

## CONTENTS

---

1. **Impact of Information Technology (IT) on Business for Creating Virtual Alliances (VA) Through Value Chain Management (VCM)**  
*Vahid Rangriz, Dr. M. G. BasavaRaja*
  
16. **Customer Satisfaction in Banking Services :  
A Comparative Study of Public and Private Sector Banks**  
*Dr. Amit Kumar Sinha, Dr. Satyendra P. Singh  
Dr. Sanjeev Gupta, Dr. Shib Kumari Singh*
  
23. **E-learning for Sustainable Development : Case Study of Telecom Sector**  
*Dr. Neeru Mundra, Ms. Karishma Gulati,  
Ms. Renu Vashisth*
  
30. **Job Satisfaction and Motivation Level at Dadlaghat Unit of Ambuja Cement Limited**  
*Dr. Jai Singh Parmar*
  
42. **Effectiveness of Self-Employment to Educated Unemployed Youth Scheme in India**  
*Dr. P. V. V. Satyanarayana*
  
51. **Infrastructure and Human development in India :  
An Inter-state comparison**  
*Dr. Gopalakrishna B.V, Dr. D.S. Leelavathi*
  
68. **Electronic Revolution in India : Waste to Welfare**  
*Dr. Shweta Arora*
  


---

84. **Book Review**  
*Dr. Minakshi Kishore*

# Journal of IPM Meerut

ISSN 0976 - 0873

Volume : (12) Number (1)

January - June 2011

---

## *PATRON*

**Sh. V. P. Verma**

Executive Director

IPM

---

## *EDITOR IN CHIEF*

**Dr. Asit Mohan**

Director - IPM, Meerut

---

## *EDITORIAL ADVISORY BOARD*

*Dr. A. N. Saxena*

The World Academy of Productivity Science,  
New Delhi

*Dr. Nand Dhameja*

MDI Gurgaon

*Dr. Azhar Kazmi*

Deptt. of Business Admn., F.M.S.&R, AMU,  
Aligarh

*Dr. S. R. Singhvi*

Fore School of Management, New Delhi

*Dr. Rakesh Singh*

Great Lakes Institute of Management, Chennai

---

## *EXECUTIVE EDITOR*

*Prof. Virender S. Solanki*

IPM, Meerut

---

## *PRODUCTION SUPPORT & LAYOUT*

*Akhilesh Kumar*

Journal of IPM Meerut is published biannually. All editorial correspondence and article for publication should be addressed to the Executive editor at Institute of Productivity & Management, 'Resource House', Pocket-G, Phase-I, Pallavpuram, Meerut (U.P.), India.

Views expressed in the article are those of the respective authors. Neither Journal of IPM Meerut, nor the Institute of Productivity & Management, Meerut can accept any responsibility for, nor do they necessarily agree with the views expressed in the articles. All copyrights are respected. Every effort is made to acknowledge source material relied upon or referred to, but The Journal of IPM Meerut does not accept any responsibility for any inadvertent omissions.

Except as authorized, no part of the material published in The Journal of IPM Meerut may be reproduced, or stored in retrieval systems, or used for commercial or other purposes. All rights reserved.

---

## *Editorial & Administrative Address :*

Institute of Productivity & Management  
'Resource House'

Pocket-g, Pallavpuram - I,  
Meerut-250110 (U.P.)

Telefax : 0121-2576608, 2577289, 2577197

E-mail : info@ipmindia.org

Websit.e : <http://www.ipmindia.org>

---

**Registration No. UPENG/2002/8109, registered with Registrar of Newspapers in India.** Printing and Published by Asit Mohan on behalf of Institute of Productivity & Management, Resource House, Pocket-G, Pallavpuram-I, Meerut, U.P. and Laser Typesetting & Printed at 120 Kohli Printing Press, MU-66A, Pitam Pura, Delhi, Ph : 011-27341718 and published from Delhi.

Editor : Dr. Asit Mohan

CONTENTS

---

1. **Impact of Information Technology (IT) on Business for Creating Virtual Alliances (VA) Through Value Chain Management (VCM)**  
*Vahid Rangriz, Dr. M. G. BasavaRaja*
  
  16. **Customer Satisfaction in Banking Services :  
A Comparative Study of Public and Private Sector Banks**  
*Dr. Amit Kumar Sinha, Dr. Satyendra P. Singh  
Dr. Sanjeev Gupta, Dr. Shib Kumari Singh*
  
  23. **E-learning for Sustainable Development : Case Study of Telecom Sector**  
*Dr. Neeru Mundra, Ms. Karishma Gulati,  
Ms. Renu Vashisth*
  
  30. **Job Satisfaction and Motivation Level at Dadlaghat Unit of Ambuja Cement Limited**  
*Dr. Jai Singh Parmar*
  
  42. **Effectiveness of Self-Employment to Educated Unemployed Youth Scheme in India**  
*Dr. P. V. V. Satyanarayana*
  
  51. **Infrastructure and Human development in India : An Inter-state comparison**  
*Dr. Gopalakrishna B.V, Dr. D.S. Leelavathi*
  
  68. **Electronic Revolution in India : Waste to Welfare**  
*Dr. Shweta Arora*
  
  
  84. **Book Review**  
*Dr. Minakshi Kishore*
-

## From the Editor's Pen

Dear Subscribers and readers, here we come up with our new issue of the Journal with lots of thanks to our readers and writers for their contribution. Once again we would like to request our writers to touch some contemporary issues in their papers.

In the last couple of issues, we have talked about the issues related to leadership and importance of skills. Another important aspect of having expertise in skills would be raised here.

It's very common or rather it's almost human nature to avoid problems or we are scared of problems. Once a speaker asked the entire audience in a seminar that how many people are scared of problems and do not want problems in their life. He placed the question straight to everyone and hence everybody raised hand. He further said that on his way home, he has seen a place where people have no problems at all. These people have no morning newspaper to worry about, no financial problems, no food or security problems, no marriage problems, no law and order problems, in fact no problem at all. He further asked would you like me to help you to join these people. Everybody in the room got excited and raised their hand. He said, "This place is the cemetery" on the way. Now how many of you want to be there, no hand went up. He further asked now how many of you don't want problems, this time no hand was up. Problems, pain and sufferings are unpleasant but necessary part of being alive.

Dr. Norman Vincent Peale has said "Problems are a sign of life! The more problems you have, the more alive you are!" If you analyse carefully, you will find that the problems represent an opportunity to solve. People or products which can solve problems are highly in demand all over. If you can solve a problem that no body else can, you will have a very unique USP which will be highly rewarded.

Next time when we have a problem, let's think of a solution and thank God for giving that problem, because it's the God's way of making us strong. As someone has said, I prayed for an easier life and God gave me problems to make me strong.

Good news is that problem solving attitude can be developed and it takes various skills, which one can learn.

**Prof. Virender Singh Solanki**

# Impact of Information Technology (IT) on Business for Creating Virtual Alliances (VA) Through Value Chain Management (VCM)

## ABSTRACT

This paper suggests a new advance to strategic development for online business systems which incorporates a three-stage research using value, supply and demand chain models. The resulting analysis can describe the strategy and arrangement for an online business enterprise as a value alliance network with a robust approach to evolutionary online business development and the management of change. At first an impression of the description of virtual markets is presented and the opportunities for IT-enabled intermediation are examined. The paper reviews the concepts of supply chain management (SCM), demand chains and value chains in the context of electronically networked organisations and then relates these to the evolution of a virtual value chain.

The virtual value chain is used as a basis for the development of an effective organisational arrangement and the value alliance model in a virtual networked environment. Finally, this is reviewed in the context of the Interactive Home Shopping (IAHS) and illustrated by a case study.

**Keywords :** Information Technology, online business, Virtual Alliances, Value Chain Management

## INTRODUCTION

Driven by such phenomena as the World Wide Web, mass customization, compressed product lifecycles, new distribution channels and new forms of integrated organisations, the most fundamental elements of doing business are changing and a totally new business environment is emerging (Turban et al., 1999). This environment variously described as the Electronic Business

Community (EBC) (Ticoll et al., 1998), electronic economy (El Sawy et al., 1999), electronic market (Wigand and Benjamin, 1995), electronic marketplace or space (Jansen et al., 1999; Rayport and Sviokola, 1995) and virtual market (Burn and Barnett, 2000) is characterized by rapid exchange of information within a virtual network of customers and suppliers working together to create value-added processes.

*Vahid Rangriz : Research Scholar*

*Dr. M. G. BasavaRaja : Professor of Economics & Director, Sir M.V.P.G Centre, University of Mysore, Stage, Mysore-, Karnataka*

This virtual market brings with it new forms of IT-enabled intermediation, virtual supply chains, increasing knowledge intensity and information-based business architecture strategies. Core business processes may need to be rethought and redesigned, new organisational forms and inter-organisational forms may need to be developed and the emphasis will be on collaboration rather than competition within the virtual market. Eisenhardt and Galunic (2000) point out, however, that the new roles of teamwork in online business are actually counter-intuitive and that

collaboration does not naturally lead to synergy. Where synergies are achieved, the managers have mastered the corporate strategic process of coevolving. These managers routinely change the Web of combined links-everything from information exchanges to shared assets to multi-business strategies-among businesses.

The result is a shifting Web of associations that exploits fresh opportunities for synergies and drops weakening ones, as shown in Figure 1.

	Traditional Collaboration	Co evolution
<b>Form of collaboration</b>	Frozen links among static businesses	Shifting webs among evolving businesses
<b>Objectives</b>	Efficiency and economies of scale	Growth, agility, and economies of scope
<b>Internal dynamics</b>	Collaborate	Collaborate and compete
<b>Focus</b>	Content of collaboration	Content and number of collaborative links
<b>Corporate role</b>	Drive Collaboration	Set Collaborative Content
<b>Business role</b>	Execute collaboration	Drive/execute collaboration
<b>Incentive</b>	Varied	Self-interest, based on individual business unit presentation
<b>Business metrics</b>	Presentation against budget, preceding year, or sister-business presentation	Presentation against competitors in growth, share and profits

Figure 1: Traditional Collaboration versus Co-evolution (Eisenhardt and Galunic, 2000)

One such business model can be identified as a value network alliance where organisations define their roles in the context of a complex virtual market interface. This can provide the organisation with an effective strategy and supporting

business arrangement which can be leveraged to improve business presentation (Hackney et al., 1999).

### Supply Chain Management

Supply chain management (SCM) is a well-

accepted concept in logistics and operations management theory, and aims to improve coordination and competitiveness beyond the enterprise level to comprise inter-organisational relationships (Strader et al., 1999). Supply chains exist in virtually every industry and generally involve the procurement processes, transformation of raw materials into finished products and delivery of the product to customers through a distribution system. The supply chain of a packaged consumer goods manufacturer, for instance, comprises manufacturing, packaging, distribution, warehousing and re-tailing. Managing this involves the coordination of the materials inventory and production capacity availability across several organisations to produce products that can satisfy forecasted demand in an environment with a high level of uncertainty. While often regarded as a manufacturing concept (IT systems for Bill of

Materials Processing [BOMP] have been around in the manufacturing sector since the late '60s), it can equally well apply in a university or any other service industry, and may specifically relate to the management of information rather than materials.

As a result, though, SCM has become a “hot” topic for a number of different reasons. These comprise the trend towards multi-site operations with several independent entities involved in the production and delivery process, new and increasingly cut-throat marketing channels and the electronic marketplace. Traditional supply chains and trading partner relationships are exploding into complicated and dynamic virtual networks of trading partners and service providers. The emphasis in these relationships is to derive significant value through increased revenues and decreased costs as shown in Figure 2.

Networked Processes	Value
Design and product management	<ul style="list-style-type: none"> <li>• Competitive advantage through faster time-to-market</li> <li>• Reduced R &amp; D expenses</li> <li>• Lower unit costs</li> </ul>
Order management, planning, forecasting And replenishment	<ul style="list-style-type: none"> <li>• Competitive advantage and higher revenues from reduced stock outs</li> <li>• Lower costs through reduced inventory</li> <li>• Lower costs through reduced return rates</li> </ul>
Distribution Sourcing Customer relationship management	<ul style="list-style-type: none"> <li>• Lower costs through optimised shipping and fulfilment</li> <li>• Competitive advantage and increased revenue through faster product introductions</li> <li>• Decreased costs through and increased revenue from higher quality</li> <li>• Increased revenue through improved customer segmenting and targeting</li> <li>• Increased revenue through improved customer service</li> <li>• Decreased costs from efficient sales force automation</li> </ul>
Merchandising/ Category management	<ul style="list-style-type: none"> <li>• Competitive advantage and increased revenue through the proper product assortment, pricing and promotional strategies, and shelf placement</li> </ul>

Figure 2 : Value from Networked Processes along the Supply Chain (Adapted from Benchmarking Partners, Inc., 1999)

Companies have redefined their supply chain management by focusing on their core competence. This means that instead of covering all the operations of manufacturing, distribution and sales in-house, they are outsourcing areas to other partner companies. This has led to the build-up of supply chain communities where in the most extreme example; a company may outsource all elements from production to selling and retain only the brand image, as in the case of Nike. Achieving this in any organisation directly depends on the presentation of all the others in the network and their willingness and ability to coordinate (Swaminathan et al., 1998). One mistake in manufacturing could reduce the perceived quality of the brand. These communities have taken the supply chain one step higher by sharing information throughout the supply chain, with each specialising in its own core competence. The customer is now placed at the centre of the supply chain rather than at the end, and the organisation will now concentrate on finding out exactly what the customer needs and manufacturing this to customer specifications. This means significant changes to business processes and much faster product lifecycles, and companies have had to utilize IT in new and innovative ways to enable them to fulfil orders on demand and guide the changes needed to make new supply chain communities work.

On the other hand, online commerce and Web-based transactions have not proved to be the success that was expected (Elliot, 2000). Many online retailing companies have suffered losses over the last two years with takeovers and mergers becoming the norm in the electronic grocery markets. A INDIA-based supermarket, Sainsbury, lost millions in its first year of online shopping and even online e-tailers such as Greengrocer.com and Homegrocer.com have had turbulent histories. One of the reasons for this poor presentation has been the incapability of companies to change from a traditional mindset

with regard to the supply chain operation. Frequently customers can buy online but the fulfilment of the order will then take place through a normal supply chain mode via a retail outlet. Costs increase and service is diminished. Companies need to rethink their approach to supply chain management, and this means returning to the basics of the value chain, extending this to supply and demand chain analysis, and evaluating virtual value chains within the context of their industry.

## The Value Analysis Process

### 1. Value Chains

Porter (1980) considered these concepts when he derived his classic internal value chain showing primary activities which a business must do to exist, and the secondary activities required to control and develop the business and which are common across the primary activities. An organisation today must consider the effect of Internet-enabled commerce on their distribution channels and the value chain, as illustrated in Figure 3.

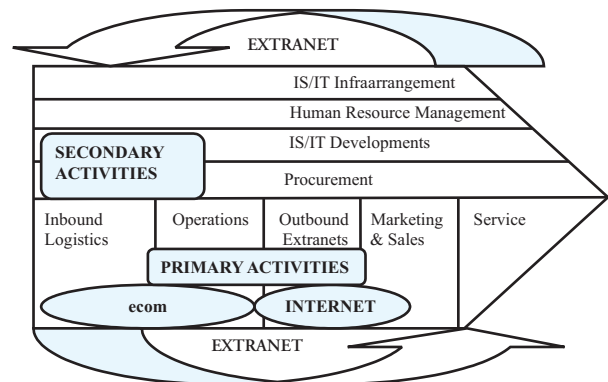


Figure 3 : Internet-Enabled Commerce and the Value Chain (Porter, 1980)

Which parts of the chain will be Internet enabled? Which activities will the company retain in-house and which should be outsourced to others in the supply chain alliance?

How will the intranet be used to improve internal coordination and communication?

Which primary activities are most suitable for e-commerce delivery?

**2. Demand Chains**

Traditionally, suppliers reengineered only their end of the supply chain by reducing obsolete inventory and cutting down cost and time of goods to market. However, a much more powerful concept lies in the Demand Chain where, for example, a retailer's demand chain

would consist of assortment planning (deciding what to sell), inventory management (deciding the quantity of supplies needed) and the actual purchase. Together with SCM we have the Demand-Supply Chain and these are linked and managed in two places the order penetration point (OPP) and the value offering point (VOP), as shown in Figures 4 and 5.

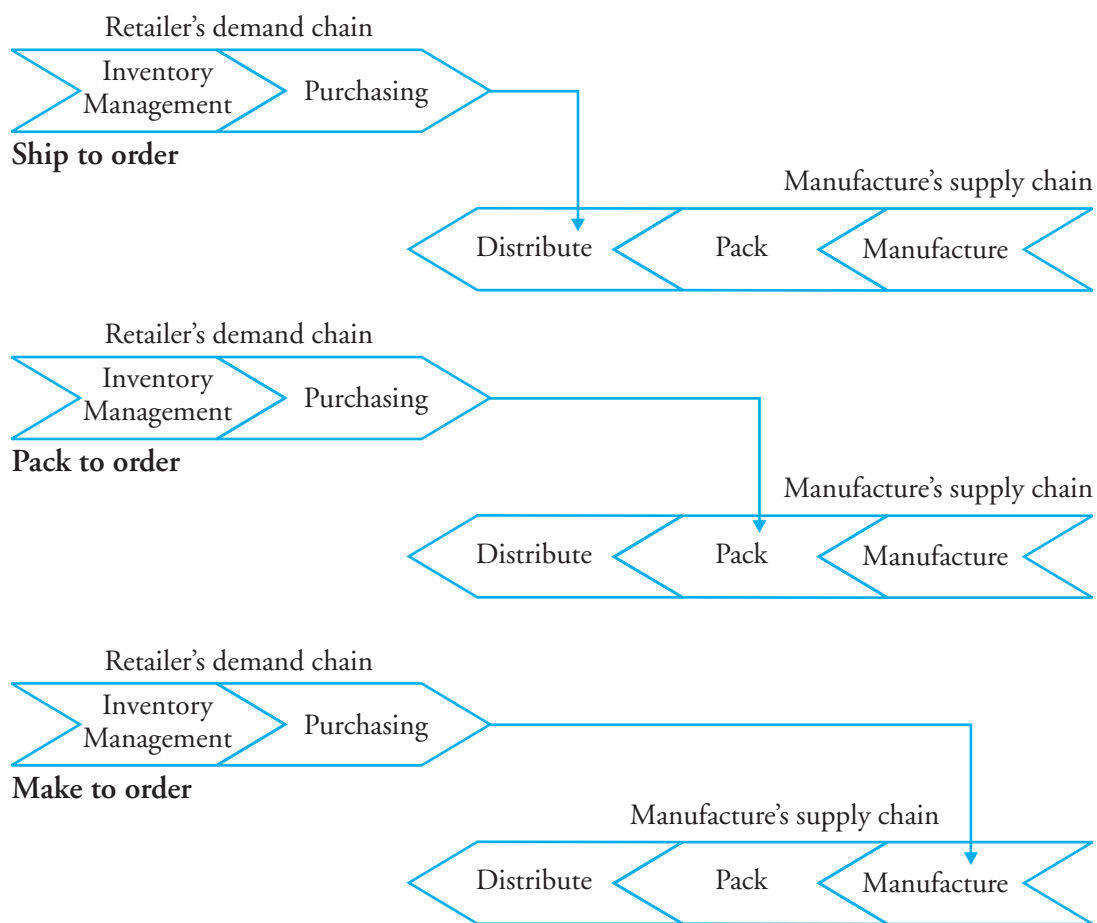


Figure 4 : The OPPs (adapted from Holstrom et al., 2000)

When the product inventory and parts are available, Dell can deliver a simple configuration in 2-3 days, average in 5 days, and complex in 7-

10 days. However, if the parts are not readily available, the lead time is estimated and the customers informed.

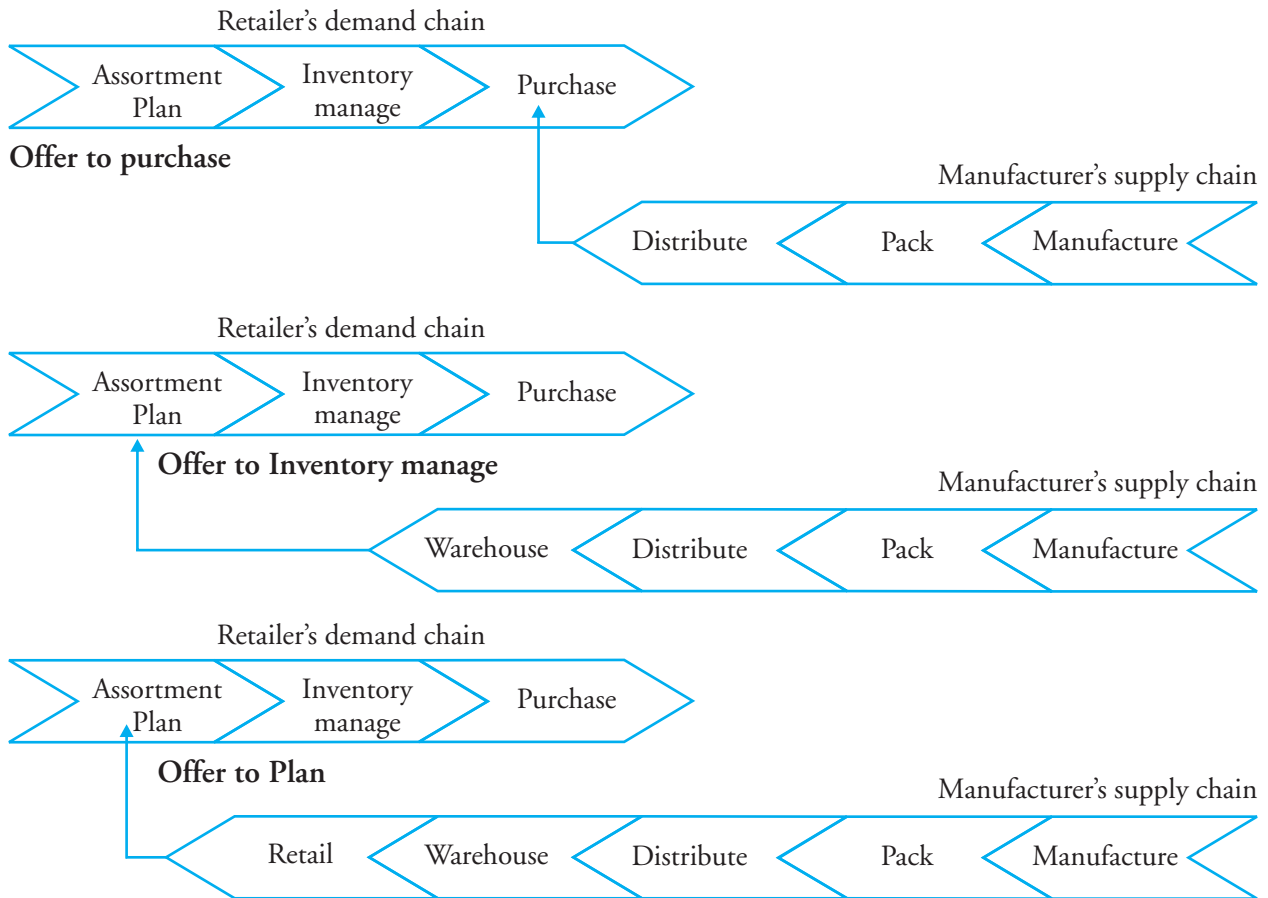


Figure 5 : The VOPs (adapted from Holstrom et al., 2000)

The **OPP** is the place in the supply chain where the supplier allocates the goods ordered by the customer. Goods might be produced after orders come in (make to order) or allocated from a warehouse once the orders have been received (package to order) or from distribution (ship to order). Each order penetration point has different costs and benefits for the supplier and its customer—for example rapid delivery (a benefit for the customer) depends on holding a large inventory (a cost for the supplier).

The further back in the supply chain the supplier moves the **OPP**, the more steps there are to complete without disruption and the more difficult it becomes to fulfil orders promptly. The advantage to the supplier of this approach depends on the amount of cost savings it can

achieve from lower inventory, on the one hand, compared with the reduction in sales that may be brought about by longer delivery times and higher total costs for customers, on the other. Customers and suppliers never benefit equally.

**VOP**—the second place where the demand and supply chains meet—are where the supplier fulfils demand in the customer's demand chain. Moving the **VOP** back in the demand chain largely benefits the customer, requiring more work from the supplier. There are three principal **VOPs**. In the conventional buyer-seller relationship, the **VOP** is the purchasing department, which accepts an “offer to purchasing” by choosing the supplier and deciding when goods are needed. An “offer to inventory management” moves the **VOP** further

back in the demand chain: by carefully monitoring the customer's inventory levels, a supplier can cut down on stock that is unlikely to sell and ensure that the customer never runs out of fast-moving goods. An "offer to planning" moves the VOP back to merchandising or production. As the VOP is moved back, this means more work for suppliers and greater benefits for retailers or even end users. The fourth VOP is the "offer to end user," such as Dell Computer's direct-sales model for business clients. Rather than fulfil orders from wholesalers (an offer to purchasing), Dell went all the way back in the demand chain to the end consumer by fulfilling orders for customized PCs—complete with software and network configuration. As we have noted, however, an inherent disadvantage of this model is the longer lead time needed for delivery. To overcome this problem, Dell provides the estimated delivery time as well as online order tracking information for each order.

In this way, by coordinating changes in both the supply and demand chains, a supplier can raise its customers' efficiency, as well as its own, i.e. simultaneous movements of the OPP and VOP will be of mutual benefit to customer and supplier. Effectively, this can result in the development of a virtual value chain.

### 3. Virtual Value Chains

Mougayar (1998) suggests an online business must then consider the following two questions:

- Can you increase the number of electronic connections, simplify inter-organisational processes and at the same time discover ways to shrink, speed up or virtualised the value chain?
- What is likely to happen with your wholesalers, distributors or retailers?

Are they going to be disintermediated or are they likely to survive by transforming their businesses into new types of intermediaries operating in a neutral market (Berryman et al., 1998)?

One obvious scenario is that the old value chain gets smaller, so more efficient as you bypass some of the steps in the supply chain (for example online delivery of soft products). In some cases as you disintermediate previous links in your supply chain, new intermediaries will arise. This dynamic reconstruction of intermediaries can also lead to dynamic allocation of intermediaries where the channels become invisible or even non-existent, so creating the virtual value chain (Rayport and Sviokola, 1995), as shown in Figure 6.

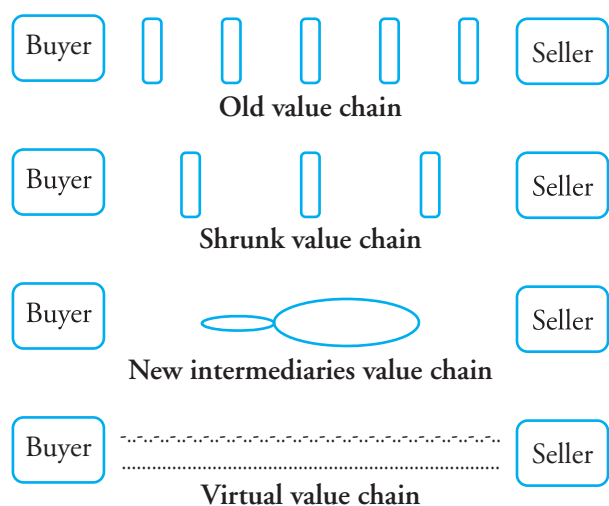


Figure 6 : The Evolving Virtual Value Chain

The value chain of the firm does not exist in isolation but exists as part of an industry value system, and the whole value system will consist of the value chains of suppliers, customers and competitors. This can become the model for the virtual organisation as it links electronically into value networks.

### The Value Network Alliance

Once an organisation has performed a full value chain analysis, it is then in a position to form viable value alliances through an electronic network.

