students.
2. Accessibility for the disadvantaged and rural section of the society is difficult due to high costs and other social impediments like transportation problems especially for a girl student travelling away from home.
3. Poor quality of education which result in lack of literacy and numeracy skills on the part of students. These students find it extremely difficult to absorb even basic skills.
4. Many skills taught in curriculum are obsolete and their end result is that workers are unable to find jobs according to their aspirations.
5. Increase in educational institutions further lead to

multiplicity of curriculums for the same skill resulting in uneven competency levels.

6. There is lack of platforms where industrial and governmental agencies can meet regularly for systematic up-gradation of curriculum for new skills. Ultimately, it results in lack of co-ordination between the job aspirants and employers.
7. Inflexibility in curriculum framework of vocational training and education made it difficult for the individual to imbibe the proper skills as who enters the vocational training will find it extremely difficult to enter general education field due to lack of equality between the two.

Hence, a low proportion of the workforce has higher education or any form of skills training. In spite of massive effort to expand the capacity of providing high-quality formal education or skills training, the workforce is still unable to gain any kind of benefit from the high economic growth.

**Way forward:** The need of the hour is to provide quality educational curriculum at all levels with targeting skills development programs. Hence, the instructional material or syllabus must be prepared jointly by the industry and the educational planners. It should be regularly updated and must include more of practical learning than theoretical. So that students should imbibe the necessary job skills as demanded by the industrial sectors.

**Vocational Training:** India is progressively moving towards knowledge economy, where skills are widely recognized as the important lever of economic growth, but the perception about vocational education is still doubtful i.e. it is generally meant for those who fail to get admission in the formal system. Thus, it still need time to be considered as a viable alternative to formal education.

As it was observed in India, around 90 percent of the jobs are skill-based i.e. they require some sort of vocational training whereas in reality only 2 percent of the population (in 15-25 years age group) enrolled for vocational training in India as compared to 80 percent in Europe and 60 percent in East Asian countries.

The current capacity of vocational training is 31 lakh against an estimated annual capacity of 128 lakh workers whereas the overall national target of skilling is 50 crore of workers by 2022 i.e. India needs to impart vocational training to at least 300–350 million people by 2022 which is significantly lower than the government target of 500 million.

Moreover, the private sector provide skill training as required by service sector mainly to educated youth (especially passing class 12) and largely in urban regions. Ultimately, hundreds of workers in unorganized sector do not get any kind of skill training, which results in low productivity levels and employability gaps among majority of workforce.

Due to lack of awareness about industrial requirements and the availability of matching vocational courses, most of the prospective students in the country do not opt for vocational education.

Despite of various efforts on the part of Government and its partner agencies, the credibility of vocational courses in India is still questionable. Moreover, the low reputation linked with vocational courses (or blue collar jobs) and also low compensation levels among people with such skills, prevents the students from taking vocational education as they are not aware on how vocational courses can improve their career prospects.

**Way forward:** Hence, a scalable, efficient and comprehensive vocational training system with proper awareness generation programs is our need. As these programs help in spreading information about existing skill development courses and market requirements, which lead to increase the student enrolment as well as enhance the credibility of vocational institutes. As education and vocational training are the important contributors to overall skill capital pool of an economy. Education provides a base in the form of ability in literacy, numeracy and cognitive abilities and vocational training equips an individual with specific skills. Vocational training is practical/manual in nature in contrast to education which is purely theoretical in nature. Thus linkages of both serve simultaneously the hand and the mind, the practical and the abstract aspects.

**Skill development for women:** In India, women also form an integral and substantial part of the workforce; but the working percentage rate of women in total labour force is declining.

The share of women workforce (between 25-54 years of age) is about 30 percent in 2010, as against 39 percent in 2000, which is quite below as compared to 82 percent in China and 72 percent in Brazil.

Moreover, women in India are mainly concentrated in the informal sector and are engaged in low-paid jobs with no security benefits. This represents lack of

employment opportunities and skills for women workforce.

Currently, a majority of the female workforce in India is unskilled, i.e. a very low percentage of women have any kind of formal education. In India, around 65 percent of women in rural areas and over 30 percent of women in urban areas lacked basic primary school education.

**Way forward:** In order to unlock the full potential of women workforce in India, the need of the hour is to bring about an employment revolution along with a skill development revolution. The planners should focus on women specific policies for their effective participation in the employment market. As it would help India to meet its skilling target and reap benefits of having the largest workforce by 2025.

**Private sector participation/Industry Connect:** The current situation in respect to the participation of the private sector is as follows:

1. The private sector is not involved adequately in curriculum development and policy formulation related to educational and vocational training.
2. Mostly private sector institutes are located in urban areas therefore rural population remains lags behind. Furthermore, due to high cost of these institutes the weaker or disadvantaged section also unable to get proper skill training centres.

**Way forward:** Hence, a strong policy measures and operational linkages are needed to bring together the public and private sector to improve the quality and relevance of training.

**Placement-linked Challenge:** A major problem of India's existing skill(or education) development system is lack of linkages between education and placement of that trained workforce.

1. In India, the vocational training is offered nearly in 120 courses and mostly of long duration (i.e. of 1 to 2 years duration). Whereas in China, there exist approximately 4,000 short duration modular courses, which provide skills more closely aligned to employment requirements.
2. In India, as compared to large firms, the micro, small and medium enterprises (MSME) find it difficult to invest in skill development institutions and this result in deployment of semi-skilled workforce in many MSME firms.

3. Majority of ITI/ITC do not offer job placement services i.e. they struggle for appropriate employment except in areas with high economic activity. Lack of correlation between demands of local economy and provisioning of skills by local institutions creates an employment gap and lead to job related migration. It also gives rise to social tensions due to the skilled unemployed phenomenon.

4. Majority of the current government schemes of India like Swarnjayanti Gram Swarozgar Yojana (SGSY), Roshini and Himayat aimed at providing employment to around 75 percent people at above minimum wages; while in reality significant number of trainees are still not able to get jobs or some dropped due to inadequate wages or poor working conditions etc. For instance, in case of Himayat scheme which was launched as a training-cum-placement program for the unemployed youth of J & K in 2013, with a view to train 100,000 youth in 5 years and to provide jobs to at least 75 percent of them results in the following:

- Only 1,904 youths applied for various courses in the first year of the scheme.
- Merely 37 percent participants have been placed within two years of the scheme.

**Way forward:** In this era of knowledge highly skilled workers who are flexible and analytical in nature are recognized as the driving force for innovation and growth. To achieve this India needs a flexible education system with multi-faceted and highly efficient skill development system. This system must provide linkages between each of its constituents and provide a seamless integration between skill development and employment.

**Multiplicity of Institutional Framework:** Over the past few decades, India has witnessed significant progress in the skill development landscape, as various types of organisations have been set up both at national and at state level.

Around 17 ministries, 2 national-level agencies, several sector skill councils, 35 state skill development missions and several trade and industry bodies comes forward with a view to push the national skill development agenda.

Given this mind-bogglingly complex institutional setup with overlapping and conflicting priorities and little co-ordination and standardization ultimately resulted in fragmented outcomes with limited impact.

**Way forward:** The diversity and lack of coordination among government, non-government and private providers lead to create obstacles in the effective integration of the system and focusing on national development objectives. Hence, it is necessary to introduce integrated reforms in the form of establishing some nodal authority or bodies ranging from advisory to executive in nature with a view to coordinate and governs various skills development and policy making initiatives.

**Informal & Formal Sector Skill-Gap:** As the Government of India has set a target to impart the necessary skills to 500 million people by 2022 in the Twelfth Five Year Plan, whereas in reality the country is facing a significant skilled manpower challenge over the next decade.

- In India, around 12 million people are expected to join the workforce every year whereas the current total training capacity of the country is around 4.3 million, thereby depriving around 64 percent entrants of the opportunity of formal skill development every year.
- Furthermore, out of approximately 0.4 million engineering students graduating every year in India, only 20 percent are readily employable.
- Around 93 percent of the Indian workforce is employed in the unorganized or informal sector, which lacks any kind of formal skill development training.
- Barely 2.5 percent of the unorganized workforce reportedly undergoes formal skill development in comparison to 11 percent of organized sector.
- In addition, only around 12.5 percent and 10.4 percent of the workforce in the unorganized and organized sectors, respectively, undergoes informal skill development. This indicates that around 85 percent of the work force in the unorganized sector does not imbibe any form of skill development—formal or informal.

**Way forward:** The dire need of the hour is to focus more on the labour force of the unorganized sector. Though the better and superior skills are essential requirements of the competitive market but practically the unorganized sector do not have the affordability to hire expensive labour of high quality. Thus this conflicting objective can be resolved with an integrated approach that gradually enhances labour quality while maintaining a purposeful balance with the demand and affordability of labour markets. Advancement in the skills over time in

association with industrial support leads towards progressive improvement in the overall economic scenario. On one hand availability of workforce with higher skill levels would increase competitiveness of unorganized sector and on the other hand it would benefit the organized sector too as some of the workforce with higher competency may get absorbed there despite having low education levels.

**Infrastructure Challenge:** One of the important requirements for the proper implementation of the skill and training development programs is the availability of the basic infrastructure for the same. It has been noticed that many skill development institutions suffer from lack of proper infrastructure.

Apart from a detailed evaluation while sanctioning approval for establishing a new institute, the assessment of the fitness evaluation of the institutes is not conducted regularly.

The situation is more severe in case of institutions located in semi-urban and rural areas. These institutes need rapid expansion and up-gradation in order to provide efficient training capabilities to prospective aspirants.

Hard infrastructure including equipments, machines and tools etc. are not available in majority of the institutions. As a result, workers are trained on outdated machines and find themselves deficient in skills when employed. Further, the lack of industry linkages which would otherwise provide some help in addressing several infrastructure-related challenges including trainers, machines etc. also woefully inadequate.

**Way forward:** Hence, the policy-makers must focus on providing the required infrastructure and equipments namely computers, software's, tools, machines etc. and qualified instructors so that they provide high-quality skills as required by industrial sectors and relevant practical exposure to the students. Secondly, appraisal of institutes against standard norms and guidelines need to be conducted regularly and ratings should be based on outcomes assigned to every institution.

**Training of Trainers:** Training of trainer is one of the important key of the skill development framework. And absence or inefficiency of the same would result in serious bottleneck in the implementation of skill development projects.

In India, the gross requirement of trainers is approximately 79,000. Furthermore, the annual incremental

requirement of trainers is approximately 20,000, whereas at present the current annual capacity of the trainers is only 2,000.

It is estimated that various publicly funded organisations produce 3.5 million trained personnel per annum against the 12.8 million new entrants into the workforce each year.

However, to address this issue, NCVT approved a proposal to upgrade Model Industrial Training Institutes (MITIs) for conducting instructors training. In addition to this, the council also allow various types of organisations (like private/public limited companies registered under the Companies Act, societies and trusts registered as per the Act) to set up ITIs/ITCs, as well as undertake instructors training programs.

**Way forward:** Therefore, the Government and its participating agencies should focus on the provision of more effective training centers of the trainers, otherwise this mismatch between demand and supply of trainers could impede the success rate of the whole skill and training framework. Further, the educators/trainers must be chosen on the basis of academic qualification. Their level of competence should be measured in terms of their theoretical knowledge, technical and pedagogical skills as well as being abreast with new technologies in the workplace.

**Lack of labour market information system (LMIS):** The absence of proper Labour Management Information System (LMIS) impedes the very objective of the skill initiative in India as it results in poor linkage between skill development and employment.

At present, there is no proper system available in the job market where the industrial, job seekers and government come forward, share the relevant information among them, and derive collective benefit from it. As a result, on one hand, the Government lacks reliable data that would otherwise help it in making effective policy decisions and on the other hand, the inadequacy of such a system disappoints both employers and employees as it result in job mismatch and inferior quality output.

However, in order to deal with this problem the NSDC, through its SSCs, has initiated the process of Developing sector-specific labour market information systems (LMISs), which will pave the way for a shared platform that would provide quantitative and qualitative information to all the stakeholders. But the major

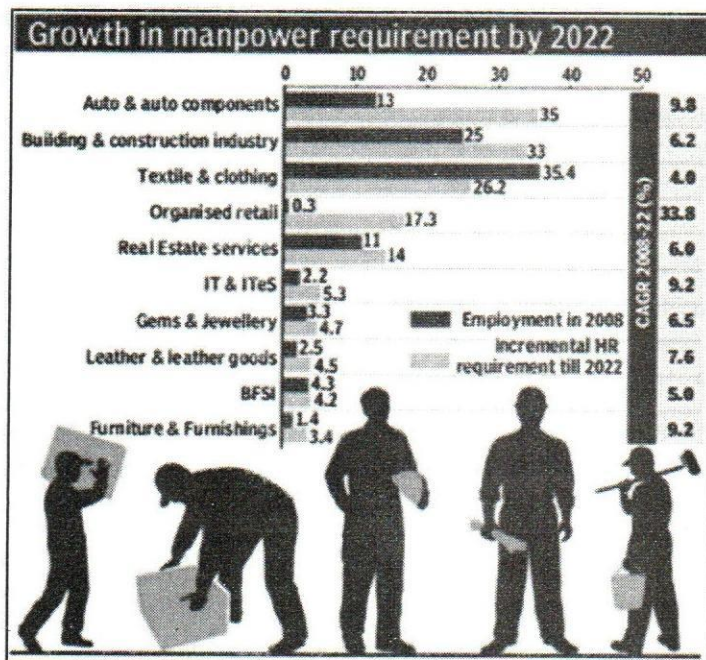


challenge in this regard is that each such SSC-specific LMIS will work in isolation and will not be integrated with the master LMIS and end result is the wastage of efforts and resources.

**Way forward:** Hence, a well integrated or consistent LMIS is required, which will ensure timely provision of all types of relevant information to all the stakeholders. It will ultimately help in systemic planning for skill development initiatives, which incorporates local employment demand

and skill requirements. Thus, it is imperative for the success of skill development system that market institutions work efficiently and well connected with educational and vocational training institutions. As the main objective of education and vocational training is employment. Therefore educational and vocational system has to be linked to the job market in such a way that it must be competent to provide relevant information about the growing employment opportunities, types of skills

**Table 4: Indicating Manpower Requirement By Year-2022**



required by different jobs, and where and how the skills can be acquired. And this will ultimately lead to enhance the socio-economic relevance of education and vocational training along with strengthening the performance of the market institutions in the economy.

## 11. Conclusion

Skill Development Minister of India, Mr. Rajiv Pratap Rudy said, "the western model of skill training will not help India. We have to think from our domestic demand side, from our own industry side and from the socio-economic realities of our society. Lower strata are a key focus area because you have to make them job-ready and improve their lives and livelihood," Rudy explained—To make India internationally competitive and to boost its economic growth further, a skilled workforce is essential. As more and more

India moves towards the Knowledge economy, it becomes increasingly important for it to focus on advancement of the skills and these skills have to be relevant to the emerging economic environment. For transforming its demographic dividend, an efficient skill development system is the need of the hour.

The idea is raise confidence, improve productivity and give direction through proper skill development. Skill development will enable the youths to get blue-collar jobs. Development of skills, at a young age, right at the school level, is very essential to channelise them for proper job opportunities. There should be a balance growth in all the sectors and all jobs should be given equal importance. Every job aspirant would be given training in soft skills to lead a proper and decent life. Skill development would

reach the rural and remote areas also. Corporate educational institutions, non-government organisations, government, academic institutions, and society would help in the development of skills of the youth so that better results are achieved in the shortest time possible what shape 'skill India' will take and what it will do only time can tell. But no doubt it seems to be a good initiative—providing skills to people, especially because India is one of the few countries all across the world whose working age population will be very high, few years done the live, going by its ever increasing growth of population, as per the World Bank.

It is time to open up avenues by which the youth accepts responsibility and no one remains idle because an idle youth is a burden to the economy. The economy should concentrate on job creation and social security schemes. With this new approach towards skill development India can definitely move forward towards its targeted results.

Therefore to achieve its ambitions skilling target, it is imperative to have holistic solutions of the challenges instead of piecemeal interventions.

## References

- Das, A. K. (2015). 'Skill Development for SMEs: Mapping of Key Initiative in India', *Institutions and Economies*, 7 (2), 120-143.
- Deodhar, S. Y. (2016). 'Make in India: Rechanting the mantra with a Difference', pp. 1-21.
- Ernst & Young. (September 2016). 'Knowledge Paper on Skill Development Learner First', *FICCI*.
- Goyal, S., Kaur, P., & Singh, K. (2015). 'Role of HR and Financial Services in Making "Make in India" Campaign a Success', *IOSR Journal of Business and Management (IOSR-JBM)*, 17 (Issue 2.Ver. IV), 20-24.
- Green, R. A. (December 15, 2015). 'Can "Make in India" Make Jobs? The Challenges of Manufacturing Growth', *Institute for Public Policy of Rice University, International Economics*.
- Jain, P. (2013). 'Globalization and Developing Employability Skills: Challenges and their Solution with Reference to NPSD & Government's Action Plan and Role of Life Long Learning and Extension Departments', *Journal of Business Management & Social Sciences Research (JBM & SSR)*, 2, 1-4.
- Dahlman, C., & Anuja, U. (2015). 'India and the Knowledge Economy: Leveraging Strengths and Opportunities', Washington, D.C: World Bank.
- Federation of Indian Chamber of Commerce & Industry. (2016). 'Knowledge paper on skill development in India', Global Skills Summit 2016. New Delhi: Ernst & Young Pvt. Ltd.
- Federation of Indian Chamber of Commerce & Industry. (2014). 'Reaping India's promised demographic dividend—industry in driving seat', New Delhi: Ernst & Young Pvt. Ltd. of India (2012). Reports and Publications. Ministry of Statistics and Programme Implementation. Government of India. New Delhi.
- International Labour Organisation. (2012). 'Global employment trends: Preventing a Deeper Jobs Crisis', Geneva: ILO.
- National Sample Survey Organisation. (2013). 'Employment and Unemployment Situation in India (66th Rounds)', Ministry of Statistics and Plan Implementation, Government of India. New Delhi.
- Reconstruction and Development, the World Bank. Washington DC.
- UNESCO. (2012). 'Reaching the marginalized: Education for All', Global Monitoring Report. Paris: Oxford University Press.
- World Bank. (2015). More and Better Jobs in South Asia. The International Bank for Reconstruction and Development  
<http://dget.nic.in/coe/main/100ITIs.htm>  
<http://planningcommission.gov.in/data/datatable/data>  
<http://nsdcindia.org/knowledge-bank>  
[www.ficciskillforum.org](http://www.ficciskillforum.org)

*"Creative thinking - in terms of idea creativity - is not a mystical talent. It is a skill that can be practised and nurtured."*

— Edward de Bono

# Empowering Women through Skill Development: Interlinking Human, Financial and Social Capital

VIKRAM SINGH

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*Socio-economic rights and equality have the potential to form a powerful partnership. Engendered socio-economic rights aim to take account of the power relations in which rights are exercised, in order to enhance the set of feasible options open to women, while at the same time supporting the values of interdependence, solidarity and care, whether or not based on choice. This article attempts to analyse the empowerment process among women through skill development and its conceptual framework in India. It also intends to highlight the process of promoting economic, social, and cultural rights (including the right to work) through skill development. The paper also aspires to look into the bond and bridges created via skill development training, which help the women participant to accumulate Human, Financial & Social capital sufficiently. In India, skill development is demanded economic growth and inclusive development; hence the women cannot be overlooked. Employable skills alone have not been able to generate sufficient autonomy among rural women unless they won't be associated with entitlements. Establishing mechanisms to ensure women's individual access and control over socio-economic resources, skills development through imparting skill training should be learnt by women for nurturing them as technical service providers through skill training. This can be able to give women innovative work prospect for interfacing within the family (i.e. social rights) and with the community and local stakeholders outside of the home (i.e. economic rights). Lastly, the analysis is done and conclusions are drawn on the basis of discussion.*

## Introduction

"A woman is a full circle. Within her is the power to transform, nurture and create."

— Diane Mariechild.

The demographics of India are inclusive of the second most populous country in the world, with over 1.21 billion people (2011 census), more than a sixth of the world's population. Among them 'Women constitutes approximately 50 percent of the total population and cover one third of the labour force in agriculture sector and it is required in society to give equal importance towards their economic development which can led them towards decision making process in family vis-à-vis in society. It also enhances the status of this segment, which will empower them.

'According to a Mckinsey Global Institute study, India could boost its GDP by \$2.9 trillion by 2025, if female workforce participation rate is improved by 10 percentage points. This would be equivalent to bringing 68 million more women into the non-farm labour force. Improving participation of women in the workforce would require improvements in access and quality of education, skill development and employment opportunities available to women. The government of India is running several programs to enhance job opportunities in India- such as the Prime Minister's Employment Generation Program (PMEGP), National Livelihoods Mission, Deen Dayal Upadhyay Grameen Kaushalya Yojana (DDUGKY), Pradhan Mantri Kaushal Vikas Yojana (PMKVY) along with several entrepreneurship development programs<sup>1</sup>. 'Empowerment is the process of enhancing the capacity of individuals or groups to make choices and to transform those choices into desired actions and outcomes. The concept of empowerment streams from the word power,

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Vikram Singh, Assistant Professor and Head, Department of Social Work, Guru Ghasidas Vishwavidyalaya (A Central University) Koni, Bilaspur.

the words empowerment is derived from Latin word derives from Latin word 'potere', which means "to be able".

Empowerment of women would mean equipping women to be economically independent, self-reliant, have positive esteem to enable them to face any difficult situation and they should be able to participate in development activities' (Singh, 128). Women's empowerment is a new phrase in the vocabulary of gender literature. Women empowerment refers to enhancing their position in the power structure of the society. The word women empowerment essentially means that the women have the power or capacity to regulate their day-to-day lives in the social, political and economic terms—a power which enables them to move from the periphery to the center stage.

Women empowerment in societal level can only be promising through gender equity and vice versa. In other word, women empowerment and Gender equity are considered as two sides of same coin. A report of United Nations Organization points out that women constitute half of the world population, perform nearly two-thirds of work hours, receive one-tenth of the world's income and own less than one-hundredth percent of world's property. Their contribution to the social and economic development of societies is also more than half as compared to that of men by virtue of their dual roles in the productive and reproductive spheres.

Women empowerment refers to enhancing their position in the power structure of the society. The word women empowerment essentially means that the women have the power or capacity to regulate their day-to-day lives in the social, political and economic terms, a power which enables them to move from the periphery to the center stage.

## Objectives

The objectives of this paper are as follows:

1. To analyse the process of empowerment among women through skill development.
2. To comprehend the features of various skill development policies/programmes for women.
3. To analyse distinct features of skill development process in enhancing female workforce participation.

## Methodology

Methodologically, this article is based on a literature review of books, scholarly articles, and other sources relevant to

an issue or area of research/theory to provide a description, summary, and critical evaluation of the role skill development in women empowerment.

## Some Definitional and Conceptual Issues

**Socio-Economic Rights:** Universal Declaration of Human Rights of 1948 cited social welfare rights without distinguishing them from civil and political rights; the separation has been widely accepted by judges, scholars and politicians. Historically, the classification of human rights into two groups, with the relegation of socio-economic rights into a lower category of human rights, emerged and developed mainly after the 1950s during the Cold War. It ultimately led to the adoption of two separate UN Covenants, with different formulation and enforcement mechanisms for each set of rights; the causes and purposes of that classification are well-documented (Cranston 1973; Alston 1990; Sadurski 2005) and profoundly political<sup>2</sup>

**Human Development:** 'Human development is defined to include the formation of a wide range of capabilities', such as—improved health, education and skills and the way people make use of their acquired capabilities for leisure, productive purposes or being active in cultural and political affairs'.<sup>3</sup>

**Engendering Development:** 'Development is being engendered to prevent endangering. As Yunus (2007) says, If the goals of economic development include improved standard of living, removal of poverty, access to dignified employment, and reduction in inequality, then it is quite natural to start with women'.<sup>4</sup>

**Human Capital:** 'It can be defined as an intangible collective resources possessed by individuals and groups within a given population. These resources include all the knowledge, talents, skills, abilities, experience, intelligence, training, judgment, and wisdom possessed individually and collectively, the cumulative total of which represents a form of wealth available to nations and organizations to accomplish their goals. The concept of human capital stems from the economic model of human-resource capitalism, which emphasizes the relationship between improved productivity or performance and the need for continuous and long-term investments in the development of human resources'.<sup>5</sup>

**Financial Capital:** 'Financial capital is a much broader term than economic capital. In a sense, anything can be

a form of financial capital as long as it has a money value and is used in the pursuit of future revenue. Most investors encounter financial capital with respect to debt and equity.<sup>6</sup>

**Social Capital:** 'Social capital refers to the institutions, relationships, and norms that shape the quality and quantity of a society's social interactions. Increasing evidence shows that social cohesion is critical for societies to prosper economically and for development to be sustainable.

Social capital is not just the sum of the institutions which underpin a society it is the glue that holds them together<sup>7</sup>

**Skill Development:** Skills and knowledge are the driving forces of economic growth and social development for any country. Countries with higher and better levels of skills adjust more effectively to the challenges and opportunities of world of work. As India moves progressively towards becoming a 'knowledge economy' it becomes increasingly important that the country should focus on advancement of skills and these skills have to be relevant to the emerging economic environment.

## CONCEPTUAL FRAMEWORK

Gender inequality is seemingly an undying phenomenon. Religiously, India is a cultural and tradition based society, wherein inequality is socially inherited and retained in the forms of gender, caste, varna, cult in one hand and on the other, we advocate modernity, justice, freedom, liberty, social equilibrium, welfare and so on. Indian society witnesses enormous contradictions.

Gender inequality especially in terms of accessing social resources, enjoying opportunities and rights, participating in social development, and having fair access to salaries and benefits still exists in most regions of South Asian countries including Bangladesh and China and it has an impact at the time of environmental disasters including climate change and climate change induced problems. The issue, gender inequality is not fresh to any society rather it is universal to every society and most importantly in this twenty first century too.

The Preamble of the Indian Constitution refers to the promise of social justice. Right to equality has also been enshrined as a Fundamental Right under Chapter III of the Constitution, which has a provision for affirmative action in favour of women. Apart from these legal and constitutional

safeguards, various policies and programmes have also been launched to ensure greater empowerment and participation of women in the social, economic and political spheres of society. However, despite these Constitutional provisions as well as affirmative actions on part of the State, the status of women continues to be a cause of concern not only in our country but also in most countries of the world. 'While there are different ways of looking at status of women, it is clear that there are wide disparities between the status of men and women. Today women constitute half of the world's population, perform nearly two thirds of work hours, receive one-tenth of the world's income and own less than one hundredth of world's property (United Nations Report 1980)<sup>8</sup>. This backwardness can be better understood by patriarchal structure in Indian context where male chauvinism rules and regulate gender relation in power structure of the society. Patriarchy means rules of father or patriarch. Further, it can be extended to all forms of male domination in the world inside/outside the family. The origin of this word patriarchy was coined to define a specific type of male dominated structure in the society and how it channelize through social institutions like family/joint family of the patriarch which included women, younger men, children, slaves and domestic servants, all under the rule of this dominant male. But nowadays this used in the discourse of inequality male vs. female towards the power relations existing and creating hierarchical structure in the society. This social system classifies women as a subordinate or secondary position, which moves their stake at next level. 'In South Asia, for example it is called *pitrsattain* Hindi, *pidarshahi* in Urdu and *pitritontroin* Bangla' (Bhasin, 2000, p. 22).

In totality, it does not imply women are absolutely powerless or fully deprived of rights, influence or resources. It points to power relationships and structures by which men dominate women in various ways through regulations of social institutions (i.e. family, community, religion and caste etc.). Feminist denotes patriarchy by manifestation and institutionalization of male dominance over women and children in family and its extension in society by 'control of women'. This control of women is channelized through power and position defined by various sociologist and feminist which play an important role in the subjugation of women and they controlled as follows; Women's productive or labor power, Reproduction, Sexuality, Mobility, Property and other Economic Resources. There are number of different perspectives on power; defined it is the probability that a person in a social relationship will be

able to carry out his/her own will in the pursuit of goals of action, regardless of resistance. However, Karl Marx has regarded it as a structural relationships existing independently of the wills of individuals' (Nicholas Abercrombie, 2012, p. 301).

There is link between power and position because it determines the status of an individual, not only status but the position of an individual. In addition, the context of patriarchy men acquire power through their position and roles in society.

### **Skill Development in India: A Variety of Frameworks**

India is the largest democracy as well as 'youngest nation' in the world, having 54 percent of its population under the age of 25 years. Its workforce totals 459 million. In India, the Union Government is responsible for policy formulation, and the states are responsible for the implementation process. The Directorate General of Employment and Training (DGE&T) is accountable for policy formulation, setting down standards, enlargement and alteration of course curricula, affiliation, trade testing and certification for skill development. In addition to the DGE&T, the following ministries and departments also impart vocational training as per their requirements:

1. Health and Family Welfare
2. Human Resource Development
3. Information Technology
4. Micro, Small & Medium Enterprises
5. Tourism
6. Urban Development
7. Urban Employment and Poverty Alleviation
8. Agro and Rural Industries
9. Agriculture
10. Textiles
11. Heavy Industries and Public Enterprises
12. Food Processing Industries
13. Rural Development
14. Social Justice and Empowerment
15. Tribal Affairs
16. Women and Child Development

### **Advisory bodies are the following:**

#### **Central government**

- National Council for Vocational Training (NCVT)
- Central Apprenticeship Council (CAC)
- State government
- State Council for Vocational Training (SCVT)
- State Apprenticeship Council (SAC)' (Singh, 2016, 26).

#### **Linking Women Empowerment with Skill Development**

The Planning Commission of India (n.d.) states: 'Skill building may be viewed as an instrument to improve the effectiveness and contribution of labor to the overall production. It is as an important ingredient to push the production possibility frontier outward and to take growth rate of the economy to a higher trajectory. Skill building may also be seen as an instrument to empower the individual and improve his/her social acceptance or value.' (Planning Commission, 2008, 18).

In India, skill development occurs through two broad institutional structures – formal and non-informal. The formal structure includes higher technical education in colleges, vocational education in post-secondary schools, technical skills in specialized institutions and apprenticeship training. As part of the Government's social development agenda, there are several schemes, which provide basic employable skill development. (NCSD 2013, 14). Potentially, the target group for skill development comprises the labour force, including those entering the labour market for the first time (12.8 million annually), those employed in the organized sector (26.0 million) and those working in the unorganized sector (433 million) in 2004-05. The current capacity of the skill development programs is 3.1 million. India has set a target of skilling 500 million people by 2022. (National Skill Development Policy 2009, 2)

'Majority of the workforce in India is in the informal sector. Low-income women workers in the informal sector, due to the irregular nature of work and little bargaining power, are amongst the most vulnerable groups in the Indian economy. The National Policy for Skill Development and Entrepreneurship, 2015 envisions skill development as a vehicle for women's empowerment.