This may form the basis for a virtual organisation where the alliance combines a range of products, services and facilities in one package, forming one

single supply chain. Participants may come together on a project-by-project basis, but generally the general contractor provides coordination. Where longer term relationships have developed, the value alliance often adopts

the form of value constellations where firms supply each of the companies in the value chain, and a complex and enduring communications arrangement is embedded within the alliance (Burn and Barnett, 2000), as shown in Figure 7.

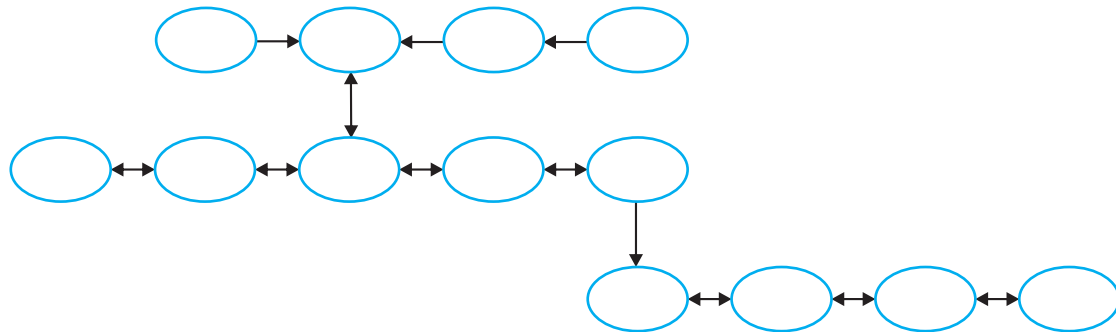


Figure 7: Value Alliance

Substitutability has traditionally been a function of efficiency and transaction costs: searching for, evaluating and commencing operations with potential partners has been a costly and slow business procedure, relying as it does on information transfer, the establishment of trust and business rules across time zones, culture, currency and legal frameworks. These have determined the relative positioning of partners on the chain and the reciprocity of the relationship.

This model is particularly suited to taking advantage of communications efficiencies not previously available and therefore changing components extremely rapidly in response to evanescent market forces and opportunities.

Different models present themselves to retailers and manufacturers and this has particular significance in the developing electronic grocery market where market alliances are in a continual process of evolution.

**Retailing and e-grocery Markets**

The retail grocery trade in developed countries accounts for between 30– 50% of all retail spending on physical products, depending on income levels and definitions (Wileman and Jary, 1997). As each person in a cash-based economy

buys food, this puts retail grocers in a market class of their own. This has given rise to sophisticated networks of supermarket chains expanding by virtue of their advantages of economy of scale, buying power, brand marketing and cross-marketing with loyalty and group promotion packages. Food retailers are by far the largest retailing group in the India accounting for almost 38% of India retail sales, while the large grocery retailers alone account for 30% of all India retail sales. There are a relatively small number of large grocery retailers, each of which operates a large number of stores (on average the large grocers operate 113 stores each, compared to an average of 1.3 stores per retailer for the food sector as a whole), generating a large per-store turnover. The top five large grocery retailers account for 48% of all sales (Indian Economics, 1997). In comparison, clothing retailers represent 7% of total India retail turnover. There are some multiples in this sector, although nowhere near as many as in food retailing, with an average of 1.9 stores are operated by each retailer.

Electrical and music goods retailers make over 5% of all India retail sales. The emergence of larger retail operators has enabled the use of more efficient methods of distribution. Over time,

wholesalers have more or less disappeared from many of the retail markets, with large retailers dealing directly with manufacturers. This trend has probably been greatest in the grocery retail market; between 1982 and 1992, retail turnover increased by 125% while turnover from delivered wholesale trade increased by only 59%. At the same time the method of delivery has changed enormously as retailers have become more efficient. Before the emergence of multiple retailers, most deliveries to retailers were made by manufacturers or wholesalers. Such deliveries were of an assortment of products to individual retail outlets. Nowadays, manufacturers tend to deliver large amounts of a particular product in each delivery to a retailer's own centralised warehouse. The retailer has, in effect, internalised the wholesaling and transportation function into its own activities. The advantages of centralised warehousing comprise: reduced stock levels, reduced delivery visits per store, reduction of necessary storage space in stores themselves, fewer incidents of running out of stocks and empty shelves in the outlet; and lower shrinkage.

The increasing quantity of data that can now be collected and collated by retailers has improved

their ability to judge how consumer preferences change over time. As a method of exploiting this new information advantage, many grocery and other retailers have developed stronger relationships with suppliers and have become involved in product development (Hogarth-Scott and Parkinson, 1994). Advances in technology also have consequences for the nature of retailing itself. The traditional, and still by far the most popular, form of shopping is one where consumers travel to the retailer to purchase products.

However, other forms of retailing, such as mail order, teleshopping and interactive television are all viable alternatives. Moreover, home shopping, especially through teleshopping and interactive television, is likely to increase as technology progresses. It is difficult to know how directly these new forms of retailing compete with more traditional retailers, not least because data on home shopping is currently not collected very rigorously. Clearly, though, any significant growth in these new forms of retailing will be detrimental to traditional retailers and will have considerable effects on the arrangement of the retail market. The question, of course, is whether

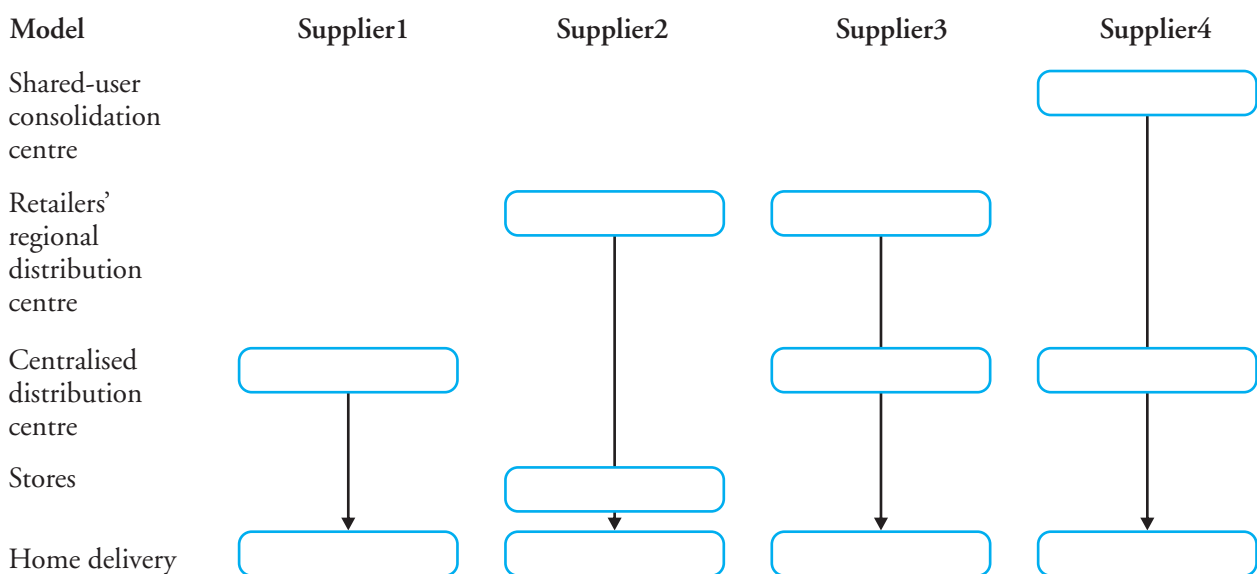


Figure 8 : Supply Chain Arrangements for Retailers (adapted from Younger, 1999)

there will be a significant growth in these new forms of shopping and whether traditional retailers will adapt to provide these new channels to market, or whether new entrants will occupy the market niche first.

It has been suggested that Interactive Home Shopping (IAHS) might threaten the established supermarket presence by disintermediating the bricks and mortar real estate and associated management capital. Supermarkets are currently testing the potential for IAHS to alter their methods of dealing with customer requests. Trials are under way on at least 70 Web sites in more than 17 countries at present (Bos, 1999), but what is not clear is the management strategies behind the deployment of resources in this way. It is likely that virtual forms of organisation will arise to extend or replace existing business models in the grocery trade. To understand therefore the stages of growth and management of organisational change, it is helpful to identify

useful models for this industry.

Figure 8 summarises the current and potential supply chain arrangements for electronic channels in retailing. Models 1 and 2 represent the current arrangements for e-tailors and Models 3 and 4 represent potential arrangements for IAHS.

Figure 9 summarises how manufacturers of fast-moving consumer goods (FMCG) in models three and four have applied the supply-demand chain to cut out retailers and sell direct to the consumer. The savings for consumers are clearly significant, and from a manufacturing perspective the increased profit margins will undoubtedly accelerate the process. This model is particularly suited to taking advantage of communications efficiencies not previously available and therefore changing components extremely rapidly in response to evanescent market forces and opportunities.

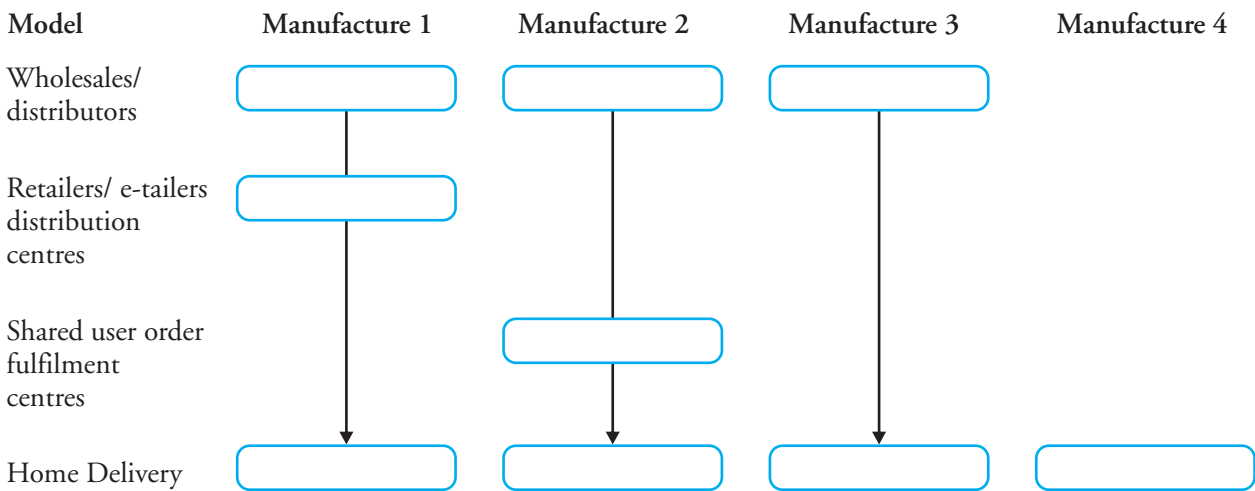


Figure 9 : Supply Chain Arrangements for Non FMCG (Younger, 1999)

An example of a value network alliance is **Peapod.com** (Figure 10) within the context of its virtual market. Peapod.com operates in eight major U.S. conurbations (at the end of 1999)

supplying grocery and pharmacy items using interactive home shopping through Web ordering, credit card processing and home/office delivery.

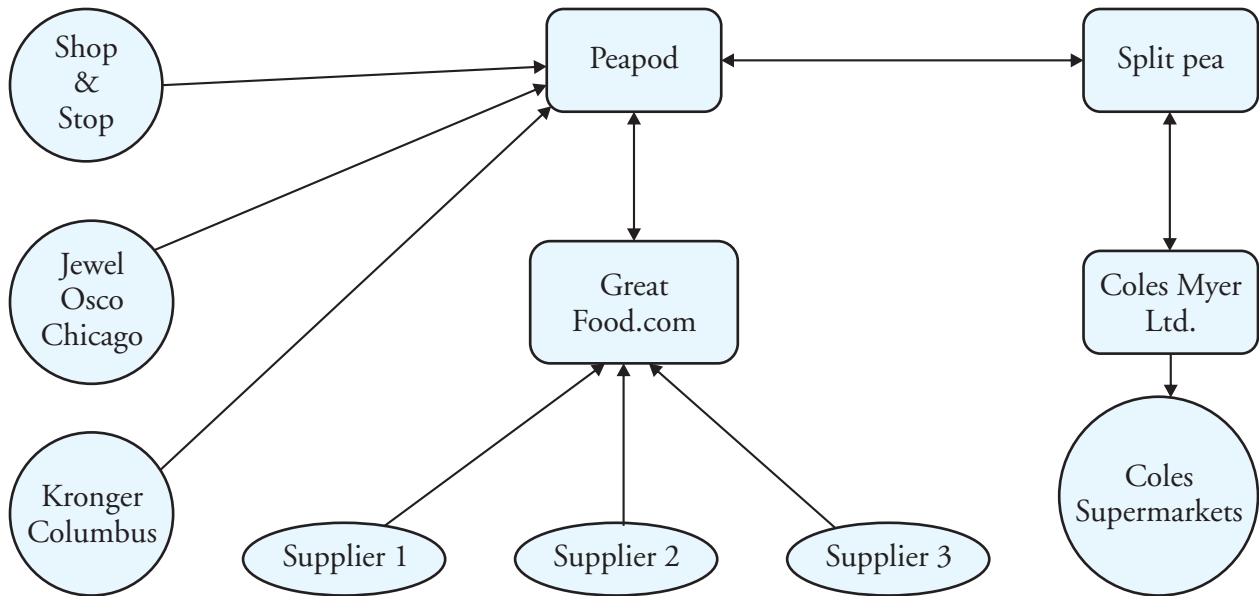


Figure 10 : value network alliance

They offer a range of items selected from partner stores in each area. (Only three are displayed for clarity.) The company solicits active Web recruitment partners by offering a reward program to owners of Web sites who accept links on their sites—rewards are provided in the form of set payments for each referred customer's first and third purchase. The company developed proprietary software and logistics to support its operations and then spun these away from the core grocery delivery business.

**Split Pea** Software was formed in December 1998 to act as an independent licensing arm for the IAHS shopping and delivery systems and technology. These systems comprise the server-based shopping application together with business applications such as fulfilment management, product database administration, customer support and Peapod's one-to-one targeting engine. Peapod is only a minority interest in Split Pea, which is majority owned by senior management. Split Pea was formed upon the successful conclusion of negotiations leading to a licensing agreement with the large Australian Retail chain operator; Coles Myer Ltd. Coles Myer has exclusive use of the Split Pea technology

within Australia and New Zealand, but Split Pea is seeking to license its software and delivery services elsewhere. Coles Myer is currently testing the system for Coles Online, the virtual face of its Coles retail grocery chain, with an introduction in Sydney.

**Coles Online** is the virtual face of a large retail grocery chain operating across much of Australia under the name of Coles. This company has no links to other companies or services on its site as yet, and operates by selecting goods from existing Coles grocery stores and operating a home delivery service, despite the fact that Coles Myer owns and operates other large chains with non-competing interests, such as the Target clothing stores and the Officeworks office supply and stationery chain. One of the most interesting aspects of these networks is the speed at which companies are focusing on core competencies and outsourcing non-core functions to other service providers in the value network. With virtual relationships, companies can more easily outsource but still integrate these outsourced functions into their virtual organisation. A manufacturing company with superior strengths in branding and selling could transform their

organisation to focus on these and outsource the manufacturing into its virtual value chain. Many organisations have moved towards this model (particularly the new dot.com companies) and are becoming virtually integrated rather than vertically integrated. These companies can now focus specifically on their customer communities who act as information gathering and information dissemination conduits (Venkatraman and Henderson, 1998). This will involve increased personalisation and customisation of product offerings, and the aggregation and disaggregation of information-based product components to match customer needs and to support new pricing strategies (Bakos, 1998). This requires the organisation to identify the framework for market mediation and the management implications involved in such value-network alliances.

### Framework for Market Mediation

As organisations form and reform, these value-network alliances also have to develop capabilities to cope with strategic, technical, cultural and operational change. Logistics, manufacturing and customer interfacing functions will become prime areas for outsourcing or incorporation into the virtual value chain, and the ability to form and manage these is of critical importance.

As the virtual value chain is formed, facilitating direct exchange between the producer and consumer, we see the role of intermediaries being threatened (Wigand and Benjamin, 1995), but at the same time opportunities for new intermediaries arise.

#### 1. Intermediaries

In traditional consumer markets, intermediaries (such as a traditional retail store) provide a variety of explicit and implicit services for their customers. These comprise assistance in searching and evaluation, needs assessment and product matching, risk reduction and product distribution and delivery (Sarkar et al., 1995). They also benefit producers by creating and

disseminating product information and creating product awareness, influencing customer purchasing, providing customer information, reducing exposure to risk and reducing costs of distribution through economies of scale. A large supermarket chain can provide market opportunities that a small producer would find impossible to generate on its own. The mediation role for customers and producers are normally juxtaposed, and so part of the role of intermediaries is to balance this situation. While the truly virtual organisation with a virtual value chain may be able to fully disinter mediate, the fact remains that most organisations will still rely on an intermediary to integrate producer and consumer services and present the consumer market with a large-scale community front-end and one that can take advantages of economy of scale (Gallaughar, 1999). Interestingly, some of the biggest Internet businesses act as major intermediaries between other players. Amazon, CD-Now, Egghead.com and E\*Trade can all be thought of as middlemen. Portals and vortals are both some form of electronic intermediary. This suggests that rather than disintermediation becoming the norm, a new form of intermediary, cybermediaries, may evolve.

#### 2. Cybermediaries

Sarkar et al (1995) suggest the following list of cybermediaries: Gateways, Directories, Search Services, Malls, Publishers, Virtual Resellers, Web Site Evaluators, Auditors, Forums, Fan Clubs and User Groups, Financial Intermediaries, Spot Market Makers and Barter Networks, Intelligent Agents.

These intermediaries will continue to be necessary where customers demand choice, require quality assurance and want additional social and entertainment value. Producers may be unable to impose producer-centric arrangements on the market and may also be threatened by the power of retaliation from the existing intermediaries. They may also choose to operate along known trust relationships in certain

cultures and, indeed, using this system may be actually reducing the costs implied by legal contractual arrangements in place between producer and consumer. In many cases, electronic sites will continue to complement existing physical infraarrangements, but certainly restructuring of the processes is likely and the networked organisation needs to be fully aware of the impact of such changing relationships.

### Strategies for Virtual Alliances

Virtual alliances involve collaborations among multiple organisations with several complex economic, strategic, and social and conflict management issues as well as major organisational and technological factors. Planning and managing such systems requires an integrated multidimensional approach across the online business (Kumar and Crook, 1999).

As a first step the following questions need answering:

- What do consumers ideally want to buy?
- What business should I be in?
- What are my current core competencies?
- What are the opportunities for new products or service lines?
- What are the opportunities for new business channels?
- What is the most effective value proposition in the short, medium and long run?
- What roles should I play—make, sell or service—and who are my customers?
- Who are my competitors, and how do I need to be positioned?
- What is my operating model?
- With whom should I partner/network?

The answers, if they are guided by a deep understanding of the economic implications and opportunity of the e-Economy, will produce a very different picture of the company. For many companies, achieving this vision will require building greater expertise in the strategic and operational application of technology which is driving the rapid evolution of online commerce.

Consequently it will be necessary to temper the technology focus by applying cross-disciplinary, cross-functional and cross-industry perspectives and expertise; this is because industry boundaries will be shaped by customer needs rather than by core competencies.

### Conclusion

This paper has argued that value, supply and demand chain analysis is methodologies which have been applied to IT strategies for the last two decades but they tend to imply linear relationships. Using them in an inclusive structure, they can effectively model the value network of a complex online business environment. As organisations form and reform these value-network alliances, they also have to expand capabilities to cope with strategic, technical, cultural and operational change. Logistics, manufacturing and customer interfacing functions will become prime areas for outsourcing or incorporation into the virtual value chain, and the ability to form and manage these is of decisive significance. Continual re-evaluation of the value chains will become an essential tool for developing strategies for online business and managing ongoing global change processes.

### References :

1. Bakos, Y. (1998). The emerging role of electronic marketplaces on the Internet. *Communications of the ACM*, 41(8), 35-42.
2. Benchmarking Partners Inc. (1999). *Driving Business Value through E-Collaboration*. Available on the World Wide Web at : <http://www.benchmarking.com>. *E-Collaboration*. Available on the World Wide Web at : <http://www.benchmarking.com>.
3. Berryman, K., Harrington, L., Layton-

- Rodin, D. and Rerolle, V. (1998). Electronic commerce: Three emerging strategies. *The McKinsey Quarterly*, 1, 152-159.
4. Bos, G. (1999). Virtual Supermarkets Index. Available on the World Wide Web at: <http://www.innovell.com/supermarkets>.
  5. Burn, J. M. and Barnett, M. L. (2000). Emerging virtual models for global e-commerce: World-wide retailing in the e-grocery business. Special Millennium Issue of *Journal of Global Information Technology Management*, 3(1), 18-32.
  6. El Sawy, O. A., Malhotra, A., Gosain, S. and Young, K. M. (1999). IT-intensive value innovation in the electronic economy: Insights from Marshall Industries. *MIS Quarterly*, 23(3), 305-335.
  7. Eisenhardt, K. E. and Galunic, D. C. (2000). Coevolving. At last, a way to make synergies work. *Harvard Business Review*, Jan-Feb, 91-101.
  8. Elliott, C. (2000). Online commerce and the supply chain. *International Journal of e-Business Strategy Management*, 1(4), 283-288.
  9. Hackney R. A., Ranchhod A. and Griffiths, G. (1999). Internet marketing: New medium, new relevance. *Academy of Marketing*, University of Stirling, July.
  10. Hogarth-Scott, S. and Parkinson, S. (1994). Barriers and stimuli to the use of information technology in retailing. *International Review of Retail, Distribution and Consumer Research*, 4(3), 257-75.
  11. Holmstrom, J., Hoover, Jr., W. E., Louhiluoto, P. and Vasara, A. (2000). The other end of the supply chain. *The McKinsey Quarterly*, 1, 62-71.
  12. Indian Economics. (1997). Competition in Retailing (Research Paper 13). New Delhi: Office of Fair Trading.
  13. Kumar, R. L. and Crook, C. W. A (1999). Multi-disciplinary framework for the management of inter-organisational systems. *The Data Base for Advances in Information Systems*, 30(1).
  14. Mougayar, W. (1998). *Opening Digital Markets*. McGraw Hill.
  15. Porter, M.E. (1980). *Competing Strategy Techniques for Analysing Industries and Competitors*. New York: Free Press.
  16. Rayport, J. F. and Sviokola, J. (1995). Exploiting the virtual value chain. *Harvard Business Review*, 73(6), 75-86.
  17. Sarkar, M. B., Butler, B. and Steinfield, C. Intermediaries and cybermediaries: A continuing role for mediating players in the electronic marketplace. *Journal of Computer Mediated Communication*, 1(3). Available on the World Wide Web at: <http://www.ascusc.org/jcmc/vol1/issue3/sarkar.html>.
  18. Strader, T. J., Lin, F. and Shaw, M. J. (1999). Business-to-business electronic commerce and convergent assembly supply chain management. *Journal of Information Technology*, 14, 361-373.
  19. Swaminathan, J. M., Smith, S. F. and Sadeh, N. M. (1998). Modelling supply chain dynamics: A multi-agent approach. *Decision Sciences*, 29(3), 607-632.
  20. Ticoll, D., Lowry, A. and Kalakota, R. (1998). *Joined at the bit, in blueprint to the digital economy creating wealth in the era of e-business*. McGraw-Hill.
  21. Turban, E., Lee, J., King, D. and Chung, M. (1999). *Electronic Commerce: A Managerial Perspective*. Prentice Hall.
  22. Venkatraman, N. and Henderson, J. C. (1998). Real strategies for virtual organising. *Sloan Management Review*, fall, 33-48.
  22. Wigand, R. T. and Benjamin, R. I. (1995).

Electronic commerce: Effects on electronic markets. *Journal of Computer-Mediated Communication*, 1(3). Available on the World Wide Web at: <http://www.ascusc.org/jcmc/vol1/issue3/wigand.html>.

23. Wileman, A. and Jary, M. (1997). Retail

Power Plays: From Trading to Brand Leadership. New York: New York University Press.

24. Younger, R. (1999). Supply Chain Challenges for Electronic Shopping. FT business



# Customer Satisfaction in Banking Services : A Comparative Study of Public and Private Sector Banks

## ABSTRACT

The Indian banking has come a long way from being a sleepy business institution to a highly proactive and dynamic entity. This transformation has been largely brought about by the large dose of liberalization and economic reforms that allowed bank to explore new business opportunities rather than generating revenues from conventional streams (i.e. borrowing and lending). These economic reforms and the entry of private players saw nationalized banks revamp their service and product portfolio to incorporate new and innovative customer-centric schemes. The Indian banking finally woke up to the surging demands of the ever-discerning Indian consumers. The need to become highly customer focused (generated by high competitive levels) forced the slow-moving public sector banks to adopt a fast track approach. Taking a leaf out of the private sector banks, the public sector banks too went for major image changes (including corporate brand building exercises) and customer friendly schemes.

## INTRODUCTION

Generally speaking, a bank is an institution dealing in money. The origin of the word bank is traced to the Italian 'banca', 'banc' or 'banque', which means a bench. It is stated that in Middle Ages the European money changers and moneylenders displayed their coins on their benches and conducted their business. Hence the term bank refers to the bench on which the business of money changing and money lending was conducted. Hence, the term banking is defined as accepting for the purpose of lending or investment, of deposits of money from the public repayable on demand or otherwise and

withdrawal by cheque, draft, and order or otherwise.

In the first half of 19th century, the East India Company established three banks- the Bank of Bengal in 1809, the Bank of Bombay in 1840 and the bank of Madras in 1843. These three banks were amalgamated in 1920 and a new bank, the imperial Bank of India was established on 27th January 1921. With the Passing of the State Bank of India Act in 1955 the undertaking of the imperial Bank of India was taken over by the newly constituted State Bank of India.

The reserve Bank, which is the Central Bank of the country, was created in 1935 by the passing of Reserve bank of India Act

*Dr. Amit Kumar Sinha : Assistant Professor, Amity Business School, Amity University, Lucknow (UP)*

*Dr. Satyendra P. Singh : Sr. Lecturer, Jaipuria Institute of Management, Lucknow (UP)*

*Dr. Sanjeev Gupta : Assistant Professor, Commerce SLP Govt. PG College, Morar, Gwalior (MP)*

*Dr. Shib Kumari Singh : Visiting Faculty Institute of Commerce & Management, Jiwaji University, City Centre, Gwalior- 474 002 (MP)*

1934. In the wake of the Swadeshi Movement, a number of banks with Indian management were established in the country namely, Punjab National Bank, Bank of India, Canara Bank, Indian Bank, Bank of Baroda, Central Bank of India etc. On July 19, 1969, 14 major banks of the country were nationalized and on 15th April 1980 six more commercial private sector banks were also taken over by the government.

The Indian banking can be broadly categorized into nationalized (government owned) banks, private banks and specialized banking institutions. The Reserve Bank of India acts as a centralized body monitoring the discrepancies and shortcoming in the system. The nationalized banks continue to dominate the Indian banking arena for a reasonably long period of time. The need to become highly customer focused has forced the slow-moving public sector banks to adopt a fast track approach.

The liberalization policy of Government of India lead to enhanced participation of private sector in banking and since then the industry has witnessed the entry of many new generation private banks. The major differentiating parameter that distinguishes these banks from all the other banks in the Indian banking is the level of service that is offered to the customer. Their focus has always been on customer – understanding his needs, preempting him and consequently delighting him with various configurations of benefits and a wide portfolio of products and services. These banks have generally been established by promoters of repute or by ‘high value’ domestic financial institutions. The

popularity of these banks can be gauged by the fact that in a short span of time, these banks have gained considerable customer confidence and consequently have shown impressive growth.

Today, the private banks corner a reasonable share of deposits. Most of the banks in this category are concentrated in the high growth urban areas or in metros (that account for approximately 70% of the total banking business). With efficiency being the major focus, these banks have leveraged on their strengths and competencies viz. efficient and effective management, operational efficiency and flexibility, superior product positioning and higher employee productivity skills. The private banks with their focused business and service portfolio have a reputation of being niche players in the industry. A strategy that has allowed these banks to concentrate on few reliable high net worth companies and individuals rather than cater to the mass market. Well chalked out strategies and plans have allowed most of these banks to deliver superlative levels of personalized services.

On the other hand, the public sector banks till date enjoy formidable customer confidence, goodwill and reputation as well as friendliness that have been created significantly in the rural and semi-urban areas. These banks need to become lean, agile, responsive, techno-savvy, profitable and customer – centric. The strengths of the modern day private banks are product innovation, diversification and optimum use of information technology, high level of capitalization, customer focus, less NPAs and higher profit growth, team of specialized and motivated personnel etc.

## Review of Literature

Existing literature on quality of service argues that monopolistic as well as less competitive environment is not conducive to promote quality. Although a competitive environment is expected to maximize consumer welfare, it does not always satisfy individual's heterogeneous price- quality preferences. It is evident from the literature that monopolies tend to distort quality of service.

Service quality is a customer determination based on customer's actual experience with the service, measured against his or her requirement, stated or unstated, operational or subjective, conscious or merely sensed (Feighbourn, 1991).

Sinha and Sahoo (1994) have defined service quality as the conformance to the standards set by the customer and marketers for a certain sum of money. The customer perceives that service quality to be high if it is perfect on his expectation. Therefore, it becomes imperative for service providers to meet or exceed the target customer's service quality expectations. The customers compare the perceived service with the expected service.

Kotler (2000) writes that service providers must do their best to identify the expectations of their target customers with respect to each specific service. They are required to formulate their market oriented plans and programs. The more scientific and condition- oriented is the service mix, the more refined are the services.

Bowen and Schneider (1988) argued that the creation of climate for excellent service was important to ensure that customers received high quality service. There had been links between employees' service climate perceptions and customer satisfaction and evaluation of service quality (Johnson, 1996). Customer satisfaction has, in turn, been linked to important organizational outcomes, including customer retention and profits.

Dietz et al (2004) found that higher the

frequency of employee – customer contact, the stronger would be the relationship between service climate and customer attitudes.

Barnes (1989) has highlighted the importance of manager and service support people in delivering quality services. He refers to them as internal customers. Many other researchers have supported the view that an internal customer supply chain is a prerequisite to good external services.

Gummesson (1987) has suggested that all employees must be well attuned to the mission, goals, strategies and system of the company. A suitable customer services climate or thematic coherence is necessary to model a good service experience of employees who will then do many things right and do the right things to create quality services experiences for the customer (Schneider, 1986).

Foreman DNA Woodruff (1991) suggested that development that is flexible and responsive nurtures common values and behaviors that reflect organizational goals and its synergy with the market place.

Chowdhary (2004) opined that the service customer's presence is followed by their demands for customization and responses are to be shifted to their requirement by the frontline personnel. Any service to be provided to the customer can be differentiated by the service provider from the rest of the service providers only if it possesses some unique selling proposition.

Bolton et al (2002) suggested that in spite of public sector banks having higher tangibility than private sector bank, customers have rated private sector banks higher on service in terms of the factors like responsiveness and reliability.

## Objectives

- To highlight the major factors that affect the customer satisfaction level in public and private sector banks.
- To compare the customer satisfaction (based

on various parameters) regarding public and private sector banks.

### Research Methodology

The study is based on both secondary and primary data. Personal interviews have been conducted with the managers of Lucknow region (branch managers, marketing managers, operations managers etc) of various public and private sector banks to elicit the relevant information. Administering self-made questionnaire to the sample units (customers of Lucknow region) generated the primary data with regard to customer satisfaction level of public and private sector banks. The questionnaire on a 5-point Likert scale, where 1 indicated high level of dissatisfaction and 5 indicated high level of satisfaction consisting of 28 items has been used. In the study, non-probability sampling (convenience sampling) method has been used. Direct interview technique has been adopted in the process of collecting primary data. A sample of 300 customers has been selected for the purpose of this study.

In this study statistical tools such as Item to Total

Correlation to check the consistency of variables, Split Half Reliability to check the reliability, Factor Analysis to bring out the underlined factors and 'Z' test to compare the customer satisfaction level between the public and private sector banks have been used.

### I. Hypothesis

Following hypotheses have been formed for the purpose of the study:

**Ho :** There is no significant difference between the customer satisfaction regarding public sector banks and private sector banks.

**Ha :** There is significant difference between the customer satisfaction regarding public sector banks and private sector banks.

### Results and Discussion

#### I. Consistency

Firstly of all, consistency of all the items in the questionnaire was computed by applying Item to Total Correlation Method. Under this, correlation of every item with total is measured and the computed value is compared with standard value (i.e.0.2045201). If the computed value is found less than standard value then whole

**Table 1**

Items	Table Value	Accepted / Dropped
Friendly atmosphere	0.3003937	Accepted
Credit Facility	0.234952	Accepted
Confidentiality	0.2168965	Accepted
Technology	0.35247072	Accepted
Security Arrangement	0.24849977	Accepted
Loan Flexibility	0.30999464	Accepted
Prompt Service	0.29534376	Accepted
Redressal of Complaints	0.25255522	Accepted
Response on Phone	0.3304231	Accepted
Setting of Bills	0.287227	Accepted
Minimum Balance Required	0.267499	Accepted

Documentation	0.304062	Accepted
Bank Charges	0.2174794	Accepted
Smooth Transaction	0.253893	Accepted
Physical Setting	0.3710037	Accepted
Information Network	0.28309312	Accepted
Corporate Image	0.3714024	Accepted
Interest Rate	0.259542	Accepted
Innovative Services	0.251452	Accepted
Maintenance of Records	0.358743	Accepted
Working Hours	0.241164	Accepted
Network of Branches	0.255972	Accepted
Customization	0.3240213	Accepted
Standard of Quality	0.27621005	Accepted
Grouping of Services	0.0220849	Accepted
Features of Service (Quality of Service)	0.3000648	Accepted
Behavior of Bank Personnel	0.2430988	Accepted

item is dropped and is termed inconsistent.

The item to total Correlation was above standard value for almost all the items of service quality. Thus, the items were found consistent in the questionnaire.

### ii. Reliability

Split Half Test has been applied to calculate the reliability of all the items in the questionnaire. The value of reliability came out to be 0.713.

### iii. Factor Analysis

To understand the factors contributing the most in the customer satisfaction in the banking sector, Factor Analysis has been applied. All the 300 respondents of public and private sector banks were included for the factor analysis. Items below 0.5 loading were rejected. Factor analysis resulted in spotting out 11 factors. These factors were named depending upon the contents in each of them.

These are as follows :

**Table 2**

S. No.	Factors	Variables	Loading
1.	Network	Network of branches	0.548755
2.	Innovative Services	Grouping of service Security arrangement Redressal of complaint	0.842709 0.74405 0.548755
3.	Access	Information Network Minimum balance required	0.74405 0.565898

4.	Technicalities	Technology used by bank Physical setting	0.767799 0.606641
5.	Behavior	Behavior of bank personnel	0.876344
6.	Comfort & Image	Friendly atmosphere Documentation Corporate image	0.713855 0.642358 0.717818
7.	Performance	Response on phone Standard of quality	0.748236 0.670708
8.	Competence	Smooth transaction Features of service	0.797555 0.521673
9.	Other Features	Credit facility Bank charges	0.736316 0.654551
10.	Service consistency	Interest rate	0.825536
11.	Promptness	Prompt service Working hours	0.82664 0.530139

#### iv. Comparison of Customer Satisfaction

Z-test has been applied to check whether there is significant difference between the customer

satisfaction of public sector banks and private sector banks.

**Table 3**

Type	Mea	S.D	Square of S.D
Public Banks	3.4039	0.3119	.097313
Private Banks	3.5624	0.2569	.065970

**Table 4**

Standard Error	0.1884
Z-Value	0.8412

The value of Z is 0.8412, which is less than the standard value. i.e. 1.96 at 5% level of significance. That means the null hypothesis is accepted. It means that there is no significance difference between the customer satisfaction regarding public and private sector banks.

$$Z < 1.96$$

**Ho is accepted.**

**Ha is rejected**

#### Conclusion

Before the economic liberalization of 1991, which brought financial sector reforms in India, there were hardly any private or foreign bank available in the market but after liberalisation the banking sector was also opened for the private and foreign players. Earlier the customers had no choice but now the scene has changed. Now the customer has a lot of choices. So, to continuously

maintain the customer base, banks have to focus on the service quality so that customers remain satisfied. Entry of private and foreign banks forced the Public sector banks to adopt more customer oriented approach.

This has led to a sea change in their working pattern and a big image makeover. The research findings indicate the same thing i.e. in the eyes of customers there is not much difference between public sector and private sector banks. Although the banking customers seem to be more satisfied with private sector banks than public sector banks a whole but the difference between the satisfaction means is not very significant.

The efficiency of banking sector depends upon how best it can deliver services to its target customers. In order to survive in the competitive environment and provide continual customer satisfaction, the providers of banking services are now required to continually improve the quality of service and technology. Banks, before creating their banking products, should give due consideration to various factors that have been highlighted in this research so that they can create and retain their customers and deliver customer value and satisfaction on an ongoing basis.

## References :

1. Johnson J. W. (1996), Linking employees' perception of service climate to customer satisfaction.
2. Chowdhary, Nimit and Bhagwati, P. Saraswat (2004), Service leadership study, *Journal of Service Research*, 3(2), 105-123.
3. Gummesson, E (1987), Using internal marketing to develop a new culture: The case of erosion quality, *Journal of Business and International Marketing*, 2(3), 23-28.
4. Tansik, D.A, (1990), Balance in service systems design, *Journal of Business Research*, 20(1), 55-56.
5. Varshney, P. N., Sarkar (1999), *Banking Law and Practice*, Sultan Chand and Sons, 18th Edition.
6. Report of Committee on banking sector reform in India (Narasimbam Committee II) (1998).
7. Agarwal, R. D. (2004), *Organisation and Management*, Tata McGraw Hill Publishing Company Ltd. New Delhi.

# E-learning for Sustainable Development : Case Study of Telecom Sector

## ABSTRACT

In this globalized world the need for reorientation in telecom sector is getting a great importance. With its increasing importance, good vibration and life for efficient telecom system is generating in India too. There is a high speed change in this sector and new era of IT enabled telecom is displacing the outdated traditional methods of communication. If coping with such rapid change in the field is getting increasingly difficult and complex, it is even more difficult when one tries to simplify the concepts and processes and help learners who have to grapple with effective delivery communication services. e-Learning is a broader term than 'on-line learning' and 'm-learning'. The uniqueness is that, it provides the learner the opportunity to learn anytime, anywhere. Technology is increasingly changing our lives. It was the emergence of the desktop computer, now it is the Internet. It enables the ordinary person to have access to never-ending quantities of information and knowledge. Technology and the Internet empower individuals and facilitate a more active role in the educational process. The Internet has transformed the way people shop and the manner in which businesses conduct transactions with each other. It is changing the way enterprises gain competitive advantage through improved human performance. But some enterprises have to face the problem that e-learning technologies, methods and strategies have mostly been developed for the needs of large enterprises and cannot be exactly transferred to their needs. A critical challenge faced by the organizations is the dilemma of maintaining the capabilities of both efficiency and flexibility of the technologies adopted by them. Recent evolutionary perspectives have suggested that patterns of organizational stability and change can be achieved only with the reorientation of the learning system of the organizations. This paper argues that a learning model of organization has to reorient to gain sustainable development and uses an e-learning framework to reduce the competitive pressure between organizational strength and change.

**Keywords :** e-learning, information, communication and sustainable development

## INTRODUCTION

“The purpose of education in this society is to bring the learners up to be conversant with the most important ideas and the

representation systems that are used to express them.”

– Alan Kay, Apple Computer

The above words clearly signify the

*Dr. Neeru Mundra : Assistant Professor, BCIPS, Dwarka*

*Ms. Karishma Gulati : Assistant Professor, Dronacharya College of Engineering, Greater Noida*

*Ms. Renu Vashisth : Assistant Professor, BCIPS, Dwarka*

importance of education in this world. Now-a-days there are so many innovations but still in some areas due to ignorance of education system some industries are not able to move up. The learning system has to be reoriented if sustainable development is necessary. The most remarkable reorientation done by the organizations is their move towards e-learning.

**Objective of the Study**

1. The main problematic aspect of telecom sector which may be addressed in this research paper is the overarching question of “Reorientation” i.e. whether reorientation of telecom sector with effective and efficient learning system is influential and will help in sustainable development. Because the telecom organizations are continuously facing new challenges to address the improve operational efficiency, increase profit margin with increasing industry consolidation, technology convergence and competition.
2. Reorientation of learning system can be of many ways but the authors have focused on

change from brick and mortar learning system to e-learning.

3. The objective is to know whether it will be fruitful for the organizations to change their way from brick and mortar learning to e-learning and whether it would benefit the clients more than brick and mortar learning system as E-learning, now a days is an effective way of dispersing knowledge globally and to maximize education turnover and attain optimum competitive advantage. Organizations spend huge amount of money in the R&D for the innovation in the ways of implementing e-learning.
4. There are various studies on the “managing change in learning system”, “reorientation of telecom education for sustainable development” and “reorientation of medical education” but in this paper, authors have tried to fill the gap and to merge these studies so that it can be known that whether the interlinking of these is really a necessity for an eminent organization. Blend of telecom sector with e-learning provides this sector to boost in this dyanamic world.

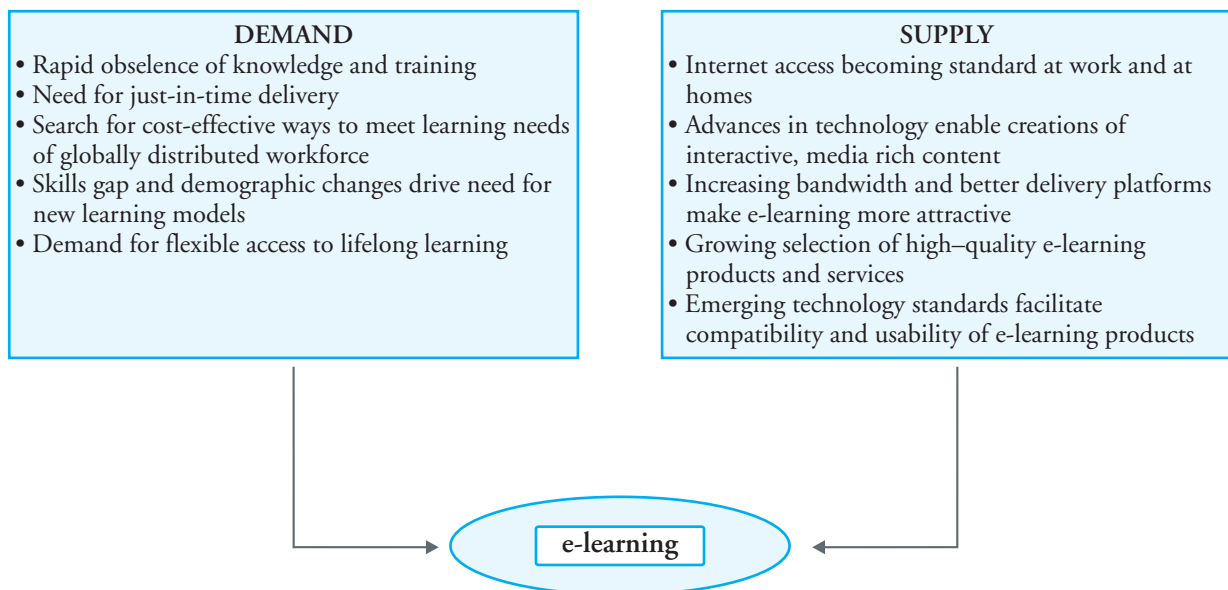


Fig 1 : Model of e-learning

## Objectives of E-Learning

'E-learning' aims to provide excellent learning support to the students, which is as good as face-to-face teaching. This support will be available anywhere any time on the Internet. Teachers will prepare beforehand, clear multimedia presentations in modular form on the Web. These presentations will offer much better learning effectiveness and quality due to clarity of communication and interaction during discussions or tutorials with real teachers and fellow students. Learning will be an enjoyable experience due to teachers and rich multimedia. This substantially reduces required time for learning. In addition to this, 'e-learning' is highly cost effective, without compromising on quality. It is a clear paradigm shift from 'teacher-centric to student-centric' education system, which provides following benefits: Effective learning, improved quality, reduced duration, cost-effectiveness and flexibility.

## Benefits of e-learning

**Integration:** All institutions, research institutions, regulatory bodies, professionals, academicians and students can be integrated on regional, state, national and international level. Sharing of knowledge, experience, infrastructure and technology will enhance the effective and efficient utilization of available resources. Students can have an access to unlimited storehouse of information at any hour and from any place.

**Access to best faculty and quality study material:** Since e-learning has ability to cover distances, a few good teachers can be scaled up. Faculty availability is not restricted by geography or even time because of recorded classrooms. The expert teachers also will be identified and honoured by the demand for them from learners.

**Individualized instruction:** e-learning also offers individualized instruction, which print media cannot provide. It makes learning exciting,

engaging and compelling. Blended programmes can integrate e-learning with face-to-face workshops, coaching, action learning and a huge range of other learning methods to cover a range of needs, styles and approaches. Private messaging readily supports these exchanges while protecting the participants' privacy.

**Learning in experience:** Difficult or dull subjects can be made more interesting, easier and more appealing by e-learning. It is an active experience with the emphasis on interactivity and 'learning by doing'. Also, many studies have proved that absorption levels are at least 20% higher in e-learning compared to traditional learning.

**Fast learner - Slow learner mechanism:** Quality of output information can be adjusted to the required level and are flexible. It emphasizes continuous learning and promotes "just-in-time" and "just enough" learning. Both slow and fast learners can take their own time of learning because they do need separate timings. And hence the overall stress in the classroom environment can be removed.

**Flexible:** On-demand availability enables them to remove stress. It empowers you to take charge of your learning and to access online library resources. Since the playback of recorded sessions is possible, absentees can learn the lessons when they are back and the slow learners can listen for more than one time.

**Cost effective for both students and organisation:** e-learning makes the best knowledge products available at an affordable rate by cutting down the travel and extra living expenses. Overall cost for the organisation is also reduced (instructor's salaries, meeting room rentals, and student travel, lodging, meals, etc).

**Zero opportunity cost of time:** Since-learning can be planned after regular working hours or on holidays or at home, the opportunity cost of the time spent on training is zero. Learning time is also reduced to an average of 40 to 60 percent.

*Simulation, gaming and interactivity will enrich e-learning:* Research shows that student understanding and retention improves when they learn by experience. Technologies such as collaboration, interactivity, modelling, simulations, virtual reality interfaces and gaming will help students experience the skill while being taught. This will help the students in Albert Einstein’s scientific method of learning.

**Challenges faced by e-learning**

e-learning is not, however, the be all and end all to every educational need, because it is difficult to replace human beings by computers. The personal touch, face-to-face interaction, eye contact are some of the stimulating and motivating factors in the-learning process. The impersonality, suppression of communication mechanisms such as body language, and elimination of peer-to-peer learning, reduced social and cultural interactions are major drawbacks associated with e-learning mechanism. As per the collaborative-learning theory, human interaction is a vital ingredient to learning. Hence, while designing e-learning packages, it is necessary to realize that the learners are not isolated with technology. Human interactions should be encouraged through audio or video-based web-conferencing programs and threaded discussion boards. Faculty-to-student as well as student-to-student interactions, should be encouraged in any form. Discussion groups can also be formed on-line. The usage of e-boards, chats, e-mail, and tele-conferencing, may helps remove this potential drawback to some extent.

**Case Study : LIDO telecom education stimulus program**

“LIDO Telecommunications Essentials provides India and the entire Asia Pacific region with the knowledge needed to enhance the skills of our

workers to be able to compete globally and better serve global clients”.

*Pavithra Ratnakar, CEO of Pavithra Associates.*

The market for telecommunications and networking has significantly expanded in recent years, particularly in the aforementioned regions, increasing the need for just-in-time training and certifications for workers. LIDO Telecom helps speed time-to-market for new telecommunications and networking services in by providing well-trained professionals and knowledgeable resources.

**LIDO Telecommunications Essentials** provides the region with the knowledge needed to enhance the skills of our workforce to be able to compete globally, and better serve global clients. The benefit of this venture is that now learning on all levels can be provided with excellent up-to-the minute information.

LIDO Telecommunications Essentials eLearning is a software-delivered program with 34 hours of dynamic multimedia lectures, simultaneous transcripts, accompanying slide shows and animations, downloadable transcripts and powerpoints, and clickable links to supporting educational resources, as well as quizzes to test student understanding.

**The e-learning Marketplace**

By harnessing the power of e-learning, education businesses have the capacity to transform schooling in many ways. For students and teachers, e-learning offers access to a broad array of content and commentary, interactive self-paced learning tools, a vast community of learners, and distance learning opportunities – very nearly a “classroom without walls.” So, the net effect of e-learning should be a genuine transformation in the way children learn – as well as when they learn and why they learn.

Classroom Learning	E-Learning
<ul style="list-style-type: none"> <li>• Textbooks and reading lists</li> </ul>	<ul style="list-style-type: none"> <li>• Content portals and online resources</li> </ul>

• Chalk and talk	• Rich multimedia & interactive content
• Class discussion	• Inter-classroom collaboration online
• Help after class	• Web-based tutoring on demand
• Quarterly report cards	• Real-time student information systems (SIS)
• On school grounds	• Multiple locations

These differences between traditional and online learning should underscore the ways in which elearning businesses make contact with educators, students and parents on a number of distinct fronts. There are many niches in the e-learning marketplace and a variety of products and services.

- **Portals** – Web sites that aggregate educational content, lesson plans and other resources online. These sites generally feature powerful search engines for researching on the web, as well as content and other materials provided by partner companies such as publishers, associations and online news sources. Access to content is made available at no charge to the user. Revenues are typically generated through a blend of advertising, ecommerce and subscription sales. Examples: Lightspan, EdGate.com.

- **Content Providers** – Education sites and software companies which typically focus on branding a curriculum in a specific discipline, such as math or science. These firms, like portals, may derive revenue from advertising and e-commerce, as well as through the sale or licensing of curriculum in the form of printed materials or CD-ROMs. Examples: Classroom Connect.

- **Community Sites** – Companies which provide schools, classrooms or student clubs with online publishing tools and communication features such as chatrooms, message boards or email. Tools and server space are frequently made available to users at no charge. For revenue generation, these companies rely on advertising and e-commerce. Recent market trends suggest that these businesses will increasingly look to broaden their offerings to include data

management tools such as administrative and student information systems. Examples: Family Education Company.

- **Tutoring** – These firms have established brick and mortar tutoring or test preparation businesses. By bringing their services online, these companies make it possible for parents who typically pay for these services and to participate in and actively support their children's education. Students benefit by being able to access help whenever and wherever it is needed. Revenues are typically derived from fees for services or through subscription sales. Examples: Tutor.com; eScore.com.

- **Student Information Systems** – These companies make it possible for teachers, parents and students to interact with greater frequency and efficiency by making student records such as grades or attendance data and class projects available online. Some SIS solutions provide parents with email access to teachers. Revenues are generated through the sale of these systems whether web-based or software to schools. Examples: Power School

- **Distance Learning** – The companies take education out of the classroom and into the home – or any number of other locations. (In the higher education marketplace, these firms also market their services for use on campus.)

Distance learning firms in the K-12 (**pronounced "k twelve", "k through twelve", or "k to twelve"**) is a designation for the sum of primary and secondary education. space target the home-schooling market and also license their services to brick and mortar schools which may not have the resources in house to deliver certain kinds of

content such as advanced placement courses. Distance learning companies challenge schools to rethink the purpose of the classroom and have the potential to bring quality, interactive education to disabled children who could not otherwise attend school. Revenues are generated through the sale of services to parents or schools. Examples: Class.com; Apex Learning. Because of rapid technological advances and swiftly evolving market dynamics, these companies may change strategies, revenue models and product offerings quickly and frequently. The e-learning market is also undergoing consolidation with companies merging or acquiring complementary businesses and this trend may well accelerate. All this can make it difficult for faculty and administrators to identify for-profit partners who can be counted on to work and grow with them over the long-haul. But this also means that e-learning companies must innovate and build better and easier-to-use products to successfully compete in the marketplace.

**Current Teaching and Learning Model**

The 3<sup>rd</sup> generation learning model uses a blend of conventional paper-based instructional materials with a range of multimedia delivery tools and fills the gap of second generation distance education. Workbooks provide the main theoretical element of the course. They are designed for passive reading rather than active learning. As we all know the fact practical knowledge gives more clarity of the concepts but now a days this is not only in words but are being implemented by many educational institutions. By posing questions, exploring solutions and testing understanding, they help to develop knowledge and skill in the subject being studied. Textbooks, CD-ROMs and videos complement the material that is taught through the workbooks and EDUCOM is the recent innovation to support this. It is having various characteristics :

- Improves teacher effectiveness and productivity in class.

- It brings abstract and difficult curriculum concepts to life inside classrooms.
- Makes learning an enjoyable experience for students.
- Improves academic performance of students.
- Enables instant formative assessment of learning outcomes in class.
- It also enables teachers to instantly assess and evaluate the learning achieved by their students in class.
- Provision of digital content mapped to schools syllabus
- All hardware , equipment and accessories – installation and maintenance
- Initial and ongoing training of teachers
- Day to day support and monitoring of usage
- Full time manpower deployed in school to assist absorption

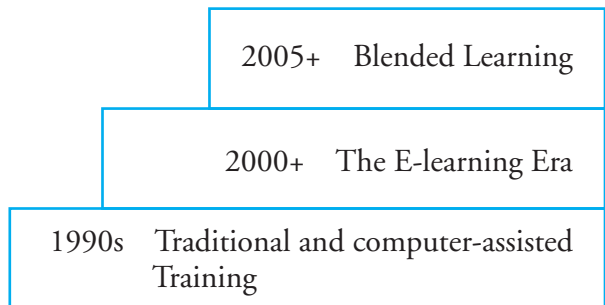


Fig 2 : Modern e-learning

**Conclusion**

It has been concluded from the paper that e-learning is beneficial but at the same time face to face interaction of the students and teachers is also necessary. Brick and mortar education system can't be replaced by e-learning and hence blended learning is fruitful. Blended learning gives the advantages of both the e-learning and brick and mortar learning like interest spans, needs, aptitudes, achievements, variations of time needed to master a specific learning task, abilities to deal with abstractness or concreteness, degree

to which a learner needs to be guided, abilities to deal with complexities, abilities to manipulate objects (such as equipment or machines), the degree to which imaginations can be involved, degrees to motivate creativity and problem solving differences. Organizations equipped with an understanding of the challenges and requirement of global e-learning and who start to address these challenges head on will find “prime mover” advantages in this space. e-learning is in its early stages and global e-learning is even less developed but increasing interest from countries and companies that see, inherent in these challenges, great opportunities and reward in educating the workforce of the New Economy.