To impart skills to women, the government has taken steps like the Skill Development Initiative Schemes under Directorate General of Employment and Training developing over 10,000 training providers under which 12.6 lakh woman have availed benefits<sup>9</sup>

'In the Eleventh Five Year Plan (2007–12), sparingly has been given to create a pool of skilled personnel in appropriate numbers. The Government has initiated a comprehensive skill development programme with wide coverage throughout the country. The Government has set up the Prime Minister's Council on Skill Development for policy direction to be supported by the National Skill Development Coordination Board (NSDCB) chaired by the Deputy Chairman of the Planning Commission' (Singh, 2016, 29). 'To promote private sector initiative for skill development, an institutional arrangement as non-profit corporation called the National Skill Development

Corporation (NSDC) has been set up in the Ministry of Finance' (GOI, 2009, 9 cited in Singh, 2016, 26). There are 402 women ITIs and 1134 women wings in ITIs, which provide training to 1, 41,907 women annually (Lok Sabha Starred Question 226). Furthermore, 10 Regional Vocational Training Institutes (RVTIs) are running vocational training schemes for women. The government has proposed to open 8 more. Given below are some of the policy provisions for skill development with a special focus on women.

'The National Policy on Skill Development highlights that in order to improve the productivity of the economy, participation of women in the labour force needs to be improved. Below are the major takeaways from the policy.

The socio-economic dimension of development paradigm (women empowerment) is inadequate without

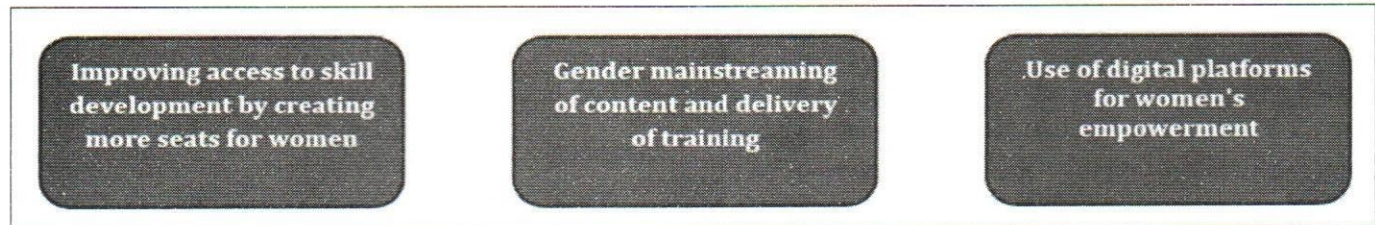


Figure 1: Enhancing women labour force & empowerment' (National Policy on Skill Development and Entrepreneurship, 2015)

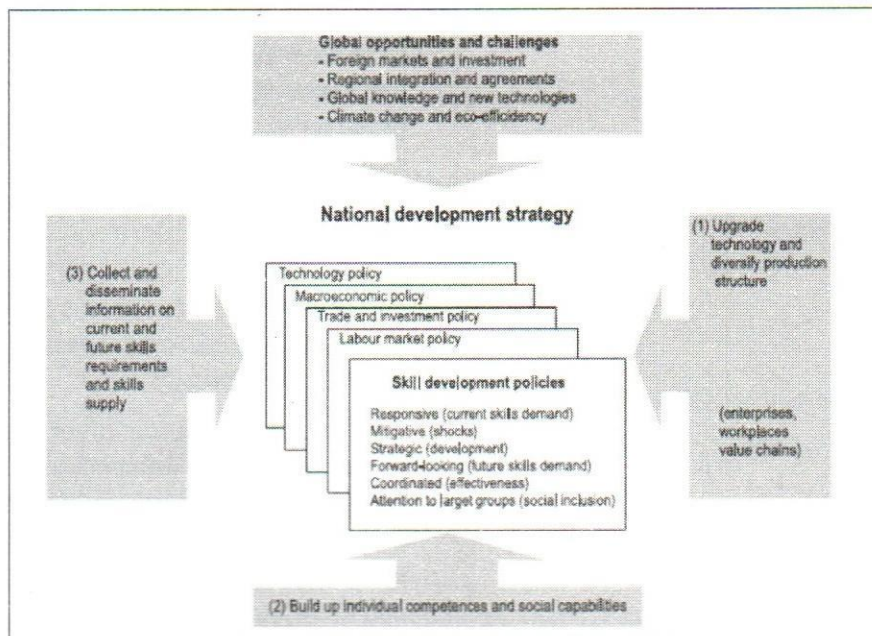


Figure 2: Skill development for productivity, work participation & women empowerment (ILO, 2008)

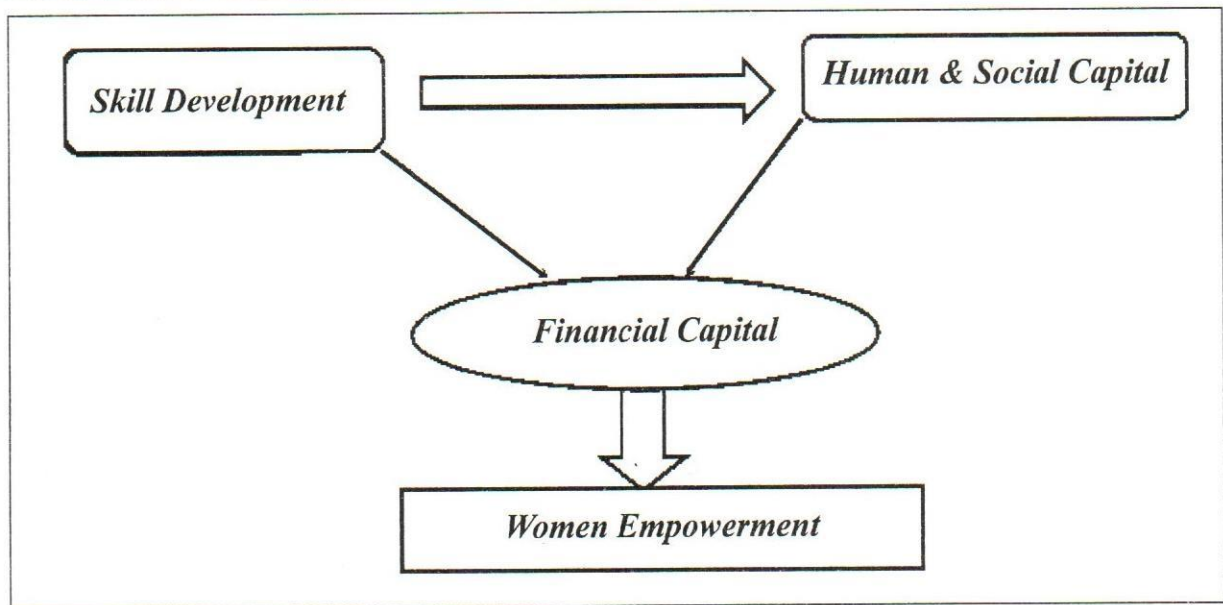


Figure 3: Depicting linkages among women empowerment social, human & financial capital through skill development

developing the human, financial and social capital because through these three components promotion of well-being among rural women is not possible. Empirical evidence shows that process of Engendering Rights is missed component of the discourse through skill development if wellbeing indicators like health, education, housing, infrastructure and sustainable livelihood have not taken into consideration.

'Skill development has significantly improved the access to financial services of the women and has a considerable positive impact on the socioeconomic conditions and the reduction of poverty of women who are skilled and their households. Skill development provides both sustainable livelihood and human capital training services to their members in addition to financial services.

Knowledge, skill and labour cumulatively will enable human beings to exploit livelihood opportunities among women. Among poor women like the landless agriculture labourers, skill and knowledge are rarely found and the labour fluctuates due to ill health, nutritional deficiency etc., the strength of human capital possessed by household would directly influence the outcome from other capital elements.

The service oriented vocational training through skill development identified exclusion of the poor women from financial capital as an important reason for their poverty and involved in providing low interest credit to encourage

entrepreneurship and development. It has to be recognized that the poor women has to be supported substantially through programmatic approaches and otherwise for capacity building before they can graduate to the effective use of such capital.

The service-oriented skill development trainings associated with microfinance institutions have the model enabling women them to provide credit and financial services at low cost seen from a broader perspective than mere low interest rate. It shall also have to work in tandem with entities that engage in various programmatic initiatives of Government, civil society, donors and development agencies that seek to reduce multiple deficits of the poor and the disadvantaged women groups.

Women empowerment via skill development often depends on social capital, or on the resources and opportunities created through the interactions among women. As women created majority of new social networks who are skilled and the role of social capital in this process is collaborative in exchange idea and performance within and outside their households.

The configuration of social capital in women empowerment via skill development can link through three attributes: network diversity, network size and relationship strength. These three attributes influenced the collaborative exchange process, or the actions taken by women cooperatives that are skilled/trained to utilize their social



capital and gain information and resources. This process, in turn influenced women performance socio-economically. In addition, gender affects the relationships between social capital, collaborative exchange and training performance.

### **Interlinking Skill Development with Socio-Economic Rights and Empowerment**

Skill development is a people's scheme and its organization is a significant step towards empowering women. Skill development gains importance from the human resource development point of view because self-help group approach is emerging as a new medium that effectively promoting well-being of the poor, especially poor and rural women.

Socio-economic and political dimension of development paradigm is inadequate without developing the human resource of a community it is possible through promoting well-being. Empirical evidence shows that process of empowerment is missed component through skill development if wellbeing indicators like health, education, housing, infrastructure and sustainable rural livelihood have not taken into consideration. Evidence shows that women occupy a lower status and are subjected to exploitation and discrimination. Even decade passed still majority of women lack assets that are needed for their freedom, empowerment and well-being. Empowerment as mentioned above can take place at different levels, in the empowerment process skill development play an effective role in women empowerment. The inception of group formation can be traced since 60s the process of group formation was based on the common/ vested interest/situation which is faced by social groups/ communities/ individuals drifted into a problem i.e. oppression/subjugation/exploitation based on various social/economical/political frameworks (Religion/Caste/Marriage/Gender).

Flow of funds generates through various income generation activities based on the nature, feature, aim and area of Skill development and vocational trainings and regular savings done by office bearers of the cooperative group. Social capital groups formed after skill development are neither charity group nor based on community based groups. They are formed by the women affected and they do not associate voluntarily. Though the work done/ activities carried out by these group members are unpaid but income generating and as per their roles, responsibilities each member perform their duty mutually.

The socio-economic empowerment of women is also reflected in the development programme of the country.

Skill development has the power to create a socio-economic revolution among women of our country. Skill development through vocational training have not only produced tangible assets and improved living conditions of the women but also helped in changing much of their social outlook and attitudes. In this paper skill development have served the cause of women empowerment, social solidarity and socio-economic betterment of the poor. In all stages of economic and social activities, involvement of women becomes essential after their skill enhancement.

Skill developments have encouraged women to take active part in the socioeconomic progress of our nation. The impact of participation on social front could be assessed mainly in improvement of level of equality of life, health, standard of living. Women once considered 'non-productive and non asset worthy' we now regarded as 'agent of change and economic development' by participating in these skill development programmes.

### **ANALYSIS & CONCLUSION**

As a result, over time there has been an increasing focus on developing gender sensitive and gender inclusive strategies and programs. The objective is effective development outcomes for the empowerment of the disadvantaged sections of the society; Skill development urge poor women to collective initiate self-help development which enhances individual and collective well-being and overall enhanced livelihood

After analyzing the above literature, it is evident that by participating in Skill development programmes, women members are able to secure and enhance all three kinds of Capitals namely human, financial because through bonding Solidarity arises among these women who are skilled and they will be able to bridging gaps through savings and credit. Skill development also facilitating women in forming links with external institutions like banks, other community and government institutions via which the women are forming faith based groups helping them developing closer relationship among themselves. The members of skilled women groups are collectively involved in community mobilization activities. Further these group members organize themselves into cooperatives or entrepreneur for saving thrift, getting loans, undertaking

income generating activities, obtaining economic and social rights.

## References

- GOI. (2009). *National Skill Development Policy Report*. New Delhi: Government of India.
- Planning Commission, G. O. (2008). *Enhancing Skills and Faster Generation of Employment*. New Delhi.

Singh, V. (2016). Empowerment and Promotion of well-being among Rural Women through Self Help Groups (SHGs) and Micro Credit. *RJHSS-Research J. Humanities and Social Sciences*, 7 (2), 127-35.

Singh, V. (2016). Promotion of Sustainable livelihood Through Skill Development Among Rural Youth – Role of Micro-Finance in Developmental Paradigm. *Journal of Rural and Industrial Development*, 4 (1), 23-33.

## NOTES :

- <sup>1</sup> <http://www.swaniti.com/wp-content/uploads/2015/11/Women-Livelihoods-and-Skill-Development-in-India.pdf> retrieved on 01/11/2017 at 16:00 hrs.
- <sup>2</sup> [http://www.ucl.ac.uk/opticon1826/archive/issue8/articles/Article\\_Laws\\_\\_Ilias\\_\\_Social\\_equality\\_\\_Publish\\_.pdf](http://www.ucl.ac.uk/opticon1826/archive/issue8/articles/Article_Laws__Ilias__Social_equality__Publish_.pdf) retrieved on 13/03/16 on 19:00 hrs.
- <sup>3</sup> Human development Approach (2005), UNDP, Oxford University Press, New York.
- <sup>4</sup> Yunus Muhammad, Weber Karl (2010), "Building Social Business, The New Kind of Capitalism that Serves Humanity's Most Pressing Needs, Public Affairs, United States.
- <sup>5</sup> <http://www.britannica.com/topic/human-capital> retrieved on 12/03/16 on 15:00 hrs.
- <sup>6</sup> <http://www.investopedia.com/ask/answers/031715/what-difference-between-financial-capital-and-economic-capital.asp> retrieved on 12/03/16 on 15:00 hrs.
- <sup>7</sup> <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALDEVELOPMENT/EXTTSOCIALCAPITAL/0,,contentMDK:20185164~menuPK:418217~pagePK:148956~piPK:216618~theSitePK:401015,00.html> retrieved on 12/03/16 on 15:00 hrs.
- <sup>8</sup> Pathak, N.K. 2003. Women's Empowerment through Judicial Process, in Ranjna Harish & Bharathi Harishankar (ed.). *Shakti: Multidisciplinary Perspective on Women's Empowerment in India*. New Delhi: Rawat Publications, pp 69.
- <sup>9</sup> <http://www.swaniti.com/wp-content/uploads/2015/11/Women-Livelihoods-and-Skill-Development-in-India.pdf> retrieved on 01/11/2017 at 16:00 hrs.

"Even in such technical lines as engineering, about 15% of one's financial success is due one's technical knowledge and about 85% is due to skill in human engineering, to personality and the ability to lead people."

– Dale Carnegie

# A Study on the Importance of Skill Development: Women Entrepreneurs in India as a Catalyst to Women Empowerment

RUPAM JYOTI DEKA

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*During recent time, there has been an inflow of large number of women undertaking entrepreneurship as the new career opportunity in developing countries like India. This has benefitted largely to the growth of various women-empowerment programs and policies by Government, NGOs and other Banking and Non-Banking Financial Institutions (NBFIs). These has led to growth of independence and empowerment of women overcoming various constraints and barriers. However, to have a deeper understanding of these obstacles would, there need to be in-depth understanding of the participation and of women and girls from both rural and urban areas. It is important to study the relationship between the barriers and requirement for empowering the women entrepreneurs in India. Ambitions, obstacles and opportunities need to be considered according to the different demographic profiles of the women entrepreneurs. For this, there is need for the development a detailed 'micro' level' explanation of the issue. Training and Skill Development approach is essential for providing aid to the women entrepreneurs in non-traditional, high skill, male dominated business enterprises and also to empower the women to overcome the barriers.*

## Introduction

On World Youth Skills Day, 15 July, at a side event held at the UN Headquarters in New York UN Women launched the 'Global Coalition of Young Women Entrepreneurs' to promote young women's innovation and entrepreneurship.

"Encouraging entrepreneurship is one of the most impactful steps we can take in addressing some of the disparities we see today," said UN Women Deputy Executive Director Lakshmi Puri, in her opening remarks. "Empowering young women to become not only wage-earners but also job-creators is imperative for achieving the 2030 Agenda and for eradicating poverty," she added. Skilling is a lifelong process. Hence, skill up gradation and reskilling are fundamental components of the skilling cycle. The Ministry also sees a close connection between skilling and entrepreneurship. We seek to create synergies between these two areas, so that our youth can aspire to being job seekers and job creators. Many women in India have attained prominent or leadership positions, rising to the highest echelons in every walk of life—for example as entrepreneurs, industrialists, civil servants, police officers, airline pilots, scientists, engineers. Yet women must overcome additional barriers to have equitable access to the labour market, to access control over economic resources and entrepreneurial opportunities. The Entrepreneurship Development Process for Women in India is increasingly being recognized as an important untapped source of economic growth since women entrepreneurs create new employment opportunities and avenues for women's economic independence.

## Objectives of the Study:

- To study the Government cooperation against the women entrepreneurs development program in India.

- To study the SWOT Analysis of Women Entrepreneurs in India to evaluate the factors responsible for encouraging women to become entrepreneurs.
- To identify the factors responsible for hindrance for women entrepreneurship.
- To make an evaluation of people's thought and opinion about women entrepreneurship in India.

**1. Review of Literature:** It is observed that women/girls aspirations may not necessarily align with the existing opportunities. This is mostly a function of lack of information, gender based perceptions and in some cases socio-cultural norms/barriers. Industries such as security services, real estate, retail and hospitality report a strong desire to have more women in their workforce. However, they also report that they find it difficult to find/recruit suitable candidates. These industries also report that their desire to increase the percentage of women in their workforce may not necessarily be a function of 'sustainability' or 'responsibility'. It is linked to the needs and requirements of their customers/clients. As a result, it can be assumed that there exist a number of employment opportunities that women and girls can access if they are provided with the right kind of information, exposure, training and support. (Program, 2015)

Women's empowerment and gender equality issues have been a part of international development discourse since the 1970s. Recently, the 2012 World Development Report highlighted the importance of women's empowerment and gender equality work as both ends in themselves as well as 'smart economics'—a key lever for development impact and poverty reduction. The concept of women's economic empowerment goes beyond 'women's development', welfare or upliftment, to represent a process of conscientization and organized struggle for social change and gender equality—on individuals, relationships and groups. The International Centre for Research on Women puts forward a concise definition for women's economic empowerment:

*"A woman is economically empowered when she has both the ability to succeed and advance economically and the power to make and act on economic decisions."* (Wu, 2013)

Globalization may also affect the mix of formal and informal employment in the developing world. As

globalization increases, multinational corporations that invest in developing countries provide more employment opportunities for women, exploiting their willingness to work for low wages and their lack of mobility. These companies, particularly in the textile and clothing industries, have increased women's employment possibilities, although the jobs are often characterized by long working hours, job insecurity, unhealthy working conditions and low pay. This has led to increased mobility of labour from rural to urban areas, especially among women in search of higher-paying opportunities. But young women unable to obtain these jobs often seek work in low-skilled, low-paying occupations, including domestic work. These women cannot compete equally with men in the private sector partly because of discrimination in the recruitment process and partly because they frequently have less education and fewer skills than young men. (Färnsveden & Månsson, 2012)

In many countries, there are more men than women acquiring technological knowledge and skills needed to apply new techniques and start innovative economic activities. Women face many barriers preventing them from taking full advantage of emerging economic opportunities, increasing productivity in their enterprises and accessing more productive and higher value added jobs and higher income generating employment opportunities. (International Labour Office\* Bureau for Gender Equality, 2010)

Although there is little reliable data on informal workers, women are believed to constitute most of the informal workforce in the developing world. This is partly because they are largely confined to the most flexible and lowest-paid industries due to their domestic responsibilities and gender inequalities in education and the formal labour market. The discrepancy between skills and the needs of the labour market is a major factor preventing young women and men from finding or maintaining stable employment. (Färnsveden & Månsson, 2012)

The discrepancy between skills and the needs of the labour market is a major factor preventing young women and men from finding or maintaining stable employment. Higher unemployment rates and increasing worldwide competition highlight the need to raise the education and skill level of the workforce. Poor education quality leads to a significant mismatch between labour market needs and the skills of graduates. (Sanghi, et al., 2015)

According to Census Report 2011, among 121 Crore persons in India, 48.5 percent are females with 949 female to 1000 males in rural against 929 in urban India. As per NSS-68th Round, 11.5 percent of total households in rural and 12.4 percent in urban were Female Headed Households as compared to 9.7 percent and 10.6 percent during 1993-94. The workforce participation rate is 25.51 percent as against 53.26 percent men. The contribution of women and their role in the family as well as in the economic development and social transformation are pivotal. Women constitute 90 per cent of total marginal workers of the country. Rural women who are engaged in agriculture form 78 per cent of all women in regular work.

### Status of Indian Women Entrepreneurs in Respect Sixth Economic Census (EC) 31st March, 2016

#### Women Entrepreneurs:

In India female headed households were 11.5 percent in rural areas whereas this was 12.4 percent in urban areas as per 68th round of NSS, 2011-12. Female literacy rate: 65.46 percent. Women entrepreneurs owned establishments: 8.05 million (13.76 percent). Average employment: 1.67 per establishment. Employment generated: 13.45 million persons (10.24 percent). Number of SHGs: 0.19 million. Establishments managed by women: 89 percent. As result women have started playing important roles in decision making at all levels. (Banerjee & Pandey, 2017)

Supporting women entrepreneurs to introduce new technologies in their enterprises enhances the potential to increase productivity, create employment, reduce poverty, and promote local development. Women go into business in a variety of forms, including self-employment, SMEs, social entrepreneurship, cooperatives and many more. For women to recognise their entrepreneurial potential, it is important to promote role models that coincide with their realities and aspirations. Women also need to overcome other barriers when deciding whether to start a business, such as limited access to credits or traditional patterns preventing women from taking part in income-generating activities or controlling financial resources. (International Labour Office\* Bureau for Gender Equality, 2010)

Women's entrepreneurship is an important untapped source of growth in India, creating new employment opportunities and avenues for women's

economic independence. With only about 13 percent of enterprises in the registered micro, small and medium enterprises sector being managed by women however, the paper finds that women's entrepreneurship development has received scant policy attention so far. Based on a small-scale survey of women entrepreneurs in different states of India, the paper finds that sociocultural factors are important barriers to women's entrepreneurial activities, while combining work and family life was a challenge for 65 percent of respondents. (Shah, Hina, May 2013)

According to a McKinsey Global Institute study, India could boost its GDP by \$2.9 trillion by 2025, if female workforce participation rate is improved by 10 percentage points. This would be equivalent to bringing 68 million more women into the non-farm labour force. According National Sample Survey Organization (NSSO), there are over 30 lakh unemployed women in India in 2012. As on December, 2013, a total of 1.65 crore women had registered on employment exchanges. However, only 58.8 thousand women had been placed through these exchanges in the same year.

#### Top 5 States with Women working populations

State	Female WPR
Mizoram	61.3%
Himachal Pradesh	59.4%
Meghalaya	58.9%
Arunachal Pradesh	56.1%
Telangana	52.1%

#### Bottom 5 States with Women working populations

State	Female WPR
Punjab	9.4%
Delhi	14%
Uttar Pradesh	14%
Jammu & Kashmir	16.4%
Haryana	16.5%

Source: Labour Bureau 2013-14

With a view to encourage women in setting up their own ventures, government implements a Scheme, namely, "Trade Related Entrepreneurship Assistance and Development (TREAD) during the 11th Plan. The scheme envisages economic empowerment of women through the development of their entrepreneurial skills in nonfarm activities. According to the Third All India Census of Small Scale Industries conducted in 2001-02 and subsequent estimates made, only 10.11 percent of the Micro and Small Enterprises in India are owned by women while 9.46 percent of the MSE enterprises are managed by women. Currently (2006-07) their estimated number is 12.99 lakh women managed enterprise and 12.15 lakh women managed enterprise. In order to encourage more and more women enterprises in the MSE sector, several schemes have been formulated by this Ministry and some more are in the process of being finalized, targeted only at the development of women enterprise.

### SKILLS REQUIRED FOR ENTREPRENEURSHIP

Improving participation of women in the workforce would require improvements in access and quality of education, skill development and employment opportunities available to women. The government of India is running several programs to enhance job opportunities in India- such as the Prime Minister's Employment Generation Program (PMEGP), National Livelihoods Mission, Deen Dayal Upadhyay Grameen Kaushalya Yojana (DDUGKY), Pradhan Mantri Kaushal Vikas Yojana (PMKVY) along with several entrepreneurship development programs. With a pressing need to harness the demographic dividend that India enjoys, special focus has been skill development initiatives. (National Policy for Skill Development and Entrepreneurship 2015, 2015)

Majority of the workforce in India is in the informal sector. Low income women workers in the informal sector, due to the irregular nature of work and little bargaining power, are amongst the most vulnerable groups in the Indian economy. The National Policy for Skill Development and Entrepreneurship, 2015 envisions skill development as a vehicle for women's empowerment. To impart skills to women, the government has taken steps like the Skill Development Initiative Schemes under Directorate General of Employment and Training developing over 10,000 training providers under which 12.6 lakh woman have availed benefits. There are 402 women ITIs and 1134 women wings in ITIs, which provide training to 1,41,907 women annually (Lok Sabha Starred Question 226). Furthermore, vocational

training schemes for women are being run by 10 Regional Vocational Training Institutes (RVITs). The government has proposed to open 8 more. Given below are some of the policy provisions for skill development with a special focus on women. (National Policy for Skill Development and Entrepreneurship 2015, 2015)

### ***Obstacles in the growth of Women Entrepreneurs in Developing Nations like India***

- ***Greater unemployment:*** As a result of gender norms that perceive men to be the more 'legitimate' job holders, especially when jobs are scarce, women are often the first to be fired in sectors affected by economic crises. Even when gender norms do not operate explicitly, women, who have typically entered labour markets after men, are more likely to be let go first during retrenchments, under the common policy of 'last hired, first fired'.
- ***Lower wages:*** Around the world, women earn less than men for similar work. In addition, men's greater power in the workplace puts women at a disadvantage in negotiating wages and hours.
- ***Falling demand for exports:*** Economic crises tend to significantly reduce demand for textile and agricultural exports. Women predominate in these industries and are therefore disproportionately affected by job losses.
- ***Lack of Higher Education:*** Girls and young women are especially affected by these realities. Girls are at high risk of dropping out in the transition from primary to secondary school because of both supply and demand factors. (Färnsveden & Månsson, 2012)
- ***Lack of Vocational Training:*** Young women also lack equitable access to public vocational training, apprenticeship programmes and other job-training programmes. These are crucial for developing skills useful in emerging markets and value-added activities. Efforts are needed to open up job-training opportunities in field beyond those considered 'suitable' for women, which are often lower paying than jobs considered suitable for men. Efforts are also needed to get women into job-training initiatives that will prepare them for the new jobs available in the global economy. (Färnsveden & Månsson, 2012)

- **Skill mismatch:** Skills mismatches occur when workers have either fewer or more skills than jobs require. The available evidence illustrates that when considered together, qualifications and skill gaps, as well as indicators of the underutilization of work skills, imply a collective waste of talent and resources with potentially significant economic and social implications. A better management of skills and human resources can lead to economic benefits, as well as benefits in workers' well-being. Some mismatch is inevitable, as the labour market involves complex decisions by employers and workers and depends on many external factors. (Davos-Klosters, 2014)
- **Imbalances in demand and supply:** Many trades have lost their relevance to present market demands of skills due to technological and industrial advancements.
- **Balance between family and career:** Women in India are very emotionally attached to their home and families. They are supposed to attend to all the domestic work, to look after the children and other family members. They are overburdened with family responsibilities like taking care of husband, children and in laws which takes away a lot of their time and energy. (Satpal, Rathee, & Rajain, 2014)
- **Socio-cultural barriers:** The traditions and customs prevailing in Indian societies sometimes stand as an obstacle before women which stop them from growing and prospering. Castes and religions dominate our society and hinder women entrepreneurs too. In rural areas, they face even greater social barriers. They are always seen with an eye of suspicion. (Satpal, Rathee, & Rajain, 2014)
- **Male dominated society:** Even though our constitution speaks of equality between genders, male superiority is still the order of the day. Women are not treated equal to men. Their entry into business requires the approval of the head of the family who is mostly a male member. Entrepreneurship has traditionally been seen as a male task. All these hamper the growth of women entrepreneurs. (Satpal, Rathee, & Rajain, 2014)
- **Dearth of financial assistance:** Women entrepreneurs suffer a lot in raising and meeting the financial needs of the business. Bankers, creditors and financial institutes do not come forward to provide financial assistance to women borrowers on the ground of their less credit worthiness. They also face financial problem due to blockage of funds in raw materials, inventory, work-in-progress, finished goods and non-receipt of payment from customers in time.
- **Lack of Technical knowhow:** Management has become a specialised job, which only efficient managers perform. Women entrepreneurs sometimes are not efficient in managerial functions like planning, organising, controlling, directing, motivating, recruiting, coordinating, and leading an enterprise. Therefore, less and limited managerial ability of women has become a problem for them to run the enterprise successfully.
- **Marketing Skills:** Since most women cannot run around for marketing, distribution and money collection, they have to depend on middle men for the above activities. Middle men tend to exploit them in the appearance of helping. They work in order to add their own profit margin which result in less sales and lesser profit for women entrepreneurs.
- **Entrepreneurial Skill:** Lack of entrepreneurial aptitude is a matter of concern for women entrepreneurs. They have limited entrepreneurial abilities. Even after attending various training programmes on entrepreneurship women entrepreneurs fail to overcome the risks and troubles that may come up in an organisational working.
- **Lack of Self-Confidence:** Women entrepreneurs because of their inherent nature, lack self-confidence which is essentially a motivating factor in running an enterprise successfully. They have to work hard to strike a balance between managing a family and managing an enterprise. Sometimes they have to sacrifice their entrepreneurial urge in order to strike a balance between the two which results in loss of a prospective entrepreneur.
- **Mobility Constraints:** Women mobility in India is highly limited and has become a problem due to traditional values and limited driving skills. Moving alone and asking for a room to stay out at night for business purposes is still looked upon with suspicious eyes. Sometimes, inexperienced women feel uncomfortable in dealing with men who show extra interest in them other than work related aspects. (Satpal, Rathee, & Rajain, 2014)

## AIDS PROVIDED FOR EMPOWERING WOMEN ENTREPRENEURS WITH SKILL DEVELOPMENT:

- **United Nations Girls' Education Initiative (UNGEI):**

The United Nations Girls' Education Initiative (UNGEI) was launched in 2000 by then-United Nations Secretary-General Kofi Annan. It originated in the widespread realization that millions of girls were still unable to fulfil their right to education, despite almost universal endorsement of this right through ratification of the Convention on the Rights of the Child. When UNGEI was launched, more than half of the children out of school were girls – and despite progress in many countries, that reality still holds true. In 2011, rather than providing an after-the-fact review, UNGEI contributed to the development of the GMR by commissioning a background paper that addresses skills development from a gender perspective. In 2011, rather than providing an after-the-fact review, UNGEI contributed to the development of the GMR by commissioning a background paper that addresses skills development from a gender perspective. (Färnsveden & Månsson, 2012)

- **United Nations Educational, Scientific and Cultural Organization:**

UNESCO's policy to promote the equal access of girls and women to technical and vocational education is based on the Organization's normative instruments: the Revised Recommendation concerning Technical and Vocational Education (TVE) (1974) and the Convention on Technical and Vocational Education (1989). As these instruments indicate, the continued persistence of inequality in this field calls for specific action in respect of girls and women taking into account their particular needs and the obstacles to be overcome. (Sanghi, et al., 2015)

- **Women's Entrepreneurship Development and Gender Equality Programme (WEDGE)**

ILO's Women's Entrepreneurship Development and Gender Equality Programme (WEDGE) has worked effectively across several regions for the last 8 years, with about 80,000 women entrepreneurs supported through various activities. It enhances economic opportunities for women entrepreneurs—including women living with HIV/AIDS or disabilities—through business knowledge and skills

training; promoting and facilitating access to micro-finance institutions and markets; strengthening women entrepreneurs' voice and representation; and increasing constituents' ability to remove barriers that may impede women's entrepreneurship development. (International Labour Office\* Bureau for Gender Equality, 2010)

## GOVERNMENT EFFORTS FOR WOMEN'S ENTREPRENEURSHIP DEVELOPMENT

Issues related to women's economic empowerment reflect wider concerns for poverty alleviation in the policy and plans of the Government of India. From the 1980s, women have begun to be acknowledged as not just a special segment of the population but core human resources in India, which need targeted programmes. A progressive increase in the plan outlays over the last six decades of planned development has occurred, to meet the needs of women and children by adapting National Policy for Empowerment of Women (2001). The outlay of Rs. 4 crores† (40 million) in the First Plan (1951-56) has increased to Rs. 7,810.42 crores in the Ninth Five-Year Plan, and Rs. 13,780 crores in the Tenth Five-Year Plan. There has been a shift in the government efforts for †† 1 crore = 10 million (one hundred lakhs) 11 women development from a "welfare"-oriented approach in the First Five-Year Plan to one of "development" and "empowerment" of women in the consecutive Five-Year Plans (Statistics on Women in India 2010, National Institute of Public Cooperation and Child Development, New Delhi (India)). (Shah, Hina, May 2013)

Government of India has responded to the growing challenges of the unorganized sector, and trying to give concrete shape to the policy structure on SD through three apex bodies, viz (i) PM's National Council on Skill Development, (ii) National Skill Development Coordination Board, and (iii) National Skill Development Corporation. Several policy options are in place to prepare a 500 million skilled labour force by 2022 with a focus on the unorganized sector to meet domestic and global skill requirements.

A Modular Employable Skills (MES) programme has started to impart short-term Market-oriented skills through a Skill Development Initiative (SDI). Capacity building of 6,600 clusters (micro-enterprises and artisan clusters) through skill enhancement efforts by government and enterprises is planned. (Prasad, Sharma, Agrawal, Joshi, Saha, & Gandhi, 2010)



## **National Policy on Skill Development and Entrepreneurship, 2015**

The National Policy on Skill Development highlights that in order to improve the productivity of the economy, participation of women in the labour force needs to be improved. Below are the major takeaways from the policy.

- Improving access to skill development by creating more seats for women
- Gender mainstreaming of content and delivery of training

### **Support to Training and Employment Programme for Women (STEP)**

The STEP program is a Central Sector Scheme of Ministry of Women and Child Development under which training is provided to poor and marginalized women in traditional trades to improve employability. The scheme is intended to benefit women who are in the age group 16 and above. Training courses under STEP would primarily be of 3 months or 6 months duration, with total assistance per beneficiary at Rs 18000 and Rs 28000 respectively. The maximum number of beneficiaries per project will not exceed 200. With limited participation in the workforce, the potential of women remains untapped. Effective implementation of the envisioned skill development interventions is needed to make them key stakeholders in development. With limited participation in the workforce, the potential of women remains untapped. Effective implementation of the envisioned skill development interventions is needed to make them key stakeholders in development. (Skill Development, Women Livelihoods)

### **Trade Related Entrepreneurship Assistance and Development (TREAD) Scheme for Women for 12th Plan**

#### **Government of India Ministry of Micro, Small, & Medium Enterprises**

Women have been among the most disadvantaged and oppressed sections of our country with regard to access to and control over resources. Problems faced by them and particularly for those who are illiterate and semi-illiterate both in rural and urban areas continue to be grave. In order to alleviate their problems, Govt. of India had launched a scheme titled "Trade Related Entrepreneurship Assistance and Development (TREAD)" during the 9th plan period. The scheme envisaged economic empowerment exclusively of women through trade related training,

information and counseling extension activities related to trades, products, services etc. This Assistance was to be provided for self-employment ventures by women for pursuing any kind of non-farm activity. (Trade Related Entrepreneurship Assistance and Development (TREAD) Scheme for Women for 12th Plan, 2014)

Experience has revealed that apart from counselling and training, delivery of credit poses the most serious problem for the poor women. Therefore, it was considered necessary that if poor women are to be economically empowered, appropriate programmes and schemes are to be designed so as to assist them in all respects. Since such women will not be able to have an easy access to credit, it has also been envisaged that the credit will be made available to applicant woman through NGOs who would be capable of handling funds in an appropriate manner. There is a provision for Government of India Grant up to 30 percent of the loan/ credit maximum up to Rs. 30.00 lakh as appraised by lending institution/ banks. The lending institutions/ banks would finance loan assistance for women through NGO for undertaking non-farm activities, who usually have no easy access to credit from banks due to cumbersome procedures and because of their inability to provide adequate security demanded by banks in the form of collaterals. (Trade Related Entrepreneurship Assistance and Development (TREAD) Scheme for Women for 12th Plan, 2014)

Women constitute almost half of the demographic dividend. The key challenge here is to increase their participation in the country's labour force, which is directly linked to economic growth of the country. Census data has revealed that there has been a continuing fall in labour force participation rate of women from 33.3 percent to 26.5 percent in rural areas, and from 17.8 percent to 15.5 percent in 6 urban areas between 2004 and 2011. Mainstreaming gender roles by skilling women in non-traditional roles and increasing gender sensitivity in the workplace will have a catalytic effect on productivity and be a smart economic decision. (National Policy for Skill Development and Entrepreneurship 2015, 2015).

#### **● MICRO & SMALL ENTERPRISES CLUSTER DEVELOPMENT PROGRAMME (MSE-CDP)**

A cluster is defined as a group of enterprises, ideally having 100 members, producing same/similar products/services. While 100 members could be the minimum per cluster, depending on the density of population and other factors, even 200-300 could be a good target group for undertaking

Diagnostic Study and the subsequent Soft Interventions in a cluster. However, in difficult and backward regions the target numbers could come down to 50 or less but it should not be too small as a lot of Government expenditure is made per cluster. The Cluster Development Programme (CDP) being implemented envisages diagnostic study of identified clusters of traditional skill-based MSEs to identify appropriate technologies and their providers and to facilitate adoption of available technology meeting the specific needs of the end users.

### ● CREDIT GUARANTEE FUND SCHEME FOR MICRO AND SMALL ENTERPRISES

The Scheme was launched in August 2000 to ensure better flow of credit to micro and small enterprises by minimizing the risk perception of financial institutions and banks in lending without collateral security. Under the scheme, guarantee cover is provided to collateral free credit facility extended by member lending institutions (MLIs) to the new as well as existing micro and small enterprises on loans up to Rs.50 lakh. The guarantee cover available is up to 75 percent of the loans extended. The extent of guarantee cover is 80 percent for (i) micro enterprises for loans up to Rs.5 lakh; (ii) MSEs operated and/or owned by women; and (iii) all loans in the North-East Region. The lending institutions availing guarantee from the Trust have to pay one time guarantee fee of 1.5 percent and service charges of 0.75 percent per annum of the credit facility sanctioned. For loans up to Rs.5 lakh, the onetime guarantee fee is 1 percent and service charges are 0.5 percent per annum of the credit facility sanctioned.

### ● SUPPORT FOR ENTREPRENEURIAL AND MANAGERIAL DEVELOPMENT MSME-DIs

SUPPORT FOR ENTREPRENEURIAL AND MANAGERIAL DEVELOPMENT MSME-DIs regularly organize a number of Entrepreneurship Skill Development Programme (ESDPs)/ Entrepreneurship Development Programme (EDPs)/ Management Development Programmes (MDPs) to train the potential entrepreneurs in improving their techno/managerial knowledge and skill with a view to facilitating them to start MSEs in various fields. Many of the programmes are tailor made for the target group for SC,ST, OBC,Women, Minorities and other weaker sections and exclusively for women also. These programmes are also called "Out-reach Programmes" as they are conducted in rural / less developed areas. 22.5 percent

of total target of ESDPs/EDPs are conducted exclusively for SC,ST, Women and Physically Challenged persons with a stipend of Rs. 500/- per month per candidate under the Promotional Packages for MSEs. No fees is charged from SC / ST, women and Physically Handicapped. No fee is charged from SC and ST and 50 percent fee from Women and PH candidates who attend the ESDP /EDP /MDP courses conducted for general candidates.

### ENTERPRISES APPROVED BY CCEA UNDER MARKETING SUPPORT DC (MSME) :

MSME has formulated a scheme for women entrepreneurs to encourage Small & Micro manufacturing units owned by women and register in DI/DIC in their efforts at tapping and developing overseas markets, to increase participation of representatives of small/micro manufacturing enterprises under MSME stall at International Trade Fairs/Exhibitions, to enhance export from such units. Under this scheme, participation of women entrepreneurs in 25 international exhibitions is envisaged during the 11th Plan (2007-2012).

### ● Micro Finance

The micro finance is agenda for empowering poor women. Micro enterprises are an integral part of planned strategy for securing balanced development of the economy of the poor women. Rural women's participation in agro-based activities is much more than what statistics reveal. This is mainly due to the fact that most of the work done by the women at farm and home is disguised as daily chores. Mechanization and easy availability of labour provide more time to energetic women to engage themselves in self-employment or entrepreneur ventures. This is more beneficial for women in rural areas as it enables them to add to the family income while taking care of their own home and livestock centered task. Rural women possess abundant resources to take up enterprises. She has the benefit of easy availability of arm and livestock based raw materials and other resources.

### *There have been a number of recent initiatives for strengthening the training system:*

- Upgradation and converting of ITIs into Centres of Excellence (COE) with a greater role for industry and academia to manage these centres
- Short-term training through Modular Employable Skills (MES)

- To start skill development centres in the regions/ locations considering the skewed distribution of existing ITIs & ITCs
- To cover at least 30 percent of the women in the ambit of training and to remove gender imbalance.

### ***There are a number of new initiatives of the Government of India in financing of training***

- Upgrading and funding of 500 ITIs into Centres of Excellence (COE) with domestic as well as World Bank funding to the tune of Rs. 20 billion with cost sharing between Central and State governments at 75:25
- Upgrading 1,396 Government ITIs through PPP mode with Rs. 35.5 billion
- Establishment of Skill Development Centres (SDC) in PPP mode at a cost of Rs. 1,115 Billion. (Prasad, Sharma, Agrawal, Joshi, Saha, & Gandhi, 2010)

### **Conclusion**

Women account for about half of a Country's eligible workforce and their lack of participation in the economy is lowering economic growth. It is noticed that a large and diverse set of barriers impede women from accessing relevant skills development trainings and employment opportunities. Further, even where women have access to trainings or employment opportunities, they are unable to capitalize on the same due to a number of socio-cultural, familial, economic barriers. The running programmes implemented by Government may be restructured by observing the finding of the different authentic survey data, reports, etc. Dedicated department or institute for Women Entrepreneurship at block, district, state, and national level must be open to extend real time support to the women entrepreneur.

*"An enlightened woman is a source of infinite energy"*

— Swami Vivekananda

### **References**

Banerjee, D., & Pandey, M. (2017, July 14-15). Entrepreneurial Passion in Rural Women: A Literature-Base Study of India. *Proceedings of International Conference on Strategies in Volatile and Uncertain Environment for Emerging Markets*, pp.791-799.

Davos-Klosters. (2014). *Labour Market Needs: Building Social Partnerships for Better Skills and Better Jobs*. WORLD

ECONOMIC FORUM, Global Agenda Council on Employment. Switzerland : WORLD ECONOMIC FORUM.

Dwivedi, N. T., & Mishra, T. (2013, September). Women-Empowerment through Women Entrepreneurship (A Study of Faizabad Zone of Uttar-Pradesh). *Voice of Research, Vol. 2*(Issue 2), 50-55.

Färnsveden, U., & Månsson, A. B. (2012). *Gender and Skills Development: A Review, Background paper for the EFA Global Monitoring Report 2012*. United Nations Girls' Education Initiative (UNGEI), New York. Sweden: Hifab International.

International Labour Office\* Bureau for Gender Equality. (2010). Observer paper, United Nations Division for the Advancement of Women (DAW, part of UN Women) & United Nations Educational, Scientific and Cultural Organization (UNESCO), Paris, France.

Ministry of Skill Development & Entrepreneurship. (2015). *National Policy for Skill Development and Entrepreneurship 2015*. Policy Framework for Skill Development.

Ministry of Micro, Medium & Medium Enterprises. (2014). *Trade Related Entrepreneurship Assistance and Development (TREAD) Scheme for Women for 12th Plan*.

Padmashree (June 2010). *Impact of Women Entrepreneurship Development on Families: A Study of Women run micro-enterprises in Selected districts of Maharashtra*. PhD Thesis, Dr. D. Y. Patil University, Department of Business Management.

Prasad, D. M., Sharma, D. M., Agrawal, D. R., Joshi, D. S., Saha, S., & Gandhi, A. (2010). *The Challenges Facing Skill Development in India: An Issues Paper*. International Workshop "Skill Development: Policy Learning and Exchange", India Habitat Centre, New Delhi, Institute of Applied Manpower Research and Network for Policy Research, Review and Advice on Education and Training (NORRAG), Geneva, Planning Commission, Government of India, New Delhi.

Program, U. (2015). *Women Voices : Employment and Enterpreneurship in India*. United Nation Development Program. New Delhi: IKEA FOUNDATION.

Sanghi, S., Pathak, B., Srivastava, R., Agarwal, K., Kalra, J., Katarya, G., ... Sharma, A. (2015). *Women, Education, Skills and Work*. United Nations Educational, Scientific and Cultural Organization, AIWEFA & UNESCO. NEW DELHI: Meher Chand, New Delhi.

Satpal, Rathee, R., & Rajain, P. (2014, June). Women Entrepreneurship: Challenges in the Present Technological Era. *International Journal of Advance Industrial Engineering, Vol.2, No.2*.

Shah, Hina. (2013, May). *Creating an Enabling Enviornment for Women's Enterpreneurship in India*. United Nations, South and South-West Asia Office. Delhi: Economic and Social Commission for Asia and the Pacific (ESCAP).

Singh, A. (2014). Role of Women Entrepreneurs in India: A SWOT Analysis. *International Journal of Management and*

Wu, D. (2013). *Measuring Change in Women Entrepreneur's  
Economic Empowerment: A Literature Review*. Donor

*"Asking the right questions takes as much skill as giving the right  
answers."*

*– Robert Half*

# Skill Development and Emerging Issues in Vocational Education and Training

NARESH KUMAR AND TABASSUM JAMAL

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*Skill development always has been an issue of great importance for policymakers and stock of skill manpower is an important indicator of technological competence. India has a vast base of technical manpower but there is a debate on lack of skill development; hence, India is facing a big challenge in the area of skill development system. Despite substantial infrastructure for skill development, a majority of potential students have inadequate access to education and vocational training, resulting in low educational attainment. This article reviews status of skill and vocational development and policy efforts taken by the government at various stages. It also provides a brief sketch of demand and supply of skilled workforce.*

## 1. Introduction

India has a long history of evolution of vocational and technical education that can be traced back to pre-Vedic period when people were well-versed in technical skills like carpentry, smithy, foundry, and weaving (Ahmed and Satija, 2005). During this period, technical skill was an integral part of people's day-to-day activities and evidences were found from many sites of Indus Valley Civilization. Archaeological remains show that people had good vocational skill as remains of jewellery, stone artefacts, and valued art were found from Indus Valley Civilization, indicating they also had trade with other cultures (Inflibnet, 2016). Later on during the medieval period, people had good knowledge of vocation education; this was reflected from the artefacts such as embroidery painted on gold and silver jewellery, gold coins and swords, etc. The available literature indicates that teaching of technical skills and science was imparted in ashrams in the early days. The system of education during the early period was through informal institutions like *gurukulas*. Temple, schools and village institutions evolved and institutions like Taxila and Nalanda of the ancient times developed over the period of time and took the shape of modern educational institutions in India. The concept of modern technical education grew gradually, and schools were set up for imparting basic skills of science and use of scientific instruments. For example, during the British period, land surveying was given priority to train surveyors for government works and technical manpower for improving canal system in India. Since then, technical and engineering education has developed significantly, with the largest technical education infrastructure in India.

*Naresh Kumar, CSIR-National Institute of Science, Technology and Development Studies, K. S. Krishnan Marg, Pusa, New Delhi-110012, India*

*Tabassum Jamal, CSIR-National Institute of Science, Technology and Development Studies, K. S. Krishnan Marg, Pusa, New Delhi-110012, India*

At the time of Independence, there were only 52 diploma-level and 38 degree-level engineering/technical institutions, with a total intake of 3,670 and 2,500 students, respectively. Over a period of time, the demand for technical professionals increased; therefore, to meet the demand for technical manpower for industrial and technical services, the country required expansion of technical education system. The central and state governments provided funds to increase the technical education facilities during the fifties and early sixties, 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 students towards engineering and technical education. Consequently, Indian engineering and technical education has developed into a large system to produce plenty of technical manpower in India.

## 2. Evolution of Modern Technical Education

The modern vocational education system is based on the British model, which was an outcome of practical skills taught in special schools in India by the British to meet the demands of new technical development at the time, for example, use of mathematical concepts, science, and scientific instruments for land surveying to train surveyors for civil works. The first school was opened in May 1794 in Madras (now Chennai) in India. Subsequently, some schools were opened to impart technical education in other

parts of the country. The British formed the General Committee of Public Instruction in 1823 to advise the government on educational matters. During this time, major emphasis was on developing the concept of drawing and surveying techniques for civil purpose; however, engineering education was not properly classified. A big step was taken in the field of vocation education after the Wood's Despatch Act in 1854. The Wood's Despatch Act emphasized to develop practical and vocational skills of the Indian people so that more and more articles could be produced and also to create a good market for consumption of those goods.

The Hunter Commission (1882) recognized the importance of technical education in India and since then, various commissions and committees have been appointed by the government to review and improve technical education in the country. The Indian vocational and technical education has passed through various reforms to the present education system and has expanded manifolds. The growth of technical institutions during the British period is given in Table 1.

India has a three-tier system of technical and vocational education: (Figure 1) graduate and postgraduate level, imparted through technical institutions like IITs, NITs, engineering colleges, etc., trained as engineers and technologists; diploma-level graduates: through polytechnics as technicians and supervisors; and

**Table 1: Growth of Technical Education in the British Period**

Year	College Name	Branch	New Name
1847	Thompson's Engg. College, Roorkee	Civil	Roorkee University IIT, Roorkee
1856	Calcutta College of Civil Engg., Writers Building	Civil Mechanical (1931), Electrical(1939)	Bengal Engg. College
1858	Poona College of Engg.	Civil	
1858	Industrial School, Gun Carriage Factory	Civil	Guindy College of Engg.
1887	Victoria Jubilee Technical Institute, Bombay	Electrical Mechanical, Textile	
1908	College of Engg. And Technology, Jadavpur	Mechanical(1908) Chemical (1921)	
1915	Indian Institute of Science, Bangalore	Electrical	
1917	Banaras University	Mechanical, Electrical, Metallurgy	

Source: Inflibnet (2016).

certificate-level craft people through formal apprenticeships as semi-skilled and skilled workers. Vocational and skill development comes under the certificate level and the

government is putting a lot of effort in streamlining vocational education to meet the emerging demand of the market by focusing on employability skills.

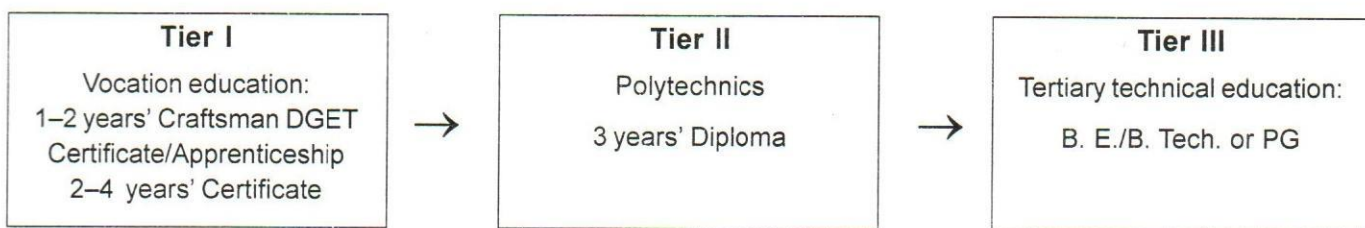


Figure 1: Structure of Vocational and Technical Education in India

Vocational education comes under Tier I, which is essential for enhancing the base of technical education and plays a vital role in the process of economic development by expanding the base of required skill for small business, that is, Small and Medium Entrepreneurs (SMEs).

To cater the needs of vocational education, Industrial Training Institutes (ITIs) and Industrial Training Centers (ITCs) were set up to impart training in technical field. The ITIs constituted under Directorate General of Employment & Training (DGET), Ministry of Labour & Employment, and Union Government of India. At the time of Independence, India faced different kinds of problems; poor economy was a major one amongst them. To raise the country's economy, there was a great need for industry development. To fulfil the target of development in industry, the government started ITIs in the country. After the completion of an ITI course, the candidate has to undergo practical training in his/her trade in an industry for a year or two, which is mandatory to appear for National Council of Vocational Training (NCVT) Certificate. This certificate is compulsory for applying jobs in relevant categories.

### 3. Growth of ITIs and Intake Capacity

India is a large economy and in the age of globalization, it requires to develop skilled personnel in appropriate numbers with adequate skills for different sectors of the economy. This can be achieved by means of sound infrastructure of institutions like ITIs. The objective of ITIs when they were established was to promote industrialization in the country. Small enterprises have been the forerunners in generating employment. In the beginning, there were only a few traditional industrial trades like fitter, machinist, welder, etc., in which training was provided. But with the rise of the service sector, trades like hospital

management, retail management, etc., have been added for training. The vocational training system of India offers training through ITIs and Industrial Training Centres (ITCs) (Kashyap, 2016). Over the period, ITIs have registered significant growth in terms of number of institutions and seating capacity. By 2011, there were about 12,000 such institutes in the country. The growth of ITIs and seating capacity is given in Figures 2 and 3.

Total number of seats in the ITIs were about 17 lakh in 2014, although India has a shortage of experienced and qualified workforce as projected in earlier studies. According to an estimate, India is home to the largest young population, with 54 per cent population under the age of 25 years and a total workforce of 459 million. It was further argued that there will be a global skilled manpower shortage of 56.5 million by 2020 while India to have a surplus of 47 million.

There is only 2 per cent skilled workforce out of 97 per cent workforce employed in unorganized sector. Also, it was projected that about 50–70 million jobs will be created in India over the next five years and about 75–90 per cent additional employment avenues will require some vocational training (Poonia, 2014). So, it requires huge infrastructure to cope with emerging challenges to meet the future demand of skilled workforce. It could be possible if India has a long-term and integrated policy on skill development; this has already been initiated by the Government of India.

### 4. Issues of Coordination to Expand Skill-base

A number of different government bodies at the centre and state level are running skill development programmes without synergies, which may lead to substantial duplication of work. For example, the Ministry of Labour

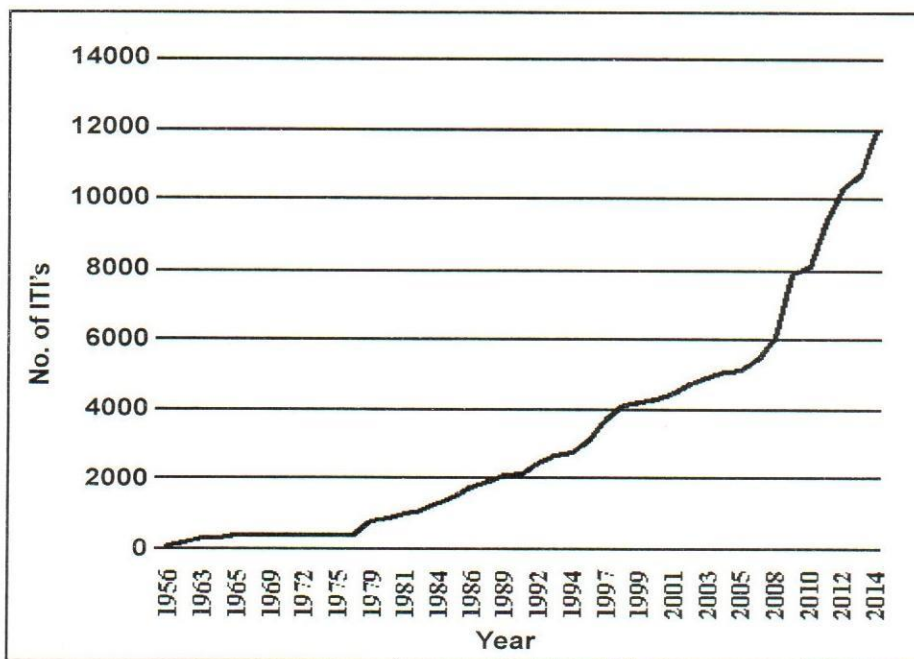


Figure 2: Growth of ITIs from 1956 to 2014

Source: [www.dget.nic.in/content/institute/key-statistics.php](http://www.dget.nic.in/content/institute/key-statistics.php) (retrieved on 10 May 2016).

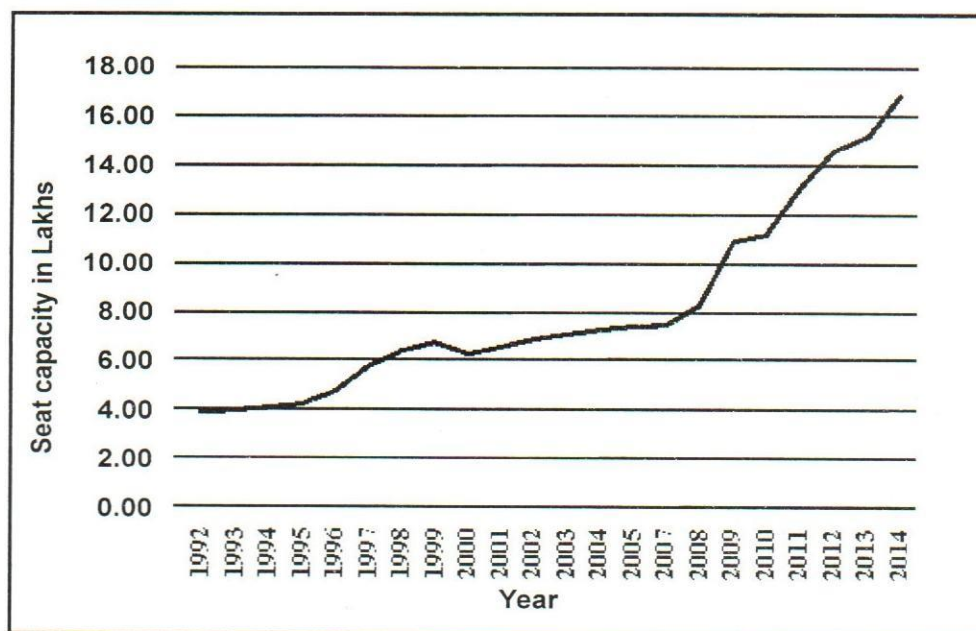


Figure 3: Increase in Seating Capacity (1992–2014)

Source: [www.dget.nic.in/content/institute/key-statistics.php](http://www.dget.nic.in/content/institute/key-statistics.php) (retrieved on 10 May 2016).

and Employment (MoLE) and the Ministry of Human Resource Development (MHRD) formed sector skill councils to identify skill development needs of the country. Similarly, the National Skill Development Corporation (NSDC) also set up Sector Skill Councils in the past. The

existence of multiple stakeholders with a lack of integrated coordinated policies resulted in substandard of procedures or outcomes workforce. The government has targeted training of 500 million people by 2022. Similarly, the Institute of Applied Manpower Research (IAMR) has estimated that



about 290 million people need to be trained, including 100 million who must acquire at least 10 years of schooling, new labour force entrants who need vocational training and those already in the workforce that need more formal training. It was argued that approximately 45 percent of India's non-agricultural workforce has 10 years of schooling (Pralhad, 2013). Therefore, to have better mechanism and coordination, the Ministry of Skill Development and Entrepreneurship (MSDE) was set up to coordinate all skill development efforts across the country, removal of disconnect between demand and supply of skilled manpower, building the vocational and technical training framework, skill upgradation, building of new skills, and innovative thinking not only for existing jobs but also for jobs that are to be created. The main objective for setting up of the MSDE was to enhance the base of skill manpower with high standards in order to achieve the vision of 'Skilled India'. It initiated to integrate and coordinate the efforts of (i) National Skill Development Agency (NSDA) (ii) National Skill Development Corporation (NSDC) (iii) National Skill Development Fund (NSDF) and 33 Sector Skill Councils (SSCs) as well as 187 training partners registered with NSDC. The ministry also intends to work with the existing network of skill development centres, universities, and other alliances in the field. The ministry also collaborates with relevant central ministries, state governments, international organizations, industry, and NGOs. The efforts have been initiated for multi-level engagement and more impactful implementation of skill development programmes (MSDE, 2016).

The NDA government had also initiated to expand the base in the field of vocational and skill development in the Union Budget 2015, by the National Skill Development Mission (NSDM) to support 'Skill India' and 'Make in India', which are the ambitious and flagship programmes. The objective of the programme is to add 12 million people to its workforce every year, less than 4 per cent have ever received any formal training (Kumar and Kapoor, 2015). Empirical data shows that India's readiness to the workforce is one of the lowest in the world and a large chunk of existing training infrastructure is irrelevant to industry needs, as argued by Kuma and Kapoor (2015). There are many agencies and ministries at the centre- and state-government level, with several schemes to improve and expand skill base to meet the industry demand but they are scattered. The NSDM aims to integrate and improve resource utilization and find

solutions that can address the systemic and institutional bottlenecks constraining the skill development sector. The broad objectives of the NSDM are as follows (Gol):

- (i) Institutional Training
- (ii) Infrastructure
- (iii) Convergence
- (iv) Trainers
- (v) Overseas Employment
- (vi) Sustainable Livelihoods
- (vii) Leveraging Public Infrastructure

The new mechanism will be helpful to integrate the different agencies involved in skill development to meet the need of emerging demand in the market.