### References :

1. e-Learning and Applications, [www2.academee.com/html/consultancy.html](http://www2.academee.com/html/consultancy.html)
2. 'Is there a case for eLearning in India', [www.gurukulonline.co.in](http://www.gurukulonline.co.in)
3. Beteille, A. (2001). “Equality and Universality”, *Economic and Political Weekly* (36: 38; pp3619-25).
4. Collier, G., & Robson, R. (2002). *eLearning Interoperability Standards*, USA: Sun Microsystems White Paper.
5. Davis, S., & Botkin, J. (1994). *The Monster Under the Bed*, USA: Simon and Schuster.
6. Dervin, B. (1998). *Sense-Making Theory and Practice: An Overview of User Interests in Knowledge Seeking and Use*, *Journal of Knowledge Management*, Vol 2(2).
7. e-Learning, [www.nextwavemultimedia.com/html/profile.html](http://www.nextwavemultimedia.com/html/profile.html)
8. e-Learning for Higher Studies Of India Dr. Shobana Nelasco , *eLearning for Knowledge-Based Society*.
9. Kevin Kruse- “The Benefits and Drawbacks of e-Learning”, [http://www.e-learningguru.com/articles/art1\\_3.htm](http://www.e-learningguru.com/articles/art1_3.htm)
10. Kingdon, G. (1996), “Private Schooling in India: Size, Nature and Equity Effects”, *Economic and Political Weekly*, 31: 51; pp3306-14.
11. Manetta.C and Blade.R. (1995), “Glossary of Virtual Reality Terminology”, *International Journal of Virtual Reality*, Vol.1 No.2
12. [http://www.biasca.com/archivos/for\\_downloading/educational\\_research/futureeducation/E-Learning\\_P\\_Stokes.pdf](http://www.biasca.com/archivos/for_downloading/educational_research/futureeducation/E-Learning_P_Stokes.pdf)
13. <http://www.berstin.com/blog/post/from-e-learning-to-we-learning.aspx>  
<http://www.nwlink.com/~donclark/hrd/elearning/tools.html>

# Job Satisfaction and Motivation Level at Dadlaghat Unit of Ambuja Cement Limited

## ABSTRACT

The management of human resources are assuming the increasing significance in modern organizations because the majority of problems in organizational settings are human and social apart from physical, technical and economic. The motivation level, job satisfaction and commitment of the employee is determined by the quality of work life, economic and non-economic incentives. A poor job satisfaction level and lack of motivation among employees can lead to the deterioration of the human face of the organization, which usually result into underperformance of the employees. Hence, the job commitment and worker's motivation have received the greatest attention by the scholars in contemporary times. Although the modern organizations are adopting the different motivational techniques as the problem solving mechanisms at workplace, yet the organizational culture and climate may differ from one organization to another. Hence, through the present study, an attempt has been made to study the pattern of motivation, job satisfaction and commitment at a unit of Ambuja Cement Limited (ACL) at Dadlaghat in Himachal Pradesh.

## INTRODUCTION

The success of an organisation depends largely on the quantity and quality of its human resources and managing them according to their aspirations and basic needs.. No organisation can be successful in the long run without proper procurement of the right kind and right number of personnel. In the rapid changing business world, the competitive advantage can be gained only when the interest of employees are rationally integrated and aligned with business goals. The people intensive industries like information technology, banking and financial services, manufacturing and retail etc. are strongly

striving and competing for the retention of the skilled manpower.

Job satisfaction is an important indicator of how the employees feel about their job and a predictor of work behavior such as organizational citizenship, absenteeism, turnover etc. The benefits of job satisfaction and commitment to the organization includes reduction in complaints, grievances, absenteeism, termination and improvement in punctuality and employee's morale. Thus, it can be stated that, a happy and highly motivated worker is a productive worker. It gives clear evidence that dissatisfied employees skip work more often, whereas a satisfied worker

*Dr. Jai Singh Parmar : Associate Professor, Himachal Pradesh University Business School, Summer Hill, SHIMLA-171005*

likely to work longer with the organization. Job satisfaction and commitment brings a pleasurable emotional state to the workers that can often leads to a positive work attitude. A satisfied and motivated worker is more likely to be creative and innovative.

#### **Ambuja Cement Limited (ACL)**

Ambuja Cements Limited, henceforth referred as (ACL) was earlier known as Gujarat Ambuja Cements Limited (GACL). The company was set up in 1986. The company has three subsidiaries, viz. Ambuja Cement Rajasthan Limited (ACRL), Ambuja Cement Eastern Limited (ACEL) and Ambuja Cement India Limited (ACIL). Ambuja Cements is the most profitable cement company in India, and the lowest cost producer of cement in the world. One of the major reasons that Ambuja Cements is the lowest cost producer of cement in the world is its emphasis on efficiency. The company sourced a cheaper and best quality coal from South Africa, and a good quality furnace oil from the Middle East. As a result, at present, the company is in a position to sell its excess power to the local state government. Ambuja Cement is the first company to introduce the concept of bulk cement movement by sea in India.

#### **Dadlaghat Unit of ACL**

One unit of ACL is situated in Dadlaghat in Solan district of Himachal Pradesh, known for the most efficient cement producer in the country. Every growing organization has an ethos of work and the management of Ambuja believes in unlocking the potential within each individual. This company is known for the best relation with the investor category and among the best managed company in India. Such a success has not just been the outcome of the ardent efforts of the employees of Ambuja; it also

stands for the generous organizational attitude towards its employees. The philosophy of the organization clearly emphasize upon the democratic style of the management, which have the main features of autonomy, delegation of authority, freedom and responsibility. The company employs about 450 employees in different departments in this unit. The each and every departments in the organization have efficient workforce every time ready to contribute and discharge their duties towards the company goal. The entire workforce of the organization is broadly defined in three categories: management cadre (ministerial staff), workman cadre (who are engaged in the mines) and contractual cadre (who are managed and organized by the contractors of the concerned job). The management of ACL profess that it has best quality cement, the company provides the best customer satisfaction services, it is organizing a highly satisfied workforce and it is the least pollution creating cement factory.

#### **Literature Review**

Various research studies indicate that the two concepts, the job satisfaction and morale are interrelated, where job satisfaction can contribute to morale and morale can contribute to job satisfaction. Pestonjee D.M., Singh A.P. and Singh U.B. (1981) analyzed the impact of professional training on job satisfaction and performance and concluded that those employees who were professionally trained scored significantly better on job satisfaction and performance scales in comparison to those professionally untrained. This was attributed to their confidence in the rationale of the methods and skills they used to perform the job. The studies of Partap, Swarn & Srivastava (1985), Chadha N.K. (1989) dealt with job satisfaction and organizational climate. Dhillon Paramjeet

Kaur(1989), Pestonjee D.M. and Prabhat (2010) examined the role stress, occupational stress and job satisfaction. Akhilesh K.B., and Mathew Mary (1991) carried out a study on Bank jobs in relation to work motivation, job and work involvement and found that the work motivation could be improved by increasing the authority as well as accountability at the officer's level. Tharakan, P.N. (1991) made an attempt to study whether professional working women and non-professional working women reveals difference in their job-related stress and level of job-satisfaction. The study reveals that the relationship between occupational stress and job-satisfaction was significantly associated with job-status. Hoque M. Ekramul and Rahman Alinoor (1999) compared the quality of work life of industrial workers according to the nature of organizations viz. public and private and measured whether there was any significant relationship among quality of work life, job behavior (performance, absence and accident) and demographic variables (age, education, experience and income) of the workers and concluded that the workers of private sector textile mill perceived significantly higher quality of work life than their counterparts in the public sector, quality of work life has significant positive correlation with performance, quality of work life has significant negative correlation with absenteeism and accident, and quality of work life did not differ significantly according to demographic variables of the workers. Maryam Gulzar(2008) studied the relationships between self efficiency and job satisfaction among bank employees and found that there was positive relationship between self efficiency and job satisfaction.

Hence, on the basis of past studies and available literature, it can be stated that the quality of work life, economic and non- economic incentives have the significant relationship with motivation level, job satisfaction and commitment of the employees. High level of motivation and job commitment minimize the role stress and

improve the job behavior and performance of the employees. The improvement of work motivation can be achieved by increasing the work involvement of the employee and the effective work involvement can only be realized by ensuring the proper authority and accountability of the employees in the organization.

### The Study

The pattern of management at ACL is based on the philosophy, *give a man order and he will do the task reasonably well, but let him set his own targets, give him freedom and authority and his task becomes a personal mission "I CAN"*. This statement drifts a distinct management style that has delegation of authority, sense of autonomy, freedom and responsibility. Keeping in view the strategic importance of this industry to the State and the nation, it require more attention to create work culture and work environment conducive to the growth and development of organization and individual both through the implementation of effective manpower planning and development strategies, especially in recent times, when the acquisition and retention of best employees has become incredible challenge for organizations and the high exit rates have generally worsen the organizational effectiveness.

ACL have about 450 employees in the Dadlaghat Unit and the company have employed the workforce on the basis of specialization in different departments. The entire workforce of the organization comprises management, workmen and contractual cadre. These employees may be facing the problems of motivation and job commitment in the organization due to the various job opportunities elsewhere. The significance of the present study also arises because this industry have great contribution in the development of the State and nation both. A little disruption in the work and performance of this industry may leads to enormous losses. This compels one to

understand, what strategies the ACL is executing in order to improve the job commitment and motivation level of the employees. Keeping this fact in mind, the present study was conducted in order to analyze the existing procedure and methods of improving motivation and quality of work life followed by the industry under study.

## Objectives

The present study has been conducted with following objectives...

- ? To study the existing pattern of motivation, job satisfaction and commitment followed by ACL
- ? To analyze the viewpoints of employees towards the existing policies and procedures followed by ACL towards the improvement of quality of work life, training and development of the employees
- ? To analyze the attitude of employees towards the wages and compensation policies followed by ACL

## Methodology

The present study was conducted with the objectives of analyzing the attitude of employees towards the existing policies followed by ACL for the training and development, quality of work life and wages and compensation followed by ACL. Both primary and secondary data were used in order to conduct the study. The primary data was collected through a well designed questionnaire from the sample of respondents. The secondary data was collected through a published material and various reports of the organization. The sample of respondents comprises the three categories of workforce viz. management cadre, workman cadre and contractual cadre.

The study being a case study, deals with the need of motivation and job commitment as the main aspects of manpower planning and development. ACL employs about 450 employees in the unit under study and it was not possible to make use of

census method of investigation. Hence, we made use of sampling method of investigation. For the purpose of this study the sample of the respondents constitute 50 employees, which were chosen with the help of convenient and judgment sampling method. All categories of employees mainly managerial, workman and contractual personnel were assured with the representation in the sample in order to construed it as representative sample. In order to get the required information, the questionnaire were administrated among the respondents. The information thus collected has been analyzed with the help of various statistical tools and techniques. Through the Likert Type Scale the score was calculated, with the help of WAS (Weighted Average Score). For Strongly Agree(SA), five marks were allotted, four marks were allotted to Agree(A), three marks for Neutral (N), two for Disagree(D) and one for Strongly Disagree(SD).

## Results and Analysis

### Motivational Level of Employees

In order to analyze the employees attitude towards the motivation level of the employees in the organization, through a Likert type scale, in all ten statements was addressed to the respondents so as to elicit information regarding their viewpoints in the organization. The information regarding this has been presented in table-1. For the statement "Employer have a fair attitude towards promoting & giving increments to the employees" was expressed with highest degree of faith for which WAS was worked out 3.56 and 62 percent of the employees agreed and only 22 percent disagreed with this statement. In case of the statement "Employees are motivated very much in the organization" the majority of the employees stated agreement(42 percent), the WAS for this statement was 3.46. For the statements like "Employees are happy with the employees motivation techniques followed by the organization" and "Overall satisfaction level of the employees with motivational techniques in

the organization is satisfactory", the majority of employees were found agreed and the WAS for these statements were worked out as 3.24 and 3.00 respectively. The lowest WAS (2.58) was found for the statement "The behavior of your boss is genuine and friendly with you", the majority of the employees (46 percent) expressed their disagreement with this statement. This indicates that the behavior of the superior with subordinates were not found friendly. The overall motivational techniques expressed by the organization were found satisfactory in the organization.

### **Training and Development of Employees**

For assessing the pattern and policies of training and development for the employees followed by the ACL, the different statements shown in table-2 were addressed to the respondents. The highest WAS (3.82) was calculated for the statement "The work performed by the employees is of their full capacities & capabilities", for which the 38 percent of the employees were found strongly agreed. "Employees in organization are satisfied with employee training programs of the company" was expressed with high degree of agreement (WAS=3.62), 40 percent of the respondents agreed with the statement, whereas only 14 percent were found disagreed. Similarly, for the statement "Newly appointed employee is provided with an induction program in order to adjust himself with the organizational climate" majority of the respondents(48 percent) agreed and only 12 percent of the respondents were found disagreed (WAS=3.60). For the statements "Employees are provided enough scope for career development in the organization" and "Employees are encouraged to participate in decision-making process", majority of the respondents expressed their agreement. WAS for these statements was 3.52 and 3.10 respectively. The majority of employees were found disagreed (48 percent) for the statement "Employees have lost sight of their career goals and aspirations." On the basis of this, we can infer that the employees have very strong career goals and

aspiration level. The training and development interventions followed by the organization were found satisfactory but not adequate to meet the changing requirements of the employees in the world of speedy innovations and advancement

### **Quality of Work Life**

The attitude of the employees towards quality of work life and working conditions in the organization was assessed by questioning them various statements shown in table-3. The 48 percent of the employees agreed with the statement "Employees extend their full devotion and concentration when they are at work". The respondents expressed their faith on the statements like "Work environment is satisfactory in the organization" and "Medical, transport and canteen facilities are satisfactory in the organization". The WAS for these statements was found 3.30 and 3.28 respectively. The WAS in case of the statements "The job security measures followed by the organization are appropriate" and "Superiors are cooperative and support subordinates in the work" were calculated as 3.02 and 2.98 respectively. The lowest WAS (2.60) was found for the statement "The working hours allotted to the employees are convenient to them" for which the majority of the employees (42 percent) expressed their disagreement and only 16 percent were found agreed with the statement. Hence, it can be concluded that the working hours allotted to the different employees were not found convenient to them, which need to be allotted to them according to their convenience. The working environment, medical, transport, feeding facilities, the level of employees devotion and concentration towards their assignment were found satisfactory in the organization. Therefore, it indicates that the overall quality of work life was found satisfactory in the organization.

### **Wages and Compensation Policies**

As we are aware that the magnitude of economic incentives like wages and compensation always determine the level of job commitment and

motivation of the employees towards the achievement of organizational goals. In order to analyze the viewpoints of employees towards the wages and compensation policies followed by ACL, the respondents were addressed five statements (table-4). The large majority of employees (46 percent agreed and 28 percent strongly agreed) expressed their agreement with the statement "Employees are paid wage and salary in time". The WAS for this statement was worked out highest as 4.10. Similarly 46 percent of the employees agreed with and 14 percent strongly agreed with the statement "Employees are given adequate leave facilities"(WAS=3.54). The WAS for statements like "Employees are given adequate leave facilities", "Compensation package in the organization is satisfactory" and "Bonus and other monetary incentives are provided to the employees and the employees are satisfied with it" was calculated as 3.38, 3.24 and 3.10 respectively. On the basis of this, it can be inferred that the compensation package, wages, leave facilities, bonus and other monetary incentives were found satisfactory in the ACL. Above all, the unnecessary delay in the payment of wages and salary was not found in the organization. Therefore, it can be a effective motivator to the employees towards the attainment of organizational objectives.

### **Job Satisfaction Level of the Employees**

Job satisfaction and commitment results into favorable emotional state of employees which leads to positive work attitude and motivation. The innovation, creativity and quality performance are the outcome of a highly satisfied, committed and motivated employees. In order to get the positive attitude of the employees towards his work, it needs strong derive to perform the work in first instance. While assessing the attitude of the employees towards their job in the ACL, it was found that the employees often feel overworked, physically exhausted and the mechanistic type of job assignments. The information regarding this has been presented in table-5. The table shows that 46 percent of

employees agreed and 26 percent strongly agreed with the statement "Employees often feel overworked and overwhelmed ". The WAS for this statement was 3.92. Similarly, with the statements "Employees feels mentally and physically exhausted at the end of a day at work" and "The jobs and assignments assigned to the employees are repetitive and boring ", the large majority of the employees expressed their agreement and the WAS was calculated as 3.58 and 3.52 respectively. Further, 34 percent of the employees agreed and 30 percent strongly agreed with the statement " Employees frequently feel stressed at work" (WAS=3.36). The lowest WAS (2.16) was worked out for the statement "Employees have an increasingly bad attitude towards their job", where the majority of the employees (56 percent disagreed and 24 percent strongly disagreed) expressed their disagreement.

Hence, on the basis of this information, it can be stated that the employees frequently feels stressed, overworked, mentally and physically exhausted. The employees also expressed that the assignments assigned to them are usually repetitive and boring.

### **Conclusions and Implications**

The motivational level of the employees and the techniques practiced by ACL in order to improve the motivation level of the employees were found satisfactory. This may be one of the reason that ACL is known as the best managed company in India. However, the behavior of the superior with subordinates in certain decision situations was not found satisfactory. Therefore, supervisory staff of the organization need to be generous in terms of behavior with their subordinates, because, work involvement and motivation is necessary to improve the performance of the employees.

The training and induction program followed by ACL was found adequate but not effective because from the analysis, it was found that the period of in house training is very short that is of only three days, which is not sufficient to get

complete knowledge and practice about the work. Hence, the training period need to be extend up to one week. The frequency of training and innovation program must to be increased, so that the employees can get the input and insights of the various technological changes which are rapidly changing. Employees were found satisfied with the opportunities of promotions provided by the organization to the employees. Analysis shows that the payment of salary is made always on time. Although the overall work environment and the quality of work life in ACL was found satisfactory, yet the majority of the employees expressed their dissatisfaction with the working hours allotted to them and the job security measures followed by the ACL. Therefore, the management need to redesign their flextime policy in ACL keeping in mind the convenience of the different categories of the employees in the organization Similarly the large number of the employees were not found satisfied with the job security measures followed by the organization and there is usually a fear of job loss in the employees of ACL. Hence, the organization need to frame a clear policy with relation of the job security of the employees in the organization in order to ensure the efficiency and

good performance of each and every employees in the organization.

The majority of employees were found satisfied with the wages and salary, compensation, bonus, leave facilities and other monetary incentives provided by ACL. The large number of employees expressed that they frequently feel stressed, overworked and mentally and physically exhausted at the end of the day at work. The employees also expressed that the work and responsibilities assigned to them are usually repetitive and boring. Therefore, keeping in view these issues of job satisfaction and commitment, the management of ACL need to design and reassess the basic needs of the employees at the workplace. In order to reduce the stress level and monotony of the employees with work, the organization need to improve the infrastructure for cultural, sports and meditation centers. In order to make the job more attractive, the work assignments need to be rotated, so that employee can feel that he is not confine to a limited nature of job, but he bears a capacity to perform the different tasks at workplace. This would lead to the improvement of work involvement and motivational level of the employees in the organization

**Table:1 Motivational level of employees. (N = 50)**

S. No.	Statement	SA	A	NAND	D	SD	WAS
1	<i>Employees are motivated very much in the organization</i>	08(16.00)	21(42.00)	09(18.00)	10(20.00)	02(04.00)	3.46
2	<i>Employees are happy with the employees motivation techniques followed by the organization</i>	04(08.00)	18(36.00)	15(30.00)	11(22.00)	03(06.00)	3.24
3	<i>Performance appraisal system is a motivating factor in the organization</i>	03(06.00)	15(30.00)	12(24.00)	14(28.00)	06(12.00)	2.90
4	<i>Non-monitory benefits are provided to the employees in the organization</i>	02(04.00)	13(26.00)	21(42.00)	12(24.00)	02(04.00)	3.02
5	<i>Recreational facilities are a part of employees motivation and are encouraged in the organization</i>	04(08.00)	14(28.00)	14(28.00)	13(26.00)	05(10.00)	2.98

6	<i>Overall satisfaction level of the employees with motivational techniques in the organization is satisfactory.</i>	06(12.00)	12(24.00)	15(30.00)	10(20.00)	07(14.00)	3.00
7	<i>Employer have a fair attitude towards promoting &amp; giving increments to the employees.</i>	04(08.00)	31(62.00)	04(08.00)	11(22.00)	00(00.00)	3.56
8	<i>The performance appraisal system followed by the organization is acceptable to the employees.</i>	06(12.00)	15(30.00)	07(14.00)	14(28.00)	08(16.00)	2.86
10	<i>The behavior of your boss is genuine and friendly with you.</i>	05(10.00)	06(12.00)	09(18.00)	23(46.00)	07(14.00)	2.58

Note : 1. Figures in brackets show percentages to the total number of respondents (50)

2. WAS (Weighted Average Score) was calculated by giving scores as 5 for Strongly Agree (SA), 4 for Agree (A), 3 for Neither Agree Nor Disagree (NAND), 2 for Disagree (D), and 1 for Strongly Disagree (SD)

**Table:2 Training and development of employees.**

**(N = 50)**

S. No.	Statement	SA	A	NAND	D	SD	WAS
1	<i>Employees in organization are satisfied with employee training programs of the company</i>	11(22.00)	20(40.00)	10(20.00)	07(14.00)	02(04.00)	3.62
2	<i>Employees are provided enough scope for career development in the organization.</i>	08(16.00)	21(42.00)	13(26.00)	05(10.00)	03(06.00)	3.52
3	<i>Employees are encouraged to participate in decision-making process</i>	05(10.00)	15(30.00)	12(24.00)	16(32.00)	02(04.00)	3.10
4	<i>Newly appointed employee is provided with an induction program in order to adjust himself with the organizational climate</i>	09(18.00)	24(48.00)	08(16.00)	06(12.00)	03(06.00)	3.60
5	<i>Employees need to be provided training facilities and the resources which they require to perform their job successfully.</i>	00(00)	23(46.00)	06(12.00)	18(36.00)	03(06.00)	2.98

6	<i>The work performed by the employees is of their full capacities &amp; capabilities.</i>	19(38.00)	16(32.00)	05(10.00)	07(14.00)	03(06.00)	3.82
7	<i>Employees feels that the employer have no commitment about their future and career planning in the organization.</i>	02(04.00)	19(38.00)	06(12.00)	21(42.00)	02(04.00)	2.96
8	<i>Employees have lost sight of their career goals and aspirations.</i>	04(08.00)	10(20.00)	03(06.00)	24(48.00)	09(18.00)	2.52

Note : 1. Figures in brackets show percentages to the total number of respondents (50)

2. WAS (Weighted Average Score) was calculated by giving scores as 5 for Strongly Agree (SA), 4 for Agree (A), 3 for Neither Agree Nor Disagree (NAND), 2 for Disagree (D), and 1 for Strongly Disagree (SD).

**Table:3 Quality of work life.**

**(N = 50)**

Note : 1. Figures in brackets show percentages to the total number of respondents (50)

S. No.	Statement	SA	A	NAND	D	SD	WAS
1	<i>Work environment is satisfactory in the organization</i>	07(14.00)	20(40.00)	09(18.00)	09(18.00)	05(10.00)	3.30
2	<i>Medical, transport and canteen facilities are satisfactory in the organization</i>	06(12.00)	23(46.00)	04(08.00)	13(26.00)	04(08.00)	3.28
3	<i>Superiors are cooperative and support subordinates in the work</i>	04(08.00)	14(28.00)	14(28.00)	13(26.00)	05(10.00)	2.98
4	<i>The non-monitory benefits like, promotion, transfer, appreciation, job recognition etc. are satisfactory in organization</i>	03(06.00)	13(26.00)	17(34.00)	11(22.00)	06(12.00)	2.92
5	<i>Communication is both upward and downward in the organization</i>	04(08.00)	12(24.00)	10(20.00)	19(38.00)	05(10.00)	2.82
6	<i>Employees find them able to make weekends less tiredly &amp; away from the workload.</i>	03(06.00)	11(22.00)	07(14.00)	23(46.00)	06(12.00)	2.64

7	<i>Employees extend their full devotion and concentration when they are at work.</i>	14(28.00)	24(48.00)	04(08.00)	08(16.00)	00(00.00)	3.88
8	<i>The working hours allotted to the employees are convenient to them.</i>	05(10.00)	08(16.00)	07(14.00)	21(42.00)	09(18.00)	2.60
9	<i>The job security measures followed by the organization are appropriate.</i>	07(14.00)	11(22.00)	13(26.00)	14(28.00)	05(10.00)	3.02

2. WAS (Weighted Average Score) was calculated by giving scores as 5 for Strongly Agree (SA), 4 for Agree (A), 3 for Neither Agree Nor Disagree (NAND), 2 for Disagree (D), and 1 for Strongly Disagree (SD).

**Table: 4 Wages and compensation policies.**

**(N = 50)**

S. No.	Statement	SA	A	NAND	D	SD	WAS
1	<i>Compensation package in the organization is satisfactory.</i>	08(16.00)	18(36.00)	07(14.00)	12(24.00)	05(10.00)	3.24
2	<i>Employees are given adequate leave facilities.</i>	09(18.00)	20(40.00)	06(12.00)	11(22.00)	04(08.00)	3.38
3	<i>Employees are paid additional compensation for their over-time work.</i>	07(14.00)	23(46.00)	11(22.00)	08(16.00)	01(02.00)	3.54
4	<i>Bonus and other monetary incentives are provided to the employees and the employees are satisfied with it.</i>	06(12.00)	17(34.00)	08(16.00)	14(28.00)	05(10.00)	3.10
5	<i>Employees are paid wage and salary in time.</i>	14(28.00)	23(46.00)	08(16.00)	04(08.00)	01(02.00)	4.10

Note : 1. Figures in brackets show percentages to the total number of respondents (50)

2. WAS (Weighted Average Score) was calculated by giving scores as 5 for Strongly Agree (SA), 4 for Agree (A), 3 for Neither Agree Nor Disagree (NAND), 2 for Disagree (D), and 1 for Strongly Disagree (SD).

**Table : 5 Job satisfaction level of the employees.**

**(N = 50)**

S. No.	Statement	SA	A	NAND	D	SD	WAS
1	<i>Most of the employees spend parts of their day in the daydreaming about a better job.</i>	03(06.00)	18(36.00)	09(18.00)	16(32.00)	04(08.00)	3.00
2	<i>The jobs and assignments assigned to the employees are repetitive and boring.</i>	02(04.00)	33(66.00)	05(10.00)	09(18.00)	01(02.00)	3.52

3	<i>Employees feels mentally and physically exhausted at the end of a day at work.</i>	15(30.00)	24(48.00)	07(14.00)	03(06.00)	01(02.00)	3.58
4	<i>The jobs &amp; responsibilities completed by an employee has a little impact on the success of the company.</i>	04(08.00)	11(22.00)	00(00.00)	24(48.00)	11(22.00)	2.46
5	<i>Employees have an increasingly bad attitude towards their job.</i>	03(06.00)	04(08.00)	03(06.00)	28(56.00)	12(24.00)	2.16
6	<i>Employees often feel overworked and overwhelmed.</i>	13(26.00)	23(46.00)	04(08.00)	07(14.00)	03(06.00)	3.92
7	<i>Employees frequently feel stressed at work.</i>	15(30.00)	17(34.00)	00(00.00)	11(22.00)	07(14.00)	3.36

*Note* : 1. Figures in brackets show percentages to the total number of respondents (50)

2. WAS (Weighted Average Score) was calculated by giving scores as 5 for Strongly Agree (SA), 4 for Agree (A), 3 for Neither Agree Nor Disagree (NAND), 2 for Disagree (D), and 1 for Strongly Disagree (SD)

## References :

1. Akhilesh K.B. & Mary Mathew(1991), "A Study of Bank Jobs in relation to work motivation, Job and Work Involvement", Indian Journal of Industrial Relations.
2. Chadha, N.K.(1989), "Organizational climate and Job satisfaction", Psychological Journal.
3. Dhillon Paramjeet Kaur(1989), "Relationship between Organizational stress and Job satisfaction", Indian Journal of Current Psychological Research.
4. Hoque M.Ekramul and Rahman Alinoor (1999) "Quality of wok life and job behavior of workers in Bangladesh: A comparative study of private and public sectors", Indian Journal of Industrial Relations.
5. Kumar, Suresh and Parmar,J.S.(1996),HRD Strategies in Power Sector-Acase study, Productivity, Vol.37.No.2.
6. Maryam Gulzar(2008), Self efficiency and job satisfaction among bank officers, Applied Psychology, Punjab university, Chandigarh.
7. Pestonjee D.M. and Prabhat (2010), The nature of role stress and job satisfaction, Journal of Health Management, Indian Institute of Health Management.
8. Pestonjee D.M., Singh A.P. and Singh U.B.(1981), 'Training for Satisfaction and Performance', Vikalpa, IIM Ahmedabad.
9. Parmar J.S.(1996),Conflicting Human Resource Policies in Transport Sector-A primary probe of Himachal road Transport Corporation, Labor and development,Vol.2, No.1.
10. Pratap, Swarn & Srivastva(1985), "Comparative study of Job Satisfaction and Organizational Climate in private and public textile industries", Indian Journal of Applied Psychology.
11. Tharakan, P.N.(1991), "Occupational stress and job-satisfaction among working

women”, Journal of Indian Academy of Applied Psychology.