## **5. Skill Development and Employment in Vocational Education**

India has a large base of technical and vocational education; however, formal training capacity of the country is only around 2.3 million students. It was estimated that only 2 per cent of India's youth and only about 7 per cent of the whole working-age population have received vocational training as per National Sample Survey Organisation (NSSO) and the proportion was only 1 per cent in the rural areas and 5 per cent in the urban. The weak point of Indian vocational education reflects asymmetry between available manpower and demand in job market. The emerging demand of jobs are more customized and specialized resulting in large number of educated people remaining unemployed. It was found that unemployment was quite high for the vocational education and training (VET) trained manpower and constantly growing due to addition of VET trained students every year (Ahmed, 2016). This has attracted the attention of the planners and hence there is a greater thrust on vocationalization of education to meet the emerging requirements of job markets. So, to expand the domain of employment for skilling youths policy for skill development has been modified for better standards of skills for adjusting effectively to the challenges and opportunities in domestic and international job markets.

The National Skill Development Corporation (NSDC) identified across 24 high-priority sectors between 2013–17 and 2017–22 to understand the sectoral and geographical spread of incremental skill requirements (MSD&E, 2016–2017).

**Table 2: Break-up of Incremental Human Resource Requirement across 24 Sectors**

*(Estimates in millions)*

S. No.	Sector	Projected Employment		Incremental Human Resource Requirement
		2017	2022	2017–2022
1.	Agriculture	229.0	215.5	-13.5
2.	Building Construction & Real Estate	60.4	91.0	30.6
3.	Retail	45.3	56.0	10.7
4.	Logistics, Transportation, and Warehousing	2.3	31.2	8.2
5.	Textile and Clothing	18.3	25.0	6.7
6.	Education and Skill Development	14.8	18.1	3.3
7.	Handloom and Handicraft	14.1	18.8	4.7
8.	Auto and Auto Components	12.8	15.0	2.2
9.	Construction Material and Building Hardware	9.7	12.4	2.7
10.	Private Security Services	8.9	12.0	3.1
11.	Food Processing	8.8	11.6	2.8
12.	Tourism, Hospitality, and Travel	9.7	14.6	4.9
13.	Domestic Help	7.8	11.1	3.3
14.	Gems and Jewellery	6.1	9.4	3.3
15.	Electronics and IT Hardware	6.2	9.6	3.4
16.	Beauty and Wellness	7.4	15.6	8.2
17.	Furniture and Furnishing	6.5	12.2	5.7
18.	Healthcare	4.6	7.4	2.8
19.	Leather and Leather Goods	4.4	7.1	2.7
20.	IT and ITeS	3.8	5.3	1.5
21.	Banking, Financial Services, and Insurance	3.2	4.4	1.2
22.	Telecommunication	2.9	5.7	2.8
23.	Pharmaceuticals	2.6	4.0	1.4
24.	Media and Entertainment	0.7	1.3	0.6
	<b>Total</b>	<b>510.8</b>	<b>614.2</b>	<b>103.4</b>

Source: MSD&E(2016–2017).

The report provides a detailed overview of the sector from a skills perspective, assesses the demand for skills, highlights key job roles, maps the available supply side infrastructure, and suggests actionable recommendations for the stakeholders in the system. The studies were conducted through extensive primary interaction with key stakeholders including industry, training providers, trainees, sector skill councils, and government. It was also estimated incremental human resource requirement of 103.4 million during 2017–2022 across these 24 sectors (Table 2).

## 6. Gaps in Supply and Demand of Skilled Workforce

India has the largest share of working population and about 94 percent of India's working population is employed in the unorganized sector (Planning Commission, 2007). This implies that the Indian unorganized sector is the largest employer but in this sector, generally untrained or unskilled workforce is engaged; this has led to low productivity in manufacturing. According to a study (Kulshreshtha, 2011), India's unorganized sector created 57 percent of India's national domestic product in 2006, or about 9-fold less per worker than the organized sector. Though the organized sector has comparatively low employability, the span of this sector is also very wide and requires a big skilled workforce. It was estimated that organized public and private sector employed 5.5 million women and 22 million men. Study shows that India adds about 13 million new workers every year to its labour pool and India's economy has been adding about 8 million new jobs every year in low-paying, unorganized sector (Lahiri, 2011). Despite this, it was estimated by the Labour Bureau Report 2014 that the present skilled workforce in India is only 2 per cent, which is much lower as compared to other developing nations and that the number of persons aged 15 years who have received or will be receiving skills is merely 6.8 percent (Borpuhari, 2015). Hence, to cope with the emerging demand of skilled workforce, the government has set a target of imparting skill training to 400 million by 2022 through an institutional framework. To achieve this target, the training will be provided by over 12,000 industrial training institutes, 3,200 polytechnics, and various schools and colleges promoted by PSUs and the private sector across the country (Grover, 2015). India has about 4.69 per cent of formal trained workforce, which is low as compared to the USA (52 per cent), the UK (68 per cent), Germany (75 per cent), Japan (80 per cent), and South Korea (96 per cent). The lack of skill training has led to the produce

of unskilled workforce in India resulting in an obstacle in economic growth of Indian companies.

Small size of India's skilled workforce is a matter of concern and as per the survey by the Labour Bureau for 2013–14, only 6.8 percent of persons aged 15 years and above received or were receiving vocational training, of which only 2.8 percent was through formal channels while 4 percent was through the informal system. Share of population (15 years and above) receiving vocational training in different segments of population is given in Figure 4.

## 7. Challenge of Utilization of Skilled Resources

Despite resource paucity, India has a vast infrastructure of vocation education comprising ITIs, ITCs, etc. In addition, under the Apprenticeship Act 1961, there is a provision of apprentice training in both public and private sectors to ensure training to real work environment and on-the-job training. The objectives of this Act were to ensure that employers get skilled workforce and have adequate exposure to real work environment. Under this Act, about 254 groups of industries are covered and about 27,000 establishments engage apprentices. Though the Act was set more than five decades ago but it fulfils its objectives even today. The allocation and utilization of seats have not improved and a number of seats are left vacant. Underutilization of seats is ascribed to low participation of workers and employers, low rates of stipend, strict regulatory requirements for employers including penalties for non-compliance, less coverage of trades in services sector, and lack of progression into higher qualifications (FICCI, 2015). Thus, better and effective utilization of the skill development requires initiative for on-the-job training and apprenticeships and the prevalent employment exchanges would be transformed into career guidance centres to channelize applicants to jobs, apprenticeships, and training (Chenoy, 2012). This may be more challenging as new initiatives are being taken by the government of India to enhance skill base, which in turn may be critical to provide employment to the potentially skilled workforce.

The key challenge for government is to bring rural workforce into mainstream because there is a vast difference between rural and urban India in terms of socioeconomic and infrastructural front. Studies show that over the years, the gaps are widening instead of bringing the two on same level (Das and Pathak, 2012). Recent initiatives like Skill India and Make in India initiated to bring pace in the country's development and are rather ambitious, but they will need to be at par with unique

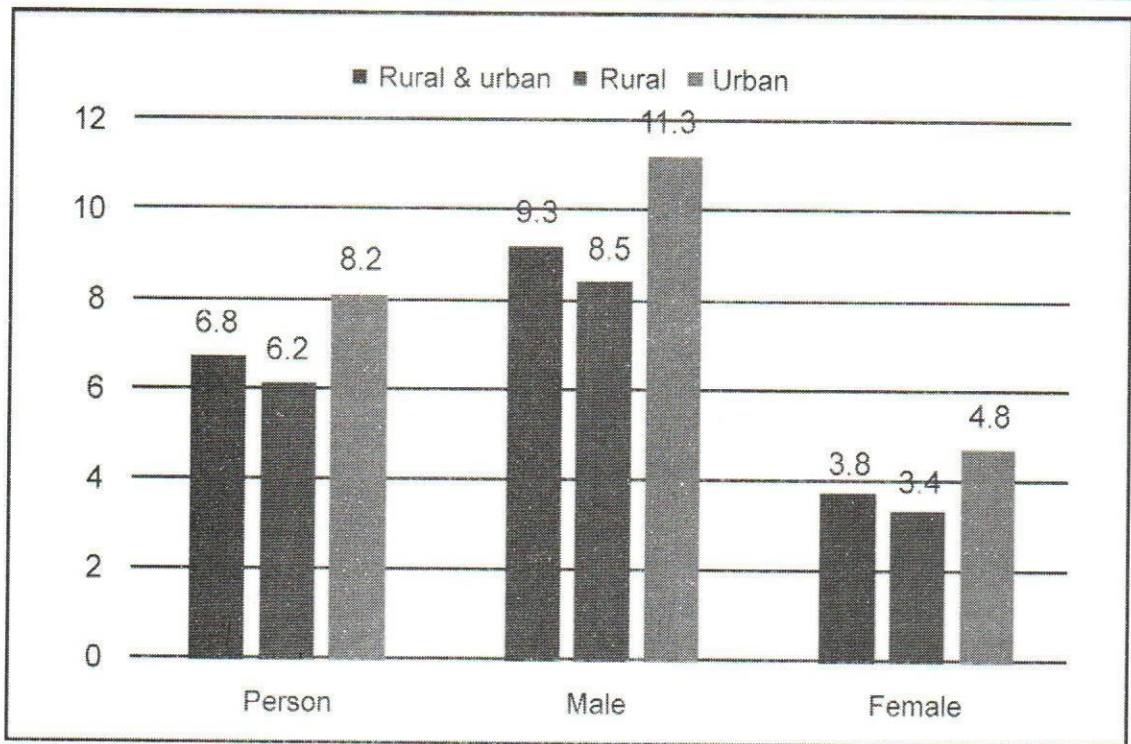


Figure 4: Share of Population Receiving Vocational Training in Different Segments (15 years & above)  
 Source: Labour Bureau (2015).

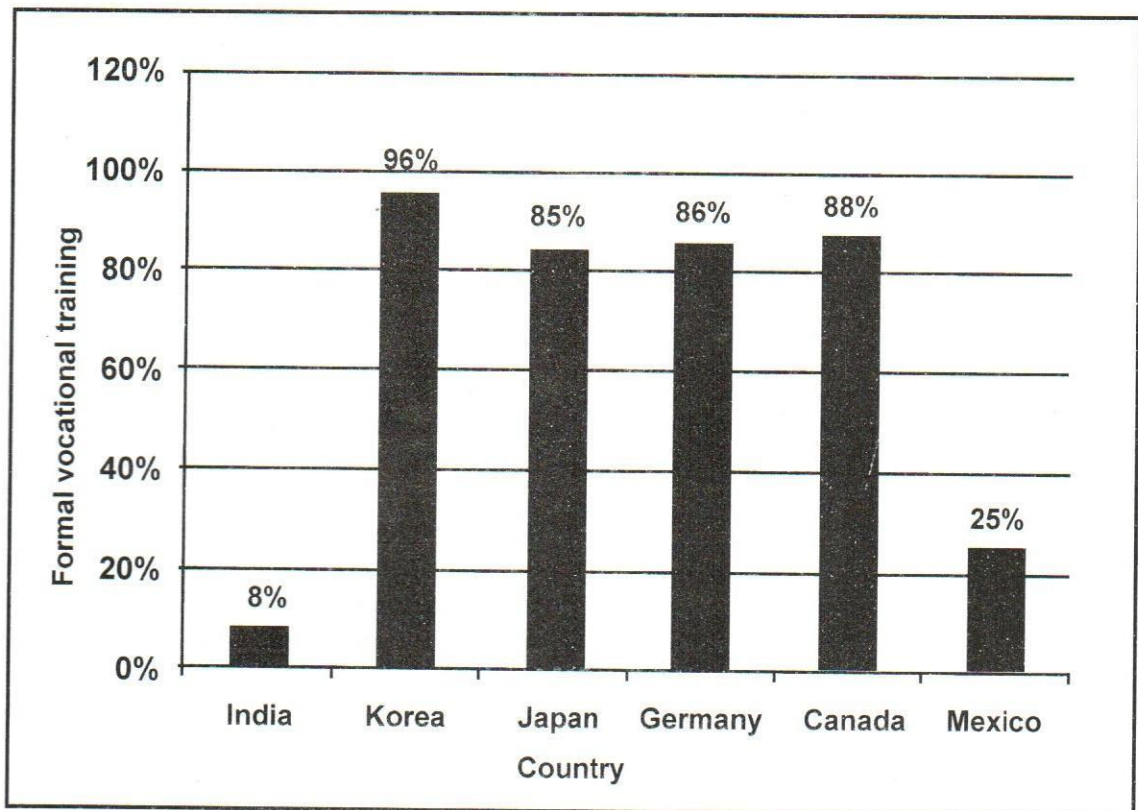


Figure 5: Percentage of Formal Vocational Workforce  
 Source: From different online sources.

aspects of distribution of populace and economy. Without bringing rural India under the ambit of active development, holistic progress of the nation is impossible. The government should ensure that recently rolled out measures should adequately focus towards empowerment of rural youth and communities (Chhangani, 2015). Thus, emphasis should be to incorporate all sections of the diverse workforce in the process of skill development and capacity building. The Indian market is growing rapidly and foreign stakeholders and companies are keen to invest particularly in the Make in India programme. Therefore, it is likely to set up start-ups in many industries in various sectors, which will have a huge demand of skilled labour in coming times.

## 8. New Skill Development Policy and Challenges

India is host to more than 62 per cent of its population in the working age group (15–59 years), and more than 54 per cent of its total population is below 25 years of age. It was also estimated that the average age in India will be 29 years as against 40 years in the USA, 46 years in Europe, and 47 years in Japan by 2020. It was also projected that the labour force in the industrialized countries may decline by 4 per cent whereas in India it may increase by 32 per cent (Gol, 2015). The escalation in the workforce will lead to unemployment. This is supported by the International Labour Organization (ILO) report that states that 73.4 million young people were estimated to be unemployed in 2015 (13.1 per cent youth unemployment rate), and this figure is expected to increase in most regions by 2017. Therefore, to provide employment opportunity to the potential workforce is a big challenge. The Make in India programme may be a good platform to meet the employment opportunity, which is expected from the Skill India programme. However, the vocational skills in India are unfavourable as compared to some of the competitive countries as India receives 8 per cent formal vocational training, which is very less (Figure 5).

It was observed that India is far behind in terms of skilled workforce, which may be an apparent barrier in the inclusive growth of Indian economy. Policymakers are aware about the bottleneck of skilled workforce; hence, the Government of India has identified skills development as a strategic sector. Consequently, India adopted an ambitious National Skills Development Policy in 2009. During the last two years, it has stepped up several policy initiatives to meet the emerging demand of skilled workforce so that they could contribute substantively to

the economic growth of the country. A major initiative was taken by creating the Ministry of Skill Development and Entrepreneurship in November 2014 to drive the Skill India agenda in a Mission Mode in order to converge existing skill training initiatives and combine scale and quality of skilling efforts, with speed. The ministry launched the National Skill Development Mission (NSDM) to provide the overall institutional framework to rapidly implement and scale up skill development efforts across India. The objectives of NSDM are to analyse skill development efforts over the past decade. It seeks to provide the institutional capacity to train a minimum of 300 million skilled people by the year 2022 (Gol). Further, in the series of latest policy initiatives, the Government of India has proposed National Skill Qualification Framework (NSQF), a nationally integrated education and competency-based skill framework that aims to bring a robust certification system in the area of technical education. This will not only provide the mechanism of multiple pathways both within vocational education and between general and vocational education to link one level of learning to another higher level but also enable learners to progress to higher levels from any starting point in education and/or skill system (Jamal, 2015).

## 9. Conclusion

It is obvious that enhancing the base of skilled workforce and employment is a crucial issue that requires a comprehensive approach. The issue is not only to increase the number of skilled workforce but employment generation is also a crucial issue. For example, there were 2,026,516 students enrolled out of 3,835,261 intake capacity at UG, PG-, and diploma-level courses. Only 653,481 highly skilled professional were placed. So, low employment growth rate and non-utilization of skilled workforce available is a matter of concern, which may have an adverse effect on economic growth. For sustainable and balanced economic growth, employment generation is imperative. However, there is an ample scope of capacity building in the skilled workforce sector as the Government of India initiated partnership with industry and state governments to skill 500 million workers by 2022 with the objective of meeting not only the emerging requirements of the Indian industry within but also aspiring to become a hub of supplying trained manpower globally. Also, the upcoming challenge could be to encourage potential youth from underprivileged section of the society to be a part of skill development. The proposed NSQF policy initiative will help to enhance the capacity building in competency-based

education and skill training and a unique certification system to create better employability. It will be a decisive factor in the capacity building of human resource and in the balanced economic growth of the country.

## References

- Ahmed, T.** (2016). 'Labour Market Outcome for Formal Vocational Education and Training in India: Safety Net and Beyond', *IIMB Management Review*, 28(2), 98–110.
- Ahmed, T. and Satija, M. P.** (2005). 'Growth of Technical Education at Degree Level in Punjab: A Historical Perspective', *The Indian Journal of Technical Education*, 28(3), 81–91.
- Borpuzari, P.** (2015). Economic Survey 2014–2015, Gol, 2015. <http://economictimes.indiatimes.com/articleshow/46394308.cms> (retrieved on 14 July 2016).
- Chenoy, D.** (2012). 'Skill Development in India: A Transformation in the Making'. [http://www.idfc.com/pdf/report/2012/Chapter\\_18.pdf](http://www.idfc.com/pdf/report/2012/Chapter_18.pdf) (retrieved on 20 July 2016).
- Chhangani, A.** (2015, 23 June). 'Skill Development in Rural India: A Roadmap to Efficient Utilisation of Human Resources', *News18.com*.
- Das, D. and Pathak, M.** (2012, October). 'The Growing Rural–Urban Disparity in India: Some Issues', *International Journal of Advancements in Research & Technology*, 1(5).
- FICCI.** (2015). 'Skill Development in India'.
- Gol.** National Skill Development Mission: A Framework for Implementation, Ministry of Skill Development and Entrepreneurship. New Delhi: Gol.
- Gol.** (2015). National Policy for Skill Development and Entrepreneurship 2015, Ministry of Skill Development and Entrepreneurship. Gol.
- Grover, H. S.** (2015). 'Skill India: A Catalyst to Bridge Demand for Skilled Workforce', *The Economic Times*, 20 February 2015. [http://articles.economictimes.indiatimes.com/2015-07-20/news/64638885\\_1\\_skill-india-skill-training-skilled-workforce](http://articles.economictimes.indiatimes.com/2015-07-20/news/64638885_1_skill-india-skill-training-skilled-workforce) (retrieved on 14 July 2016).
- Inflibnet.** (2016). [http://shodhganga.inflibnet.ac.in/bitstream/10603/7053/7/07\\_chapter%202.pdf](http://shodhganga.inflibnet.ac.in/bitstream/10603/7053/7/07_chapter%202.pdf) (retrieved on 17 May 2016).
- Jamal, T.** (2015). 'Vocational Education Qualification Framework (NVEQF): A Note on Proposed Reforms in Vocational Education', Vol. 3, *India Science & Technology, CSIR-NISTADS*, pp.43–47.
- Kashyap, N.** (2016). 'Industrial Training Institutes: Providing Training for Employment', *Employment News*, No. 45, 13 February–19 February.
- Kulshreshtha, C.** (2011, May). 'Measuring the Unorganized Sector in India, Review of Income and Wealth', Special Issue: The Informal Economy in Developing Countries: Analysis and Measurement, 57 (Supplement s1), S123–S134.
- Kumar, V. and Kapoor, R.** (2015). 'The Nuts and Bolts of Skill Development', *The Hindu*, 23 March.
- Lahiri, T.** (2011). 'India Passes 1.2 Billion Mark', *The Wall Street Journal*, April.
- MSDE.** (2016). <http://msde.gov.in/aboutus.html> (retrieved on 28 June 2016).
- MSD&E.** (2016–2017). Annual Report, Gol.
- Planning Commission.** (2007). 'Labour Laws and Other Labour Regulations'.
- Poonia** (2014). <http://www.slideshare.net/mail2paramjeet/vocational-education-in-india-and-challenges> (retrieved on 01 July 2016).
- Prahalad.** (2013). [http://articles.economictimes.indiatimes.com/2013-06-07/news/39815423\\_1\\_skill-development-skill-gap-pk-prahalad](http://articles.economictimes.indiatimes.com/2013-06-07/news/39815423_1_skill-development-skill-gap-pk-prahalad) (retrieved on 28 June 2016).

"Our future growth relies on competitiveness and innovation, skills and productivity... and these in turn rely on the education of our people."

– Julia Gillard

# Doubling Farmers' Income in Gujarat State: Challenges and Way Forward

**B. SWAMINATHAN, R. L. SHIYANI AND N. J. ARDESHNA**

*Akin to Green Revolution of the late 1960s, doubling farmers' income by 2022-23, over the 2016-17 income levels, has become the watchword of the current agricultural policy scenario. Gujarat is among the top few states in India where doubling or improving farmers' income within the targeted year is in the realm of possibility. The State's agricultural growth rate has never been short of seven percent throughout the last decade. The farm income sources are also well diversified as farmers derive sizeable incomes from both crop and animal sectors. With 53 percent of its work force dependent on non-farm operations, small-scale industries and enterprises are also flourishing in the rural areas. The state tops the charts in milk production as well. Fisheries sector has been identified as the sunrise sector and it is expected to contribute further to the farmers' income basket. Micro-Irrigation and Soil Health Card schemes are being well implemented in the State and the water conservation efforts through construction of over 1.25 lakh check dams and water distribution efforts through intra-state river linking have already started paying dividends. To top that all, Gujarat is both pioneer and leader in harnessing solar energy for irrigation purpose. That is why, the average farm household income in Gujarat as of 2013-14 was found to be a healthy Rs. 8,000 per month. However, on the other hand, per household median farm income was just above Rs. 2,500 per month. This could only refer that most of the small and marginal farmers, who form 80 percent of the farm households in the State, have yet to attain income parity. Thereby, the interventions required to improve and sustain farmers' income need to focus on inclusiveness in such a way that even the small and marginal farmers should derive significant benefits. Accordingly, the present paper has included a host of 21 key strategies that have the potential in not only improving farmers' income in the State but also in actually doubling farmers' income by the targeted year of 2022-23.*

## Introduction

Farming in India is still complicatedly dependent on the vagaries of monsoons and it is largely supported by small and fragmented holdings, which in turn are run by resource poor farmers. Thereby, farming turns out to be a non-viable proposition and often not profitable. Over the years, it has become an occupation marked by large-scale disguised unemployment and unending uncertainties at each and every stage of farm operations. Topping all these issues, recent NSSO survey reveals that more than 40 percent of the Indian farmers wish to leave farming if given with some other option (NSSO, 2014). Given this background, our Prime Minister, Mr. Narendra Modi, has envisioned of Doubling Farmers' Income by 2022-23, the 75<sup>th</sup> year of the country's Independence. Thereafter, akin to the Green Revolution of the late 1960's, Doubling Farmers' Income by 2022-23 over the 2016-17 income levels has become the watchword of the current agricultural policy scenario in India. As the policy level deliberations of various stakeholders towards identifying farm income issues and affixing strategies have gathered steam all over the country, it is beyond doubt that the Prime Minister's vision has certainly made a paradigm shift in the thought process of the country—from ensuring food security to addressing income security among scientific community, policy makers and practitioners alike.

There cannot be anyone questioning the need for doubling farmers' income. But how far it is possible to be achieved within the targeted five years remains the moot question. For the goal to be realized, it is estimated that an agricultural growth rate of 10.46 percent is required (Chand, 2016), the rate which has never been achieved at overall India levels, barring a few states, since Independence. As a matter of fact, even the agricultural

*B. Swaminathan, Assistant Professor, Department of Agricultural Economics, Junagadh Agricultural University, Gujarat.*

*R. L. Shiyani, Professor and HOD, Department of Agricultural Economics, Junagadh Agricultural University, Gujarat.*

*N. J. Ardeshta, Professor and HOD, Department of Agricultural Economics, Junagadh Agricultural University, Gujarat.*

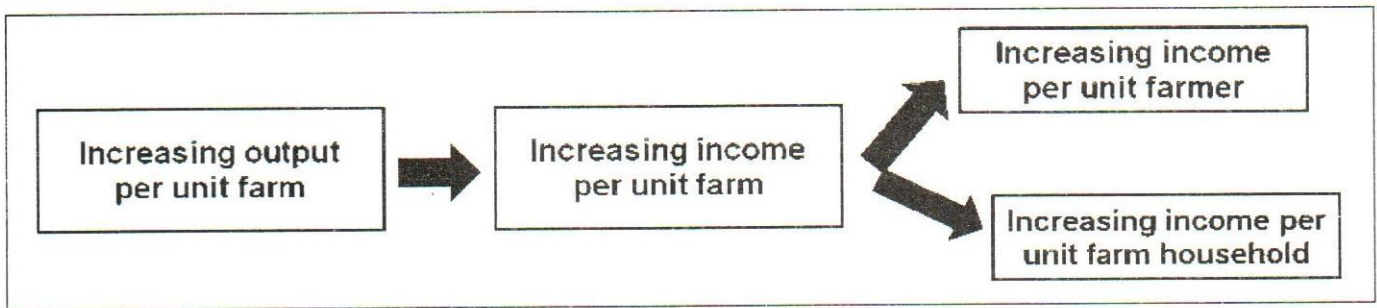


Figure 1: Evolution of farm income concept

growth rate of 2015-16 was merely at 1.80 percent alone. But twice over the last 30 years, farmers' income have almost doubled in six years only in nominal terms (i.e. without adjusting for inflation) - once between 1987-88 and 1992-93 and then between 2004-05 and 2009-10 (Chand, 2015). Realizing this feat for the third time will itself be an achievement and doubling or improving farmers' income in real terms, by removing the inflation factor from income levels, will be nothing short of a scientific miracle like Green Revolution. But, as given in figure 1, during Green Revolution the stakeholders (scientific community and policy makers) focused on lab-to-land strategies alone in which they were able to exercise complete control which led to increases in per unit farm output.

But for doubling farmers' income, now they have to bring the third element: market, which not only happens to be the most complex but also happens to be devoid of any institutional control. This happens to be the most obviously contrasting fact that separates the Green Revolution era from that of this Doubling Income era. Now, the strategies need to shift from the two-dimensional lab-to-land approach towards the three dimensional lab-to-land-to-market. Accordingly, either the farm production need to be market-led or the markets need to be tapped or facilitated to absorb farm output. Thereby, it is not merely farm income anymore but farmers' income. In addition, farmers' income can be improved by focusing on non-farm prospects also. In other words, if members of a farm household were encouraged to shift to non-farm sector, even then there would be increase in incomes. But such an inorganic way of raising incomes would lead to the total collapse of the farm sector. Thereby, efforts need to be prioritized which should pave way to the absorption of surplus workforce within agriculture or rural labour-intensive industrial sectors supported by agriculture and allied activities.

### Improving farmers' incomes

It is important to double the real income levels and not just the nominal incomes and for that, the inflation factor needs to be adjusted while accounting the income change (Table 1). Past trends reveal that though during 2008-09 to 2013-14 farmers' average income at nominal prices grew at 14.8 percent annually on an average; the real growth was only at 3.1 percent per annum. The latest Situational Assessment Survey of NSSO (2014) also reveals that the nominal rise in farmers' income pan-India between 2002-03 and 2013-14 has been an impressive 11.4 percent but the real income has only grown by 3.5 percent. Besides, it is also necessary to ensure that the rise in income is of inclusive nature.

In other words, if large farmers alone focused then doubling real-time farmers' income would be easily achievable. But that won't be inclusive growth as the nation's 80percent small and marginal farmers would be totally left out. Henceforth, more than average income of farmers, the median income (i.e. the middle-most income) is the one that needs to be doubled (Table 1). NSSO (2014) findings further substantiate this claim as they show mean farmers' income in India to be Rs. 6,426 per month but the median farmers' income was found to be only around Rs. 1825 per month. Similarly, in Gujarat though the average farmers' income was found to be Rs. 7926 per month, the median farmers' income turned out to be only Rs. 2488 per month (Table 2).

If the past farm performances are here to stay for the years to come then doubling farmers' income or improving farmers' income against the inflation levels may not be possible all over India. But a handful of Indian states including Gujarat, Maharashtra, Andhra Pradesh, Tamil Nadu, Bihar, Madhya Pradesh, Karnataka, Punjab, and Rajasthan have reversed the trend and have shown great improvements in agricultural sector in the past decade



**Table 1. Income improving strategies in agricultural sector**

Type of Income	Improving Strategy
Per capita farm income	Can be achieved with both on-farm (crop cultivation) and off-farm (livestock, poultry) activities.
Per capita income of agricultural households	Can be achieved by diverting members in a farm household to other non-farm and wage jobs alone.
Mean farm income	Can easily be doubled by encouraging large farmers alone.
Median farm income	Improving incomes is possible only when income levels of the small and marginal farmers also improve simultaneously.
Nominal farm income	Inflation will help in improving incomes, though there won't be any real change in income levels.
Real farm income	Income has to be improved against the prevailing inflation levels.
Per capita median real income of farmers	Cannot be achieved by leaving out small and marginal farmers or by focusing on farm output alone. Needs an inclusive kind of approach.

**Table 2. Average monthly farmers' income in Gujarat and India**

Particulars	Net receipt from cultivation (Rs.)	Net receipt from from livestock (Rs.)	Net receipt from wages (Rs.)	Net income from	Total income (Rs.)	Median (Rs.)
Gujarat	2933	1930	380	2683	7926	2488
India	3081	763	512	2071	6426	1825

Source: NSSO (2014)

alone. In fact, as Satyasai and Bharti (2016) point out the real growth rate of farmers' income in Madhya Pradesh (9.81 percent) and Rajasthan (9.39 percent) between 2002-03 and 2012-13 was much higher than that of Gujarat (5.61 percent); Tamil Nadu (6.88 percent); Andhra Pradesh (7.19 percent); and even Punjab (6.66). But, during the same period, the average farmers' income has crossed Rs. 1 lakh mark only in a few of the Indian states including Punjab; Haryana; Karnataka; and Himachal, albeit Gujarat with an annual average farmers' income of Rs. 95,112 has come closer.

But despite being an arid and semi-arid state with a high water-deficit scenario, Gujarat happens to be one of the few Indian states with consistent 7 percent agricultural growth rate throughout the last decade. Thereby, it is in the realm of possibility for the State to achieve the goal of doubling or improving farmers' income. But before discussing the strategies of improving farmers' income in

Gujarat, it is vital to see how good the State is positioned in terms of agriculture and allied sectors and how much prepared is the State for achieving the goal within the targeted year. In the present investigation, the factors that have led to the success of farm sector growth in Gujarat are discussed along with the future strategies that will be needed to sustain the farmers' income in the state.

#### **Status of farmers' income in Gujarat**

Farmers' income in Gujarat is more diversified when compared to India as a whole. As it could be seen from both Table 2 and Figure 2, the livestock component happens to assure an income of Rs. 1930 per month which is 24 percent of farmers' income in the State against Rs. 763 per month in India (11.86 percent). Moreover, the figures also reveal that farm income is just one of the components of farmers' income as they constitute only 37 percent and 48 percent of the same in Gujarat and India, respectively.

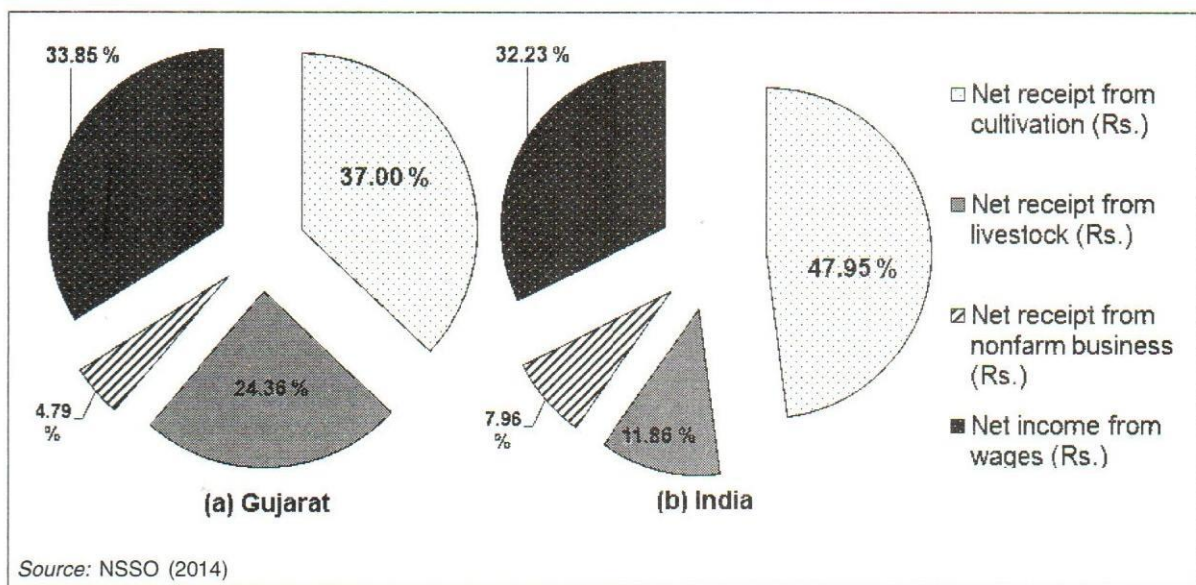


Figure 2. Sources of income distribution of farmers in Gujarat and India

Thereby, the income improving or doubling strategies need to take into account all the sources of income while devising a suitable road map.

### Gujarat's potential for improving farm incomes

**Land-use pattern:** As of 2014-15, out of the total geographical area of 196.00 lakh ha in Gujarat, 99.63 lakh ha (more than 50 percent) was under net cultivable area and 122.04 lakh ha under gross cropped area (GCA). About two-third was under arid and semi-arid tropics and the rainfed area constituted about 66 lakh ha. The gross irrigated area was 56.14 lakh ha accounting for 45.97 percent of total cropped area and about 12.16 lakh ha was found to be saline and alkaline. The cropping intensity across the State was 122.53 percent and irrigation intensity was 132.62 percent. Among the major crops, the largest cropped area was occupied by cotton (27.97 lakh ha) followed by groundnut (16.31 lakh ha); wheat (13.21 lakh ha); pulses (8.24 lakh ha); rice (7.81 lakh ha); bajra (7.79 lakh ha); castor (7.06 lakh ha); and maize (5.13 lakh ha). The area under horticultural crops together constituted about 14.92 lakh ha which happens to be 12 percent of the GCA of the state (GOG, 2015). The total operational landholders in Gujarat were 48.86 lakh with an average of 2.03 ha per landholder. Among the landholders, 37.16 percent were marginal farmers, 29.25 percent were small farmers, 22.10 percent were semi-medium farmers, 10.49 percent were medium farmers and roughly 1.00 percent large farmers. Out of the eight agro-climatic zones of the

state, five are arid to semi-arid, while the remaining three are dry sub-humid in nature. The average rainfall in the state fluctuates between 250 mm and 1500 mm.

**Agriculture:** Gujarat is the major producer of cotton, groundnut, castor and sugarcane. The other major crops produced in the State include rice, wheat, jowar, bajra, maize, pigeon pea and gram. Among them, the production and yield of cotton, castor, and groundnut are notably high in Gujarat accounting for 33 percent of both cotton and groundnut production in the country. Besides, the State has the recognition for the highest area, productivity and not less than 84 percent of castor production in the country. Another notable feature is the accordance of GI status to Bhalia wheat (Daudkhani wheat) grown in Bhal region of Gujarat for its desirable qualities like high carotene, low water absorption and high protein content. While various studies have shown that GI Bhalia wheat receives 25 percent premium price opposed to other wheat varieties and 40-50 percent higher price than the bread wheat varieties, still there is also immense potential for the State to promote organic cultivation of Bhalia wheat to improve farmers' income.

**Horticulture:** The total area under horticulture crops and their production are continuously on the rise in Gujarat. Among horticultural crops, Gir Kesar Mango and Kutchi Date of the State have been bestowed with GI status in the country. Besides, the State holds first position in the production of cumin, fennel and date palm; and 2<sup>nd</sup>

place in the production of banana, papaya and lime. More than 90 percent of the fennel in the country is produced by Gujarat alone. Besides, the State enjoys first position in the productivity of coconut and banana and second in the productivity of pomegranate and sapota. It has the highest productivity in the country for onion (25 MT/ha.), potato (28.81 MT/ha.) and the world's highest productivity of potato (87 MT/ha) has been reported from Deesa of Gujarat's Banaskantha district. A number of good integrated pack houses, air cargo complex and gamma irradiation projects have been established by Gujarat Agro Industries Corporation. In addition, onion dehydration industry of the state is the biggest in the country.

**Animal Husbandry and Fisheries:** Gujarat is the home to the world acclaimed milk cooperative, Amul. Animal husbandry sector has played a pivotal role in socio-economic development of the State providing employment and source of income for lakhs of farm families. The State is rich in various indigenous pure breeds including Gir and Kankarej breeds of cow; Mahesani, Surti, Jaffrabadi and Bunni breeds of buffalo; Marwari and Patanvadi breeds of sheep; Sirohi, Surti, Mehsani, Kuchchhi, Gohilwadi and Zalawadi breeds of goat; and Kutchi and Kharai breeds of camel and Kathiyavadi breed of Horse. Gujarat possesses 19 registered breeds forming 13 percent of the total 151 registered breeds in the country. As per Livestock Census (2012), the State possesses 27,128,200 livestock contributing 5.30 percent to the total

512,057,000 livestock population in India. It has been a consistent performer and leader in milk production and attained 3<sup>rd</sup> position in India with milk production of 122.62 lakhs metric tons in 2015-16. Besides, the State has a notable 7.33 percent average growth rate in milk production during the last decade. Apart from that, Gujarat has a long coastal-line of 1600 km and is dotted with several important ports of which many like Veraval, Porbandar, Pipavav, Okha and Sikka are located in Saurashtra region as well. Important commercial varieties of fish including silver bar, shark, catfish, mullets *etc* are caught in large quantities.

### Challenges in improving farmers' income in Gujarat

Gujarat agriculture is dotted with serious challenges on both production, marketing fronts but when it comes to the former there seems to be as much challenges bestowed default by nature as that of operational, and adoption constraints prevailing in the farming sector (Figure 3). Accordingly, the State is characterized by erratic and uncertain rainfall coupled with large inter-annual rainfall variability. Besides, the hard rock hydrogeology prevailing in the State only helps in rendering it highly vulnerable to frequent water scarcity conditions and droughts. This has led to the unintended overexploitation of groundwater leading to surge in salinity levels and lands becoming virtually useless. As groundwater alone accounts to more than 80 percent of irrigation requirement in irrigation, it is no coincidence that the gross mismanagement of the resource has lowered the water table

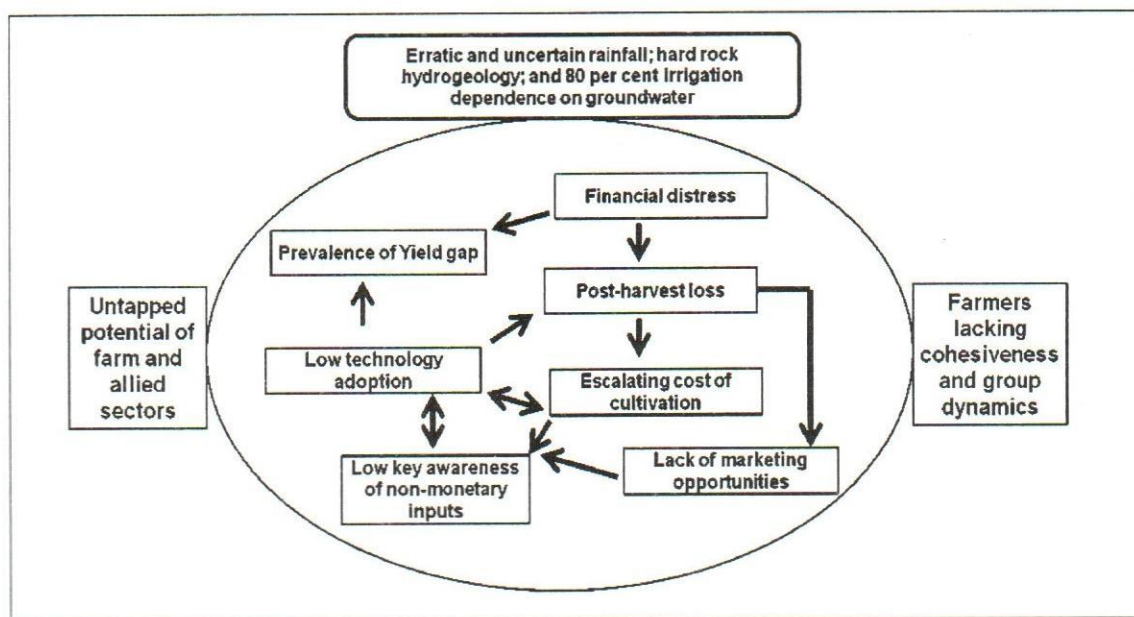


Figure 3. Key challenges in improving farmers' income

in many parts of the State and has the escalated cost of cultivation. On the other hand, rapid urbanization and land use changes have drastically decreased the infiltration rate of the soil and have diminished the natural recharging capacity of aquifers as well.

Apart from all these natural or inherited challenges, low-key awareness on non-monetary inputs and limited technology adoption among the farmers is also a cause of worry. For instance, the State is found to have very low seed replacement ratio (SRR) among all the major states. The SRR in wheat, *desi* cotton, pulses, groundnut and soybean are less than 50 percent. Apart from that there is also the case of low rate of replacement of varieties and cultivation of unsuitable crops and varieties. As varieties which are more than 20 years old are still in vogue, the change in cropping pattern and sequences are not adequately coping with the ongoing implications of climate variability. The challenges being both uni-directional and bi-directional with each other, as shown in figure 3, further complicate the agrarian distress and render adaptation difficult.

As shown in Figure 3, there is existence of yield gap in Gujarat as much as 50 percent of other top productivity states in India. Most of the farmers do not follow scientific seed treatment practices and neglect the importance of non-monetary inputs despite the fact when they have become immensely relevant in the current context of climate variability and change. For example, the rice is transplanted at 30 to 33 hill / m<sup>2</sup> against the requirement of 20 to 25 hills / m<sup>2</sup> in the State. Similarly, maize is cultivated with 1.75 lakhs plants / ha against the need of 1.30 to 1.40 lakhs plants / ha alone and groundnut farmers use 130 – 140 kg / ha against 100-125 kg / ha. Apart from that, both under and over use of fertilizers leading to deficiency or toxicity of certain elements in the soil coupled with development of soil salinity is also a common feature in Gujarat. Use of natural nitrification inhibitors and enriched organic manures is not widely prevalent. And most importantly, farmers still adopt surface irrigation methods without calculating amount and time of water requirements.

When coming to crop cultivation, most farmers still practice hand weeding and inter-culturing operations without considering crop-weed competition period. Farmers adopt haphazard and indiscriminate use of agro chemicals for controlling pests and diseases. As a matter of fact, while spraying, insecticides and fungicides are

liberally mixed and applied without worrying about the incompatibility of the chemicals. Even on the post-harvest front, the scenario is not pleasing as nearly 20 to 25 percent post-harvest farm output losses in Gujarat is due to improper handling. Even with high value horticultural crops, there is lack of awareness regarding high-density plantation (HDP), canopy management, pruning, soil and leaf analysis, mulching and ratooning.

On the marketing side, despite the State has modified APMC act allowing contract farming and direct marketing, the efficacy of such reforms is not up to the mark. Direct marketing of farmers account barely 5 percent of volume transacted. Though Gujarat is the frontrunner neither state in e-NAM, it is still in the nascent stage and farmers are adequately aware about its benefits, nor are facilities and coverage up to the mark. Operationalization of minimum support price is not widely practiced and it doesn't cover all the food crops either.

### **Way Forward: Improving farmers' incomes in Gujarat by 21 key strategies**

After assessing the existing agricultural scenario in Gujarat, available technologies in the State's agriculture and by considering the prevailing socio-economic conditions, the following 21 key strategies are presented in the present investigation for improving farmers' income in Gujarat state by the year 2022-23 over the 2016-17 income levels,

- 1) **Managing yield gap:** Within India itself, yield rates in Gujarat for rice and wheat are only two-third to one-half of the top ranking states. Though the yield rates of cotton and groundnut are very close to the top ranked states in India, it is still around 500-600 kg per ha alone while Farmers Field Demonstrations (FFD) have indicated 1100 kg per ha. Similarly, in groundnut cultivation there is at least 50 percent yield deficit in the state when compared to the FFDs. To reduce such yield gaps, follow-ups of *krishi mahotsavs* need to be carried out by the line departments since the delivery of technologies need to be ensured of their logical adoption. Besides, increasing budget on 'Farmers Inter-State Exposure Visits and Training Scheme' will help farmers to bridge the yield gap. Thus, not only research and development (R & D) in crops should be augmented but also the extension efforts should be pursued to the bridge yield gap.

- 2) **Reducing the cost of cultivation:** Farm mechanization should be increased by encouraging innovation of small implements through agricultural start-ups and by proliferating custom hiring centres (CHCs). Improving the utilization of green manures, bio fertilizers and bio pesticides also helps in scaling down of production cost besides improving soil fertility. To check the escalating cost of cultivation, Soil Health Cards should be made mandatory and farmers need to be given guidance to use recommended dose of nutrients as per the soil test. Promoting the use of organic manure or farm waste for balanced soil nutrition will also help in checking the inadvertent costs. On the policy level, efforts need to be accelerated on incentivizing slow release fertilizers; increasing the availability of pest tolerant or resistant varieties; popularizing cultivation with trap crops; and promoting integrated approach of effective and economical pest control.
- 3) **Land augmenting measures:** Increase in total cropped area in the last 15 years is 2.5 ml. ha of which broadly one million has come from fallow and other land types while 1.5 ml. ha area has come from double cropping. These changes are effected by increase in irrigation from tube-well, Sardar Sarovar project, micro irrigation and other irrigation projects. Besides, the 25 lakh ha of barren lands in the State can also be brought under cultivation. Thereby, there is scope for further increase in land use by increasing gross cropped area with the help of modern technologies and short duration crops.
- 4) **Creating horticultural and pulse zones:** A large increase in area and yield of horticulture crops has been seen in Gujarat in the recent years. Increasing income and awareness levels about nutrition has propelled the consumptions of fruits, vegetables and pulses. International trade in these commodities is also rising. These being high-labour intensive crops also help a large number of small and marginal farmers and agricultural labourers as well. Area under less profitable crops and barren lands can be diverted towards high value horticultural crops. At the same time, shortage of quality planting materials of horticultural crops is also well documented in the State. The issue can be very well addressed by establishing plug nurseries and by increasing subsidies for nursery and by restructuring nursery modules with latest infrastructure prices. On the other hand, despite tasting success in other allied sectors, cooperatives are not being involved in the marketing of horticultural produce, which calls for serious attention.
- Pulse Zones:** Pulses are becoming popular all over the world but India's share is only 30 percent of the world market and it is shrinking. Though 50 percent more area is covered under pulses cultivation in 2015-16 when compared to the previous year, with the present stagnating yield levels the increase in production of pulses will be only about 2.5 million tons. This way, even after increased area under pulses and better minimum support prices (MSP), India still will remain net importer with a deficit of 5.6 million tons even after considering improved Rabi output. This can only be bridged by providing technologies in the form of improved variety and better package of practices, which can improve yield levels by at least 50 percent on an average.
- 5) **Improving micro-irrigation systems (MIS):** Micro irrigation along with fertigation can empower all sections of farmers with improved incomes. In Gujarat, total irrigation potential of the state is about 65 percent of cultivated land in which only 50 percent is already harnessed and the upcoming Sardar Sarovar and other sources of canal water projects are expected to provide irrigation for another 18 lakh hectares. But about 0.8 million hectares has already been brought under micro irrigation systems (MIS) which can be further increased since the internal rate of returns of MIS are found to be very high among all sections of farming community.
- 6) **Leveraging precision farming and protected cultivation techniques:** Precision farming techniques can help to enhance productivity (by 80 percent to 600 percent extra yields in different crops) and reduce the cost of production. They should be promoted by identifying farm-pockets. It can be adopted by encouraging a group of farmers who can organize themselves into a precision farming group. This would help to reduce expenditure and enhance productivity and profitability. Side by side, affordable protected cultivation technologies need to be developed. Farmers need to be exposed by the Extension mechanism on the utilization of ICT and remote sensing tools, mapping soil fertility status including secondary and micronutrients and laser

land leveling which in turn can create avenues for attracting and retaining youth in farming.

- 7) **Alleviating financial distress:** Among 8,000 farm suicides in India (2014-15), financial distress alone accounted for 38.7 percent of farmers' suicides (ICFA, 2016). To arrest this scenario of financial distress among farmers, short duration marketing loans may be considered on the lines of self-liquidating production loans. Financial inclusion of the farming community can be improved tremendously by transacting all financial benefits, mainly the subsidies in different forms directly to farmers' account through e-governance. Presently, only 15 percent of the loan is disbursed as investment credit, which has to be significantly increased.
- 8) **Fixing post-harvest losses:** With horticultural production estimated at 283 MT in 2015-16, India is the second largest producer of fruits and vegetables in the world (ICFA, 2016). But farmers receive merely 25-30 percent of the price paid by the consumers. Barely 4 million of the 104 million tons of perishable produce pass through cold chain. Value of harvest and post-harvest losses of agricultural produce in 2012-13 was Rs. 926.51 billion (Sardana, 2016). Post-harvesting losses of up to 30 percent are incurred in fruits and vegetables alone (ICFA, 2016). Though there are about 6,300 cold storage facilities in India, 75-80 percent of them are suitable only for potatoes (Sardana, 2016). As majority of fruit and vegetable farmers constitute to be small and marginal alone, large-scale investments in post-harvest infrastructure will be of immense use to raise the median farm incomes.
- 9) **Focusing on value-chain approach:** Less than 20 percent in milk and less than 5 percent in fruits and vegetables are processed in India (Sardana, 2016) and Gujarat is still not an exception. Thereby, processing needs to move from a production-driven system to demand-driven system, which would help, create non-farm jobs in rural areas and improve farmers' incomes. Improving value-addition will require more man-power. Accordingly, strategies need to be put-forth for training human resource in agriculture. Interventions in research and development have to deal with not just high-yielding varieties but also with varieties that meet consumers' expectation in terms of taste, palatability and nutrition.
- 10) **Tackling income security:** In 1970s, the MSP for wheat was Rs. 76 per quintal and in 2015 the MSP for wheat was Rs. 1,450 per quintal that is an increase by 19 times. At the same time, during the same period of 1970-2015, the rise in salaries of other non-farm sectors was around 150 – 1,000 times. If only MSP for wheat had been increased by 100 times, then it should have been at least Rs 7,600 per quintal. But, on the other hand, over the last three years (2013-15) the MSP for all crops increased only up to 3.2 to 3.6 percent every year. Though, an increase in MSP is reported to fuel inflation for consumers, the recommendation of MSP as Cost C3 + 50 percent of Cost C3 need to be strictly adhered and operationalized for giving a better deal to the farming community. In addition, it has to be taken in to consideration that establishing robust procurement machinery is the key for operationalising MSP to ensure income security.
- 11) **Leveraging Pradhan Mantri Fasal Bima Yojana (PMFBY):** The newly launched crop insurance scheme of the Central Government has many positives to the farming community and it may be made compulsory for all farmers so that a non-loanee farmer is not pushed to extreme in case of crop-loss. Crop insurance products should be designed with a village as a unit, which represent similar crops or cropping patterns. To increase competition, instead of selecting one Agri-Insurance player through bid system for a district, all the districts should be made open to all the players. In addition, a separate Agriculture Insurance Regulatory Authority needs to be established. If possible, a Toll Free Agri-Insurance number should also be launched to improve the awareness of the scheme and as a portal toward registry and track of claims and disputes.
- 12) **Enhancing small farm productivity:** Small farm productivity and stability of production can be enhanced by supporting farmers in the areas of: (i) soil health care; (ii) water harvesting and management; (iii) choice of appropriate technology and inputs; (iv) credit and insurance; and finally (v) opportunities for remunerative and assured marketing. By extending investment support in these five areas, small farm productivity can be more than doubled. China and Japan have raised their farm incomes among all the farmers by focusing on such small farm strategies.

13) **Cultivating SAZs and commercializing crop biomass:** Special Agricultural Zones (SAZ) may be established in the peri-urban and semi-urban areas targeting the commodities needed by urban population like fruits, vegetables, flowers, milk and eggs. Export oriented and industrial use crops can also be focused. The land in SAZ may be preserved exclusively for agriculture. On the model of Special Economic Zones (SEZ), incentives may be given to farmers in the SAZ areas. Besides, promoting crop stewardship programs, good agricultural practices (GAP) and certification, formation of Global Commodity Boards (like California Walnuts and Washington Apples) can double the current level of 1.70 lakh crores of agricultural exports in 5 years, which will benefit the farmers significantly.

**Commercializing crop-biomass:** Promotion of the commercial use of the whole crop biomass can help in improving farm incomes across the farming community. For example, groundnut bio-parks can be established which could help to prepare value added products from the stalk, shell and leaves. Usually, biomass constitutes about 60 percent of the total energy (photosynthesis) generated by the plant and this is still not exploited commercially.

14) **Innovating digital market places through e-NAM:** The National Farmers' Commission recommends distance to market for farmers to be no more than 5 km. However, Indian farmers travel anywhere between 12-50 km to the nearest *mandi*. Apart from access to markets, farmers also suffer from information asymmetry, intermediaries eating into their pie, and many are deprived of aggregation benefits. e-NAM (Electronic-National Agricultural Market), launched in April, 2016 to create a hassle-free, unified national digital market place for all agricultural produce, could work well as the solution. But as of November 2016, it is generally observed that of the 250 mandis from 10 states linked to the e-NAM platform, 79 *mandis* alone are active. The total transaction turnover on e-NAM has also been very low at Rs 421 crore, which was less than 1 percent of the actual trade at these *mandis* (Sardana, 2016). This could only be due to the absence of big traders who may fear erosion of their margins and thereby, the biggest mandis of the states are not active participants in e-NAM. There also seems to be resistance to the adoption of e-NAM as the states have enacted different versions of the APMC act resulting in the levy of multiple fees

and charges, which restrict farmers from selling produce to functionaries.

15) **Supporting the cause of FPOs:** In order to enable farmers participate in progressive high value markets, such as modern retail, value added agri. produce and export markets, the government established the institutional machinery of Farmer Producer Organizations (FPOs). As of March 2016, there are over 2000 FPOs in the country, which are trying to shift the farmers from low-margin fresh produce to high-margin value-added products. But, their major challenge lies in marketing and selling. Thereby, innovative marketplace / platforms along the lines of e-NAM should be leveraged with good investments to facilitate marketing and intermediary-free selling. In addition, the following measures will also be of help to further the cause of FPOs such as: (i) exempt FPOs from APMC cess (Mandi fee) when trade is executed outside the market yard; (ii) provide collateral free loans upto Rs.25 lakh to the FPOs; (iii) provide rate of interest for FPOs at par with the rate charged to individual farmers for crop loans; (iv) establish group insurance schemes for members of FPOs including the post-harvest phase; (v) extend external commercial borrowings (ECBs) for FPOs; (vi) enunciate single state-wide license with every point of sale for all agri. inputs for facilitating FPOs dealing with agro-inputs; and (vii) prioritize compulsory procurement of 15-20 percent from FPOs by organized retailers and wholesalers since FPOs majorly represent small and marginal farmers.

16) **Incentivizing livestock rearing:** A trend to consume A2 milk or *desi* (local) cow is fast spreading and it is commanding not less than 40 percent price premium, especially in metro-cities and towns. In this regard, dairy farmers may be encouraged to cater *desi* milk to urban consumers. Indigenous milk cooperatives may also be established in the State for facilitating production and marketing of milk from indigenous cows. In addition, if fodder market is developed many marginal farmers may also take up livestock rearing. Assured semen supply of good proven bulls on subsidized rates for artificial insemination in dairy animals is also the need of the hour. Upgradation of indigenous breeds through selection and crossbreeding of non-descriptive animals with the semen of proven bulls should also be given a priority in the State. Moreover, training programmes especially of those promoting oestrus

synchronization programs all over the state need to be conducted periodically.

- 17) **Enhancing Agro-forestry and Fisheries:** Gujarat has more than 25 lakh hectares of land under barren lands, 8 lakh ha in fallows and 5 lakh ha in pastures. A significant contribution to the farmers' income in the State can be expected from their effective utilization by promoting boundary plantation; silvi-pastoral system; agri-Horti system; horti-Pastoral system; horti-silvi system and industrial agro-forestry system. Tree species with 8-10 years rotation age such as *Ailanthus* (matchstick tree) can be encouraged. In addition, encouraging tissue culture labs to produce clones (such as clonal *Ailanthus*) may further reduce the rotation age upto four years. Besides, agro-forestry by-products can be effectively utilized to curtail the cost of animal feeds.

**Fisheries sector:** Gujarat has large marine and inland fisheries resources and infrastructure but has not exploited to their potential, which is especially in the case of inland resources. Though, the contribution of fisheries component to the farmers' income is increasing due to price rise but fish production is stagnant at around 0.9 million tonnes in Gujarat. The fisheries sector can be developed with the following measures such as: (i) promoting cage and pen farming policies in reservoirs and lakes; (ii) strengthening existing and creation of additional infrastructural facilities; (iii) conducting research and training programmes; (iv) ensuring optimum utilization of water resources for maximizing production; (v) improving location specific and economically feasible technology generation; (vi) designing advance fish harvesting methods; (vii) establishing disease diagnosis centres; and (viii) ensuring economical and critical fish farming inputs.

- 18) **Focus on non-monetary inputs:** Most of the farmers neglect the importance of non-monetary inputs despite the fact that they have become immensely relevant in climate variability and change. Thereby, imparting training to farmers on the efficacy of non-monetary inputs in the has become highly essential in the context of selection of biotic and abiotic stress resistant varieties; timely sowing and planting; providing optimum plant geometry; irrigating at critical growth stages, timely adoption of crop protection practices; timely harvesting; and practicing system of intensification in rice, sugarcane, wheat and cotton.

- 19) **Bringing rainfed areas under organic farming:** Gujarat is the first Indian state to come with an Organic University. Rainfed areas are reported to have relative advantage to go for organic farming primarily due to i) low level of input use; ii) shorter conversion period; and iii) smaller yield reductions. But the constraint lies in the need of 5-10 tonnes of FYM / ha to obtain yields on par with that of recommended chemical fertilizers. The following measures can be of use to improve area under organic cultivation viz. (i) biomass production during the off season (without competition with the kharif crop) through a legume cover cropping (e.g. cowpea) and its incorporation; (ii) protocols need to be developed for organic production based on the entire cropping system approach through farmers participatory network research; (iii) excessive use of pesticides can be controlled through proper legislative measures; and (iv) preferential policy instruments should be developed by declaring one or two districts as organic districts in the state.

- 20) **Harnessing solar energy:** Solar energy is a 'cash crop' that can be 'grown' without any seeds, fertilizers, pesticides, irrigation or backbreaking labour. Realizing this, the Gujarat government intensively promotes solar irrigation pumps by offering around Rs 90,000 per kW subsidy. But a better way may be feasible through mandating Power Purchase Agreements (PPAs) for 25 years with feed-in tariffs of Rs 8-9 per unit. With this, the capital cost subsidy on solar pumps can actually be scaled down to Rs 50,000 per kW besides improving farm incomes. A 7.5 kW solar pump with an assured power buy-back contract at Rs. 8 per unit can enable a one-hectare farmer to meet his irrigation needs and generate extra income of Rs 60,000 per annum. In addition, using electricity and diesel in groundwater irrigation produces about 26 million tonnes of carbon emissions (accounting 5 percent of India's total carbon emissions) but solarising the groundwater economy may result in mitigating climate change implications.

- 21) **Promoting agro-tourism and rural non-farm employment:** As of 2014-15, the potential of Indian agri-tourism industry was Rs. 4,300 crore, while the global agri-tourism market was \$10 billion USD (i.e. Rs. 63,000 crore). Though prospects are immense, agro-tourism in Gujarat is still at nascent stage. Thereby, there is a need to promote active participation of all stakeholders in the agro-tourism



sector. Corporate sector need to join hands with the line departments for commercial development of agro-tourism. The measures that may help in developing the agro-tourism prospects of Gujarat are given as follows: (i) promote active participation of all stakeholders including experts, local communities, hoteliers, tour operators and government agencies; (ii) organize agro-eco-tourism in a more integrated way by using the local resources and local folklore to attract tourists; (iii) establish Agro Rural Tourism (ART) centers to protect ecology by avoiding plastics, promoting greenery, supporting biodiversity and conserving water bodies to benefit agro-tourism sector; (iv) establish Agro-Technology Parks (e.g. Mango orchard based bee keeping farms or greenhouse based floriculture or olericulture) for quality production on commercial scale which may also serve as agro-tourism destinations; and (v) develop horti-silvi-pastoral or agri-horti-silvi culture system to boost agro-eco tourism.

**Non-farm rural employment:** Of late, creation of non-farm employment opportunities within the rural areas seems to have become dormant in Gujarat. Thereby, there is an urgent need to provide appropriate assistance to small scale sector in rural areas in terms of information base, availability of technology, technology transfer, improved credit availability and infra-structural and marketing support. The following steps may be of immense help in this regard such as: (i) prioritize skill training programmes to sufficiently reflect the market demand by roping in industries as one of the collaborators; (ii) simplify licensing procedures, laws and regulations for developing small scale enterprises in rural areas; (iii) ensure rural works programmes achieving the twin objectives of creation of rural infrastructure and additional incomes; and (iv) assure entitlements (like raw materials, credit and markets) of rural enterprises as an industry.

## Conclusion

Despite its traditional disadvantage of being a water-deficit state and prevailing arid and semi-arid conditions, the

performance of Gujarat in terms of State's GDP, agricultural GDP, per capita income and rural development measures is consistently among the top few states in India. The State's agricultural growth rate has never been short of 7 percent throughout the last decade. Going by the track record, it is no coincidence that Gujarat proves to have very high potential for not only improving farm incomes in the years to come but also doubling farmers' income by 2022-23. Accordingly, all the 21 key strategies suggested in the present investigation right from proliferating protected cultivation using net / poly houses; intensifying the use of bio-agents for scaling down production cost and evolving real-time comprehensive strategies for controlling serious pest incidences can be expected to exploit the natural advantage of Gujarat and tap the entrepreneurial spirit of the farmers along with making better use of farm sector and business friendly initiatives of both the State and Central Governments alike.