12. Annual Report of Ambuja Cement Limited (ACL).

*Websites:-*

- <http://www.ambujacement.com>
- <http://www.hrworld.com>



# Effectiveness of Self-Employment to Educated Unemployed Youth Scheme in India

## ABSTRACT

In view of the increasing unemployment in the country the Promotion of Self-Employment and decentralized manpower planning have been adopted during the sixth Five Year Plan as the main planks of its policy to tackle the unemployment problem in the coming years by putting special emphasis on promotion of Self-Employment. It has also been emphasized by different groups/Committees that in order to make the Self-Employment Programme more effective, it is essential that the potential entrepreneurs are identified, motivated and informed of the various facilities and incentives available for taking-up such ventures. The genuine entrepreneur has some specific characteristics which are required to be assessed. To identify the Entrepreneurial Potentialities of job-seekers/youths, the Directorate General of Employment and Training have evolved Psychological Tools consisting of Three Tier approach. The objective of the Three Tier System is to elicit various behavioural Patterns/Traits symptomatic of success in Self-Employment Ventures and thus useful in identifying the entrepreneurs with requisite level of entrepreneurial potential

**Key words :** Self-Employment Schemes

## INTRODUCTION

The financial system is the lifeline of the economy. Banks are the backbone of the financial sector. They are the most dominant segment of the country's financial system. Banks plays a pivotal role in the development of a sound economy and form the core of the money market. It facilitates payment mechanism, mobilized insured deposits, act as credit intermediaries and serve as the principal channel for transmission of monetary of

monetary policy actions to the economy at large. The banks provided financial assistance only to the Industries which had already established, financially sound, capacity to repay the loan, favorable credit guarantee etc. After the independence in 1947, the Government was quite disturbing and needs much attention to eradicate poverty through employment opportunities. Therefore, the government had come up with different schemes to eradicate poverty

*Dr. P. V. V. Satyanarayana : Director, & Associate Professor, V.S.Lakshmi Institute of Computer Application and Management Studies for Women's, Kakinada – 533 005*

The scheme for providing Self-employment to Educated Unemployed Youth was started in 1983 with an annual target of 2.5 lakh beneficiaries. Unemployed Youth in the age group of 19-35 years who are Matriculates and above are eligible for assistance under this scheme. ITI passed, women, technically trained persons are given due weightage training plus two level are given preference. A ceiling of income of Rs. 10,000 per annum, per family, has been fixed for eligibility under the scheme. A minimum of 50% ventures should be through industry-route and not more than 30% of the ventures should relate to business sector, except in hilly areas of the country. A composite loan not exceeding and Rs.15,000/- for business sector is provided. 25% subsidy is provided by the Govt. on the loans. Banks do not require collateral guarantee or margin money for such loads. 30% of the total beneficiaries are reserved for SC/ST persons. Promotional, financial and development agencies of the state and central governments at the field level would be involved in the implementation. Reputed NGOs would also be associated with the scheme, especially in the selection, training of entrepreneurs and preparation of projects.

### Needs for Self -Employment to the Society

The need for the creation of self-employment opportunities in the society becomes urgent due to the following factors.

- By providing self-employment, the village industries have high potential for income generation in rural areas. Thus, they help in reducing disparities in income between rural and urban areas.
- The industries encourage dispersal of

economic activities in the society and promote balanced regional development.

- Self – employment serves as an anecdote to the widespread problems of disguised unemployment or underemployment in the society.
- Self-employment increases the economic progress of the country.
- It also protects the migration of rural people to the urban areas.
- It increases the standard of living of the people in the society.
- Self-employment motivates the people to start business or industry, which will lead to the development of the society.
- It increase the welfare of the society.

### Objectives of the Study

- To study the progress of SEEUY scheme in India.
- To identify the impact of SEEUY scheme in Indian economy.
- To analyze the effectiveness of SEEUY scheme in India.
- To have the SWOT analysis on SEEUY.
- To reveal the recovery of SEEUY loan in India.
- To analyze the effect on National Income and Per Capital Income of India by employment generation through SEEUY scheme.
- To know the effect of SEEUY scheme in reducing the rate of Poverty and unemployment in India.
- To evaluate the performance of SEEUY scheme in various five year plans.

### Statement of the Problem

The SEEUY scheme encourages new generation entrepreneurs by granting financial assistance to the small business. The financial assistance is granted to start a new business or industry through banks.

While going through the secondary data, the researcher has identified that the number of

beneficiaries to the target fixed is very low. The rejection of major applications is due to ineligibility of applicants, non-viable project, poor recovery, defaulter to earlier scheme, non-fulfillment of terms of sanction, furnishing of incorrect/incomplete information by the applicant etc.

The main aim of the implementation of SEEUY scheme is to reduce the rate of unemployment and poverty and increase the per capita income of the people. It is essential to know the effectiveness of SEEUY scheme in the Indian economy.

### Tools of Analysis

To find out the relationship between two

variables, Co-efficient of correlation is employed. The formula for finding out the co-efficient of correlation is

$$r = \frac{\sum xy}{\sqrt{\sum x^2 \cdot \sum y^2}}$$

### Financial Assistance Under Seeuy In India

The main aim of the SEEUY scheme was to provide easy subsidized financial assistance to educated unemployed youths for starting their own enterprise in production, service and trade sectors.

**Table 1 : PROGRESS OF SEEUY SCHEME IN INDIA**

YEAR	TARGET (NO)	SANCTIONED		DISBURSED	
		No	% of the target	No	% to the target
1996-97	40000	30029	75.01	23025	57.56
1997-98	220000	185803	84.46	158863	72.21
1998-99	260000	287218	110.47	241843	109.93
1999-00	220000	271768	123.53	228495	103.86
2000-01	220000	263622	119.83	209103	95.05
2001-02	220000	271342	123.34	191351	86.98
2002-03	220000	259088	117.77	203454	92.48
2003-04	220000	237896	108.13	184890	84.04
2004-05	220000	237392	107.91	189860	86.30
2005-06	220000	228031	103.65	190521	86.60
2006-07	220000	264012	120.00	219444	99.75
2007-08	250000	298003	119.20	248264	99.31
2008-09	250000	314291	125.72	266971	106.79
2009-10 Upto Dec	191250 (255000)	165693	86.64	91388	47.78
Total	2995000	3314188	110.66	2647482	88.4

Source : RBI Data

- Plan target was 220000 it was increased to 260000 to cover backlog.
- This is a permanent scheme of Government of

India with framed modalities and guidelines for its successful implementation and to fulfill the purpose for which it is designed.

The role of banks in the SEEUY process is quite crucial to perform the task of providing the most vital input namely capital to the enterprise. The banks have a higher level of responsibility in the whole process.

The table 1 shows the target, sanctioned and disbursed number of beneficiaries during the period of its implementation from October 1996 up to December 2010. The planned target in the year of implementation was 40000 for the period of six months. It was increased from the next financial year to 220000. The planned target was increased to 260000 during 1995-96 in order to

cover backlog. In the year 2004-05, it was again increased to 250000. It is clearly inferred from the table that the number of SEEUY beneficiaries is high during the years 2008-09 (266971) and 2007-08 (248264). Considering target as the base, the sanctioned percentage to the target is the minimum in the year 1996-97 (75.01).

### Employment Generation by Seeuy

The details of employment generation by SEEUY scheme and its share in total employed persons in India are shown in the table 2.

**Table 2: Share of employed SEEUY beneficiaries to the total employed persons in India**

Year	Total employed persons in India	Employed SEEUY beneficiaries	Share in total employed persons of India (%)
1999-00	27177000	34553	0.13
2000-01	27375000	238295	0.87
2001-02	27525000	362765	1.32
2002-03	27941000	342743	1.23
2003-04	28245000	313655	1.11
2004-05	28166000	287027	1.02
2005-06	28113000	305181	1.09
2006-07	27960000	277335	0.99
2007-08	27789000	284790	1.02
2008-09	27206000	285782	1.05
2009-10	27000000	329166	1.22
Total	304497000	3061292	1.01

*Note :* Employment generation is estimated @ 1.5 persons per case disbursed.

*Source :* i) Office of the Registrar General of India, Ministry of Home Affairs  
ii) [www.indiabudget.nic.in](http://www.indiabudget.nic.in)  
iii) RBI Data

It is evident from the table 2 that the share of employed SEEUY beneficiaries to the total employed persons in India is maximum (1.32%) in the year 2001-02 and minimum (0.13%) in the year 1999-00. It reveals that the implementation of SEEUY scheme has some

effects in the employment generation in the economy.

### Employment Generation & Per Capita Income

The table 3 displays the relationship between

employed SEEUY beneficiaries and per capita income of India.

$$r = \frac{679310523}{77035342823 * 187683660} \quad r = 0.44$$

$$r = \frac{\sum xy}{\sqrt{\sum x^2 \cdot \sum y^2}}$$

**Table 3 : Employed SEEUY beneficiaries and per capita income**

Year	Employed SEEUY beneficiaries (X)	X= $\bar{X}$	x <sup>2</sup> x	Per capita income (Y)	Y- $\bar{Y}$ (y)	y <sup>2</sup>	xy
1999-00	34553	-243746	59412112516	7690	-6449	41589601	1571917954
2000-01	238295	-40004	1600320016	8857	-5282	27899524	211301128
2001-02	362765	84466	7134505156	10149	-3990	15920100	-337019340
2002-03	342743	64444	4153029136	11564	-2575	6630625	-165943300
2003-04	313655	35356	1250046736	12707	-1432	2050624	-50629792
2004-05	287027	8728	76177984	14396	257	66049	2243096
2005-06	305181	26882	722641924	15625	1486	2208196	39946652
2006-07	277335	-964	929296	16563	2424	5875776	-2336736
2007-08	284790	6491	42133081	17947	3808	14500864	24717728
2008-09	285782	7483	55995289	19040	4901	24019801	36674183
2009-10	329166	50867	2587451689	20989	6850	46922500	348438950
Total	3061292	3	77035342823	15527	-2	187683660	1679310523

Source : i) RBI Data  
ii) www.planningcommission.nic.in

It is inferred from the above calculation that a positive correlation exists between the two variables – Employed SEEUY beneficiaries and Per Capital Income. Hence it is clear that if there is an increase in the employed SEEUY beneficiaries, Per Capita Income of India will also increase.

**Amount Of Seey Loan Disbursed & National Income**

Table 4 IS prepared to represent the relationship between the amount of SEEUY loan disbursed and National income of India.

**Table 4 : Employed SEEUY beneficiaries and per capita income**

Year	Employed SEEUY beneficiaries (X)	X=s $\bar{X}$	x <sup>2</sup> x	Per capita income (Y)	Y- $\bar{Y}$ (y)	y <sup>2</sup>	xy
1998-99	137	-1011	1022121	685912	-821130	674254476900	830162430

1999-00	872	-276	76176	805981	-701061	491486525721	193492836
2000-01	1378	230	52900	941861	-565181	319429562761	-129991630
2001-02	1352	204	41616	1093962	-413080	170635086400	-84268320
2002-03	1218	70	4900	1224946	-282096	79578153216	-19746720
2003-04	1093	-55	3025	1224946	-91949	8454618601	5057195
2004-05	1269	121	14641	1415093	57006	3249684036	6897726
2005-06	1168	20	400	1564048	180776	32679962176	3615520
2006-07	1185	37	1369	1687818	354075	125369105625	13100775
2007-08	1198	50	2500	1861117	501728	251730985984	25086400
2008-09	1368	220	48400	2008770	745028	55066720784	163906160
2009-10	1543	395	156025	2542921	1035879	1073045302641	409172205
Total	13781	5	1424073	18084499	-5	3784980184845	1416484577

Source : i) RBI Data  
ii) www.plannigcommission.nic.in

$$r = \frac{\sum xy}{\sqrt{\sum x^2 \cdot \sum y^2}}$$

$$r = \frac{1416484577}{1424073 * 3784980184845} \quad R = 0.61$$

It is inferred from the above calculation that a positive correlation (0.61) exists between the two variables amount of SEEUY Loan disbursed and national income. Hence it is clear that if there is

an increase in the amount of SEEUY loan, National income of India will also increase.

### Poverty And Unemployment

The main aim of the SEEUY scheme is to reduce poverty and unemployment rate in India. Hence it is essential to know the effect of SEEUY scheme in reducing poverty and unemployment in India. The Table 5 displays the number of SEEUY beneficiaries, Poverty rate and Unemployment Rate in India.

**TABLE 5 : RATE OF POVERTY AND UNEMPLOYMENT IN INDIA**

Year	SEEUY Beneficiaries (No)	Poverty Rate (%)	Increase / Decrease	Unemployment Rate (%)	Increase / Decrease
2003-04	23025	36	-	5.99	-
2009-10	203454	26.1	-9.9	7.32	+ 1.33

Source : i) RBI Data  
ii) www.planningcommission.nic.in

The table 5 depicts that the number of SEEUY beneficiaries in 2003-04 and 2009-10 is 23025 and 203454 respectively. The rate of poverty in 2003-04 is 36 percent and reduced to 26.1 percent in 2009-10. But the rate of

unemployment is 5.99 percent in 2003-04 and increased to 7.32 percent in 2009-10. The rate of poverty has reduced by 9.9% and unemployment has increased by 1.33% in the year 2009-10. Hence it is clear that SEEUY scheme has little

more effect in reducing the rate of poverty but not in unemployment. It is due to the higher growth rate of population in India.

### Seeuy

The target and achievement of SEEUY in IXth, Xth and XIth Plan are shown in the table 6

## The Target and Achievement of

**Table 6 : Plan-wise target and achievement of SEEUY in India**

Plan	Target	Sanctioned		Disbursed		Estimated employment generation
	No	No	Percentage to the target	No	Percentage to the target	No
IX plan (1996-97 to 2001-02)	700000	774818	110.69	652226	93.18	978356
X plan (2002-03 to 2006-07) up to Dec *	1100000	12699340	115.39	978658	88.97	2446344
XI plan (2006-07 to 2010-11) up January	1100000	1270030	115.46	1016588	92.42	1524883

Source : RBI

Note : Employment generation is estimated @ 105 persons per case disbursed.

\* Provisional

It is inferred from the table 6 that SEEUY has been a successful scheme, not only in the IX plan but also in the X plan. It also shows that the sanctions have exceeded the target in all the Five Year Plans.

### Status of Recovery of Loans Under Seeuy

As per reports received from RBI, the overall status of recovery under SEEUY is given in the Table 7.

The table 7 predicts the fact rate of recovery of loans under PMRY has been around 34% to 40% in the last four years. The RBI and Government of India of India have initiated various steps for improving the recovery of loan overdues under the scheme by ensuring backward and forward

linkages for the limits set up under the scheme. The government of India has advised to all state Government to notify SEEUY loan overdues as revenues dues under their respective Revenue Recovery Acts. All implementing banks have been advised to file criminal complaints against the borrowers who misutilise loans sanctioned under the scheme.

**Table 7**

Year	Recovery of SEEUY Loan (%)
2006-07	35.2
2007-08	34-96
2008-09	35-32
2009-10	39-19

## Swot Analysis of Seeuy

### Strengths :

1. SEEUY has emerged as a major Central Sector Scheme creating employment opportunities for about 31.6 lakh persons since inception of the Scheme in the year 1998. The employment under the SEEUY will further increase over the years, as the SEEUY is an ongoing Central Sector Scheme.
2. The Coverage of the Scheme is spread over both for Rural as well as Urban areas. As per findings of 2nd round of evaluation of SEEUY conducted by the institution of Applied Manpower and Research (IAMR), disbursement of SEEUY beneficiaries in Rural and Urban areas is 49.9 percent and 50.1 percent respectively.
3. The evaluation study has also revealed that assets have been created in 89-7 percent of cases disbursed under the SEEUY.

### Weaknesses :

1. The recovery of loan overdues under the SEEUY scheme has not been satisfactory. The recovery of loan overdues was 34.9 percent for the half year ended March 2002, which stands at 34.96 percent for the year March 2004.
2. Banks are under financing projects. The amount of loan disbursed under SEEUY is stagnating around Rs. 60000 per beneficiary.
3. There is a gap between the cases sanctioned and disbursed made under SEEUY by banks. A total of 21.1 lakh cases have been disbursed by banks against the sanctions of 26.7 lakh cases since inception of the scheme till January 2011.

### Opportunities :

1. In the situation where employment opportunities in the organized sectors and Government sectors have been virtually stagnating or declined, SEEUY scheme has

emerged as a major scheme of employment generation in the country for not too qualified and trained educated unemployed youth.

2. The successful self employed units set up under the SEEUY scheme may graduate into higher scale units thus creating further employment opportunities for under unemployed persons.
3. Up scaling of successful SEEUY units into higher scale units can be encouraged by providing subsequent loans with subsidy to these units.

### Threats :

The implementation of the scheme could be improved by:

1. Enhancing the family income ceiling from Rs. 40000 per annum to Rs. 100000 per annum.
2. Enhancing the project cost from Rs. 100000 to Rs. 200000 for business sector and from Rs. 200000 to Rs. 500000 for service and industry sector.
3. Enhancing subsidy ceiling of Rs. 7500 per beneficiary to Rs. 10000 per beneficiary for State / UTs other than North Eastern States J&K, Himachal Pradesh and Uttaranchal to make the scheme attractive.

## Conclusion

The study provides various issues for researchers to conduct further research in future. A further study may be conducted to analyze the effectiveness of the scheme in promoting entrepreneurship culture. With a narrow sense, the government shall broaden its view to avail the SEEUY loan in order to create employment opportunities. With a broader sense, the government shall extend its credit to the society by crucial formalities and procedures in order to avoid educated unemployment, practically, SEEUY scheme is a welcoming among the educated unemployed youth.

**References :**

1. Secrets of self employment by Sarah and Paul Edwards; Published by G.P.Putnam's sonsm New York 1991
2. The Economic of self- Employment and Entrepreneurship by Simon C Parker, Cambridge University Press 2004
3. Self Employment for Low |Income People by Steven Balkin, published by Praeger press, New York 1989
4. Social Change and Innovation in Labour Market by Catherine Hakin publishers, New York 2004
5. Gender and Home Based Employment by Charles B, Hennon , Published by Westport CT , 2000
6. Home-Based Employment and Financing Life By Ramona K.Z.Heck, published Auburn House, West Port CT 1995



# Infrastructure and Human development in India : An Inter-state comparison

## ABSTRACT

Economic development of a country depends very much on the availability of its infrastructural facilities particularly the development of sectors such as Agriculture, Industry and Service Sectors. An economy's infrastructure is more conveniently divided into two parts Physical Infrastructure and Social Infrastructure. Physical Infrastructure is directly concerned with the needs of such production sectors as agriculture, industry & trade. The physical infrastructure, include such services such as power, irrigation, transport telecommunication. On the other hand, social infrastructure comprising education, health and medical care, nutrition, housing and water supply which is instrumental in contributing to substantial improvements in human development, which in turn, initiate and accelerate economic development. The social infrastructure is an instrumentation contributing to substantial improvements in human development which in turn, initiate and accelerate economic development. The physical quality of life and human well-being are pivotal on the enhanced availability of social services. These services are key to overall increased productivity. Therefore, significant increase in social sector expenditure, along with inclusive development strategy, goes a long way in not only improving human development position but also in minimizing the regional disparities in human development in the countries. The paper is organized into four sections – the **first section** discusses the conceptual clarification of infrastructure and economic development. **Second section** explains the relationship between social infrastructure and Human development. The **third section** focused on human development in India, by focusing on inter – state disparities in human development and the **final section** seeks to draw some conclusion and pullout the policy implication.

## INTRODUCTION

Economic development of a country depends very much on the availability of its infrastructural facilities particularly the development of sectors such as Agriculture, Industry and Service Sectors. An economy's infrastructure is more conveniently divided into two parts Physical Infrastructure and

Social Infrastructure. Physical Infrastructure is directly concerned with the needs of such production sectors as agriculture, industry & trade. The physical infrastructure, include such services such as power, irrigation, transport telecommunication. On the other hand, social infrastructure comprising education,

*Dr. Gopalakrishna B.V : Associate Professor, AJ Institute of Management, Department of MBA, Mangalore- 5750003*

*Dr. D.S. Leelavathi : Professor, DOS in Economics, University of Mysore, Mysore – 570006.*

health and medical care, nutrition, housing and water supply which is instrumental in contributing to substantial improvements in human development, which in turn, initiate and accelerate economic development.

Human Development is the process of widening people's choices and their level of well-being. The choices change over time and differ among societies according to their stage of development. The three essential choices for people are - to lead a long and healthy life, to acquire knowledge and to have access to the resources needed for a decent standard of living. If these choices are not available, many other opportunities remain inaccessible. Other choices, highly valued by many people include political, economic and social freedom, access to opportunities for being creative and productive and enjoying self-respect and guaranteed human rights. (UNDP, 1994, 1995).

The paper is organized into four sections – the **first section** discusses the conceptual clarification of infrastructure and economic development. **Second section** explains the relationship between social infrastructure and Human development. The **third section** focused on human development in India, by focusing on inter – state disparities in human development and the **final section** seeks to draw some conclusion and pullout the policy implication.

### Objectives of the Paper

1. To examine relationship between infrastructure and economic development.
2. To analyzing inter state disparities in Human Development in India
3. To examine the role of state in human development and to draw the policy implications.

### Data Sources and Methodology

The information for the study has been collected mainly from secondary sources. The study is descriptive and analytical in nature. Data was collected from various published sources such as UNDP, Human Development Reports, various issues of Economic Survey and National Human Development Report 2001. The data are also analysed with the help of simple statistical tools such as percentage method & co-efficient of variation to identifying either convergence or divergence trends with respect to HDI and GDI.

Human development situation in India classified into four groups – high, medium and low Human Development Index of the Indian states according to their levels of human development for 1981, 1991 and 2001. No state was in the high human development position while except Kerala (medium human development index) while rest of the 14 states were in the low human development in 1981 and 1991. (See in the appendix 1.1)

### Section II

#### Conceptual Clarification: Infrastructure and Economic growth

Economic development and prosperity of an economy depends on the availability of infrastructural facilities. Infrastructure has the power to increase the productive capacity of the factors of production. The structure of an economy can be changed only by the infrastructure. The infrastructure facilitates all the sectors of the economy to speed up their growth rate. It lubricates and strengthens the engine of economic development.

The world Development Report (1994) of the World Bank, which focused on infrastructure for development, brought out cross-section country studies, a strong positive and complementary relationship between the level of GDP and infrastructure stock per capita. The positive and complementary link between infrastructure and development is, however, not a once for all cause

and effect relation. It is a continuous and reinforcing process. To achieve an accelerated development process, growth in development has to be preceded, accompanied and followed by progress in infrastructure. Infrastructure development is thus clearly a critical element in the process of economic development and cannot be ignored.

Recognizing the critical importance of infrastructure development, the Government of India accord high priority for infrastructure development right from the First Five Year Plan itself. Though, a remarkable progress was made during the last sixty years, the developmental impact was, however, only marginal. Most of the people especially the urban and rural poor do not yet have access to even minimal infrastructure services. India is now, in fact, faced with the problem of infrastructure deficiencies, poor quality, efficiency in delivery of services and widening demand – supply gap.

India has now targeted to achieve an annual economic growth of 10% with a view to become a developed nation by next two decades. Acceleration to higher growth will generate a massive demand for infrastructure services such as power, roads, ports, railways and telecommunications. Furthermore, with globalization, if India has to be competitive in global market, the quantity and quality of infrastructure services will have to improve by international standards.

Infrastructure in economics is essentially a flow of services over a life period of a infrastructure stock created. Depending on nature services, infrastructure can be broadly divided into two types – physical and social. The former consists of power, transport (roads, railways, aviation, waterways and ports), telecommunications, housing, irrigation and water supply. They are also known as economic infrastructure as they directly or indirectly contribute to productivity. Social infrastructure, on the other hand, includes education, health, nutrition, sanitation, child-care, recreation and banking and other financial

facilities.

Good infrastructure helps to raise productivity and lower costs in the directly productive activities of the economy, but it has to be expanded fast enough to meet the demand for infrastructure in the early stage of development. Construction expense for infrastructure such as energy and transportation sector is enormous and construction period is also long. Prediction of demand pattern and investment allocation, which are the key factors of infrastructure development planning, must be based on a long term economic development trend and use planning, which predicts the country's temporal and spatial demographics and economic structure.

The adequate supply of infrastructure helps determine a country's success and failure. Infrastructure promotes development by diversifying production, expanding trade, coping with population growth, reducing poverty or improving environment conditions. Good infrastructure raises productivity and lower production costs, but it has to expand enough to accommodate growth. An important ingredient in China's success has considerably been achieved by uplifting rural activities through the provision of a minimum package of transport, telecommunications and power at the village level. The poor in the urban areas too benefit from infrastructural facilities which provide to them clean water, satisfactory sanitary conditions, risk free roads etc.

Infrastructure is essential for household, firms and governments to function. The social overhead capital has a pervasive impact on economic development and human welfare. The adequate or otherwise of infrastructure largely determines an economy's success or failure in diversifying production, expanding fast enough to accommodate growth. Infrastructure supports the economic growth of a particular region or country and through the redistribution of wealth, helps sustain the continued improvement of the quality of life, roads and ports contribute to the

expansion of the market, and irrigation facilities raise agricultural productivity.

### **Empirical Studies on Infrastructure and Economic Growth.**

Ruttan (1989) discussed the reason why advanced countries provide ODA to developing countries. He asserted that there are two arguments one is based on the economic and strategic self-interest of the donor country. The second one is based on the ethical or moral responsibility of the residents of wealthy countries toward the residents of poor countries. Many studies provide surveys of why infrastructure is important in economic development and evaluate recent empirical results estimating the contribution of public capital and infrastructure to economic growth. They suggest that the impact of infrastructure investment on economic growth represents high rate of return.

Easterly and Rebelo (1993) verified whether or not changes in the level of various policy variables permanently increased the economic growth rate, and clarified whether or not investments related to information and telecommunications raised the economic growth rate. They found that public infrastructure investment is a large fraction of both total and public investment, and infrastructure in transportation and communication is consistently correlated with economic growth. The rate of return in these sectors is 63% and elasticity of change in output with respect to a 1% change in the level of infrastructure is 0.16.

World Bank (1994) emphasized that there is a close relationship between infrastructure and economic growth. This is seen in the lack of infrastructure development hindering the economic growth in China and in many case studies, such as those on the direct and indirect economic impact of infrastructure in farming sector in India. In the case of China, the coverage of intercity transport networks is one of the thinnest in the world. China's transportation

investments amounted to only 1.3% of GNP annually during 1981-90, a period of rapid growth in transportation demand. Since the onset of China's open door policy in 1979, economic growth averaging 9% a year has resulted in an unprecedented expansion in intercity traffic with growth averaging 8% a year for freight and 12% a year for passengers.