## References

- Chand, Ramesh. (2016). 'Why Doubling Farmers' Income is Possible', The Indian Express, July 27, Mumbai edition.
- Chand, Ramesh, Raka Saxena and Simmi Rana. (2015). 'Estimates and Analysis of Farm Income in India', 1983-84 to 2011-12, *Economic and Political Weekly*, Vol L, No 32, May 30.
- GOG. (2015). 'Fourth Advance estimates of Area, Production and Productivity of major crops', 2014-15 of Gujarat State, Government of Gujarat, Gandhinagar.
- ICFA. (2016). 'Report on Doubling Farmer's Income by 2022', Indian Council of Food and Agriculture, 30 April, India International Centre, New Delhi.
- JAU. (2016). 'Vision 2030', Junagadh Agricultural University, Junagadh, Gujarat.
- NSSO. (2014). 'Situation Assessment Survey of Agricultural Households', 2012-13, National Sample Survey Organization, GOI, New Delhi.
- Sardana, V. (2016). 'Doubling Farmers Income by 2022: Role of Banks & Financial Institutions.' Lead talk presented in a Seminar organized by PHD chamber and NABARD, 5<sup>th</sup> July, 2016, New Delhi.
- Satyasai, K. J. S and Sandhya Bharti. (2016). 'Farmers' Income: Double or Quits?', Rural Pulse Issue-XIV, March-April, NABARD, Mumbai.

*"Your earning ability today is largely dependent upon your knowledge, skill and your ability to combine that knowledge and skill in such a way that you contribute value for which customers are going to pay."*

– Brian Tracy

# Regional Differences in Growth of Employment Generation by MSMEs: A Study with Reference to Northern and Southern Regions of Kerala

SHACHEENDRAN V. AND TOMY MATHEW

*Entrepreneurship enables to eradicate poverty, utilise resources for productive purposes, delivers goods and services to people, thereby promote economic development and growth. Along with various broad socio-economic advantages, it also provides source of livelihood for the individuals. Employment generation is the one of the important objectives of any form of entrepreneurship. MSMEs are considered as highly labour intensive form of entrepreneurship. In a State governed by same set of rules and regulations is supposed to have uniform development of entrepreneurship throughout. However, the research paper proves that in Kerala State there is regional difference in the employment generation by MSMEs.*

## 1. Introduction

### 1.1 Entrepreneur and Entrepreneurship

The word entrepreneur is derived from the French word 'entreprendre', which means 'to undertake'. The term entrepreneur refers to the individual or individuals who may attempt or who are attempting to found a business. . . ' (Learned 1992, 2). He is a person who conceives a business opportunity, evaluates its techno-economic feasibility, and implements the project by combining different factors of production such as land, labour capital etc., and run the project idea. Vibrant entrepreneurs become the agents of change and dynamism in an economy. An entrepreneur has many roles and responsibilities to perform. Beginning from Cantillon (1730) in the eighteenth century, scholars have assigned several roles for entrepreneurs. It includes roles of a risk bearer, organiser and allocator of scarce resources among alternative uses, innovator, decision-maker, industrial leader, owner of an organisation, employer of factors of production and so on. Modern economists state that an entrepreneur is a special type of businessman, who is willing to undertake the task of organising the different factors of production, handles various managerial affairs, bears risk and sets the business to run it profitably.

'Entrepreneurship is historically associated with risk taking' (Gurol and Atsan 2006). Hisrich, Peters, and Shepherd (2005) define as 'the process of creating something new with value by devoting the necessary time and effort, assuming the accompanying financial, psychic, and social risk, and receiving the resulting rewards'. It is 'the creation of new organisations'(Gartner 1990). 'Entrepreneurship is an attempt to create value through recognition of business opportunity, the management of

*Shacheendran.V, M.Com, Mphil, MA (Economics), PGD in Tourism Mgt. Head & Assistant Professor, PG Department of Commerce, GPM Govt. College, Manjeswar, Kasaragod District, 671323*

*Dr. Tomy Mathew, M.Com, Ph.D, Head & Associate Professor, Department of Commerce, CMS College, Kottayam.*

risk taking appropriate to the opportunity, and through the communicative and management skills to mobilise human, financial and material resources necessary to bring project to fruition' (John and Stevenson, 1984). It is an individual's response to an environment. 'An entrepreneur represents an individual or a group of individuals who conceive, initiate and maintain, for a significant period of time, a social institution which produces economic goods' (Cole, 1949).

### 1.2 Factors affecting entrepreneurship

According to Khanka (2009) and several other scholars, the emergence and development of entrepreneurship is not a spontaneous one, but dependent upon economic, social, political, psychological factors and other supportive conditions. These conditions may have positive or negative influences on the emergence of entrepreneurship. Positive influences constitute facilitative and conducive conditions leading to the origination and promotion of entrepreneurship, whereas negative influences create an inhibiting milieu. Understanding these factors enable the promotional agencies to design suitable programmes/ measures for entrepreneurship development. Sharma (1980) has classified the factors motivating the entrepreneurs into two types;

- a. Internal factors such as desire to do something new, educational background, prior occupation/experience etc.
- b. External factors which include government assistance and support, availability of labour and raw materials, encouragement from big business houses, promising demand for the product etc.

Sharma (1978) describing four stages of economic growth, viz., entry into manufacturing, expansion of business, perceived stability in business and commitment to sustained growth, argues that entrepreneurial growth is governed by three determinants, viz., need for achievement motivation, socio-economic background of entrepreneur (family occupation, caste, religion and region) and political milieu. The interaction of these two sets of factors (stages of economic growth and determinants of entrepreneurial growth) take place not in vacuum but with the existence of entrepreneurial prerequisites like material resources, entrepreneur's vision and confidence to run an industry and the general infrastructure available. Using this model and an empirical analysis, Sharma (1978) suggests that 'the family occupation is more effective for entry into manufacturing and that the political factors make positive

contribution in the expansion of a unit at the third stage i. e. perception of business stability'.

In economics, traditional theory assumed that markets move towards equilibrium and it is entrepreneurs who cause disequilibrium when they innovate and create profit opportunities. According to this classical school of thought, the profit opportunities created by entrepreneurs are the cause of the disequilibrium, and it improves the incomes of all affected. In contrast, according to Kirzner (1983), it is not the entrepreneur who causes disequilibrium. To him, '*entrepreneurship* identifies market opportunities. The entrepreneur is the one who correctly anticipates where the next imperfection will be'. '*Entrepreneurship*' thus corrects socio-economic 'wastes' or inefficiencies. Kirzner stated that '*entrepreneurship* is unlikely to come from the government or planned sector, because even when there is innovation, *entrepreneurship* will depend on profit motive'.

Economic growth and development requires vibrant and visionary participation of entrepreneurial community. As an iterative, business churning process, entrepreneurship stimulates economic development and generates social wealth through opportunity discovery and exploitation (Venkataraman, 1997). Entrepreneurship is generally perceived as an engine of social and economic growth (Acs and Audretsch, 2005). They act as nursery of entrepreneurial and managerial skills. MSMEs form the fulcrum of job creation and income generation in many developing economies. As per the 4th Census of MSME sector (2011), in India, MSME sector employs 59.7 million persons spread over 26.1 million enterprises and in terms of value, the sector accounts for about 45 percent of the manufacturing output and around 40 percent of the total exports. MSMEs contribute about eight percent of the GDP of the country.

### 1.3 Entrepreneurship in MSMEs

According to Diamond (1957), entrepreneurship is equivalent to enterprise, which involves the willingness to assume risks in undertaking an economic activity, particularly a new one. Entrepreneurship refers to a process of action and an entrepreneur undertakes to establish an enterprise. Though entrepreneurship can be initiated in different scales of operation, for a developing country like India, MSMEs assume greater significance.

MSME sector can be considered as the backbone of the modern day economy. It represents a stage in the

economic transition from traditional to modern technology. MSME sector is the engine of faster economic growth. Because of their locational flexibility, MSMEs can be used for rapid industrialisation across rural and urban areas. Kerala Government's Industrial Policy 2011 states that 'creating and nurturing SMEs would be the path to make Kerala a growth oriented enterprising society'.

They encourage growth of local entrepreneurship, thereby create a decentralised pattern of ownership, and avoid concentration of economic wealth among a few and results in equitable distribution of income and wealth. They also serve as seedbeds of entrepreneurship. They act as nursery of entrepreneurial and managerial skills. MSMEs enable skilled technicians and young entrepreneurs to set up their own business with limited financial resources.

They are dealing with economic activities involving buying, selling goods and services along with engaging in other business functions on small and medium scale. They serve the consumers and meet the needs of other businesses. They foster diversification of economic activities by introducing innovative products particularly to cater the local needs and thereby improves standard of living of local people.

They utilise locally available raw materials, skills and technologies. Thus inclusive socio-economic growth can be achieved and thereby unrest and social tension/conflicts can be reduced in the regions.

#### **1.4 Regional Disparity**

The term disparity can be defined as the condition or fact of being unequal in respect of status, rank or degree. It is also expressed by the terms like inequality, unlikeness, disproportion and difference.

Myrdal (1957) and Hirschman (1958) have explained regional disparities with the help of terms like 'backwash vs. spread effects', 'polarisation vs. trickling down effects'. In his Cumulative Causation Hypothesis, Myrdal points out that the play of market forces normally tends to increase rather than decrease the inequalities between competing regions. Hirschman stressed the tendency of 'polarisation' of free market forces to increase inter-regional inequalities and advocated for government intervention.

Report of Fourth All India Census of MSME recognises regional disparity in entrepreneurial development in as follows-'The Policy of Reservation of Products for Exclusive Manufacture in SSI (now MSEs)'

was initiated in 1967 with the objective of achieving socio-economic development, through development and promotion of small units all over the country. This was expected to result in countering the challenges of regional industrial imbalances, employment generation through self-employment ventures, increased productivity etc. Uneven distribution of basic resources needed for industrial development may lead to concentration of industries in a few centres, causing regional disparities in entrepreneurial development.

Governments can influence the market mechanisms and make them function efficiently by removing conditions that create market imperfections and administrative rigidities and create an 'enterprise culture' that enables firms to take reasonable risks and seek profits. Socio-economic factors may be as important as the availability of loans, technical assistance, physical facilities and information. Entrepreneurship may not prosper if most members of the society view it with suspicion. The existence of various environmental conditions increases the chances of emergence and growth of businesses in a country. Though a single factor may have less impact, the interaction of various factors may considerably increase the impact on entrepreneurial development and growth. A key role of the entrepreneurial environment is to help entrepreneurs to develop and grow entrepreneurial firms that will meet consumers' demands and have a positive effect on the economy through increasing number of jobs available and improving the standard of living.

#### **1.5 Kerala State-Profile in Brief**

Kerala State, formed on 1 November, 1956, is one of the smallest States in India along the Malabar Coast of the Arabian Sea, covering a geographical area of 38863 Square Kilometre (Sq. Km) which is only 1.18 percent of the Indian Union but accounts for 2.76 percent of the total population. The State accommodates a population of 334,06,060 (Males, 160,27,410 and Females, 173,78,650) (2011 Census). The State has the highest literacy rate of 94 percent among Indian states. It has 47.7 percent urban population. It is a densely populated State, 860 persons per Sq. Km., as against India's 382 per Sq. Km. The state has sex ratio of 1084, which is higher than that of the country (943) (Census 2011). The State has credit deposit ratio of 67.73, indicating that it has idle funds with inadequate demand and provides great potential for entrepreneurs to tap financial resources for their requirements. The state has been ranked best in India in

terms of Physical Quality of life Index. It offers best public health care system in India (Industrial and Commercial policy 2011). Kerala has the densest cluster of science and technology personnel in the country. The large pool of educated and skilled human resource has substantial exposure to the best practices of global business requirements thereby providing the state with the right platform for social and economic growth<sup>11</sup>.

The status and growth of MSME form of entrepreneurship can be measured by the variables such as the number of MSME units set up and their employment generation. The available data show that these measures

are lower in the northern region as compared to that of the southern region. The table 1 shows the number of MSME units set up and number of employment generated by MSMEs in the northern and southern regions of Kerala upto 31. 03. 2014.

The southern region consists of 56 percent of the population and 55 percent of the geographical area of Kerala State. The northern region accommodates 44 percent of the population and has 45 percent of the geographical area of the state. The gap between these two regions is only of 10-11 percent. However, 70.44 percent of the total MSMEs in the state are in the southern

**Table 1: MSME Units Registered in the Northern and Southern Regions of Kerala upto 31. 03. 2014**

District / Region	Employment Provided (Nos)	Number of MSMEs set up
Thiruvananthapuram	154025	31365
Kollam	111346	16249
Pathanamthitta	54521	9764
Alappuzha	98255	17456
Kottayam	81818	23747
Idukki	29083	5124
Ernakulam	211347	30851
Thrissur	123259	30461
<b>Southern Region Total</b>	<b>863654</b>	<b>165017</b>
<b>As % of Total of Kerala</b>	<b>72.52</b>	<b>70.49</b>
<b>Per Capita</b>	<b>0.046</b>	<b>0.009</b>
Palakkad	72067	15917
Malappuram	56687	12702
Kozhikode	87595	18271
Wayanad	18112	3543
Kannur	56708	12070
Kasaragod	36121	6731
<b>Northern Region Total</b>	<b>327290</b>	<b>69234</b>
<b>As % of Total of Kerala</b>	<b>27.48</b>	<b>29.56</b>
<b>Per Capita</b>	<b>0.022</b>	<b>0.005</b>
<b>Kerala Total</b>	<b>1190944</b>	<b>234251</b>

Source: Economic Review 2014

region as against only 29.56 percent in the northern region. The per capita MSMEs promoted in the southern region were 0.009 as against only 0.005 in the northern region. Thus, it indicates that as on 2014, the status of entrepreneurship in MSMEs is lower/backward in the northern region as compared to that in the southern region. The 72.52 percent of employment generated by MSMEs in the state is in the southern region as against only 27.48 percent in the northern region. The per capita number of employment generated by MSMEs in the southern region was 0.046 as against only 0.022 in the northern region. Thus, it indicates that the northern region has not achieved proportionate status in MSME entrepreneurship as compared to that of the southern region and the status of entrepreneurship in MSMEs is lower / backward in the northern region as compared to that in the southern region.

## 2. Methodology

The study has been conducted in Kerala State. Kerala State, covering a geographical area of 38863 Square Kilometer (Sq. Km) which is only 1.18 percent of the Indian Union but accounts for 2.76 percent of the total population, prior to the formation of Kerala state in 1956, there were two distinct regions (princely states) viz., Travancore-Cochin and Malabar. Hence, the present study has classified the State into the northern (Malabar) and southern (Travancore- Cochin) regions. The southern Region (erstwhile Travancore-Cochin Region) consisting of Thiruvananthapuram, Kollam, Pathanamthitta, Alappuzha, Idukki, Kottayam, Ernakulam and Thrissur, and The northern Region (erstwhile Malabar Region) consisting of Palakkad, Wayanad, Kozhikode, Malappuram, Kannur and Kasaragod.

### 2.1. Objective of the Study

To examine whether there is any regional difference in respect of status and growth of employment generation by MSMEs in the Northern and Southern Regions of Kerala.

### 2.2. Hypotheses of the study

- H<sub>0</sub>:** There is no significant difference in the status and growth of employment generation by MSMEs between the northern and southern regions of Kerala.
- H<sub>1</sub>:** There is significant difference in the status and growth of employment generation by MSMEs between the northern and southern regions of Kerala.

## 2.3 Data Used and Method of Analysis

The study is analytical in nature. It is based on secondary data. In order to examine the regional difference in the status and growth of employment generation by MSMEs, a comparison using the data relating to a decade period 2014 and 2004 on per capita and per square Kilometre basis is done. The comparison using per capita and per Sq. Km. measures assumes significance because number-wise, the southern region of Kerala consists eight districts as against only six districts in the Northern Region. Since the reliable population data of the regions are available only in respect of census years, for computing per capita figures of 2014, population data of Census 2011 and for computing per capita figures of 2004, population data of Census 2001 are used uniformly throughout the study. Quantitative data relating to selected variables are analysed using average, standard deviation and Compounded Annual Growth Rate (CAGR). The CAGR is computed with the formula-  $CAGR = [(t_n / t_1)^{1/n}] - 1$ . The significance of difference in the absolute status of MSME entrepreneurship has been analysed using 't' test. For this purpose, secondary data for a period of 23 years from 1991 to 2013 has been used.

## 3. Analysis and Findings

One of direct outcomes of entrepreneurship is that it creates employment opportunities in the economy. Employment provides income to the people and enables to maintain a reasonable standard of living. It also helps in creating social harmony and peace.

The table 2 shows the employment generated by entrepreneurs in MSME sector in the northern and southern regions of Kerala in two-decade periods, 2004 and 2014.

The table shows that in 2004, the per capita employment provided by MSME units in the southern region was 0.030, while the northern region it was only 0.029. By 2014, in the southern region the per capita employment provided by MSME units increased to 0.046, while in the northern region it is decreased to 0.022. Thus, it indicates that over the decade period, per capita employment provided by MSME units was lower in the northern region as compared to that in the southern region and the gap has increased. In 2004 in the southern region, per Sq. Km. employment provided by MSME units is 39.735, while in the northern region, it is only 22.166. By 2014, the figures have become 40.358 and 18.742 respectively. It indicates that over the decade period the

**Table 2: Decadal Comparison of Employment Generated by MSME Units in the Northern and Southern Regions of Kerala in 2004 and 2014**

Particulars	2004		2014		Gap Between Regions	
	North	South	North	South	2004	2014
Employment Provided (Nos.)	387092	850330	327290	863654	463238	536364
Per Capita Employment	0.029	0.030	0.022	0.046	0.001	0.024
Per Sq. Km. Employment	22.166	39.735	18.742	40.358	17.569	21.616

# Population figures of 2004 are based on Census 2001 and that of 2014 are based on Census 2011

Source: Economic Review 2004 and 2014.

per Sq. Km. employment provided by MSME units was lower in the northern region as compared to that in the southern region and the gap has increased. The gap between the regions has increased from 17.569 to 21.616 indicating that the northern region has went backward as compared to that of the southern region. Thus, the table shows that in respect of both per capita and per Sq. Km. employment generated by MSMEs, the northern region has a backward status as compared to that of the southern region.

Table 3 shows the employment generated by MSMEs in the northern and the southern regions of Kerala from the year 1991 to 2013, along with their annual growth rate and Compounded Annual Growth Rate (CAGR).

The table shows that out of the total 23 years of analysis, only in one year (in 1995), employment creation by MSMEs in the northern region has grown in two digits, where as in the southern region, in several years double digit growth has occurred. The negative growth in 2007

**Table 3: Growth of Employment Generated in MSMEs in the Northern and Southern Regions of Kerala from 1991 to 2013**

Year	Northern Region		Southern Region	
	Number	Growth Rate (%)	Number	Growth Rate (%)
1991	169179		296013	
1992	180332	6.59	337687	14.08
1993	191233	6.04	377365	11.75
1994	205987	7.72	423556	12.24
1995	227002	10.20	476159	12.42
1996	247519	9.04	527517	10.79
1997	265767	7.37	573829	8.78
1998	286271	7.72	623591	8.67
1999	308872	7.89	672619	7.86
2000	329862	6.80	723671	7.59

Continued...

2001	350880	6.37	763615	5.52
2002	369954	5.44	803520	5.23
2003	381560	3.14	833972	3.79
2004	387092	1.45	850330	1.96
2005	393409	1.63	866598	1.91
2006	398916	1.40	889219	2.61
2007	209607	-47.46	513253	-42.28
2008	214009	2.10	524031	2.10
2009	223796	4.57	547175	4.42
2010	235662	5.30	596185	8.96
2011	256917	9.02	685064	14.91
2012	276927	7.79	744235	8.64
2013	300570	8.54	802556	7.84
<b>CAGR</b>	<b>2.530</b>		<b>4.432</b>	

Source: Economic Review 1991-2013.

indicates fall in employment creation in units. It was occurred in the northern region at a higher rate (47.46 percent) than that in the southern region (42.28 percent). Even in fall, the northern region has shown its weakness by falling at higher rate than that in the southern region. The CAGRs of employment generation in MSMEs in the two regions of Kerala shows that the southern region has almost double CAGR (4.432 percent) than that of the northern region (2.530 percent). Thus, the table shows that the number and CAGR of employment created in MSMEs in the northern region are lower than that in the southern region.

The figure 1 shows the trend line of the number of employment created by entrepreneurs in MSMEs in the northern and southern regions of Kerala.

The chart shows that the employment provided by MSMEs in the southern region is at a very higher level in all the years than that of the northern region. The trend lines show that the northern region very backward in respect of the number of employment created in MSME sector as compared to that in the southern region.

The table 4 shows the mean, standard deviation and results of 't' test in respect of employment provided by MSMEs in the northern and southern regions of Kerala.

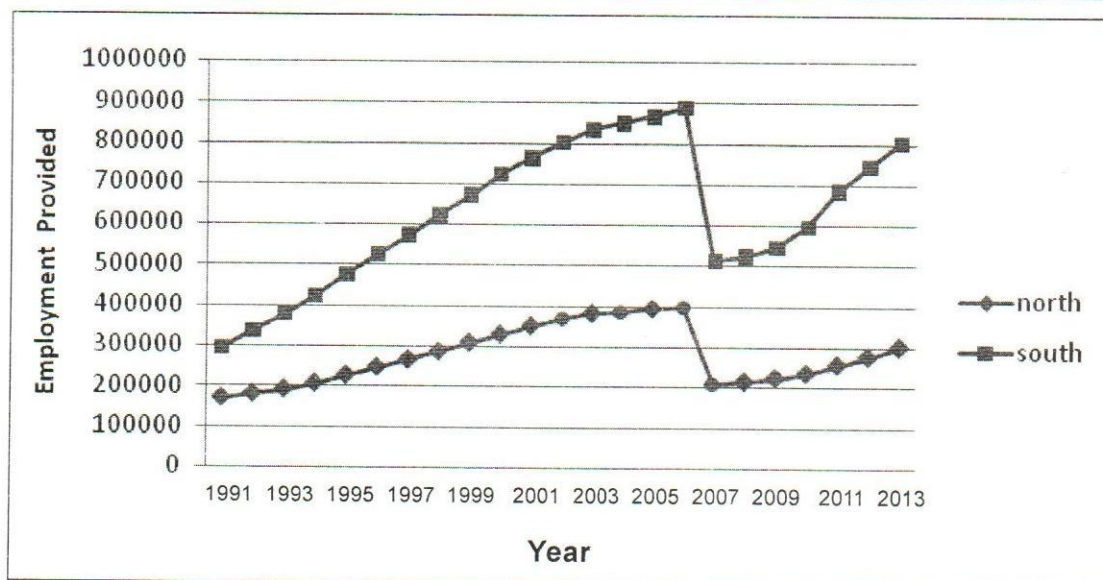
**Table 4: Analysis of Employment Provided by MSMEs in the Northern and Southern Regions of Kerala from 1991-2013**

Region	N	Average	Standard Deviation	t	*p
South	23	628337	177269	8.729	0.0001
North	23	278753	73936		
H <sub>0</sub> : Rejected					

Source: Economic Review 1991-2013.

\*Significant at 0.05 level





Source: Economic Review 1991 and 2013.

Figure 1: Trend Lines of the Number of Employment Created by Entrepreneurs in MSMEs in the Northern and Southern Regions of Kerala from 1991-2013

The table shows that the average number of employment generated by MSME units during the period 1991-2013 in the northern region (278753) is very lower than that in the southern region (628337). Their standard deviations are 73936 and 177269 respectively. The 't' test results shows that, since  $p=0.00 < 0.05$ , there is significant difference between the regions in respect of number of employment generated by MSME units. Thus, it can be concluded that the northern region has created only lesser number of employment opportunities in MSMEs than that in the southern region and their difference is statistically significant.

Status of entrepreneurship can also be evaluated in terms of relative parameters like per unit employment generated, per unit output and per unit investment made in MSMEs in northern and southern regions of Kerala.

The table 5 shows selected efficiency parameters relating to MSMEs in the northern and southern regions of Kerala.

The table shows that in 2004, in the southern region, per unit employment provided by MSME units was 4.365 as against 4.789 in the northern region. However, by 2014, in the southern region per unit employment provided by MSME units has increased to 5.234 as against a fall in the northern region to 4.727. It shows that over the decade period, the southern region has generated more employment per unit than that in the northern region. As result the gap between the regions has widened from -0.424 (2004) to 0.506 (2014) and the northern region has went backward in generating per unit employment as against an increase in the southern region.

Table 5: Decadal Comparisons of Efficiency Parameters of MSMEs in the Northern and Southern Regions of Kerala

Particulars	2004		2014		Gap Between Regions	
	North	South	North	South	2004	2014
Per Unit Employment	4.789	4.365	4.727	5.234	-0.424	0.506
Per Unit Output (in Lakhs)	4.519	5.594	17.294	22.952	1.074	5.658
Per Unit Investment (in Lakhs)	1.357	1.506	6.090	6.143	0.149	0.052

Source: Economic Review 2004 and 2014.

In 2004, per unit output by MSME units was lower in the northern region (4.519) as compared to that in the southern region (5.594). By 2014, the figures have increased to 17.294 and 22.952 respectively. Thus, the gap between the regions in respect of per unit output was only 1.074 in 2004. However, by 2014, the gap has widened to 5.658. It indicates that over the decade, MSMEs in the southern region has attained higher levels of efficiency than that in the northern region.

In 2004, per unit investment in MSME units in the southern region was 1.506, while in the northern region it was 1.357. By 2014, per unit investment in MSME units in the southern region became 6.143, while the northern region it is at 6.09. The table shows that over the decade period, the gap in respect of per unit investment, between the regions has reduced from 0.149 to 0.052. It implies that investment in MSMEs occur in both the regions. In spite of that, gap in respect of per unit employment and per unit output are increasing. Since CAGR of investment in MSMEs is higher in the northern region, it also implies that investment made in MSMEs in the northern region are not efficient enough to generate employment and output as compared to that in the southern region.

#### 4. Concluding Remarks

To conclude, it can be stated that the northern region has created only lesser number of employment opportunities in MSMEs than that in the southern region and their difference is statistically significant. Serious efforts are needed to increase growth. Industrial backwardness can be removed only with the help an exclusive MSME package for the northern region. Special schemes and relaxations are needed for the growth of MSMEs in the Northern Region.

The District Industries Centres (DICs), the basic interface between the entrepreneur and the government should be thoroughly revamped. The officers should be given minimum 3-5 years of service in a single DIC so that they can bring a comprehensive improvement in the entrepreneurial scenario of the district. The DICs should be equipped with qualified professionals in the offices in order to help/ mentor entrepreneurial development in the district. The monetary rewards for officials in DICs should be fixed based on their performance and contribution to entrepreneurship promotion. It should act as a permanent forum for guidance and consultancy for the entrepreneurs on a variety of issues. In addition, efforts are needed to increase per unit output and per unit employment in

MSMEs in the Northern Region. Procedures and formalities to set up enterprises must be simplified, very clear and rationalised so that the entire formalities to start an enterprise must be able to finish within 1-2 days or even within a lesser number of hours. Rules and regulations must be consistent and should not be changed frequently and never with a retrospective effect. Instead of renewing licenses/ permits every year, a validity of 5-10 years can be granted, unless it is so vital to examine the justification for continuing the license/permit every year. In order to avoid revenue loss to government, for each year, fee can be levied for license/permit from the enterprises. The government must make entire procedural compliance and payments online so that it can reduce corruption, bring transparency, and save time and effort of entrepreneurs.

#### References

- Acs, Z. J., and Audretson. (2005). Introduction to the Handbook of Entrepreneurship Research. *Springer Science*. New York.
- Akhouri M. M. P. (1979). Entrepreneurial Economic Success Index For Assessing Entrepreneurial Success: *SEDME*: Vol. IV. No. 1. March 8. 36-39.
- Altinay, L. (2008). The relationship between an entrepreneur's culture and the entrepreneurial behaviour of the firm: *Journal of Small Business and Enterprise Development*: 15(1). 111-120.
- Cantillon, Richard. (1730). ed. Peter Kilby. *Economic Development. Entrepreneurship and Economic Development*. The Free Press. NewYork. P. 2.
- Census of India. (2011). Government of India.
- Cole Arthur. H. (1949). *Entrepreneurship and Entrepreneurial History in Change and the Entrepreneur*. Harvard University Press. Cambridge.
- Diamond, William. (1957). *Development Bank*. Baltimore. The John Hopkins Press.
- Economic Review. (2011). State Planning Board. Government of Kerala. Vol. II
- Gartner, W. B. (1990). Who is an Entrepreneur? Is the Wrong Question. *Entrepreneurship Theory and Practice*. 13. 47-68.
- Guasch, Kuznetsov, & Sanchez. (2002). SMEs in Argentina: A potential engine for economic growth and employment. *World Bank Sector Report*. Washington. D. C. World Bank.
- Guroi, Y., & Atsan, N. (2006). Entrepreneurial Characteristics amongst University Students: Some Insights for Entrepreneurship Education and Training In Turkey. *Education and Training*. 48(1). 25-38.
- Hisrich, D. R. (1986). The woman entrepreneur: characteristics, skills, problems and prescriptions for success. In D. L. Sexton & R. W. Smilor (Eds.). *The art and science of entrepreneurship* (pp. 61-81). Cambridge: Ballinger.

- Hisrich, R., Peters, M., & Shepherd, D.** (2005). *Entrepreneurship*. 6<sup>th</sup> Ed. Illinois: McGraw Hill.
- Industrial and Commercial Policy.** (2011). Govt. Kerala.
- Kao John and Howard Stevenson.** (1984). Eds. *Entrepreneurship; What It Is and How To Teach It*. Division of Research. Harvard Business School.
- Khanka S. S.** (2009). *Entrepreneurial Development*. S. Chand & Company Ltd. Edn pp. 33-39.
- Khanka, S. S.** (1990). *Entrepreneurship in Small Scale Industries. Conditions Influencing the Emergence of Entrepreneurship*. Himalaya Publishing House. New Delhi. Pp. 25-36.
- Kirzner, I. M.** (1983). *Entrepreneurs and the Entrepreneurial Function: A Commentary*. In J. Ronen. Ed. *Entrepreneurship*. Lexington. Ma: Lexington Books. D. C. Heath.
- Learned, K. E.** (1992). What happened before the organization? A model of organisation formation. *Entrepreneurship Theory and Practice*.
- Learned, K. E.** (1992). What happened before the organization? A model of organization formation. *Entrepreneurship Theory and Practice*. 17(1). 39-48.
- Manalel, James.** (1994). *The Role of Incentives in the Development of SSIs in Kerala*. Ph. D. Thesis. Cochin University of Science and Technology.
- Mathew.** (2001). Organizational Innovation Models for SMEs- Their Suitability to Indian Situation. *Asia Pacific Newsletter* Vol. XII. No. 1. Oct-March.
- Morrison, A.** (2000). Entrepreneurship: what triggers it? *International Journal of Entrepreneurial Behaviour and Research*. 6(2). 59-71.
- Sharma, K. L.** (1978). A Multi-Variable Model for the Analysis of Entrepreneurship in Manufacturing Organisation. *Sociological Bulletin* 27. No. 1 (March).
- Sharma, R. A.** (1980). *Entrepreneurial Change in Indian Industry*. New Delhi. Sterling Publishers.
- Venkataraman S.** (1997). The District domain of Entrepreneurship Research. in *Advances in Entrepreneurship, Firm Emergence, and Growth*. Eds J. Katz and R. Brockhaus. pp. 119-138.
- Weber, M.** (1909). Trans. Tellier, Luc-Normand, 1972, "The Weber Problem: Solution and Interpretation", *Geographical Analysis*, vol. 4, no. 3, pp. 215-233.

**Note :**

- <sup>1</sup> State Level Actions to Promote Growth of Manufacturing (Resources and Capability Review), Centre for Research, Planning & Action July, 2012, Govt. Kerala. p. 35

*"If you want a more productive economy, you need to invest in the skills of our workforce."*

*– Jeremy Corbyn*

# Comparative Study to Determine Impact of Patent Filing on Growth of the Country

ANUPAM SHARMA AND KARTIK SINGLA

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*An attempt has been made in this study to present an overview of the annual patenting intensity of China, the US, Japan, Rep. Korea, and India. Patent data originating from these countries from 2005 to 2014, filed through World Intellectual Property Organization (WIPO), European Patent Office, and the United States Patent were collected and analysed. Gross Domestic Product (GDP) is one of the measuring scales of economic growth. This article examines the growth rate of the country in context to the patent filling. Results depicts that differences in patent activity are dependent upon both the size of the economy and the level of development. So it is interesting to articulate that the numbers of patent applications are relative to GDP, population, research and development spending, and other variables (commonly referred to as 'patent activity intensity' indicators) also contributes.*

## 1. Introduction

Intellectual property rights (IPR) are the legal rights granted with the aim to preserve the creations of the intellect of the individual. Intellectual property rights can be defined as legal rights used to protect the human mind's creativity, as like other physical property rights, the one who is the original creator of music, art, invention, design, etc., lawfully becomes the owner of that creativity. Law recognizes the existence of IPR and that's why there rights are defined as statutory rights granted to the original owner. Industrial property rights include patents, industrial designs, and trademarks and copyright (right of the author or creator) and related rights (rights of the performers, producers, and broadcasting organizations). Original author or creator can use or exploit these rights in one and many ways, for example, an author can sell these rights for monetary benefits, can stop others to use their work without their prior permission.

Intellectual property rights are largely territorial rights granted country wise except copyright, which is global in nature in a way that it is immediately applicable in all the member countries of the Berne Convention. The Berne Convention, which works for the protection of literary and artistic works, till date is the oldest international agreement in the field of copyright (Visser and Pistorius). The Berne Convention is the most important treaty that administers the area of copyright. It has also been depicted as being to copyright what the Paris Convention for the Protection of Industrial Property (hereinafter referred to as the Paris Convention) is to industrial property rights (Paul and Jon). The convention was initially signed in 1886 and has been revised several times (WIPO). Other IPR rights, awarded by the individual states, are monopoly rights and exclusive rights implying that no one else can use these rights

*Dr Anupam Sharma, Assistant Professor, School of Humanities and Social Sciences, Thapar University, Patiala, India*

*Kartik Singla, Final year B. Tech. Student, Thapar University, Patiala, India*

without the consent of the original rights holder. Some of these rights have to be renewed from time to time for keeping them in force except in case of copyright and trade secret. Patent is granted for 20 years but every year the author needs to go for a renewal of the same.

In the globalized world, it's very much important to promote and protect the individual mind's creativity. So every invention either in context to technology or human mind's creativity in context to music, sound, literature should be protected. In this way, IPR law formulation plays a very important role and formulation of different societies like PCT, BC, TRIPS, TRIMS helps a lot in generalizing the related laws.

## 2. Patent

Patent is a set of exclusive rights granted by law so that an inventor can make use of their invention to manufacture and market the invention and product made by using their invention. Patent protection also helps individual in recognizing their creativity and offering the possibility of material reward for their earning monetary benefits by marketing inventions. These monetary benefits encourage innovations, which in turn enhances the quality of human life and growth of the economy. Exclusive right implies that no one else without prior permission of the author or patent holder can make use, manufacture, or market the invention. Patent rights are granted for a limited period of time. In spite of the ownership of the rights, the use or exploitation of the rights by the owner of the patent may not be possible due to other laws of the country that have awarded the patent. These laws may relate to health, safety, food, security, etc. Further, existing patents in a similar area may also come in the way.

Based on the country of origin, the terms *resident* (domestic) and *non-resident* (foreign) are defined and all IP data and information in the subject matter of patent are categorized by these two terms. As a matter of fact, the residency of the first person who registers an invention in the IP documents (that is, Patent and Trademark application) is used for categorizing the IP data and information by the country of origin. A resident filing for the IP data refers to an application filed by an applicant at his national IP office. Similarly, a non-resident (foreign) filing an application refers to an application registered by an applicant at a foreign intellectual property office. For example, a patent application filed by an applicant resident of the United States at the IP office of the United

States is believed as a resident filing for the intellectual property filing data of the United States; in the same way, a non-resident filing refers to an application registered by an applicant at a foreign intellectual property office. For instance, an application filed by a Japan resident applicant at the IP office of China is considered as non-resident filing for the data of China's intellectual property office.

Like other property rights, a patent in the law is recognized as a property right and hence can be gifted, inherited, assigned, sold, or licensed. As the right is conferred by the state, it can be revoked by the state under very special circumstances even if the patent has been sold or licensed or manufactured or marketed in the meantime. In return for patent protection at a wider span, all patent owners are obliged to disclose the information publicly about their inventions in order to enrich the world with total body of technical knowledge. This will enhance the ever-increasing body of public knowledge and further help in promoting creativity and innovation. Patents, therefore, not only provide protection to their owners but also provide valuable information and inspiration for future developments and innovation in inventions. The patent rights are territorial in nature and inventors/their assignees will have to file separate patent applications in the countries of their interest, along with necessary fees supported with proper documentation, for obtaining patents in those countries. A new chemical process or a drug molecule or an electronic circuit or a new surgical instrument or a vaccine is a patentable subject matter, provided all the stipulations required or demanded by patent law are satisfied.

According to the importance of subject matter of patent and GDP, some researchers have considered studying, examining, and analysing the relationship between them. In this regard, a research examined the relation between patent filing and economic growth for Japan and South Korea. Results have shown that logarithms of GDP and the number of patents are co-related and it may be a two-way causality between the growth of GDP and the growth of the number of patents. But, at last, they concluded that the growth of GDP effects the growth of the number of patents and did not find any evidence of reverse causality (Sinha, 2007). In addition, another study tried to find out the effective variables on firm market value and in this regard, it was assessed by variables such as assets value, quality of R&D stock, and patent (Bessen, 2009). Moreover, it was found out that

there is a quantitative relationship, which can be expressed as  $G=kF(IgP)N$ , where  $G$  is per capita GDP,  $F$  gross expenditure on R&D as percentage of GDP,  $P$  patent applications,  $N$  Internet users per 10,000 inhabitants, and  $k$  a constant ranging from 0.4 to 1.2 in most countries (Ye, 2007).

In this article we try to find out relation between patent filling and gross domestic growth of the country. Furthermore, one of the measuring scales of economy is GDP, which defines in a certain period of time the value of all final produced goods and services in a country which is measured by the currency of that country. Here, final goods and services mean those which are in the end of the production's chain and are not purchased for other production or services.

**H1:** Is there any relationship between growth of the country with respect to patent filling.

**H2:** Is there any change in the number of patent filling with respect to developing and developed country.

The present research focuses on two major aspects and with the help of secondary data we will try to find out relation between growth of the country with respect to patent filling and how the nature of the country that is developed and developing is related to number of patent filling applications.

World Intellectual Property Indicators report (2013) shows that global intellectual property filing trends have followed a surprisingly different path than growth in the global economy, which has experienced as an outcome of the global financial crisis that began in the year 2008. While economic recovery since then has been irregular, IP filings sharply bounce back in 2012, following a drastic decrease in year 2009, was at the height of the financial crisis, and are now even exceeding pre-global economic crisis rates of growth (WIPO).

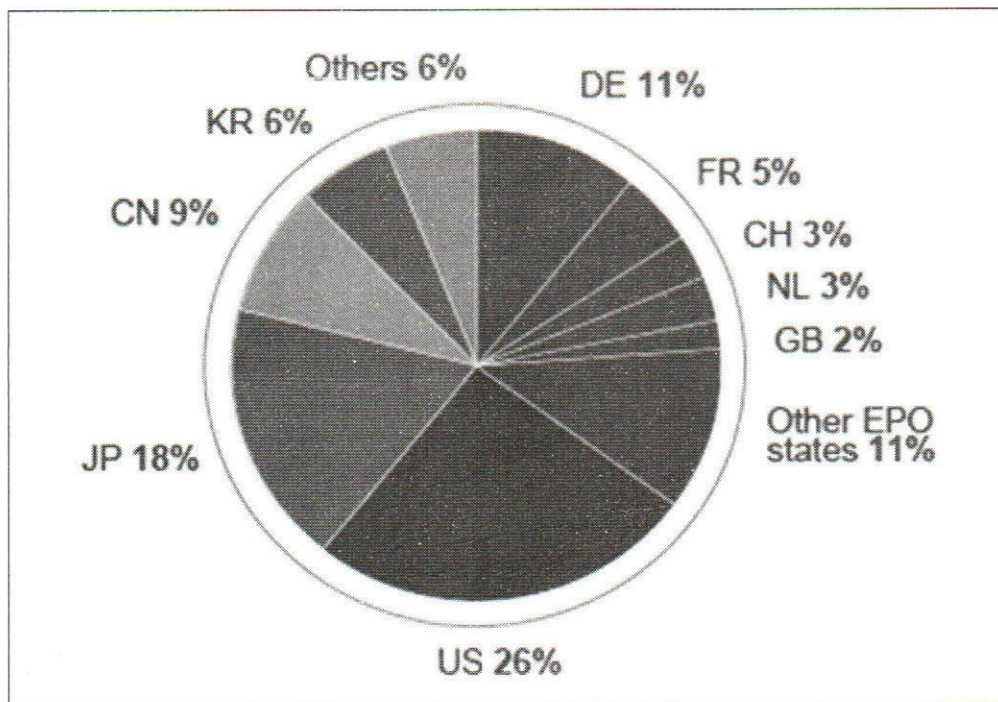


Figure 1: European Patent Filings Per Country of Origin

In terms of growth rate, patent filings from European countries are rising slightly, and with the varying performance of individual countries. Among the large economies, China showed the biggest increase in growth rate (with +18 per cent), followed by the US, which was up nearly +7 per cent, and Korea +2 per cent.

### 2.1 Annual Growth of Patent Application Filiations

Table 1 has been used to find percent growth rate. Percentage growth rate is been used to calculate the annual percentage of rate of growth. It's clearly evident from the table that countries like china are more inclined

**Table 1: Country-wise Yearly Patent Filing**

Country code	Country name	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
CN	China	2,687	4,212	5,841	6,486	8,280	12,753	16,928	19,197	22,396	26,472
US	United States	57,290	60,981	63,351	61,200	53,884	60,816	60,247	63,433	67,153	71,745
JP	Japan	36,452	37,925	38,630	39,669	38,249	41,797	47,350	51,596	50,871	48,657
KR	Republic Of Korea	7,674	9,319	10,329	10,253	10,221	12,353	13,164	14,731	15,993	16,358
IN	India	739	886	965	1,125	998	1,378	1,421	1,431	1,431	1,535

towards patent filling in context to other developed countries. Same can be inferred from following growth rate Table 2. Formula used for growth rate is:

*Step 1:* Calculate the percent change from one period to another using the following formula:

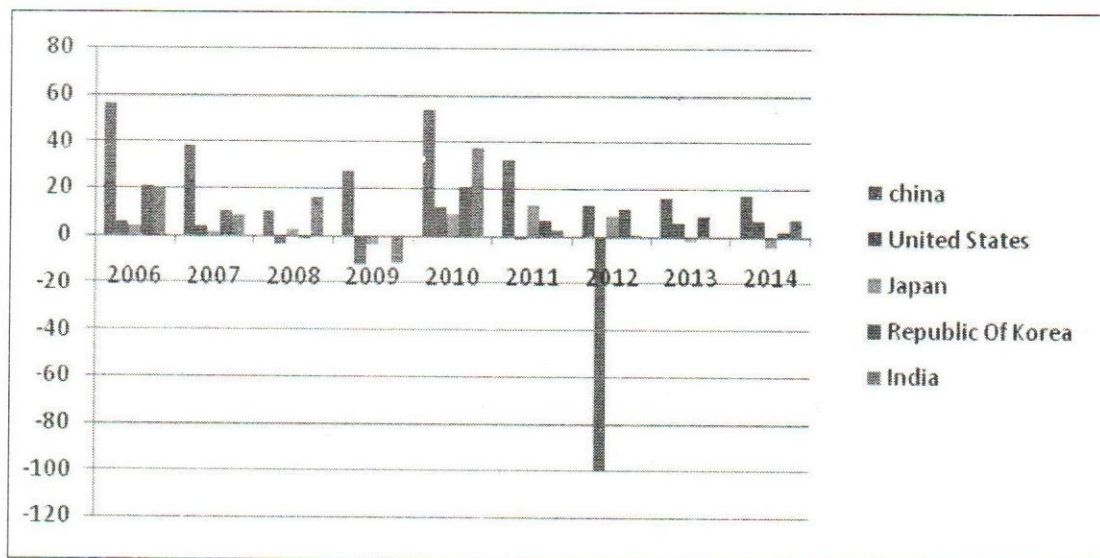
Percentage change =  $100 * (\text{present or future value} - \text{past or present value}) / \text{past or present value}$

*Step 2:* Calculate the percent growth rate using the following formula:

Percent growth rate =  $\text{percent change} / \text{number of years}$

**Table 2: Country-wise Annual Growth of Patent**

Country/Year	2006	2007	2008	2009	2010	2011	2012	2013	2014
China	56.75%	38.67%	11.04%	27.65%	54.02%	32.73%	13.4%	16.66%	18.19%
United States	6.44%	3.88%	-3.39%	-11.95%	12.86%	-0.93%	-99.89%	5.86%	6.83%
Japan	4.04%	1.85%	2.68%	-3.5%	9.27%	13.28%	8.96%	-1.4%	-4.3%
Republic Of Korea	21.43%	10.83%	-0.73%	-0.31%	20.85%	6.56%	11.9%	8.56%	2.28%
India	19.89%	8.91%	16.58%	-11.28%	38.07%	3.12%	0.7%	0	7.26%



**Figure 2: Country-wise Annual Growth of Patent Application**

### 3. Gross Domestic Product (GDP)

One of the measuring scales of economy is GDP, which defines in the certain period of time, the value of all final produced goods and services produced in a country, which it is measured by the currency of that country. In this definition, final goods and services mean those which are in the end of the production's chain and yet not purchased by other production house or service channel. Gross domestic product is an important subject of macroeconomics, which refers to the market value of all final goods and services produced and is correlated with standards of life. Results of Tables 1 and 2 show that in the United States, already the number of technological inventions are more in comparison to other countries, in the years 2008, 2009, and 2012, results shows that the United States growth rate is negative. So in the last ten years, although patent filling applications were received at the United States but still comparative growth rate is less in context to other countries like China and Republic of Korea. It's been analysed that the majority of patent filings occurred at the IP offices with high-income countries (64.5 per cent). In contrast, to middle- and low-income

countries accounted for the bulk of patent filling, for the period 2007 to 2012, all these types of intellectual property filling saw a shift in filing activity from high-income to middle-income countries and above all were China and Russia (WIPO).

Ten countries, five developed and five developing, around the world are chosen to study and analyse the relationship between the variables mentioned.

Developed countries selected are Germany, the USA, South Korea, Japan, and Canada. Developing countries chosen are India, Thailand, Russia, Brazil, and China.

It has been more than eight years that the world economy was hit by a financial crisis. Since then the economic recovery has been uneven and has failed to bring down unacceptably high levels of unemployment and stability. Since then, World Intellectual Property Indicators predicts that global intellectual property (IP) filing trends have followed a remarkably different path. While experiencing a decline in 2009 at the height of the crisis, IP filings have sharply rebounded and have even exceeded pre-crisis rates of growth (WIPO).

**Table 3: Number of Patent Filling by Developed Countries and Ranking in Year 2013**

Country	Overview of total (resident and abroad) IP filing	Number of patent applications
United States of America	2	571,612
Germany	5	63,167
Japan	3	328,436
Republic of Korea	4	204,589
Canada	12	34,741

**Table 4: Statistics for Growth Analysing Variables of Developed Countries (2013)**

Country	GDP - 2013 (in USD)	GDP growth (annual %)
United States of America	167680500,00,000	2.2
Germany	37302605,71,357	0.1
Japan	48985324,59,712	1.6
Republic of Korea	13045538,61,306	3.0
Canada	18389641,75,409	2.0



### 3.1 IP Filing Trends in Developing Countries

By the year 2011, China became the world leader in the number of published patent invention applications, outpacing the United States, Europe, and Japan. Number of Patent applications in China increased from 63,450 in 2001 to 391,177 in 2010, with increase in annual rate of

22.6 per cent and number of domestic application have grown even faster, from 30,038 to 293,066, with the increase of 28.8 per cent per year during the period. As the WIPO report published in 2012 stated, 'China's patent office received more applications than any other country's in 2011' (WIPO, 2012).

Table 5: IP Filing Trends in Developing Countries

Country	Overview of total (resident and abroad) IP filing	Number of patent applications
China	1	825,136
India	14	43,031
Russia	9	44,914
Brazil	24	30,884
Thailand	40	7,4004

Even through drastic change has been observed in the IP filing of China but the driving forces behind the same in context to China patent boom have been debated. Researchers examine that boom to be an indicator of significant and genuine pace in China's innovative capacity, resulting from China's persistent focused efforts, as stated by its 'Medium to Long Term Plan for the Development of Science and Technology (2006)' (MLP),

having major focus on promoting its indigenous innovation and technological development and transforming its economy from 'made-in-China' to 'invented and designed in China'. Others, however, believe that the patent boom may be largely due to a variety of patent subsidy policies employed by local governments to meet and/or to go beyond the patenting targets specified by the government.

Table 6: Statistics for Growth Analysing Variables of Developing Countries (2013)

Country	GDP - 2013 (in USD)	GDP growth (annual %)
China	91812037,88,551	7.7
India	19377970,16,129	6.9
Russia	20967742,17,063	1.3
Brazil	3380135,02,166	2.5
Thailand	4201674,39,497	1.8

Although the speedy increase of Chinese patent filling applications can be explained by the nation's technology catching up with international bodies in developed economies, patent quality concerns arise as studies have suggested that such applications are largely supported by local government patent subsidy programs (Li, 2012).

Across the world companies are sowing the seeds for future economic growth, and this is visible from the global figures hide marked differences in IP filing trends in different parts of the world. Primarily, continued rapid IP filing growth in China—the recipient of most patent, trademark, and industrial design filings—is the principal force driving global

intellectual property filing growth. Indeed, for the first time in 2012, Chinese residents accounted for the largest number of patents filed throughout the world (WIPO report 2013).

### **3.2 Challenges for Patent Filing**

In patent, quality confidence continues to be a topic of debate till date. The appropriate measures of patent quality and the associated performance targets are of crucial interest to both the USPTO and the patent community.

Operating in today's wired globalized world requires us to have full electronic processing of all documents and that needs to be safe and secure too and continual access should be available to employees, applicants, and stakeholders. For better regulation of IP filing, we need to expand the use of IT (information technology) to all phases of patent processing.

Last but not the least, there is a lack of simplified and harmonized international IP filing systems, which is making it difficult, slow, and expensive for innovators/patentee and businesses to acquire protection in global markets. IP offices have to take corrective and timely actions for striking a balance between the rights of IP holders and a cultural and socio-economic concern continues to be a challenge for all countries. Achieving common set of norms across the nations and obtaining consensus among countries will be advocating effective IP protection and is critical for counteracting countries concerned about efforts to enhance IP standards.

### **4. Benefits of IPR**

There are several other compelling reasons to promote and protect intellectual property of individual; some of them are listed as follows:

- (a) The progress and well-being of humanity rest on its capacity to create and invent new works in the areas of technology, culture, artistic work, and musical work.
- (b) The legal protection provided to new creations encourages the commitment of others individuals to explore additional resources for further innovations and inventions.
- (c) The promotion and protection of intellectual property spurs economic growth of the state creates new jobs and industries, and enhances the quality and enjoyment of life.

As like other properties, IPR can be assigned, gifted, sold, and licensed to others. Unlike other moveable and immoveable properties, these rights can be simultaneously held in many countries at the same time. IPR can be held only by legal entities, i.e., who have the right to sell and purchase property specifically in context to patent, for example, Honda. An efficient and equitable intellectual property system maintained by law can help all countries to realize intellectual property's potential and used as a catalyst for economic development as well as social and cultural well-being. The intellectual property law helps in striking a balance between the interests of innovators individual and also in the public interest, it provides an environment in which creativity and invention can flourish, for the benefit of one and all. Improvements and modifications made over known things can be protected.

### **5. Conclusion**

The main purpose of this article was to examine and analyse the trend and relation between patent filing with GDP(dependent variable). Patent of an invention protects the intellectual creativity of individual and also its territorial extent limits its usability to parent country. Countries with more inventions (registered patents) are superior in context to growth in comparison to countries which have low rate of patent filing. Hence, growth of countries has a direct relation with patent filing. Patent data has been extensively exercised in economic studies in various aspects. Results shows that in comparison to China, the United States have more patent filling applications but still growth rate of the China is more in context to the United States. Research support that evident reason for this is the United States is already a developed economy and in context to technological upgradations and developments the US is far away from other nations. More the patents, faster is the growth (number of patents in China and Russia are very high and reports suggests that China and Russia will join the league of developed nations in the next 7 and 10 years, respectively). Reasons for patents not being effective in India are because of larger geographical area, weak law and order, corruption, comparatively not as much of awareness of patent law, less punishment, and the most important one is that law existence is there but India lacks in enforcement of the law. Need is to strengthen the existing IPR law and create more awareness and hence enforcement of same will help the economy in getting more IPR applications filling and results into a developed nation.

Future research is needed to focus on studying how these subsidy programs have affected research and development activities and intellectual property filing management, and whether they have contributed in achieving the goal of promoting 'real' innovation output. Increases in number of patents are beneficial for the progressive society in that more disclosure of inventions will help in preventing potential duplication of research among competitive players and increases the technology market. However, excessive patents will generate complexity in the technology landscape and a 'patent thicket' that suppress subsequent innovation. Understanding of such social impacts of patenting is very significant for interpreting patent statistics as an innovation indicator.

## References

Bessen, J. (2009). 'Estimates of Patent Rents from Firm Market Value', *Research Policy*, 38(10), 1605–1616.

Introduction to Intellectual Property (DL-101), World Intellectual Property Organization/WIPO Worldwide Academy, 29.

Li, X. (2012). 'Behind the Recent Surge of Chinese Patenting: An Institutional View', *Research Policy*, 41(1), 236–249. doi:10.1016/j.respol.2011.07.003.

'Patents: Frequently Asked Questions'. World Intellectual Property Organization. Retrieved 22 February 2009.

Sinha, D. (2007). 'Patents, Innovations and Economic Growth in Japan and South Korea: Evidence from Individual Country and Panel Data' Munich Personal RePEcArchive, Paper No. 2547.

Torremans, Paul and Holyoak, Jon. Intellectual Property Law, Second Edition, Butterworths, 29.

Visser, Coenraad and Pistorius, Tana. Essential Copyright Law, University of South Africa/WIPO Worldwide Academy, 1.2.4.

[www.wipo.int/](http://www.wipo.int/)

[www.imf.org/](http://www.imf.org/)

Ye, Fred Y. (2007). 'A Quantitative Relationship between Per Capita GDP and Scientometric Criteria'.

*"Making good decisions is a crucial skill at every level."*

*– Peter Drucker*

# Implementation of Material Flow Cost Accounting into a Bearing Manufacturing Company in India

ALOK SHAH, DAVID JACOB, DEEP DESAI, DHRUVRAJSINH ATODARIA, AND BHAVESH MODI

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*This article aims to combine the concept of Material Flow Cost Accounting (MFCA) into a bearing manufacturing company. Material Flow Cost Accounting, as described by ISO-14051 norms, is an Environmental Management Accounting (EMA) tool that seeks to improve a company's productivity while reducing its impact on the environment. The concept was implemented in the following manner by: (a) establishing quantity centres, (b) quantifying material flow, (c) depicting data on the MFCA flowchart sheet, and (d) proposing necessary changes required for prophylactic measures. The implementation revealed the negative cost of 3.58 percent and the suggestions were forwarded to the company.*

## 1. Introduction

After industrial revolution, all major companies focused on profits at the cost of both efficiency and environment. During the twentieth century, the adverse effects of the above policy were seen in the form of highly fatalistic environmental impacts and step down in productivity. It caused the overall increment in raw material consumption and wastage in the industry, as well as degradation in quality of the product.

It was at this time when new methodologies were developed, which initially concentrated on quality, productivity, and overall efficiency improvement. Organizations attempt to increase their overall profits and productivity through the use of various tools like cleaner production, lean manufacturing, agile manufacturing, kanban, 5S technique, world class manufacturing, just in time, etc. There was a balance that needed to be maintained amongst the increase in demands, higher productivity, higher quality control, and environmental efficiency. These tools could not establish a relation between the environmental impact of companies and the cost incurred by companies because of it.

In the late 1980s, a Germany-based institute originated a new methodology known as Material Flow Cost Accounting (MFCA), which was adopted widely in Japan in the 1990s and 2000s and gave prolific results. This led to its global attention, as well as inclusion in the ISO-14051:2011 norms for industries (especially for SMEs) and ISO-14052 norms for supply chains. This concept managed to form a relationship between the losses (negative cost) and the environmental impact. It has been implemented in four local companies of Gujarat, India, and we have tried to implement such a concept in a bearing manufacturing company.

*Alok Shah, Student, Mechanical Department, ShriS'ad Vidya Mandal Institute of Technology, Bharuch*

*David Jacob, Student, Mechanical Department, ShriS'ad Vidya Mandal Institute of Technology, Bharuch*

*Deep Desai, Student, Mechanical Department, ShriS'ad Vidya Mandal Institute of Technology, Bharuch*

*Dhruvrajsinh Atodaria, Student, Mechanical Department, ShriS'ad Vidya Mandal Institute of Technology, Bharuch*

*Bhavesh Modi, Assistant Professor, Mechanical Department, ShriS'ad Vidya Mandal Institute of Technology, Bharuch*

This article will explain the concept of MFCA. It will also discuss and elaborate on how MFCA was propagated to its current state with the help of diffusion of innovations theory. The concept was implemented at a bearing manufacturing company, so first the research will identify the flaws in the current manufacturing system, based on which it will suggest the path to improve system efficiency.

The article follows the subsequent order. The section of 'Literature Review' defines MFCA in the words of various authors, as well as shows the scope of its application. 'Diffusion of Innovations' discusses the past and present scenarios of MFCA with a global perspective, as well as its dispersal. The next segment, 'Methodology', deliberates on the method of application of MFCA plus its application in a bearing manufacturing company. The fifth section 'Major Benefits and Important Suggestions' glides over some major suggestions provided to the company to improve productivity. The next section provides valuable recommendations to management towards a correct approach in implementing MFCA.

## 2. Literature Review

Material Flow Cost Accounting is a management tool that can assist organizations to better understand the potential environmental and financial consequences of their material- and energy-use practices, and seek opportunities to achieve both environmental and financial improvements via changes in those practices (ISO 14051:2011) (Environmental Management, 2011); ISO: 14051 standard was designed by the technical committee of environmental management. Here, at the bearing manufacturing company, the overall cost of the product at the end of the process is understood but in-depth research of cost and efficiency of each production line is needed to be analysed in order to achieve environmental efficiency by introducing techniques to reduce the consumption of material and energy. Material Flow Cost Accounting, as understood by us, 'is an environmental management accounting tool used to manage the eco-efficiency of industries or organizations or institutions while decreasing their production waste losses.' Gathering the data of material cost, system cost, and energy cost for the individual quantity centre give broader outlook of the industry. Material Flow Cost Accounting can be implemented at any scale of industry, small and big enterprises and business firms with supply management.

Material Flow Cost Accounting can be extended to other organizations in the supply chain, both upstream and downstream, thus helping to develop an integrated approach to improving material and energy efficiency in the supply chain (ISO 14051:2011) (Environmental Management, 2011). Material Flow Cost Accounting for supply chain management is the part of ISO 14052. During the manufacturing processes of an industry, sometimes waste generated in the process is due to faulty material supplied by the supplier or because of excessive material, beyond the specified limits of tolerances, ordered by the industry. A case study of a Japanese camera manufacturing company, Canon, revealed that their efficiency without implementing MFCA was 99 per cent, which was reduced to 64 percent after the implementation of MFCA. This drew attention of the management and it was found that the thickness of the lens needed to be reduced while placing the order to the supplier. Doing this resulted in significant material cost reduction.

It is said that what you do not measure, you cannot change. Biblical resources and valuable research works all around the world point out waste and emission for the inefficiencies of the operations of the industries. It is also obvious that higher raw material cost leads to higher waste cost. In manufacturing processes, consumption of tools and auxiliary material also add up the cost to the final product. So it becomes necessary at this point to identify the tools and techniques that may add higher cost to the finished product in order to make the processes efficient and at the same time for choosing an appropriate tool for that technique of manufacturing. It has been brought to attention that many companies have already implemented ISO 14001 standards to achieve cleaner production system and less environmentally hazardous processes, but yet the issue of controlling the environmental impact is on the table. It is also believed by the many industrialists that establishing environmentally friendly and safe processes will reduce the productivity of the company. Industries should focus more on the long-term sustainability rather than short-term profitability. Unfortunately, the wrong concept is applied by many companies, which is going for short-term profitability rather than long-term sustainability. Now the real question is whether we can achieve high productivity and at the same time high efficiency and environmental relief. Everything starts with spreading awareness. If companies are aware of the flaws of the system, they can portray a bigger picture of production sustainability for a longer term and environmental impact of the current scenario. It is

only in the recent years that many organizations and management institutes are focusing on the eco-efficiency and conducting lots of research on it, but so far there is a lot to discuss but yet nothing much has been done about it. Many companies are generating 100 per cent clean energy using renewable energy resources like solar panels but to achieve eco-efficiency, companies are also expected to focus on individual processes where that energy is consumed the most and generation of waste is very high.