This traffic growth has imposed tremendous strains on the transportation infrastructure, a manifested by the growth of bottlenecks in the railway network, the severe rationing of transportation capacity on railway lines, and the poor quality of service experienced by shippers and passengers. A conservative estimate is that the annual economic costs of not having adequate transportation infrastructure in China during the past several years amount to about 1% of China's GNP. This relationship is also shown in cross section data analyses that indicate positive relationship between the levels of infrastructure, such as the development of electricity, telecommunications, roads and other facilities and that of economy.

Yoshida (2000) presented a positive analysis from various angles of the correlations between economic growth and the infrastructure in Japan, such as the energy, electricity, and transportation sectors over the last century in order to derive lessons that can be useful to developing countries. He divided Japan's economic development phase into five with major characteristics, and discussed the patterns of demand and investment in infrastructure over one century. He found that the growth rate of demand in infrastructure was big. And he also found that infrastructure investment in rural area had a trend to correct the regional income disparities. He insisted that the lessons learned from Japan's development experience are a major intellectual asset for developing countries. And he emphasized that developing countries expect Japan and Korea, former developing countries, to take reasonable leadership in international aid.

## Social Infrastructure in Human Development

Social infrastructure has received increasing attention of the planners and policy makers when basic needs appeared in the measurement of development. The need to provide basic amenities of life has now become essential to improve 'Human Development Index'. For the masses development means, knowledge, health, clean drinking water, sanitation and shelter. Social infrastructure is critical for human development as physical infrastructure (IGIDR 2002). The term 'Social infrastructure' or human development is used to include those facilities, which tend to improve the quality of human life. It is therefore, an umbrella term that covers all basic investment in health, education, drinking water supply disease eradication, public hygiene, nutrition etc.

There is a positive relationship between human development and infrastructural development and economic development. Infact, Kerala in India afforded an excellent example of this relationship. The state has the highest HDI rank in India. Its health indicators are similar to those of high human development countries. Although not self-sufficient in food, it has the best public food distribution system in India. Kerala's human development indicators do not show great disparities between urban and rural areas. A good part of Kerala's human development achievements must be attributed to well-developed road and transport links throughout the state, transforming the urban – rural divide into a continuum.

World Bank Study (1994) points out that, on an average, a percentage point increase in infrastructure stocks results in proportionate increase in GDP. Physical capital is the main component a country's productive wealth. But more surprisingly a country's physical capital, and Natural capital accounted 20 and 16 per cent respectively. On the other hand, the most important component turns out to be human capital accounting for 64 per cent. It is clearly

evidenced that the real wealth of a nation is its people. IMF & World Bank – are also advising to their member developing countries to devote greater attention to investment in education, health, sanitation, nutritional and science and technology to promote human capital for development.

Thus social infrastructure is Infact, essential to promote better utilisation of economic infrastructure, therefore expenditure on social infrastructure should be regarded as a investment rather than social consumption. The concept of human development has come to the fore in the last few decades because of the fact that the benefits of economic growth do not necessarily occur to all sections of the community automatically.

### Section III

## Infrastructure and Human Development

The positive relationship between infrastructure and economic growth is well-known, the requires little further elaboration. Ironically, however, the links between infrastructure and human development often less recognized and are not enunciated in terms relevant to policy. The concept of human development was originally advanced to move beyond the relatively restrictive economic analyses based on growth of income alone, and to incorporate both human capabilities and empowerment, which relied much more on social and distributive variables. Nevertheless, it is obvious to anyone that infrastructure contributes directly to conditions of life not only by increasing labor productivity, but also through the provision of a range of amenities that are either necessary or desirable for human existence.

The crucial role played by infrastructure development in creating better conditions of life has been highlighted again and again. Transport and communications infrastructure is important in terms of providing access to basic health

services and thereby improving conditions of health and life, particularly of women and girl children. Basic infrastructure such as electrification plays a similar role, apart from changing the quality of life in general. It is now well known that basic road connectivity to a school, minimum facilities like separate toilets for boys and girls in school buildings are crucial determinants for the enrolment and attendance of girl children, and so on. Of course, the effects of such investments need to be assessed in terms of how the additional infrastructure changes the lives of people in any given area, and what changes would make it more effective and useful. The gender and class dimensions of the linkage effects also need to be examined, not just in terms of the direct effects, but also in terms of the secondary employment and opportunities created by such infrastructure building, for example, shops and new services that emerge with the construction of a new road.

### Status of Human Development in India

The Global Human Development Report, 2010 of UNDP, ranked India at 119th place out of 169 countries with HDI value of 0.519, India's human development position is lower than that of many of newly industrialised countries of South East Asia like Indonesia and Malaysia and also that of South Asian countries like China, Srilanka and Maldives. The low per-capita income of a country does not mean low level of human development. Even with limited funds and their proper allocation, substantial improvement in human capital can be secured. Even Srilanka and China with low per capita incomes have secured higher levels of human development whose development efforts were initiated at about the same time as of India (Griffin, 1992, Tan and Mingal, 1992).

The countries have been classified into four groups based on HDI – Very High, High, Medium and Low human development countries (see appendix No. 2) The countries having HDI range from 0.938 to 0.788 are called as very high human development countries, which include Norway, Australia, New Zealand, Canada, USA, Japan, U.K, & Korea Republic. High human development countries range from 0.784 to 0.677 includes Bahamas, Lithuania, Chile & Argentina. Medium Human Development Countries have HDI ranges between 0.669 to 0.488, which includes China, Srilanka, India, Pakistan, Bangladesh & Nepal. While, Low Human Development Countries have less than 0.500 value of HDI – Zimbabwe, Sierra Leone, Burkina Faso & Niger. Norway occupied top position while Niger and Sierra Leone are in the bottom place. (UNDP, 2010).

The table 3.1 depicts the various human development indicators for selected countries in 2005. It also infers India's relative human development position with other countries in comparison. India accounted for GDP per capita income (PPP Us \$) 3,452 life expectancy at birth 63.7 years, adult literacy rate is 61.0 percent and 63.8 percent of combined gross enrolment ratio. Many countries such as Island, Norway, Canada, U.S.A. and many East Asian countries are above the India's relative position. On the other hand, Pakistan, Bangladesh, Nepal, Niger, Burkina Fasco and Sierra Leone are lower than India. While almost all Asian countries except Pakistan are well above India's relative position in all respects. Even Srilanka and China are also well ahead of India. This shows that India is not only showing poor performance in terms of human development indicators, but also lower than many East Asian and South Asian countries such as Srilanka and Maldives.

**Table No. 3.1 Human Development Indicators for Selected Countries 2010**

HDI Rank	Name of the Countries	GNI Per capita (PPP US \$)	Life expectancy at birth (in year)	Adult literacy rate (%)	Combined gross enrolment ratio	HDI index
----------	-----------------------	----------------------------	------------------------------------	-------------------------	--------------------------------	-----------

Very High Human Development (0.938 to 0.788)						
1	Norway	58,810	81.0	-	95.6	0.938
2	Australia	38,692	81.9	-	109.2	0.937
3	New Zealand	25,438	80.6	-	100.2	0.907
4	United States	47,094	76.0	-	91.3	0.902
42	Barbados	21,673	77.7	-	-	0.788
High Human Development (0.784 to 0.677)						
43	Bahamas	25,201	74.4	-	90.4	0.784
44	Lithuania	14,824	72.1	99.7	90.3	0.783
45	Chile	13,561	78.8	98.6	82.7	0.783
84	Algeria	8,320	72.9	72.6	71.5	0.677
85	Tonga	4,038	72.1	99.0	73.6	0.677
Medium Human Development (0.669 to 0.488)						
89	China	7,258	73.5	93.7	69.4	0.663
91	Srilanka	4,886	74.4	90.6	71.8	0.658
107	Maldives	5,408	72.3	98.4	71.2	0.602
119	India	3,337	64.4	62.8	61.2	0.519
125	Pakistan	2,678	67.2	53.7	40.9	0.490
Low Human Development (0.470 to 0.140)						
128	Kenya	1,628	55.6	86.5	62.0	0.470
129	Bangladesh	1,587	66.9	55.0	48.3	0.469
180	Ghana	1,385	57.1	65.8	54.0	0.467
167	Niger	675	52.5	28.7	24.9	0.261
169	Zimbabwe	176	47.0	91.4	49.4	0.140
	<b>World</b>	<b>10,637</b>	<b>69.3</b>	<b>-</b>	<b>66.3</b>	<b>0.624</b>

Source : UNDP, Human Development Report 2010.

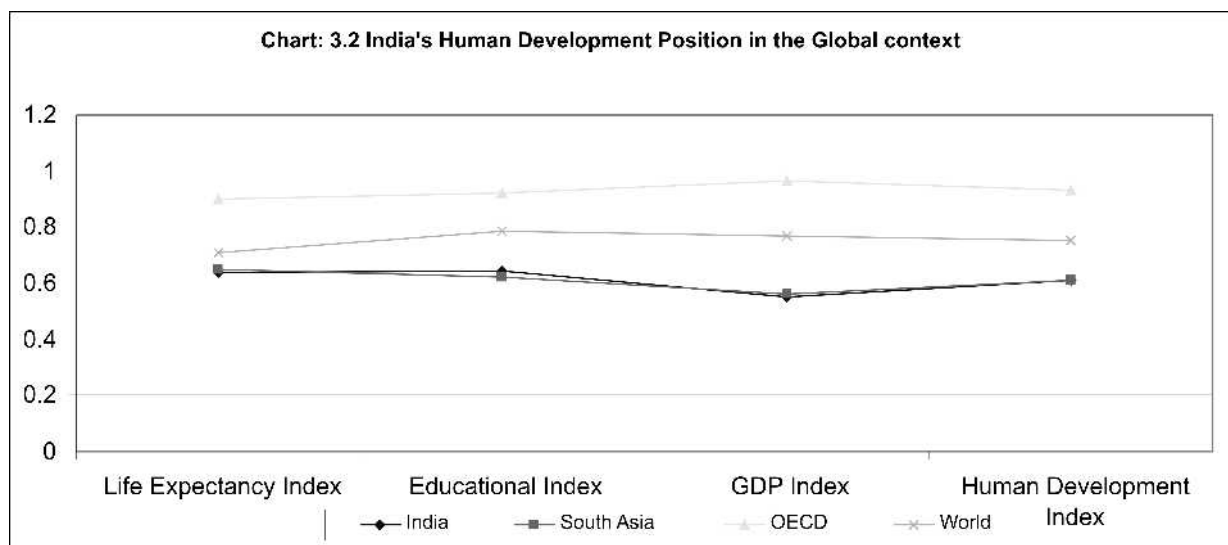
The table and figure 3.2 depicts India's human development position in the global context, human development indices such as Life Expectancy Index, Educational Index, GDP Index and Human Development Index of Indian position were 0.639, 0.643, 0.553 and 0.612

respectively, where as OECD and the World position were well over India's position. This indicates that the relative position of India's human development indices were not only lower than so-called OECD but also lower than South Asia and World as well.

**Table. 3. 2 India's Human Development position in the global context in 2007**

Human Development Indicators	India	South Asia	OECD	World
Life Expectancy Index	0.639	0.651	0.900	0.708
Educational Index	0.643	0.621	0.920	0.784
GDP Index	0.553	0.562	0.966	0.768
Human Development Index	0.612	0.612	0.932	0.753

Source : Global HDR 2008/9, Oxford University Press New York.



### Progress of Human Development in India

The basic concept of human development in India has come into force since the inception of first Five Year Plan. However, from the past two decades, human development began to receive utmost importance because of the fact that the benefits of economic growth did not necessarily accrue to all sections of the community. Apart from the basic necessities such as food, clothing and shelter, other human choices including long life, good health, adequate education and participatory decision-making remained unattainable for majority of the population. During sixties and seventies India remained in the group of 'weak link' countries characterised by slow progress of human development, constrained by low level of economic growth. The problem was different during eighties onwards as the country has been suffering from lopsided development with rapid economic growth and slow human development (Naseem A, Zaidi & Abdul Salam, 2005).

Human Development is the process of widening people's choices and their level of well-being. The choices change over time and differ among societies according to their stage of development.

The three essential choices for people are - to lead a long and healthy life, to acquire knowledge and to have access to the resources needed for a decent standard of living. If these choices are not available, many other opportunities remain inaccessible. Other choices, highly valued by many people include political, economic and social freedom, access to opportunities for being creative and productive and enjoying self-respect and guaranteed human rights. (UNDP, 1994, 1995).

The Human Development Index (HDI) is a simple composite measure that measures the overall achievements of a region in terms of three basic dimensions of human development – a long and healthy life, knowledge, as well as a decent standard of living health status (measured by longevity), knowledge (measured by literacy and enrolments) and a decent standard of living (measured by per capita income). These three dimensions are measured by life expectancy at birth, educational attainment (adult literacy and the combined gross primary, secondary and tertiary enrolment ratio) a proxy for a decent standard of living and as a surrogate for all human choices not reflected in the other two dimensions.

**Table : 3.1 Human Development Index of India from 1990-2010**

Years	Human Development Index (HDI)	India's Rank	Number of Countries Covered
1990	0.297	121	173
1991	0.308	123	160
1992	0.382	134	173
1993	0.436	134	173
1994	0.446	135	173
1995	0.451	134	173
1996	0.436	135	174
1997	0.545	138	175
1998	0.563	128	174
1999	0.571	115	162
2000	0.577	124	173
2001	0.590	127	175
2002	0.595	127	177
2003	0.602	127	177
2004	0.611	126	177
2005	0.619	128	177
2006	0.619	128	177
2007	0.619	134	182
2010	0.519	119	169

Source : Compiled from Human Development Reports, UNDP, (1990-2007).

India has done well in human development indicators over the past six and half decades. Life expectancy was just 32.0 years in 1951 increased to 64.4 years in 2010, Infant Mortality Rate was 146 per thousand in 1951 and decreased to 52 in 2008. Under Five Mortality Rate has come down from 202 in 1970 to 69 in 2008 (per 1,000). The Literacy Rate has gone up from 16.7 per cent in 1951 to 65.49 in 2001. India has been categorized by the various global human development reports as a medium human development country. (See in the Appendix No. 3)

The human development index has rose

gradually from 0.297 in 1990 to 0.577 in 2000 and stood at 0.519 in 2010. However India takes a long time to cross the mark of 0.800 in HDI to join the rank of high human development index countries.

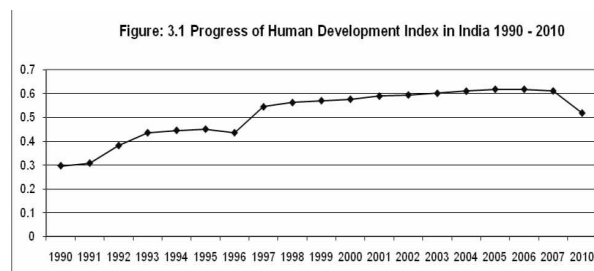


Table 3. 1 & figure depicts the progress of Human Development Index of India from 1990 to 2010 with its ranks and number of countries covered at the global level. The HDI value for India was 0.297 and its rank was 121 out of 173 countries in 1990. It means that 120 countries were above India and 53 countries were below them in the descending order of HDI obtained by the various countries. In 1995 the HDI value has increased to 0.451 and its rank decreased to 139 out of 173. Thus, while 138 countries were above India and 35 countries were below, in the context of human development index. In 2000 HDI value has increased to 0.577 and its rank was 124 out of 177 countries, 123 countries were above India and 54 countries were below India. Even in 2010 the HDI value was 0.519 and its rank was 119 out of 169. And 118 countries were above and 51 countries were below India.

### Inter-State Disparities in Human Development

The various empirical studies have shown inter-state disparities in human development which have followed more or less UNDP methodology to construct human development index based on three important indicators and try to identify inter-state and inter regional comparisons within the Indian States - Shivakumar, 1991, NPC Research Foundation 1992, Dutt et al 1997, Ram and Mohanti 1999, Sarma 1999, Deshpande et al 2002, Pradhan and Bhattacharya 2005 have observed inter-state disparities in human development in India. The Planning Commission, Government of India took the lead in the preparation of the NHDR 2001 for the

first time in the country.

At the state level there are wide disparities in the level of human development. In the early eighties, states like Bihar, Uttar Pradesh, Madhya Pradesh, Rajasthan and Orissa have HDI close to just half of that of Kerala's. The situation has drastically changed. While Kerala rapidly increased its HDI values, the above-mentioned states could not maintain the pace and have trailed behind considerably. Punjab, Tamil Nadu, Maharashtra and Haryana have also done well on the HDI. Thus some of the Indian states are in a virtuous cycle of achievement, with growth of resources supporting improvement in human development, which, in turn, reinforced economic growth. Conversely, a majority of the Indian states, especially those having larger populations, appear to be in a vicious cycle, with failures in both human development and economic growth.

There has been a wide inter-state variation in the performance of HDI. The estimated value of HDI varies from 0.237 to 0.500 in 1981, 0.308 to 0.591 in 1991 and 0.367 to 0.638 in 2001. Among the better off states – Kerala, Punjab, Tamil Nadu, Maharashtra and Haryana had a HDI above 0.500 and the worst-off states like Bihar, Assam, Uttar Pradesh and Madhya Pradesh had a HDI less than 0.400 in 2001. Although, seven states – Bihar, Haryana, Kerala, Orissa, Punjab, Uttar Pradesh and West Bengal could manage to maintain their relative position. The three states Andhra Pradesh, Assam, Gujarat, Karnataka and Maharashtra experienced deterioration in 2001 relative to 1981.

**Table : 3.2 Human Development Index (HDI) Across States in India 1981-2001**

Name of the States	1981		1991		2001		2005	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank
Kerala	0.500	1	0.591	1	0.638	1	0.814	1
Punjab	0.411	2	0.475	2	0.537	2	0.679	3
Tamil Nadu	0.343	7	0.466	3	0.531	3	0.608	5

Maharashtra	0.363	3	0.452	4	0.523	4	0.689	2
Haryana	0.360	5	0.443	5	0.509	5	0.644	4
Gujarat	0.361	4	0.431	6	0.479	6	0.621	7
Karnataka	0.346	6	0.412	7	0.478	7	0.600	8
West Bengal	0.305	8	0.404	8	0.472	8	0.625	6
Rajasthan	0.256	11	0.347	10	0.424	9	0.537	10
Andhra Pradesh	0.298	9	0.377	9	0.416	10	0.572	9
Orissa	0.267	10	0.345	11	0.404	11	0.452	13
Madhya Pradesh	0.245	13	0.328	12	0.394	12	0.488	12
Uttar Pradesh	0.255	12	0.314	13	0.388	13	0.490	11
Bihar	0.237	14	0.308	14	0.367	14	0.449	14
All India	0.302	-	0.381	-	0.472	-	0.575	
CV	22.56		19.01		16.30		14.56	

Note : Rural and Urban Combined.

Source : National Human Development Report 2001.

There has been a wide inter-state variation in the performance of HDI. The estimated value of HDI varies from 0.237 to 0.500 in 1981, 0.308 to 0.591 in 1991 and 0.367 to 0.638 in 2001. Among the better off states – Kerala, Punjab, Tamil Nadu, Maharashtra and Haryana had a HDI above 0.500 and the worst-off states like Bihar, Assam, Uttar Pradesh and Madhya Pradesh had a HDI less than 0.400 in 2001. Although, seven states – Bihar, Haryana, Kerala, Orissa, Punjab, Uttar Pradesh and West Bengal could manage to maintain their relative position. The three states Andhra Pradesh, Assam, Gujarat, Karnataka and Maharashtra experienced deterioration in 2001 relative to 1981.

This indicates that the backward states improved more in human development than the relatively better developed states in the country. Therefore, there is some convergence of states in terms of HDI. **The co-efficient of variation (i.e., measure of inequality) shows that it declined from 22.56 percent in 1981 to 19.01 in 1991 and 16.30 percent in 2001.** This is exactly in tune with global trend.

### Gender Development Index in India

The Gender development index measures the attainments in human development indicators for females as a proportion of that of males. At the national level Gender Equality Index (GEI) increased from 62 percent in the early eighties to 67.6 percent in the early nineties. This implies that on an average the attainments of women on human development indicators were only two-thirds of those of men. At the State level, gender equality was the highest for Kerala followed by Manipur, Meghalaya, Himachal Pradesh and Nagaland in the eighties. Goa and the Union Territories, except for Delhi, have gender equality higher than the national level. In the nineties, Himachal Pradesh had the highest equality, where as, Bihar was at the bottom and witnessed a decline in absolute terms over the earlier period.

The table 4.3.4 depicts the Gender Related Development Index across the Indian States from 1981 to 2001, the GDI value at the national level was 0.620 and 0.676 in the early eighties and nineties. At the state level, GDI was the highest in Kerala followed by Andhra Pradesh, Maharashtra, Gujarat, Tamil Nadu and

Karnataka were above the national average and Uttar Pradesh, Assam, Bihar, Haryana and Orissa has lowest achievement in the countries during 1980s. In the nineties Kerala occupied top position followed by Tamil Nadu, Andhra Pradesh, Maharashtra and Karnataka were above

the average and Bihar, Uttar Pradesh, Assam, West Bengal and Orissa were below the average. (NHDR, 2001). **The co-efficient variations of GDI values of 15 Indian states have been substantially declined from 18.98 to 15.00 and 11.11 percent between 1981, 1991 and 2001.**

**Table 3.3 Gender Related Development Index across States in India 1981-2001**

States	GDI 1981	Rank	GDI 1991	Rank	% change (1981-1991)	GDI 2001	Rank
Kerala	0.872	1	0.825	1	-5.38	0.724	1
Punjab	0.688	7	0.710	8	3.19	0.676	3
Tamil Nadu	0.710	5	0.813	2	14.50	0.675	4
Maharashtra	0.740	3	0.793	4	7.16	0.693	2
Haryana	0.536	12	0.714	7	33.20	0.636	7
Gujarat	0.723	4	0.714	6	-1.24	0.642	5
Karnataka	0.707	6	0.753	5	6.50	0.637	6
West Bengal	0.556	10	0.631	12	13.48	0.631	8
Rajasthan	0.650	9	0.692	9	6.46	0.573	10
Andhra Pradesh	0.744	2	0.801	3	7.66	0.595	9
Orissa	0.547	11	0.639	11	16.81	0.555	11
Madhya Pradesh	0.664	8	0.662	10	-0.30	0.548	13
Uttar Pradesh	0.447	15	0.520	14	16.33	0.520	14
Assam	0.462	14	0.575	13	24.45	0.554	12
Bihar	0.471	13	0.469	15	-0.42	0.477	15
All India	<b>0.620</b>	-	<b>0.676</b>	-	<b>9.03</b>	<b>0.690</b>	-
COV	<b>18.98</b>		<b>15.00</b>		<b>11.11</b>		

*Source :* 1. The technical group of Registrar General of India, GOI and KHDR 2005.  
2. GOI (2002) National Human Development Report 2001, Planning Commission, New Delhi.

*Notes :* 1. Ranks have been estimated by GDI values of the State.  
1981 and 1991 data was computed by NHDR 2001 and 2001 data by UNDP

The other seven Indian states like Maharashtra (0.693), Punjab (0.676), Tamil Nadu (0.675), Gujarat (0.642), Karnataka (0.637), Haryana (0.636) and West Bengal has (0.631) were well beyond the all India level and remained six more states such as Bihar (0.477), Uttar Pradesh (0.520), Madhya Pradesh (0.548), Assam (0.554), Orissa (0.555), Rajasthan (0.573) and

Andhra Pradesh has (0.595) were below the national average. One of the most significant changes in GDI values of backward states such as Orissa and Uttar Pradesh have shown highest percentage change than developed states like Kerala (-5.38), Madhya Pradesh (0.30), Gujarat (- 24) respectively from 1991 to 2001 (NHDR, 2001). In general, women were better off in the

South Indian states such as Kerala, Andhra Pradesh, Tamil Nadu and Karnataka than in the indo-gangetic plains comprising states like Bihar and Uttar Pradesh. The states which have done well on improving their female literacy have also substantially improved gender equity and gender disparities have declined over the three points of time.

## Section IV

### Public Expenditure on Human Development

Public action is an important component of any strategy to achieving higher levels of human development. Its nature and extent is determined by the size and composition of public expenditure, particularly the expenditure on social sector. The proportion of a state's public expenditure allocated to social sectors indicates the importance of the social sector in the state or the state's commitment to these sectors. This commitment is very important, especially during times when the state governments are spending an increasing proportion of their income on debt servicing.

Public expenditure is likely to influence the status of human development in several ways. In the areas of health, nutrition, education, public distribution system, social welfare and other social services, public expenditure can directly contribute to human development if appropriate public policies or programmes are designed and adequate funds allocated. Indirectly, public expenditure influences the pace and course of economic growth that determines, to a considerable extent, the sustainability of development on the one hand and funds available for spending on social sectors on the other. For example, sustainable agricultural growth will improve the livelihoods of a large portion of the state's population and therefore their well-being and human development.

Government can greatly influence the status of

human development by channeling a high proportion of public spending into priority social spending particularly through universal provision of basic social services. In general governments in wealthier countries could give more support to human development, since the greater the GNP, the more funds available for government spending on human development. But it is not possible always. Therefore, 1991 Human Development Report introduced some government expenditure ratio such as public expenditure ratio (PER), Social Allocation Ratio (SAR), Social Priority Ratio (SPR) and Human Expenditure Ratio (HER).

Human Development Report 1991, suggested that HER of 5 percent is essential, if a country has to do well on the human development front. This may be achieved in an efficient manner by keeping the PER moderate (around 25 percent), allocating much of this to social sector (more than 40 percent), and focusing on social priority areas (giving them more than 50 percent). HER is a powerful operational tool. It allows policy makers to restructure their budget, address any existing imbalances and avail of the most appropriate options. States with HER over 5 percent are supposed to indicate a good political commitment from the government to human priority or social priority concerns. Those states for which HER lies between three to five percent have moderate human priority concerns. The HER below 2 percent suggests that lack of political commitment for human priorities. In the post reforms periods, these ratios do not show any radical improvement.

The table 4.1 indicates the comparison of PER, SAR, SPR and HER for different states and shows the relative position of Indian states during 1990-91 to 2001-02. It is clearly indicated that low human development states such as Orissa, Bihar, Rajasthan, Uttar Pradesh allocated more public expenditure on these areas compared to high human development states in the country. Infact, Kerala allocated reasonably well compared to

other well-developed states despite having highest human development index in the country.

Bihar and Orissa ranks high in PER and HER, the calculation of PER and HER (Prabhu, 1991) showed that in the 1990-91 Bihar and Orissa ranked at 14th and 13th respectively in both PER and HER among the 14 major states of India. The reason for the low human development ranking of the states despite a high PER and HER is due to low per capita GSDP in terms of per capita public expenditure, their ranking is low.

The table 4.2 indicates the terms of per capita public expenditure, social sector expenditure and human priority expenditure in different states during 1990-91 to 2001-02. In the case of public expenditure Punjab, Gujarat, Haryana,

Karnataka and Maharashtra show highest real per capita expenditure in the country while, Bihar, Uttar Pradesh, Madhya Pradesh, Orissa and West Bengal recorded lowest in the country. As for as the social sector expenditure is concerned Gujarat, Maharashtra, Tamil Nadu, Karnataka and Rajasthan recorded highest and lowest recorded by Bihar, Uttar Pradesh, Orissa, Madhya Pradesh and West Bengal. When come to Human Priority Expenditure - Rajasthan, Maharashtra, Tamil Nadu, Karnataka recorded highest and lowest recorded by Bihar, Uttar Pradesh, Punjab, West Bengal and Orissa. Interestingly, human priority expenditure is more important than public expenditure and social sector expenditure in order to enhancing human development especially for low human development states.

**Table 4.1 Human development expenditure in major States of India : 1990-91 and 2001-02**

(in per cent)

States	PER		SAR		SPR		HER	
	1990-91	2001-02	1990-91	2001-02	1990-91	2001-02	1990-91	2001-02
Andhra Pradesh	17.83 (6)	18.86 (7)	43.12 (6)	36.43 (7)	48.88 (10)	54.14 (7)	3.76 (9)	3.72 (6)
Bihar	20.97 (2)	24.47 (2)	43.79 (5)	35.47 (9)	66.35 (1)	69.12 (1)	6.09 (1)	6.00 (1)
Gujarat	17.52 (8)	17.69 (8)	37.01 (11)	39.80 (2)	56.36 (6)	35.46 (14)	3.66 (10)	2.50 (13)
Haryana	15.63 (12)	17.17 (10)	32.75 (13)	29.55 (13)	44.73 (13)	49.38 (11)	2.29 (13)	3.51 (12)
Karnataka	17.78 (7)	20.06 (3)	41.22 (8)	34.96 (10)	55.45 (7)	52.29 (8)	4.06 (7)	3.67 (7)
Kerala	19.42 (3)	16.18 (12)	45.57 (3)	39.33 (4)	54.86 (8)	50.88 (10)	4.86 (5)	3.24 (8)
Madhya Pradesh	15.64 (11)	17.66 (9)	43.03 (7)	39.49 (3)	59.02 (4)	55.76 (4)	3.97 (8)	3.89 (5)
Maharashtra	15.51 (13)	15.43 (14)	33.27 (12)	36.46 (6)	47.19 (12)	54.42 (6)	2.43 (12)	3.06 (10)
Orissa	24.46 (1)	25.45 (1)	39.12 (10)	34.96 (11)	54.28 (9)	55.59 (5)	5.19 (2)	4.94 (3)
Punjab	17.49 (10)	19.63 (5)	29.07 (14)	23.25 (14)	39.52 (14)	38.27 (13)	2.01 (14)	1.75 (14)
Rajasthan	17.52 (9)	19.95 (4)	44.25 (4)	42.73 (1)	63.60 (14)	61.58 (3)	4.93 (3)	5.25 (2)
Tamil Nadu	17.88 (5)	15.85 (13)	46.88 (2)	38.19 (5)	58.68 (5)	52.14 (9)	4.92 (4)	3.16 (9)
Uttar Pradesh	18.61 (4)	18.97 (6)	39.82 (9)	31.97 (12)	65.13 (2)	65.09 (2)	4.83 (6)	3.95 (4)
West Bengal	15.30 (14)	16.83 (11)	47.94 (1)	35.72 (8)	47.86 (11)	44.24 (12)	3.51 (11)	2.66 (11)

Notes: 1. Figures in brackets indicate the rank of the state with respect to the indicators  
2. Expenditure under different heads has been estimated as the sum of revenue expenditure and capital expenditure (Including loans and advances net of repayments)

Source: Government of Karnataka (2006) Karnataka Human Development Report 2005, pp. 43

**Table 4.2 Real per capita public expenditure, social sector expenditure and human priority expenditure in 14 Major states of India during 1990-91 and 2001-02**

States	Per capita public expenditure			Per capita social sector expenditure			Per capita human priority expenditure		
	1990-91	2001-02	% change	1990-91	2001-02	% change	1990-91	2001-02	% change
Andhra Pradesh	1361 (7)	2198 (7)	61.50	587 (6)	801 (7)	36.46	287 (8)	434 (5)	51.22
Bihar	1026 (13)	915 (14)	-10.82	449 (13)	325 (14)	-27.62	298 (6)	224 (14)	-24.83
Gujarat	1775 (3)	3048 (2)	71.72	657 (4)	1213 (1)	84.63	370 (3)	430 (6)	16.22
Haryana	1962 (2)	2814 (3)	43.43	642 (5)	832 (6)	29.60	287 (7)	411 (7)	42.86
<b>Karnataka</b>	<b>1313 (9)</b>	<b>2574 (4)</b>	<b>96.04</b>	<b>541 (9)</b>	<b>900 (4)</b>	<b>66.36</b>	<b>300 (5)</b>	<b>471 (4)</b>	<b>57.00</b>
Kerala	1481 (6)	1996 (9)	34.77	675 (2)	785 (8)	16.30	370 (2)	400 (8)	8.11
Madhya Pradesh	1111 (11)	1590 (12)	43.11	478 (11)	628 (11)	31.38	282 (10)	350 (9)	24.11
Maharashtra	1758 (4)	2572 (5)	46.30	585 (7)	938 (2)	60.34	276 (11)	510 (2)	84.78
Orissa	1206 (10)	1791 (11)	48.51	472 (12)	626 (12)	32.63	256 (13)	348 (10)	35.94
Punjab	2278 (1)	3246 (1)	42.49	662 (3)	755 (9)	14.05	262 (12)	289 (12)	10.31
Rajasthan	1315 (8)	1997 (8)	51.86	582 (8)	853 (5)	46.56	370 (4)	525 (1)	41.89
Tamil Nadu	1561 (5)	2364 (6)	51.44	732 (1)	903 (3)	23.36	429 (1)	471 (3)	9.79
Uttar Pradesh	1098 (12)	1295 (13)	17.94	437 (14)	414 (13)	-5.26	285 (9)	269 (13)	-5.61
West Bengal	1011 (14)	1922 (10)	90.11	484 (10)	687 (10)	41.94	232 (14)	304 (11)	31.03

Note : 1. Figures in brackets indicate the rank of the state with respect to that indicator.  
2. Differences in the figures on Karnataka for the year 2001-02 are on account of use of differences in provisional population figures.

## Conclusion

What we have seen till now is a clear linkage between infrastructure and human development. This linkage has some very direct evidence and then many indirect ways in which infrastructure creation and maintenance at certain standards promotes and sustains human development growth, without roads, without basic power, without basic schools and health centers and without access to credit the poor are the most affected, as their areas are most infrastructure poor, their dependency on public provision of infrastructure is the highest and thus they are the most direct beneficiaries of public investment.

Infrastructure directly and most efficiently impacts poverty reduction and human development is that which is located where the poor live.

## References :

1. Ahluwalia, M.S (1997) "Infrastructure Development in India's Reforms: in India's

Economic Reforms and Development: edited by I.J. Ahluwalia and I.M.D Little, Oxford University Press, New Delhi.

2. Bajpai, ADN (1986) "Vicious circles of infrastructure development – A case study of Indian Economy", Southern Economist, Bangalore.
3. Bajpai, ADN (1995) "Linkages between infrastructure and economic development in Gaur (eds.) Development and planning, Sarup & Sons, Vol. 1, New Delhi.
4. Barro, Robert J (1991) "Economic Growth in a Cross – section of countries", Quarterly Journal of Economics, Vol. 106, No. 2, pp. 407- 43.
5. Canning, David, & Marianne Fay (1992) "Infrastructure and Economic Growth", Department of Economics, Columbia University, New York.
6. Government of India (1996) "India

- Infrastructure Report”, Department of Economic Affairs, Ministry of Finance, New Delhi.
7. Gowda, Srinivasa M. V. & B. G. Mamatha (1997) “Infrastructure: The concept, role, constraints & prospects – infrastructure development for economic growth, Deep & Deep Publications, New Delhi
  8. Khan N. A (2004) “Infrastructure for Economic Development: A comparative study of India and Malaysia”, Anmol Publications Private Limited, New Delhi.
  9. Munnell, A. H, (1990) “How does public infrastructure affect regional economic performance”, New England Economic Review, pp. 11-32, New Delhi.
  10. Saxena K. K & Satyananda Sahoo (1998) “Infrastructure and Economic Development: A case of Kanpur city”, Journal of Regional Sciences, Vol. 30 (1)
  11. Sen, A. K, (1966) “Economic Approaches to Education & Manpower Planning”, Indian Economic Review, New Series I.
  12. Sher Singh Somra (2004) “Issues in Economic Development”, RBSA Publishers, Jaipur.
  13. Srinivasa Gowda & Sasheela Subramanya (1997) “Infrastructure Development for Economic Growth”, Deep & Deep Publications, New Delhi.
  14. World Bank (1994) “World Development Report: Infrastructure for Development”, Oxford University Press, New York.

#### Appendix No. 1.1: Classification of Human Development in India 1981 – 2001

Years	Level of Human Development index		
	High	Medium	Low
1981	Nil	KER	PU, MAH, GUJ, HAR, KAR, TN, WB, AP, AS, OR, RAJ, UP, MP BIH
1991	Nil	KER	PU, MAH, GUJ, HAR, KAR, TN, WB, AP, AS, OR, RAJ, UP, MP BIH
2001	Nil	KER, PU, TN, MAH & HAR	KAR, WB, RAJ, AP, OR, MP, UP, AS & BIH

Note: Andhra Pradesh (AP), Assam (AS), Bihar (BIH), Gujarat (GUJ), Haryana (HAR), Karnataka (KAR), Madhya Pradesh (MP), Maharashtra (MAH), Orissa (OR), Rajasthan (RAJ), Tamil Nadu (TN)

Source: Planning Commission (2002) National Human Development Report 2001, GOI.

#### Appendix No. 1 : Status of India’s Human Development Indicators

Sl. No.	Indicators	Status
1.	Life Expectancy at Birth (year) 2007	64.4
2.	Adult Literacy Rate (%) 2007	62.8

3.	Combined Gross Enrolment Ratio for Primary, Secondary and Tertiary Schools 2008	61.1
4.	GDP Per Capita (PPP US \$) 2010	3,337
5.	Infant Mortality Rate (per 1000 births) 2008	52.0
6.	Under 5 Mortality Rate (per 1000 births) 2008	69.0
7.	Maternal Mortality Rate (per 1, 00,000 births) 2008	450
8.	Crude Birth Rate (per 1000 population) 2008	22.8
9.	Crude Death Rate (per 1000 population) 2008	6.2
10.	Life Expectancy Index (2007)	0.639
11.	Education Index (2007)	0.620
12.	GDP Index (2007)	0.591
13.	Human Development Index (out of 169 countries)	0.519
14.	Human Development Index (Rank)	119
15.	Human Development Group	Medium
16.	Gender Related Development Index	0.748
17.	Income Group	Low

Source : 1. UNDP (2010) Human Development Report 2007/08.  
2. GOI (2008) Economic Survey 2007/08, Planning Commission, New Delhi.

### Appendix No. 2 : Indicators of HDI in UNDP and NHDR

Attainments	UNDP Indicators	NHDR Indicators
Health	Life expectancy at birth	Life Expectancy at Age 1 & Infant Mortality Rate
Education	Adult literacy rate combined with enrolment ratio	Literacy Rate 7 + & Intensity of Formal Education
Income	Real GDP per capita in PPP \$	Per capita real consumption expenditure adjusted for inequality

### Appendix No. 3: Classification of Human Development Index for selected countries

Categories of HDI	HDI values	Countries
Very High Human Development countries	0.938 to 0.788	Norway, Australia, New Zealand, United States & Barbados
High Human Development countries	0.784 to 0.677	Bahamas, Lithuania, Chile, Algeria & Tonga
Medium Human Development countries	0.669 to 0.488	China, Srilanka, Maldives, India and Pakistan
Low Human Development countries	0.470 to 0.140	Kenya, Bangladesh, Ghana, Niger & Zimbabwe

# Electronic Revolution in India : Waste to Welfare

## ABSTRACT

The electronic-services have gained a wide range of attention and became an indispensable part of the majority of people and nations' life and living. This e-revolution has contributed positively to the production of large quantities of electrical/electronic waste known as (e-waste). Huge accumulation of e-waste and their recycling through primitive means for extraction of precious metals (including gold, silver etc) is real concern in the developing countries as e-waste contains hazardous metals. This negative side of the e-revolution in general has not gained much attention or to say that it is neglected by most of the people and nations alike. In India, e-waste management assumes greater significance not only due to the generation of its own e-waste but also because of the dumping of e-waste from developed countries. This paper discusses the e-waste from its generation phase to treatment. The paper focuses on India's current e-waste scenario, namely magnitude of the problem, environment and health hazards, current disposal and recycling operations (formal and informal), a model for every individual, existing legal framework and recommendations for action.

**Keywords :** Electronic Waste (e-waste), Electrical and Electronic Equipments (EEE), Polyvinyl Chloride (PVC) & Polychlorinated Biphenyls (PCBs)

## INTRODUCTION

The changing lifestyle of people, and increasing urbanization, has lead to increasing rates of consumption of electronic products. They are touching every aspect of our lives – the way we do business, keep in touch with family, bring up children or entertain ourselves. These electronic products have been widely used by corporate, households, government offices, public and private sectors, academic and research institutes. The improvement in the usage of electronic products especially computers and mobile phones

has contributed positively to produce large quantities of waste of electrical and electronic equipments (EEE) commonly known as electronic waste (e-waste). In the wake of 21st century e-waste revolution, looms a disaster that is sure to damage the quality of our lives and that of generations to come. The EEE are largely classified under three major heads as: 'White Goods', comprising of household appliances like air conditioners, dishwashers, refrigerators and washing machines; 'Brown Goods' comprising of TV's, camcorders, cameras, etc. and 'Grey Goods' comprising of computers, printers, fax machines,

*Dr. Shweta Arora : (Asst. Professor, Dept. Of Management) Ideal Institute of Technology, Ideal Nagar, Hapur Road, Govindpuram Ghaziabad-201301 (U.P), India*

scanners, etc. EEEs are made of a multitude of components some containing toxic substances that have an adverse impact on

human health and the environment, if not handled properly. **E-waste** is a loosely term used widely for the waste generated when

**Table – 1 List of E-waste Products**

Priority categories	E – waste products
Household Appliances	Air conditioners, clothes dryers, clothes washers, dishwashing machines, freezers, refrigerators, stove.
IT Equipment	CD-ROM, disk drives, computers (desktop, handheld, laptop, notebook, notepad), monitors (CRT, LCD, plasma), PDAs, keyboard, mouse terminals, printers, copiers, typewriters
Telecommunications equipment	Fax/telephone answering machine, modems, pagers, telephones (cell, cordless, wire)
Audio-Visual Equipment	Sound equipment, cameras, televisions, video player, projector and recorder

electronic and electrical appliances are discarded. It comprises waste electronics/electrical goods that are not fit for their originally intended use or have reached their end of life. This may include items such as computers, servers, mainframes, monitors, CDs, printers, scanners, copiers, calculators, fax machines, battery cells, cellular phones, transceivers, TVs, medical apparatus and electronic components besides white goods such as refrigerators and air-conditioners. E-waste contains valuable materials such as copper, silver, gold and platinum which could be processed for their recovery. However, the hazardous constituents present in the e-waste render it hazardous when such wastes are dismantled and processed.

**Under Rule 3, E-waste can be defined as “Waste Electrical and Electronic Equipment including all components, sub assemblies and their fractions except batteries falling under these rules. [1]**

**According to OECD (2001) E-waste has been defined as “any appliance using an electric power supply that has reached its end-of-life.” [2]**

Accurate Statistics on e-waste generation world wide is not available, but, on the individual basis, some countries have better statistics than others. Taking an example of the United States, as it is one of the largest countries that both consumes electronic products and produces e-waste. The statistics used are from the Environmental Protection Agency Report, EPA. According to the EPA report: 41.1 million Desktops & laptops (29.9 million desktops and 12 million laptops) were discarded in 2007, that's over 112,000 computers discarded per day. Estimates that 31.9 computer monitors were discarded in 2007, both flat panel and CRTs [3]. In a 2006 report, the International Association of Electronics Recyclers projects that with the current growth and obsolescence rates of the various

categories of consumer electronics, (a broader list than the EPA used above, including DVDs, VCRs, mainframes) somewhere in the neighbourhood of 3 billion units will be scrapped during the rest of this decade, or an average of about 400 million units a year [4]. Every year globally, around 20 to 50 million metric tones of e-waste are generated comprising more than 5% of all municipal solid waste. Overall, between 2005 and 2006, total volumes of municipal waste increased by only 1.2%, compared to 8.6% for e-waste (for the US). In 2007, U.S. generated 3.01 million tons of e-waste according to the EPA report [5]. Globally e-waste generation is growing by about 40 million tons a year and more than 1 billion mobile phones were sold in 2007, up from 896 million in 2006. It is worth to note that Manufacturing mobile phones and personal computers consumes 3 per cent of the gold and silver mined worldwide each year; 13 per cent of the palladium and 15 per cent of cobalt. [6]

Studies so far revealed that the total e-waste generation in India is approximately 1, 46,000 tonnes to 3.3 lakh tonnes a year and is expected to touch 4.7 lakh tonnes by 2011. The projected growth of e-waste generation for India is about 34 percent year on year basis. [7] Besides the domestic e-waste generated, an additional 50,000 MT a year is illegally imported into the country. In a single month, there is a reported case of import of 30 MT of e-waste at the Ahmadabad port. [8]

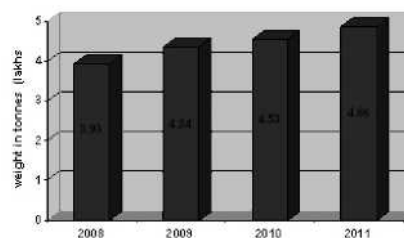
### E-waste and India

The problem of e-waste arises when the used electronic devices and house hold appliances such as computers, mobile phones, personal stereos and large household appliances such as

refrigerators; air conditioners etc reach their end of life.

The electronics industry has emerged as the fastest growing segment of Indian industry both in terms of production and exports. The share of software services in electronics and IT sector has gone up from 38.7 per cent in 1998-99 to 61.8 percent in 2003-04. A review of the industry statistics shows that in 1990-91, hardware accounted for nearly 50% of total IT revenues while software's share was 22%. The scenario changed by 1994-95, with hardware share falling to 38% and software's share rising to 41%. This shift in the IT industry began with liberalization, and the opening up of Indian markets together with which there was a change in India's import policies vis-à-vis hardware leading to substitution of domestically produced hardware by imports. Since the early 1990s, the software industry has been growing at a compound annual growth rate of over 46% (supply chain management, 1999). Output of computers in value terms, for example, increased by 36.0, 19.7 and 57.6 per cent in 2000-01, 2002-03, and 2003-04, respectively. Within this segment, the IT industry is prime mover with an annual growth rate of 42.4% between 1995 and 2000. By the end of financial year 2005-06, India had an installed base of 4.64 million desktops, about 431 thousand notebooks and 89 thousand servers. According to the estimates made by the Manufacturers Association of Information Technology (MAIT) the Indian PC industry is growing at a 25% compounded annual growth rate. The e-waste inventory based on this obsolescence rate and installed base in India for the year 2005 has been estimated to be 146180.00 tonnes. [9]

**Figure – 1 E-waste growth in India**



Source : Toxics Link Website

According to a recent report, India in 2007 generated 380,000 tonnes of e-waste from discarded computers, televisions and mobile phones and imports another 50,000 tonnes. This is projected to grow to more than 800,000 tonnes by 2012 with a growth rate of 15 %.[10] A report issued in year 2010 estimates e-waste generation in India is around 1,00,000 tonnes from

refrigerators, 2,75,000 million tonnes from TV's, 56,300 tonnes from personal computers, 4,700 tonnes from printers and 1,700 tonnes from mobile phones [11]. The statistics collected by Manufacturers' Association for Information Technology (MAIT) on the growth of electronics and IT equipment in India shows some interesting facts which are as follows: [12]

**Table 2 Sales figure for consumer electronics in India**

Item	2005-06	2006-07	2007-08
Desktop	4.61472	5.49059	5
Notebook	0.43183	0.85086	1.82213
Washing Machine	1.68	1.70	1.95
Mobile	41.9	66.5	93.0
TV	10.3	11.7	14.8
Refrigerator	4.36	4.79	5.27

1. The PC sales were over 7.3 million units during 2007-08, growing by 16 per cent. It has an installed base of over 25 million units.
2. The consumer electronics market is growing at the rate of 13-15 per cent annually. It has an installed base of 120 million TVs.
3. The cellular subscriber base was up by 96.86 per cent during 2007-08. Its installed base is estimated to cross 300 million mark by 2010.

According to an another report prediction (issued at the meeting of Basel Convention in Bali, Indonesia) by 2020 e-waste generation will increase by 500 percent from old computers, by 18 times higher from mobile phones and doubled or tripled from discarded refrigerators.[13]

Of the total e-waste generated in India, western India accounts for the largest population at 35 percent while the southern, northern and eastern regions account for 30, 21 and 14 percent respectively. The top states in order of highest contribution to e-waste include Maharashtra, Andhra Pradesh, Tamil Nadu, Uttar Pradesh, West Bengal, Delhi, Karnataka, Gujarat, Madhya Pradesh and Punjab. The city-wise ranking of the

largest e-waste generators is Mumbai, Delhi, Bangalore, Chennai, Kolkata, Ahmadabad, Hyderabad, Pune, Surat and Nagpur. [14] Total e-waste generation in Maharashtra is 20,270.6 tonnes, of which Navi Mumbai contributes 646.48 tonnes. Greater Mumbai 11,017.06, Pune 2584.21 tonnes and Pimpri-Chinchwad 1032.37 tonnes. An estimated 30,000 computers become obsolete every year from IT industry in Bangalore alone. Mumbai the financial nerve-centre of India, alone throws away 19,000 tonnes of e-waste a month, excluding the large e-waste it imports from developed nations through its port.

Home to more than 1200 foreign and domestic technology firms, Bangalore figures prominently in the danger list of cities faced with e-waste hazard. As many as 1000 tonnes of plastics, 300 tonnes of lead, 0.23 tonnes of mercury, 43 tonnes of nickel and 350 tonnes of copper are annually generated in Bangalore. [15] While on the basis of scrap handled by the Delhi-based scrap dealers, their total number of personal computers (PCs) meant for dismantling would be around 15,000 per year. This figure does not include PCs handled by large dealers who get scraps from foreign sources. [16]

### Hazardous Found in e-waste

E-waste contains over 1,000 different substances and chemicals, many of which are toxic and are likely to create serious problems for the environment and human health if not handled properly. However, classification of e-waste as hazardous, or otherwise, depends on the amount of hazardous constituents present in it. The composition of e-waste is very diverse and differs in products across different categories. These categories may fall under two major headings hazardous and non-hazardous categories. Broadly, it consists of ferrous and non-ferrous

metals, plastics, glass, wood and plywood, printed circuit boards, concrete and ceramics, rubber and other items. Iron and steel constitutes about 50 percent of the e-waste followed by plastics (21 percent), non-ferrous metals (13 percent) and other constituents. Non-ferrous metals consist of metals like copper, aluminium and precious metals, e.g. silver, gold, platinum, palladium etc. the presence of elements like lead, mercury, arsenic, cadmium, selenium and hexavalent chromium and flame retardants beyond threshold quantities in e-waste classifies them as hazardous waste. [17]

**Table – 3 Hazardous components in E-waste**

E-waste	Components
Circuit Boards	Lead and Cadmium
Monitor Cathode Ray Tubes	Lead Oxide and Cadmium
Switches and Flat Screen Boards	Mercury
Computer Batteries	Cadmium
Older Capacitors and Transformers	Polychlorinated Biphenyls (PCBs)
Printed Circuit Boards	Brominated Flame Retardants
Plastic Casings, Cables and Polyvinyl Chloride (PVC) Cable	Dioxins and Furans
Motherboard	Beryllium
Semi-Conductors	Cadmium
Front Panels of CRTs	Barium, Phosphorus and Heavy Metals

**Table – 4 Effect of E-waste on human health and environment**

Pollutant	Health Effects	Environmental Effects
Lead (Pb)	Impairs the normal intellectual development, learning ability of children, behavioural problems, coma and even death, damage to the circulatory system and kidney, central and peripheral nervous systems, blood systems.	Ground water pollution and particulates in air, causes high acute and chronic effects on plants, animals and microorganisms.
Cadmium	Accumulates in kidney and liver, causes neural damage and irreversible effects on human health	

Lead Oxide	Causes harm to the unborn child, Harmful by inhalation/ harmful if swallowed	
Mercury	Chronic damage to the brain, respiratory and skin disorders due to bioaccumulation in fishes. Sore throat, coughing, pain or tightness in the chest, headache, muscle weakness, anorexia, gastrointestinal disturbance, fever, bronchitis and pneumonitis are symptoms of mercury toxicity	
Polychlorinated Biphenyls (PCBs)	Causes cancer, effects on the immune system, reproductive system, nervous system, endocrine system and other health effects	
Brominated Flame Retardants	Disrupt endocrine system functions	
Dioxins and Furans		
Beryllium	Cause lung cancer, inhalation of fumes and dust causes chronic beryllium disease or beryllicosis	
Barium, Phosphorus and Heavy Metals	Causes brain swelling, muscle weakness, damage to the heart, liver and splee.	

### Government Actions and Policies Related to E-waste

In order to cope with the challenges of resource consumption, and to enforce waste minimization and reduce pollution, different policies are being evaluated, developed, and implemented on different levels.

The Policy Statement on the Abatement of Pollution issued by the government of India in 1992 reiterated the commitment of the government of India towards Waste Minimization and Control of Hazardous Wastes. Hazardous Waste Management and Handling Rules (2000), as amended. The HW Rules of 1989 also control the import of hazardous wastes from any part of the world into India. Under the HWM Rules of 1989, the MoEF and the SPCB are the two recognised statutory organizations to ensure effective approval of import of hazardous wastes in the country. The Rules also require that

hazardous wastes be packed and labelled during transport and that they will be deposited in waste disposal sites selected by the state government after an environmental impact assessment study. Under section 11, application for import of the hazardous wastes is processed by the concerned by the respective SPCB before providing license. Under the new amendment of HWM Rules of 2000, List A and B of the Basel convention were introduced as Schedule 3 of the HWM Rules including the provisions relating to illegal traffic.

The newly amended Hazardous Waste Rules lay down stringent curbs on imports and exports of hazardous wastes. The amended rules say that hazardous metal and non-metal wastes arriving in India will be treated as illegal if it is found that proper permission for the purpose was not obtained from the relevant authorities. In such cases, the material will be shipped back within 30 days to the exporter or exporting country or shall

be disposed of within 30 days from the date of off landing in case the re-export is not possible. Any importer wishing to import hazardous wastes must fill in the necessary information in Form 6 along with a fee of Rs. 30,000 for imports of up to 500 tonnes (extra Rs. 5000 for every additional 500 tonnes) to the SPCB/CPCB 125 days in advance.

As per Rule 11 of HW Rules of 1989, import of wastes from any country to India shall not be permitted for dumping and disposal. However, import of such wastes may be allowed for processing or reuse as raw material, after each case has been examined on merit by the State Pollution Control Board. The SPCBs will examine applications from importers and forward such applications with its recommendations and requisite stipulations for

safe transport, storage and processing/ disposal to the MoEF. As per the HW Rules, 1989/2000, permissions to importers / exporters will be granted by the MoEF only, under Rules 13 (3) and 14 (3). Under Rule 13 (3), which applies to hazardous wastes into India, the MoEF must satisfy itself that the importer has environmentally friendly / appropriate technology for reprocessing; that the importer has the capability to handle and reprocess hazardous wastes in an environmentally sound manner; and that the importer has adequate facilities for treatment and disposal of wastes generated. Under Rule 14 (3), the MoEF must also consider and approve applications sent by exporters of consignments of hazardous wastes to India (Rule 11 of the unamended HW Rules, 1989).

**Table - 5 Schedule 4 of the HW Rules, 1989/2000**

S. No.	Authority / (ies)	Duties and Corresponding Rule
1.	Ministry of environment and forests, under the Environment (protection) Act, 1986.	I. Identification of hazardous wastes as per rule 3. ii. Permission to exporters as per rule 14 (3) iii. Permission to importers as per rule 13 (3)
2.	Central Pollution Control Board constituted under the Water (Prevention and Control of Pollution) Act, 1974	I. Coordinate activities of the state pollution control Boards and ensure implementations of the conditions of imports. ii. Monitor the compliance of the conditions of authorization, import and export. iii. Conduct training courses for authorities dealing with management of hazardous wastes. iv. Recommend standards for treatment, disposal of waste, leachate and specifications of materials. v. Recommend procedures for characterisation of hazardous wastes.
3.	State Pollution Control Boards constituted under the Water (Prevention and Control of Pollution) Act, 1974	I. Grant and renew authorisation under rule 5(4) and rule 8. ii. Monitor the compliance of the various provisions and conditions of authorisation. iii. Forward the application for imports by importers as per rule 13(1). iv. To review matters pertaining to identification and notification of disposal sites.