Material Flow Cost Accounting helps management to explore diverse current on-going operational approaches. It also helps management to find alternate synergetic options. The principal aim of this article is to represent an example of how to achieve eco-efficiency at manufacturing industry with the help of MFCA instrument. The sole purpose of this article is to reveal a methodology that can help industries gain sustainable development and cleaner production. After implementing MFCA, industry's management will be able to identify the material flow in the monetary terms through all processes and would be able to evaluate current efficiency of the system. Thus, new results will help to modify current model of environmental sustainability approach and analyse future model to achieve their sustainability targets by implementing contemporary cleaner production strategies.

### 3. Diffusion of Innovation

Diffusion of innovation is a theory on the rate at which new ideas spread and also the ways and reasons due to which it disseminates. It was proposed by Everett Rogers in his book *Diffusion of Innovations*.

According to Rogers (2003, p.5), diffusion is the process through which new ideas are communicated and spread. Rogers (2003, p.5) defines diffusion as 'the process by which an innovation is communicated through certain channels over time among the members of a social system. It is a special type of communication, in that the messages are concerned with new ideas.'

Rogers (2003, p.5) also defines communication as 'a process in which participants create and share information with one another in order to reach a mutual understanding.' This definition implies that communication is a process of convergence (or divergence) as two or more individuals exchange information in order to move towards each other (or apart) in the meanings that they ascribe to certain

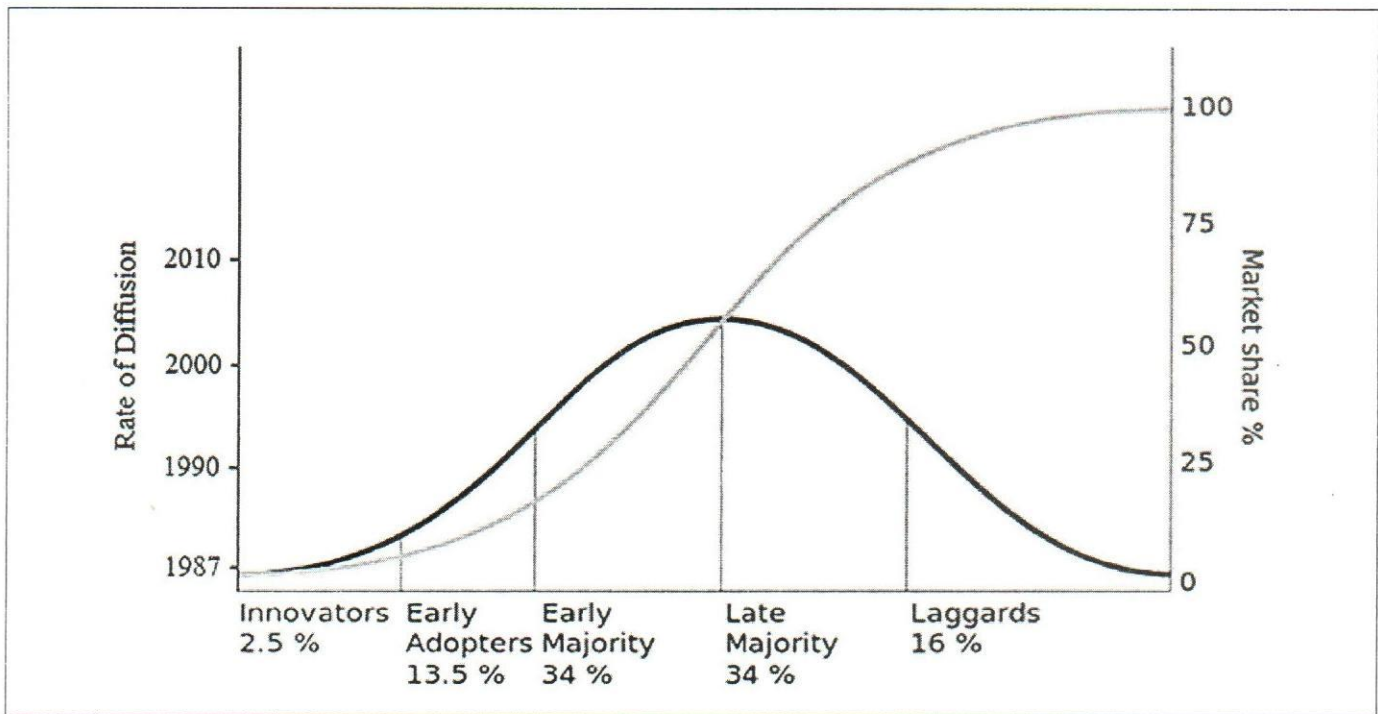
events. We think of communication as a two-way process of convergence, rather than as a one-way process, a linear act in which one individual seeks to transfer a message to another (Roger and Kincaid, 1981).

When this diffusion of innovation theory is applied to MFCA, it directly shows a strong trend. After ISO formulated the 14051 norms of 2011, it can be inferred that MFCA will be directly adopted by businesses that hope to become more competitive and that the development and research in this is surely set to rise. This in turn attracts more opportunities for those people who would research and further this study on the topic to improve the current methodology.

There are four major elements that influence the spread of new idea. They are:

- (a) **The Innovation:** Innovation by definition is an idea or a method or an object that can be perceived as new by any person or any other element that adopts it for use. The innovation under focus is MFCA.
- (b) **Communication Channels:** Communication channels are transfer lines that allow the transmission of any innovation through people or organizations, which is a minimum for diffusion to occur. Here, the channels were formed between German, Japanese, and other industries all over the world.
- (c) **Time:** For any innovation to be adopted, a certain time period is required as no innovation is adopted instantaneously. MFCA is a new concept that only took two decades to have its own norms in the ISO.
- (d) **Social System:** Social system consists of a combination of external influences (mass media, government mandates, etc.) and internal influences (opinion leaders, strong-weak relationship, etc.) that influences an adopter's mindset. The social system was formed of international industrialists and norm setters that helped spread the information about MFCA.

Rogers Innovation Adoption Curve and S-Curve (Figure 1) are two models that classify and describe the innovation adopters into different categories based on market customers groups adopting new technology (shown in blue (black) and market share (shown in yellow (grey)), respectively.



Source: Adapted from Rogers (2003).

Figure 1. Rogers Innovation Adoption Curve (in blue (black) and S-Curve (in yellow (grey))

According to the model, the invention of MFCA as well as its growth can be seen in the graph. Material Flow Cost Accounting was invented in 1987 in Germany and was only adopted by the innovator and the supporting institution. Later it was used by a few companies in Germany and then outsourced to Japan where it was widely and rapidly adopted, which finally culminated into the ISO 14051:2011 norms for MFCA in industries for environment management.

The adopters mentioned in the model are classified in the following categories:

- (a) **Innovators:** The individuals or organization who have invented or discovered any innovation. These are the people who pull change. In case of MFCA, it was invented in Germany by Professor Bernd Wagner and colleagues at the University of Augsburg.
- (b) **Early Adopters:** These are opinion leaders that try out new technologies. Here, German industries can be said to be the early adopters.
- (c) **Early Majority:** These are people who accept change faster than the average. The early Japanese industries who experimented with MFCA come under this category.
- (d) **Late Majority:** These people consist of sceptics,

who only accept a new idea after it has been adopted, tried, and tested. The latter Japanese, Thailand, and Malaysian industries who adopted MFCA during later 2000s are in this category.

- (e) **Laggards:** These people are traditionalists, who are critical of new ideas and only accept if the idea becomes mainstream. The many industries who adopted MFCA after the EN ISO 14051:2011 norms were released come under this category.

## 4. Methodology

### 4.1. MFCA Methodology

Material Flow Cost Accounting works on the principle of quantification of waste. It means that it gives an exact representation of the amount of waste produced in all processes or the particular shop floor or the whole company itself. It does so by identifying quantity centres; processes or areas or equipment that consumes material or energy or both to manufacture a product. Material Flow Cost Accounting is a continuous process so methodology needs to be implemented again and again. Management has to spread the awareness from top to bottom level in order to achieve eco efficiency. (Figure 2).

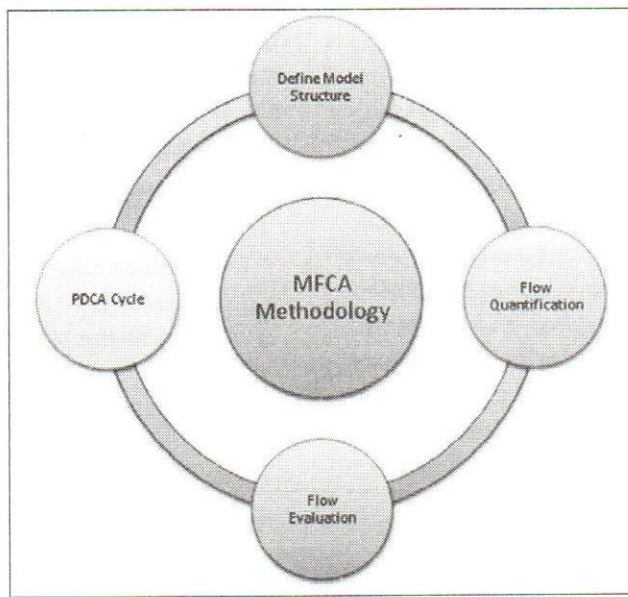
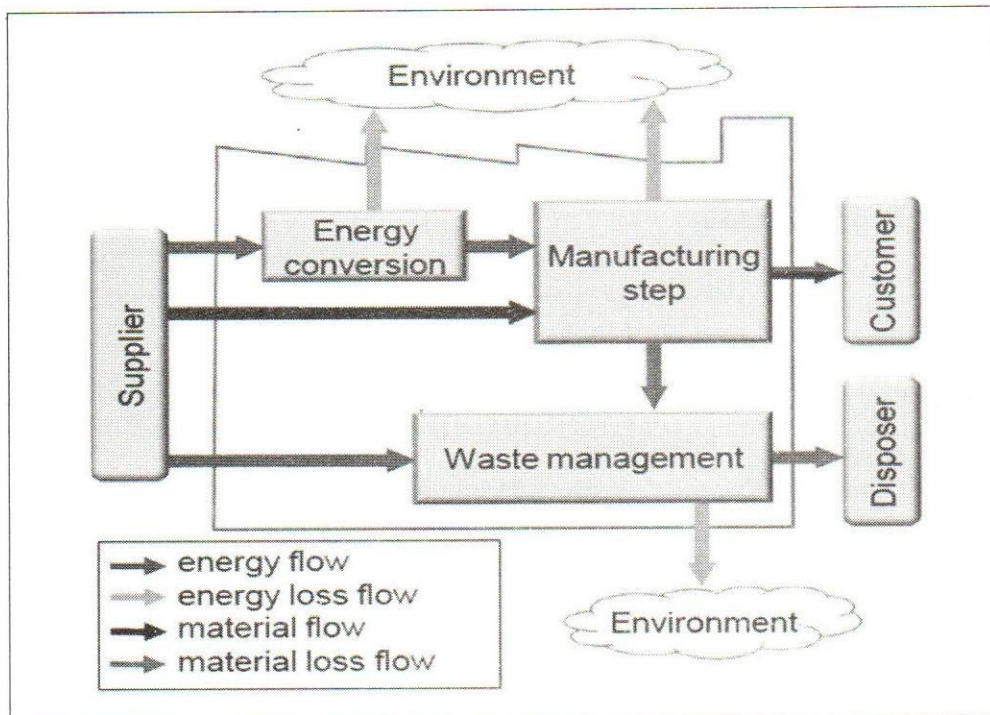


Figure 2. MFCa Methodology

There are four stages in MFCa.

- (a) Define Model Structure
- (b) Quantify the Flows
- (c) Evaluation of Flows
- (d) Plan, Do, Check, Act Cycle

(a) **Define Model Structure:** In this stage, we provide a rough outline of the various flows through which the product is manufactured. It shows the material, energy, and waste flowing through the processes in the company (Figure 3).



Source: Adapted from R Sygullal et al.

Figure 3. Model Structure



We applied this methodology in the bearing manufacturing company to obtain a structure of how material, energy, and waste flow throughout company. In order to enhance MFCA implementation, as shown in Figure 2, first, material flow and energy flow was measured separately. Further, we had to quantify both the material and the energy flow into monetary terms. Then both the costs were combined for individual quantity centres. To obtain accuracy, detailed prerequisite data was needed. For example, oil consumption, maintenance cost, labour cost, electricity consumption, machining tools consumption cost, rejection and rework cost, etc., of individual established quantity

centres. In order to fetch necessary data, cooperation from management was required and even after gaining enough data, information of how material and energy flowed through a particular quantity centre had to be considered.

(b) **Quantifying the Flows:** Here, we identify the various quantity centres as defined earlier. In the bearing manufacturing company, we identified eight quantity centres (Figure 4). Whatever the material and energy faded to the quantity centre is noted down. Later these quantities are identified in different cost as shown below in evaluation phase.

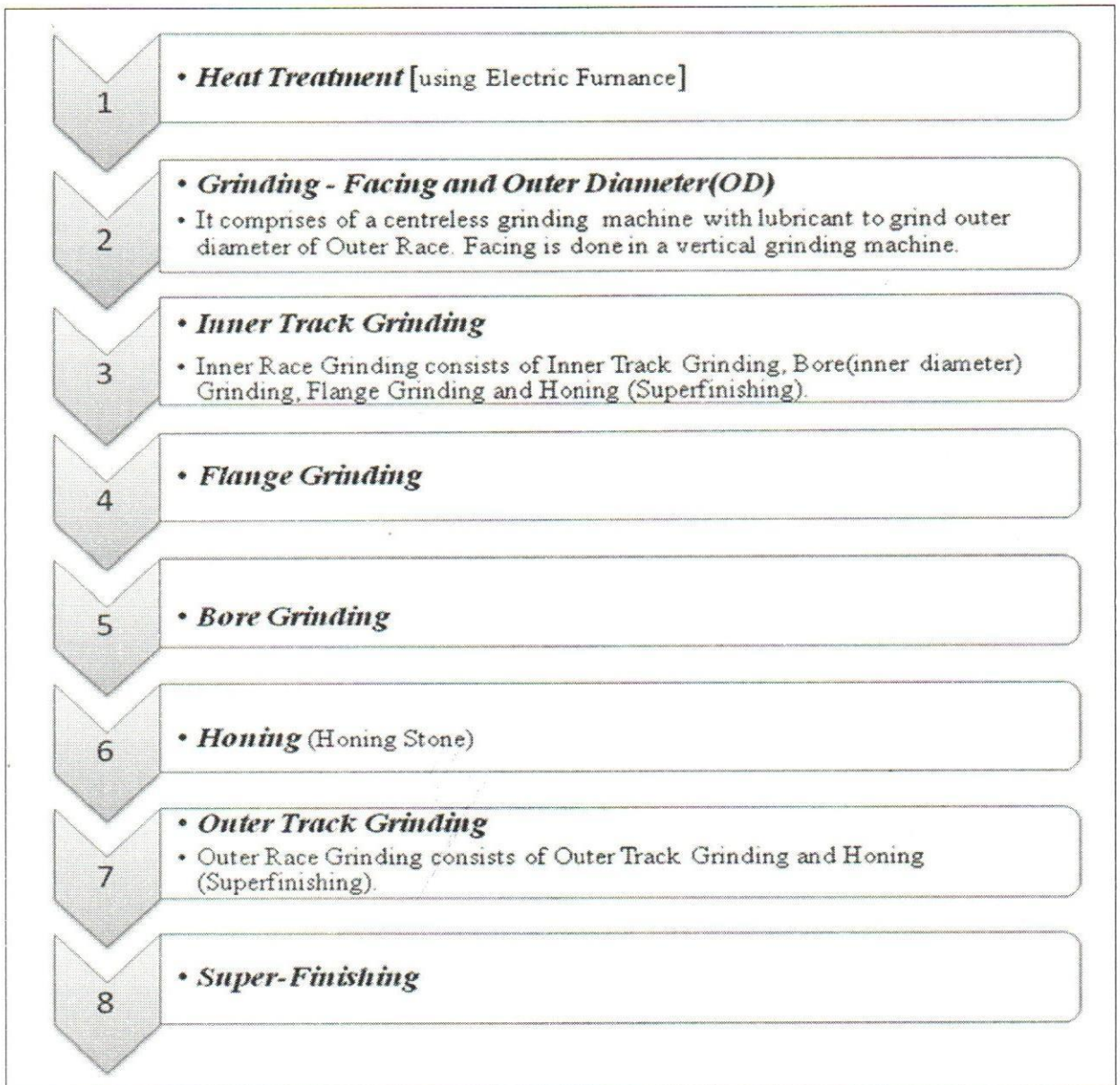


Figure 4. Quantity Centres

- (c) **Evaluation of Flows:** In this stage, all material and energy flows are valued according to the amount of materials and energy flowing through the quantity centres. We calculated the exact amounts of inputs and outputs that each quantity centre needed and produced, respectively. It increases the transparency of all quantity centres individually.

*All the inputs and outputs are calculated in the forms of four costs. They are:*

- (a) **Material Cost (MC):** Material cost is the expenditure of material consumption during manufacturing processes. It includes the cost such as raw material costs, oil consumption, and cotton consumption.
- (b) **Energy Cost (EC):** Energy cost is the cost occurred due to the power supplied to the machines used by the industry. It includes the electrical power consumption of air compressor, pumps, grinding machine tools, and heat furnace.
- (c) **System Cost (SC):** System cost is the cost incurred due to the running process. For example, honing stone consumption cost, grinding stone, coolant oil, etc.
- (d) **Waste Management Cost:** Waste costs includes waste disposal, control, prevention costs. Waste generated that can be in the state of solid, liquid, or gas cannot be directly released into environment. Wastage requires chemical treatment or it has to be diluted. It requires separate waste disposing plant within the industry, which adds up waste management cost to the industry.

The output, calculated in the form of the above four costs. It is further differentiated into two types:

- (a) Positive Product (cost of product which would be sent to the next process or is the final product): At particular quantity centre if the material and energy consumed increases product value it is considered positive product.
- (b) Negative product (the waste generated due to working on the raw materials): At particular quantity centre if the material and energy consumed do not increase product value and generates waste but it is inevitable, it is

considered as negative product. With reducing negative product all the time, industry is increasing percentage of positive product with respect to negative product of that quantity centre.

- (d) **Plan, Do, Check, Act Cycle:** After the evaluation phase, all actions required to reduce the negative product are planned and put into action using the Plan, Do, Check, Act Cycle (PDCA Cycle). It is an iterative cycle management tool, wherein all process and products are passed through stages of continuous improvement. Here, all planned actions are verified again and again for high efficiency of the process till a maximum limit is reached, furthering which the process cannot be improved. Plan, Do, Check, Act Cycle is a continuous quality improvement cycle. Sections of PDCA Cycle are as explained below:

- (a) Plan: In plan phase, the problem is introduced. It is a problem detection phase, where the negative product generation is high and is detected in this phase.
- (b) Do: In this phase numerous solutions of the problem are presented. It is a problem-solving with brainstorming phase. Various manoeuvres are brainstormed and the selected few are tested to achieve the solution. Different ideas to reduce negative product is placed on the table.
- (c) Check: Check phase derives results after implementing each idea. Results are summarized and represented in the best way possible in this phase.
- (d) Act: In this phase the best solution is implemented in the system. This way best solution is introduced for the high efficiency and high productivity with the relief of environment.

#### **4.2. Application of MFCA in Bearing Manufacturing Company (Figure 5)**

The Flowchart of MFCA clearly helps industry taking prophylactic measures. Material Flow Cost Accounting is a tool that helps industry to figure out where the material losses are occurring and where managers needed to be focus in order to minimize the production loss and thus production cost (Figure 4).

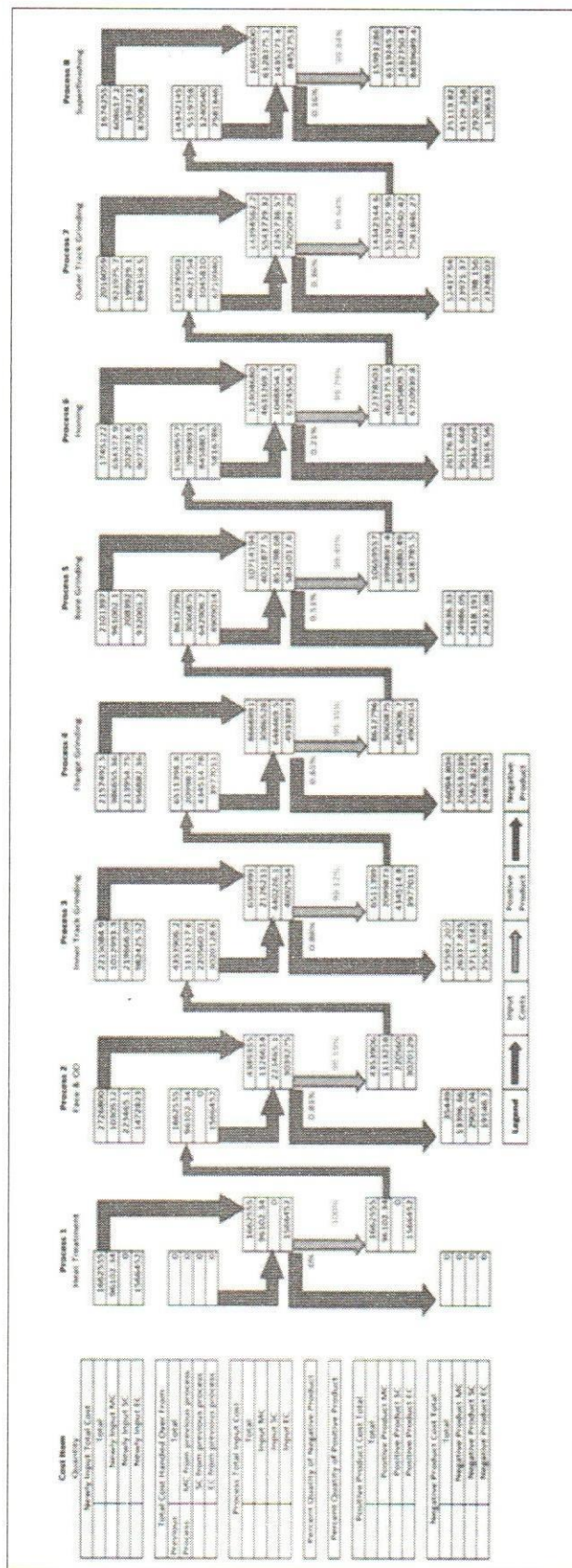


Figure 5. MFCFA Flow Chart

A study of flowchart distinguishes the quantity centres where the negative and the positive cost are higher. For instance, MFCA implementation here is comprised of eight major manufacturing processes and we have established quantity centres there. Process 3 shows highest negative product cost generation and Process 1 shows least negative product generation.

Material Flow Cost Accounting flowchart not only shows the generation of positive and negative cost; it also gives the percentage of positive and negative product. It helps management centralize their focus on burning issues of negative production and helps to take effective steps towards it.

Material Flow Cost Accounting particularly detects issues that are occurring in a system and the reason behind that so that a solution can be found. Established quantity centres help industry to measure its production efficiency. For instance, MFCA chart shows that industry has a 4 per cent of negative production cost that needed to be effectively reduced.

Material Flow Cost Accounting chart reveals three type of cost generation at every quantity centres. Chart comprising of material cost, system cost and energy cost for individual quantity centres. This helps management to further carry their research and development team's motivation. For instance, energy cost is the maximum for the first quantity centre so now reasons can be looked into and new technological advancement can be brought to the industry to reduce the energy cost. Same way, out of all three major cost, management can detect which quantity centre is generating highest of these costs and can focus there to elevate the problem.

The individual eight quantity centres (QC) are defined below:

- (a) **QC-1: Heat treatment process**  
Equipment used – Electric furnace  
Materials consumed – Electric power, Coolant oil, Water  
What process does – Tempering of bearing rings
- (b) **QC-2: Facing and outer diameter grinding process**  
Equipment used – Cylindrical grinder, Face grinder  
Materials consumed – Electric power, Tempered ring, Lubricating oil, Coolant oil  
What process does – Face and outer diameter of outer ring made to dimension

- (c) **QC-3: Inner track grinding process**  
Equipment used – CNC grinding machine  
Materials consumed – Electric power, Grinding stone, Coolant and Lubricating oil  
What process does – Grinding of outer diameter of inner ring
- (d) **QC-4: Flange grinding process**  
Equipment used – CNC grinding machine  
Materials consumed – Electric power, Grinding Stone, Coolant and Lubricating oil  
What process does – Grinding of flange of inner track
- (e) **QC-5: Bore grinding process**  
Equipment used – CNC grinding machine  
Materials consumed – Electric power, Grinding stone, Coolant and Lubricating oil  
What process does – Grinding of inner diameter of inner ring
- (f) **QC-6: Honing process**  
Equipment used – CNC honing  
Materials consumed – Electric power, DW154 oil, Honing stone  
What process does – Finishing of outer diameter of inner ring
- (g) **QC-7: Outer track grinding process**  
Equipment used – CNC grinding machine  
Materials consumed – Electric power, Grinding stone, Coolant and Lubricating oil  
What process does – Grinding of inner diameter of outer ring
- (h) **QC-8: Super finishing process**  
Equipment used – CNC grinding machine  
Materials consumed – Electric power, Coolant and Lubricating oil  
What process does – Super finishing of inner diameter of outer ring

## 5. Major Benefits and Important Suggestions

After implementing the concept of MFCA, industry has the potential to understand their processes and material flow in monetary terms like never before and in much detail. Industry can reach to the supreme efficiency by continuously implementing the MFCA.

There is the best way to achieved high efficiency with least environmental impact and the cleaner production. The steps given below are needed to be followed over time, again and again, as per the results derived from MFCA chart. Steps to implement after getting enlightened with the MFCA chart:

- (a) Waste Disposal
- (b) Pollution Control
- (c) Recycling
- (d) Waste Minimizing
- (e) Industrial Ecology, Cleaner Product, Pollution Prevention

We need to carry out the following steps in order to obtain the ultimate goal of cleaner production and least environmental impact with high efficiency.

- (a) **Waste Disposal:** The MFCA chart gives a clear direction to management exactly which quantity centre generates the highest waste and needs to be eliminated. With the advent of new technologically advanced machines and processes, issue of the waste can be eliminated and thus of waste disposal. It is also possible that if industry is not able to upgrade technology, it can change its way of disposing the waste. For instance, grinding process involves high chip formation and material scrap. Using electromagnets, those chips and scrap can be collected and at the waste disposing plant they can be converted into useful material. This way the waste disposal issues of industry can be handled.
- (b) **Pollution Control:** Pollution control for any industry is a major problem. It is understood that processes that consume maximum energy and material are related with generation of pollution. These processes can be identified by the MFCA chart and company can take decision on the ways to make it efficient. Usually manufacturing techniques needed to be revised and the equation of production technology needed to be recalculated. If the processes are severely harmful to the environment and thus reducing the quality of life of civilians, the processes should be shut down immediately or should be relocated somewhere else. It might cost the industry for a short time but will help the industry in establishing a brand name and will also help companies build trust of their customers. It will help companies in long-term sustainability.

- (c) **Recycling:** All the waste generated in the processes needs to be collected and sent to waste management plant of companies where it can be recycled and can be reused. For instance, honing process in the bearing manufacturing consumes DW 154 oil. Now, this oil cannot be considered as junk only with one-time use. Thus, it needs to be collected and can be sent to waste management plant where scrap, metal chips, and other contaminants can be removed and it can be made reusable. At the same time, oil can be mixed with the little amount of additives which can effectively reduce the usage of the oil consumption and also will lower the chance of corroding the tool.
- (d) **Waste Minimization:** The MFCA chart can identify the processes where material cost is higher and where management needs to lower waste generation. By implementing MFCA continuously one by one, the processes with high waste generation will be revealed. With the necessary manoeuvres of companies to lower the waste generation, it can be minimized.
- (e) **Industry Ecology, Cleaner Production and Pollution Prevention:** Identifying the waste and minimizing it up to the nadir leads current production to cleaner production and environmental relief. As a prolific result of following the above steps, companies achieves pollution prevention, cleaner and least environmentally impacted process of manufacturing.

## 6. Managements Approach to Implementing MFCA at the Industry

Management plays a key role in implementing MFCA for establishing standardized and eco-efficient system at the industry. Management has to spread awareness about the concept of MFCA and the tons of benefits it has on the industry. Management needs to take initiatives to implement this concept and here's the approach management can lead with:

- (a) **Material Flow Cost Accounting is a continuous process:** Much like implementing 'KAIZEN', MFCA does not merely stop after applying once but must be continuously implemented. It can be augmented with other techniques and practices to produce better results. It can also be extended to various other departments other than manufacturing. Thus, it can

be applied to sales, administration, maintenance, stores, and spares departments and even in the company kitchen.

- (b) **Team work across all levels:** Material Flow Cost Accounting takes into account all processes and systems operating in an industry. It takes all tangible and intangible resources and goods consumed by a company and also the amount of manpower used in all spheres during assessment. Thus, a type of team work is required for easy flow of data and information between people, their departments and the management.
- (c) **Brainstorming:** During brainstorming, management has to obtain and convey ideas and thoughts of different departments amongst each other and holds the responsibility to smoothly adapt the processes and people to the new improvements.
- (d) **Applaud achievements:** Appreciating and acknowledging any person's merit is extremely important. Any new idea or quicker adaption to the improved process should be recognized and rewarded and others should be motivated to continue the good work to contribute to company's success.

## 7. Conclusion

Material Flow Cost Accounting as a modern-day tool helps or rather enhances the quality of production processes to become more and more efficient keeping in mind the environment. All the while it continues to work alongside its various quality, workplace, and product management

methodologies. As seen above, successful implementation of the MFCA methodology not only provides accurate dimensions for further improvement but also gives an ISO 14051/14052 certification to the company.

While it may not seem much, but often the improvement in the processes are not defined correctly or executed practically. This failure to properly demarcate the problems and perform the solutions can be overcome by the MFCA methodology. The other common techniques implemented in today's companies mainly deal with quality improvement, workplace improvement, or process improvement. For example, the PDCA Cycle, 5S techniques, respectively. But on application of MFCA within the bearing manufacturing company, it was realized that MFCA not only supports the above techniques but it can also be easily augmented within the present framework to work hand-in-hand to improve productivity and the eco-efficiency of a company.

## References

- Environmental Management.** (2011). *Material Flow Cost Accounting – General Framework*. BSI Standards Publication. ISBN 9780580765452.
- Rogers, Everett.** (2003, 16 August). *Diffusion of Innovations*, 5th Edition. Simon and Schuster. ISBN 978-0-7432-5823-4.
- Rogers, Everett M., and Kincaid, D. Lawrence.** (1981). *Communication Networks: Toward a New Paradigm for Research*. Free Press: New York.
- Sygulla1, R., Bierer, A., and Götze1, U.** *Material Flow Cost Accounting – Proposals for Improving the Evaluation of Monetary Effects of Resource Saving Process Designs*.

*“Teaching’s hard ! You need different skills : Positive reinforcement, keeping students from getting bored, commanding their attention in a certain way.”*

*– Bill Gates*

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