4.	Directorate General of Foreign Trade constituted under the Foreign Trade (Development & regulation) Act 1992	I. Grant licence as per rule 13(5). ii. Refuse licence for hazardous wastes prohibited for imports under the Environment (protection) Act, 1986.
5.	Port Authorities and Customs Authorities under the customs Act, 1962	I. Verify the documents as per rule 13(6). ii. Inform the ministry of Environment and Forests, Govt. of India of any illegal traffic as per rule 15. iii. Analyse wastes permitted for imports and exports. iv. Train officials on the provisions of the Hazardous Wastes Rules and in analysis of hazardous wastes.

The following are the major amendments of the Hazardous Waste (Management & Handling) Rule made in the year 2000 :

- The schedule listing 18 categories of wastes in the Hazardous Wastes (Management & Handling) Rules, 1989 has now been replaced by 3 schedules.
  - Schedule 1 describes the processes and waste streams generating hazardous waste. Units operating these processes are now subject to the rules.
  - Schedule 2 lists the concentration limits of constituents in the wastes. This concentration limit is to be used for classification/characterisation of waste stream as hazardous/non-hazardous in case of dispute.
  - Schedule 3 provides a separate list of wastes subject to export and import, similar to the Basel Convention Annexes VIII and IX
- Responsibility for the identification of sites for establishment of Common Treatment, Storage and Disposal Facilities (CTSDF) and individual TSDF now rests with the occupier, industrial association and the State Government alone.
- Provisions relating to the import and export of hazardous waste for recycling has been expanded to describe in detail the procedure being followed. Requirements of the re-export of illegal traffic of waste under the

Basel Convention have also been incorporated

- Rules have been worked out governing the design, set-up and closure of landfill facilities.
- A manifest system has been introduced for tracking hazardous waste from the point of generation to the disposal site
- Authorities responsible for the regulation of imports and exports and monitoring the implementation of provisions of the rules have been mentioned in schedule 4, and
- A fee for authorisation and import has been prescribed

The Basel Convention on the control of Transboundary Movement of Hazardous Wastes and Disposal was signed by India on 15th March 1990 ratified and acceded to in 1992. A ratification of this convention obliges India to address the problem of transboundary movement and disposal of dangerous hazardous wastes through international cooperation. However, as per the Basel Convention India cannot export hazardous waste listed in Annex VIII of the Basel Convention from the countries that have ratified the ban agreement. However, the convention agreement does not restrict the import of such wastes from countries that have not ratified the Basel Convention. It is through the orders of the Hon. Supreme Court that the import of such wastes is now banned in the country.

Batteries (Management and Handling) Rules, 2001 apply to every manufacturer, importer, re-conditioner, assembler, dealer, recycler, auctioneer, consumer and bulk consumer involved in manufacture, processing, sale, purchase and use of batteries or components thereof. These rules confer responsibilities on the manufacturer, importer, assembler and re-conditioner; they govern the registration of importers, the customs clearance of imports of new lead acid batteries, procedures for registration/ renewal of registration of recyclers and also the responsibilities of consumer or bulk consumer and responsibilities of auctioneers.

Registration Scheme : for users of hazardous waste recyclers possessing EST and ESM facilities for disposal of wastes. With effect from December 31, 1999, the auction of old/used lead-acid batteries and non-ferrous metals shall be regulated. Only those enlisted will be allowed to participate in auctions. These participants also need to possess valid consents under

A) Water (Prevention and Control of Pollution) Act 1974,

B) Air (Prevention and Control of Pollution) Act, 1981

C) Hazardous Waste (Management & Handling) Rules 1989, and

D) Comply with the standards under the Environment (Protection) Act, 1986

Criterion documents: in order to facilitate implementation of Solid Waste regulation the following documents have been issued by the MoEF/CPCB:

- Guidelines for management of hazardous wastes - MoEF 1992
- Guidelines for setting up of operating facilities -
- Ready Reckoner for Hazardous Waste Management - 1998
- Criterion for Hazardous Waste landfills - 2000
- Code of practice for environmentally sound management of lead acid batteries, zinc ash/skimmings & waste oil - CPCB June 2000 [18]

Table – 6

Organizations/ Networks working on E-waste Issues	
Within India	International Networks
<p>1. Knowledge bank for e-waste management in India [19]: the Asia Pro Ecoprogramme supported by the European commission is dedicated to the environmental performance in Asian Economic sectors through the exchange of environmental policies, technologies and practices and to promote sustainable investment and trade between the European Union Member States and South Asia, South-East Asia and China.</p> <p>2. The E-waste Guide, India (www.ewaste.in): An initiative of the Indo-German-Swiss Partnership [Ministry of Environment and Forests, German Federal Ministry for Economic Cooperation and Development and Swiss state Secretariat for Economic Affairs] It is deigned to serve as an information resource on e-waste as well as a</p>	<p>1. Silicon Valley Toxics Coalition: Formed in 1982, located in San Jose, California, it is a diverse grassroots coalition that engages in research and advocacy and is organised around the environmental and human health problems caused by the rapid growth of the high-tech electronics industry. The coalition has built a united campaign of allies, including community residents, consumers, electronics and technology workers and government policy makers to raise the environmental consciousness and performance of the high-tech sector.</p> <p>2. The Basel Action Network (BAN): A global network of toxics and development activist organizations that share a vision of international environmental justice. The network seeks to prevent all forms of 'toxic trade' – in toxic wastes,</p>

common collaborative work platform for stakeholders.

3. National Solid Waste Association of India (NSWAI) ([www.nswai.com](http://www.nswai.com)): A leading professional non-profit organization in the field of solid-waste management, including toxic and hazardous waste and also biomedical waste in India. It was formed in 1996. Its objective include development of solid waste management as a profession, research and development, development of expertise, standards and goods practices with regards to solid-waste management. Some of the others include improvement in legislation and creating awareness and community involvement.
4. Toxic Link ([www.toxiclnk.org](http://www.toxiclnk.org)): A Delhi based environment activist group with a mission of working for environmental justice and freedom from toxics. It is also actively involved in creating public awareness on environmental issues through publications, reports, articles and environment news bulletins besides organizing various events.
5. Others are STEP Workweb, WEEE forum, Clean India, India Environmental Society, INDIA HABITAT CENTRE and Microbial Biotechnology Area of Tata Energy Research Institute.

toxic products and toxic technologies. It works to prevent the globalization of the toxic chemical crisis. BAN is administered by the secretariat services of the Asia-Pacific Environmental Exchange (APEX) based in Seattle, Washington, USA; APEX is an activity of the tides centre.

3. Others are the International Solid Waste Association: Solid Waste Association of North America, Environmental Protection Agency, etc.

Currently E-waste in India is covered under the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008. The existing Hazardous Waste Rules was primarily drawn up to address issues of waste generated in industrial processes and is inadequate to cover issues specific to E-waste. The Government, after prolonged deliberation, issued a Guideline for safe management of E-waste in the country. The guideline is a voluntary instrument and largely attempts to address the technological gap. While the guideline was a welcome step, it did not provide the requisite drivers for changing the ground situation. The voluntary nature of the guideline was a limiting factor as it failed to provide a level playing field to brands and trigger significant actions.

Stakeholders' discussions suggested that a

mandatory regulation specific to E-waste would be the most desirable way forward. A core group comprising of Toxics Link, Green Peace, Manufacturers Association Of Information Technology and GTZ took the lead and drew up draft Rules. These Rules broadly encompass the framework of Extended Producer's Responsibility and Restriction on use of Hazardous Substances. The draft Rules have since been submitted to the Ministry of Environment and Forests who have committed to finalizing the rules expeditiously

### Management of E-Waste – 3R

The disposal of e-waste is a particular problem faced in many regions across the globe. Environment and human health is affected by e-waste. It takes up space in the communities; it invades and is very harmful to humans, animals

and every living creature on earth. It is a matter of concern mainly due to the toxicity and carcinogenicity of some of the substances if processed improperly. Few decades back, the amount of waste generated was considered small enough to be diluted in the environment, thus landfilling of e-waste is the best option to dispose it but with massive growth of electronics and hardware sector, the demand of the electronic products has been enhanced manifold. This has caused generation of e-waste alarmingly. To deal with the ever-growing issue of this new type waste various solutions in form of models and efforts are underway globally, some of such solutions are as follows :

3R stands Reduce, Reuse & Recycle. Recycle can be divided under two major heads informal recycle (no use of sophisticated technology) and formal recycle (sophisticated technology).

**Reduce :** The best option for dealing with E wastes is to reduce the volume. Designers should ensure that the product is built for re-use, repair and/or upgradeability. Stress should be laid on use of less toxic, easily recoverable and recyclable materials which can be taken back for refurbishment, remanufacturing, disassembly and reuse. Recycling and reuse of material are the next level of potential options to reduce e-waste (Ramachandra and Saira, 2004). [20] Recovery of metals, plastic, glass and other materials reduces the magnitude of e-waste. These options have a potential to conserve the energy and keep the environment free of toxic material that would otherwise have been released. It is high time the manufactures, consumers, regulators, municipal authorities, state governments, and policy makers take up the matter seriously so that the different critical elements like eco-labelling, safe disposal of hazardous substances, safety of the workers etc are addressed in an integrated manner. It is the need of the hour to have an “e waste-policy” and national regulatory frame work for promotion of such activities. An e Waste Policy is best created by those who understand the issues. So it is best

for industry to initiate policy formation collectively, but with user involvement.

**Reuse :** Many discarded machines contain usable parts which could be salvaged and combined with other used equipment to create a working unit. It is labour intensive to remove, inspect and test components and then reassemble them into complete working machines. Moreover, obsolete devices from industrialised countries can find their way to developing countries, where old computers and cell phones are often used for a few more years. For instance, out of nearly 5 million PCs in India, 1.38 million are either model 486s (thus, some eight years old) or even older. Re-use is a good way to lengthen a product's life-span. But in India, as in other developing countries, it means that a vast amount of equipment will soon be added to the waste stream. Rich countries, dumping their old devices in developing countries - sometimes legally as "charity", sometimes illegally as waste - are thus liberating themselves of the waste disposal problem.

**Recycle :** The electronic waste recycling was considered to be profitable business in the western countries till the recent past. Appropriate technologies as well as adequate infrastructures are available in developed countries to process the end-of-life electronic products to extract precious metals to the best possible yields. The consumers support financially to the recycling activity in western countries in the form of EPR (Extended Producers Responsibility). Though, it is observed that the e-waste recycling is becoming non-viable in the developed countries due to following reasons :

- (I) The profitability of the e-waste recycling business depends on the recovery percentage of the precious metals including gold, silver, palladium, tantalum, platinum, etc., which are present in very low percentages or in traces. While recycling is done through automated methods, the precious metals are often lost in the bulk of other less valuable

metal dust and plastics particles.

- (ii) Electronics devices are being continuously modified, improvised and miniaturized through technological developments and advancement of materials research. The design of the PCBs is also being modified and sizes are also drastically reduced. The precious metals contain in the PCBs are thereby reducing with these modernization and miniaturisations.
- (iii) The advancement of material research is also replacing conventional usages of gold, silver, copper and other precious metals (tantalum, palladium, platinum etc.) without compromising the functionality. This reduces the cost of the products drastically. The recovery of precious metals from PCBs of modern electronics devices are reducing compare to the historical PCBs. These reduce the profit margin of the recycling business and thereby recycling business is being shifted to the countries like China, India and Brazil.

In India, there are 2 ways to recycle e-waste **informal recycle** and formal recycle. Informal recycling procedure includes kawaries, scrap dealers, whole sellers, recyclers etc. informal recycling is nothing, but extracting metals and other reusable components with no use of any sophisticated technology or machinery, personal protective equipments and extra skill. However, all the work is done by bare hands and only with the help of hammers and screwdrivers. Children and women are routinely involved in the operations. Waste components which does not have any resale or reuse value are openly burnt or disposed off in open dumps. Pollution problems associated with such backyard smelting using crude processes are resulting in fugitive emissions and slag containing heavy metals of health concern. CRT breaking operations result in injuries from cuts and acids used for removal of heavy metals and respiratory problems due to shredding, burning etc. They use strong acids to

retrieve precious metals such as gold. Working in poorly ventilated enclosed areas without masks and technical expertise results in exposure to dangerous and slow poisoning chemicals. Polychlorinated biphenyls (PCBs) in older capacitors and transformers; and brominated flame retardants on printed circuit boards, plastic casings, cables and polyvinyl chloride (PVC) cable insulation can release highly toxic dioxins and furans when burned to retrieve copper from the wires.

On a broader scale, analyzing the environmental and societal impacts of e-waste reveals a mosaic of benefits and costs (Alastair, 2004). [21] Proponents of e-waste recycling claim that greater employment, new access to raw materials and electronics, and improved infrastructure will result. These will further boost the region's advance towards prosperity. Yet the reality is that the new wealth and benefits are unequally distributed, and the contribution of electronics to societal growth is sometimes illusory. Most e-waste "recycling" involve small enterprises that are numerous, widespread, and difficult to regulate. They take advantage of low labor costs due to high unemployment rates, internal migration of poor peasants, and the lack of protest or political mobilization by affected villagers who believe that e-wastes provide the only viable source of income or entry into modern development pathways. They are largely invisible to state scrutiny because they border on the informal economy and are therefore not included in official statistics. The process of informal recycling includes following steps :

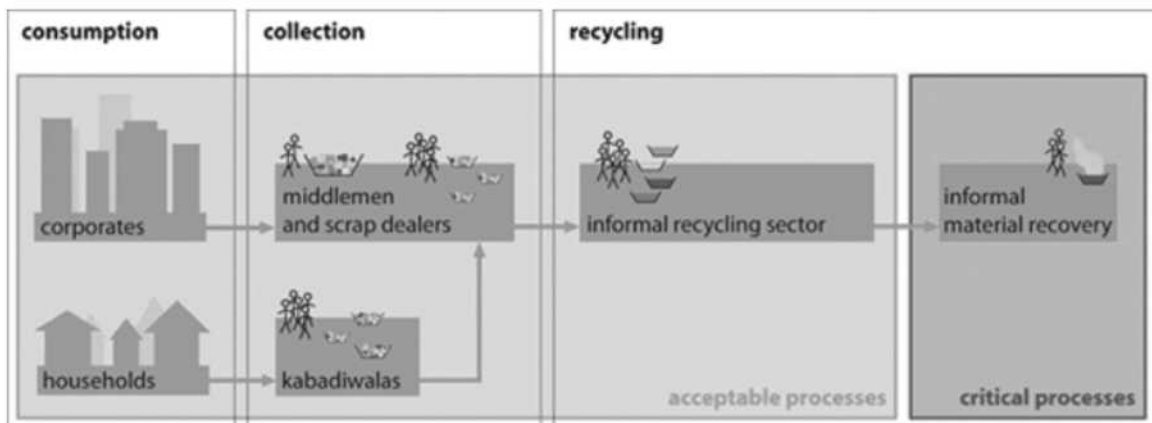
1. Collection : kawaries, small scrap dealers collect the e-waste from consumers with suitable compensatory price.
2. Segregation : collected e-waste from diversified sources is segregated in various categories such as components, modules, metals, glass and plastics depending on the saleability for highest economic returns.
3. Disassembly : The disassembly methods

would be of two types, non-destructive and destructive. Non-destructive recovers the certain disassembled parts for reuse while the destructive disassembly separates each material type for recycling processes. Non-destructive method is not feasible as designs of the products are changing very fast, new functionalities are being added. The composition of various electronic components has also gone a significant change in last few decades, which makes majority of de-soldered components obsolete for re-use.

4. Reuse/recycle: The Kawaries and the scrape dealers sell all the dismantled and segregated parts of metal, glass and plastics to

metal/glass smelters and plastic re-processor who specialize in converting these scrap of coppers, aluminium, iron, glass and plastics. Non-formal units have lack of knowledge of the processes of smelting/ reprocessing and, therefore, prefer to sell such scrap. Thus, they play an important role in proper recycling a large quantum (around 95%) of e-waste in reuse chain without harming environment. Therefore, out of the total e-waste, 95% of e-waste can easily be managed by the non-formal sector without polluting the environment and the rest 5% of e-waste actually consists of PCBs/Connectors, which need environmentally friendly recycling means to manage.

Figure – 1 Informal Recycling of E-waste



**Formal recycling** : Environmentally sound recycling of e-waste requires sophisticated technology and processes, which are not only very expensive, but also need specific skills and training for the operation. Proper recycling of complex materials requires the expertise to recognize or determine the presence of hazardous or potentially hazardous constituents as well as desirable constituents (i.e. those with recoverable value), and then be able to apply the company’s capabilities and process systems to properly recycle both of these streams. Appropriate air pollution control devices for the fugitive and point source emissions are required. Guidelines

are to be developed for environmentally sound recycling of E Wastes. Private Sectors are coming forward to invest in the e-waste projects once they are sure of the returns. Of these, "E-Parisaraa" is a project supported by the Indo-German e-waste initiative. The pilot project to manage e-waste without causing ecological damage has been set up with the backing of the Karnataka State Pollution Control Board in Bangalore city, which would like to see the project replicated in other cities of the country as well. The business model is simple. Most software firms in Bangalore city have agreements with E-Parisaraa to collect their e-waste. E-Parisaraa pays these firms for the e-

waste and brings it to their processing facility at Dobbespeth in the outskirts of the city. What makes E-Parisaraa different is that unlike the backyard handling of e-waste, there is no melting involved in the sorting. The waste enters the disassembly-line process where it is dismantled and sorted in plastics, rubber and metal sheets. The leftover printed circuit boards and glass items such as tube lights and picture tubes go to the next stage where they are then cut into strips and powdered

### A Model for Every Individual

To solve the problem of e-waste every individual should step forward right from the consumers to scrap dealers and finally to recyclers. Therefore, the model proposes that every house should maintain 2 dustbins one for organic waste and other for non-organic (e-waste), which will be collected by scrap dealers, kabadiwalas and kudewalas. E-waste should be disassembled by the kabadiwalas, scrap dealers etc and via non destructive methods various metals should be extracted by them and further channelized the rest waste to professionals smelters and in this way metals like gold, silver etc can be extracted safely and without harming the environment. Thus, in this way every individual can contribute to solve the problem of e-waste and everyone will be benefited without harming the environment.

### Suggestions

1. Technical intervention: the solution of e-waste lies in prevention at the manufacturing source or the precautionary principle. This can be done by employing waste minimization techniques and by a sustainable product design.
2. Policy level intervention: the government should come up with proper definition of e-waste, import and export regulatory regime and policies to manage e-waste. This is the time when society is demanding a separate set of rules to guide and control the issues of e-waste.
3. Producer intervention: a producer must be responsible for entire lifecycle of their products. It is the duty of the producer to take back the product at the end of the life of the product. Wipro infotech has launched an e-waste disposal service for end customers. Other offering recycling options include Dell, HP and Apple.
4. Awareness building: the current awareness regarding the existence and dangers of e-waste are extremely low, partly because the e-waste generated is not as large as in developed countries. Thus, while buying electronic products, opting for those that includes less toxic constituents and building consumer awareness through public awareness campaigns is a crucial point that can attribute to a new responsible kind of consumerism.

### Conclusion

India is placed in a very interesting position. The need of the hour is an urgent approach to the e-waste hazard by technical and policy level interventions, implementation and capacity building and increase in public awareness such that it can convert this challenge into an opportunity to show the world that India is ready to deal with future problems and can set global credible standards concerning environmental and occupational health. Thus, there is an urgent need to improve e-waste management covering technological improvement, institutional arrangement, operational plan, protective protocol for workers working in e-waste disposal and, last but not the least, education of general population about this emerging issue posing a threat to the environment as well as public health.

### References

1. Ministry of Environment & Forests (2008), Guidelines for Environmentally Sound Management of E-waste, Central Pollution Control Board, Delhi.

2. OECD (2001). *Extended Producer Responsibility: A Guidance Manual for Governments*, Paris, OECD.
3. US Environmental Protection Agency, July 2008. "Electronic Waste Management in the United States, Approach 1" <http://www.epa.gov/osw/conserves/materials/ecycling/docs/app-1.pdf>
4. International Association of Electronics Recyclers Industry Report, 2006. Available at <http://www.iaer.org/communications/indreport.htm>
5. United States Environmental Protection Agency, Office of Solid Waste, November 2008. "Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2007." Data is from Characterization Data Tables 12 – 14, beginning on page 71. Report: <http://www.epa.gov/osw/nonhaz/municipal/pubs/msw07-rpt.pdf>
6. Environment News Service (2010), Smart centres planned to recycle mountains of Toxic E-waste, NUSA DUA, Bali Indonesia. <http://www.ens-newswire.com/ens/feb2010/2010-02-23-01.html> [last accessed on April, 20, 2011]
7. Kukday K. Making profit for mining of e-waste. Available from <http://timesofindia.indiatimes.com/articleshow/2107581.cms> [last accessed on June 1, 2008]
8. Scrapping the high-tech myth: computer waste in India. Published in *Toxics Link* 01/02/2003. Available from <http://www.toxiclink.org/pub-view.php?pubnum=37>. [last accessed on 2008, Jan 1]
9. E-waste: Indian Scenario, e-process house, Mumbai. [http://eprocesshouse.com/index.php?option=com\\_content&view=article&id=12&Itemid=12](http://eprocesshouse.com/index.php?option=com_content&view=article&id=12&Itemid=12) retrieved on 30/03/2011.
10. Business standard (2008), MAIT-GTZ study on Assessment of e-waste in India, India
11. United Nations University (2010, February 23). Hazardous e-waste surging in developing countries. *ScienceDaily*. Retrieved May 1, 2011, from <http://www.sciencedaily.com/releases/2010/02/100222081911.htm>
12. Environment (2010), E-waste management in India, Article Base, retrieved March, 30, 2011, from <http://www.articlesbase.com/self-help-articles/e-waste-management-in-india-2691835.html>
13. Environment News Service (2010), Smart centres planned to recycle mountains of Toxic E-waste, NUSA DUA, Bali Indonesia. <http://www.ens-newswire.com/ens/feb2010/2010-02-23-01.html> [last accessed on April, 20, 2011]
14. e-waste guide. Available from: <http://www.ewaste.in>. [Last accessed on 2008, Jan 1]
15. Scrapping the high-tech myth: computer waste in India. Published in *Toxics Link* 01/02/2003. Available from: <http://www.toxiclink.org/pub-view.php?pubnum=37>. [Last accessed on 2008, Jan 1]
16. Kukday K. Making profit for mining of e-waste. Available from <http://timesofindia.indiatimes.com/articleshow/2107581.cms> [last accessed on June 1, 2008]
17. Available from: <http://www.cpcb.nic.in/Electronic%20Waste/Chapter1.html>. Available from: <http://www.cpcb.nic.in/Electronic%20Waste/Chapter2.html>. [Last accessed on 2008 Jan 1]
18. e-waste guide. The Political Framework in

India - Impacts on the E-waste Recycling System. Available from: [http://ewasteguide.info/the\\_political\\_framework\\_in\\_india\\_impacts\\_on\\_the\\_e\\_waste\\_recycling\\_system](http://ewasteguide.info/the_political_framework_in_india_impacts_on_the_e_waste_recycling_system) [Last accessed on 2011 April 30]

19. Available from: <http://www.ewasteproject.org/links.htm>. [Last accessed on 2008 Jan 1]
20. Ramachandra T.V and Saira V. K. (2004)

Environmentally sound options for waste management, *Envis Journal of Human Settlements*, March 2004.

21. Alastair I. (2004) *Mapping Environmental Justice in Technology Flows: Computer Waste Impacts in Asia* Global Environmental Politics 4:4, Massachusetts Institute of Technology.



## BOOK REVIEW

**Written by** : Richard St. John  
**Publishers** : Embassy Books  
**Pages** : 216  
**Chapters** : 8  
**ISBN** : 13: 978-93-80227-88-7  
**Version** : First Indian Edition 2011

Being an Academician and an HR Trainer, I've always found people searching for success principles which could chart the blueprint for their success in life.

This valuable book is for all of us who want success and also want to enjoy its fruits in the same life and not just waste the whole life in search of real success!! This book has come as a real help.

### About the author

The Author RICHARD ST. JOHN is a success analyst, author, and speaker, but in his early years, he was far from being a success. In his quest for the answer to the question "What really leads to Success?", he spent 10 years doing face-to-face interviews with over 500 successful people. His database contained over 300 possible success factors, and under each were all the comments from people saying how that factor helped them succeed. After adding up the number of comments under each, there turned out to be 8 factors that more people said helped them succeed than anything else.

1. **PASSION** : Successful people love what they do.
2. **WORK**: They work very hard.
3. **FOCUS** : They focus on one thing, not everything
4. **PUSH**: They keep pushing themselves.
5. **IDEAS**: They come up with good ideas.
6. **IMPROVE** : They keep improving

themselves and what they do.

7. **SERVE** : They serve others something of value.
8. **PERSIST** : They persist through time, failure and adversity.

### About the book

The Author calls these 8 traits the "8 To Be Great" because they are the foundation for success and greatness in any field.



This book spreads through eight chapters. Each Chapter covers each trait of successful people.

These parts one by one expose the reader to a total picture of success. Lots of quotes and real life examples are given in the book to help us understand that the success is possible if these traits are developed.

The author suggests that the success traits are not inherited we develop them by taking action. Michelangelo said work made him a great artist: "If people knew how hard I worked to get my mastery, it wouldn't seem so wonderful at all."

Charles Dickens said focus made him a great writer: "I never could have done what I have done...without the determination to concentrate myself on one subject at a time."

Napoleon Bonaparte said persistence made him a great general: "Victory belongs to the most persevering."

Focus is another trait of successful people. The author says success is all about committing yourself and focusing yourself to one thing. He summed up the focus of some successful people as follows :

Martin Luther King Jr. – Civil Rights focus

Frank Gehry – Sculptural Architecture focus

Michael Jordan – Basketball dunking focus

Albert Einstein – Relativity focus

Bill Gates – PC Software focus

**To get the answers to some of the hardest questions in life, i.e. How to be successful? Read this book.** This book will prove valuable to you in both your professional and your personal life.

**Reviewed by :**

Dr. Minakshi Kishore



# JOURNAL OF IPM MEERUT

## SUBSCRIPTION FORM

**Subscription Charges :**

Period	Institutional	Individual & Students
Two Years	Rs. 500.00	Rs. 425.00
Five Years	Rs. 1000.00	Rs. 800.00

Please accept the subscription for a period of .....Years.

From.....to.....

By Draft/Cheque No. ....Dated.....For Rs. ....

In favour of **INSTITUTE OF PRODUCTIVITY & MANAGEMENT**, payable at **MEERUT**.

The Journal should be sent to :

Name(subscriber) .....

Address .....

.....

.....Pin.....

Phone No. ....

**Send your Subscription to :**

**Institute of Productivity & Management**  
**“RESOURCE HOUSE”**  
**Pocket-G, Pallavpuram-I**  
**Meerut-250 110**



**Estd. 1977**

## **Institute of Productivity & Management**

**RESOURCE HOUSE, Pocket 'G', Pallavpuram-I, Meerut-250110**

**Telefax : 0121-2576608, 2577289, 2577197**

**E-Mail : [info@ipmindia.org](mailto:info@ipmindia.org), [veesolanki@hotmail.com](mailto:veesolanki@hotmail.com)**

**Website:[http//www.ipmindia.org](http://www.ipmindia.org)**