



Productivity

Vol. 38

October-December 1997

No. 3

Focus : Strategic Management

Strategic Challenges of Globalisation

Creative Strategies in Banking

BPR: A Strategic Tool

Corporate Strategy for Achieving Excellence

Creative Restructuring

Productivity Bargaining

Social Empowerment & Economic Development

Seed Policy in India

Economics of Tractor Use

Guidelines for Contributors

Scope and Coverage

PRODUCTIVITY is the principal journal of the National Productivity Council of India. The Journal aims at disseminating information on concepts of and data on productivity and its growth in India and elsewhere. It also aims at disseminating knowledge on techniques and methods of productivity improvement through effective management of all types of resources. Thus, contributions from a large spectrum of disciplines are accepted for publication. Only those manuscripts that present the results of original research and analysis are acceptable to the Journal. The managerial/policy implications of the study should be highlighted separately towards the end of the paper.

Format of Manuscripts

Contributions should be of about 5,000 words length. Tables, illustrations, charts, figures, exhibits etc. should be serially numbered and typed in separate pages and should not be mixed with the main text. The text should be addressed to the Editor, **PRODUCTIVITY**, National Productivity Council, Utpadakta Bhawan, Lodi Road, New Delhi-110 003.

About the References

Only those references which are actually utilised in the text should be included in the reference list. In the text, references should be cited with the surname of the author(s) along with the year of publication and the page number, all in brackets. If there are more than one reference by the same author during any year, the year may be subscripted with 'a' or 'b'. For instance, reference may be given at the end of the sentence as: (Szendrovits, 1988a, p. 337). Sources of data need to be given below each table unless otherwise mentioned in the text. Reference list should be alphabetically arranged. Each reference should carry the surname of the author, followed by other names, the title of the paper in quotes, the name of the journal underlined, volume and issue numbers and the year of publication. In the event of a book, the title should be followed by the publisher's name and year of publication. In the event of a report from an organisation, the name of the organisation may be cited in the place of the author.

Accompanying Material

The manuscripts should be accompanied by:

1. An abstract of the paper not exceeding 100 words.
2. A declaration that the paper is original and has not been submitted elsewhere for publication.
3. A note about the author(s) not exceeding 50 words.

Editorial Board

S.S. Sharma
Abad Ahmed
Isher Judge Ahluwalia
N.M. Barot
Vinay Bharat Ram
Ram K. Iyengar
T.S. Papola
N.S. Randhawa

Editor

N.K. Nair

Assistant Editor

K. Suryanarayanan

Editorial Assistance

G. Ramaseshan

Subscription

<i>Inland</i>	:	Annual Rs. 800 Single Copy Rs. 200
<i>Foreign</i>	:	Annual Airmail US \$ 80 Annual Surface Mail US \$ 75 Single Copy Airmail US \$ 20
<i>SAARC</i>	:	Annual Airmail US \$ 40
<i>Countries</i>	:	Annual Surface Mail US \$ 30 Single Copy Airmail US \$ 10

Productivity will be sent to all subscribers within each quarter. The Journals Division, New Age International (P) Ltd., may be contacted in the event of non-receipt within one month from the quarter.

All business correspondence to be addressed to:

**THE JOURNALS DIVISION,
NEW AGE INTERNATIONAL (P) LTD.,**
4835/24, Ansari Road, Daryaganj,
New Delhi 110 002.

Telex : 031-66507 WEL IN
Cable : WILEY EAST
Phones: 3261487, 3278348, 3267996
3288149

ISSN 0032-9924

Productivity

A QUARTERLY JOURNAL OF THE NATIONAL PRODUCTIVITY COUNCIL

Vol. 38 • October–December 1997 • No. 3



PUBLISHING FOR ONE WORLD

NEW AGE INTERNATIONAL (P) LTD., PUBLISHERS

New Delhi • Bangalore • Calcutta • Chennai • Guwahati
Hyderabad • Lucknow • Mumbai • Pune

Copyright © 1997 National Productivity Council

NEW AGE INTERNATIONAL (P) LIMITED, PUBLISHERS

NEW DELHI : 4835/24, Ansari Road, Daryaganj, New Delhi 110 002
BANGALORE : No. 35, Annapurna Building, Basavangudi, Bangalore 560 004
CALCUTTA : 40/8, Ballygunge Circular Road, Calcutta 700 019
CHENNAI : 20, IInd Main Road, Kasthuribai Nagar, Adyar, Chennai 600 020
GUWAHATI : Pan Bazar, Rani Bari, Guwahati 781 001
HYDERABAD : 1-2-412/9, Gaganmahal, Near A V College, Domalguda
Hyderabad 500 029
LUCKNOW : 18, Madan Mohan Malviya Marg, Lucknow 226 001
MUMBAI : 128/A, Noorani Building, Block No. 3, First Floor
L.J. Road, Mahim, Mumbai 400 016
PUNE : 44, Prashant Housing Society Ltd., Lane No. 6
Paud Road, Kothrud, Pune 411 029

This book or any part thereof may not be reproduced in any form without the written permission of the publisher.

This book is not to be sold outside the country to which it is consigned by New Age International (P) Ltd.

ISSN 0032-9924

Published, on behalf of the National Productivity Council, by H.S. Poplai for New Age International (P) Ltd., 4835/24, Ansari Road, Daryaganj, New Delhi 110 002. Typeset by Pagitek Graphics, 7F West Guru Angad Nagar, Laxmi Nagar, Delhi and printed at Chaman Offset Printers, 1626 Suiwalan, Daryaganj, New Delhi 110 002.

Printed in India.

Production: A. Chakraborty

Contents

Seeking Solid Ground for Strategic Management —Richard J. Schonberger	...	355
HRD Strategies for Globalisation —R.P. Billimoria	...	362
Strategic Challenges of Globalisation —Mrityunjay Athreya	...	371
Strategies for Creative Advantage in Banking —T.S. Ravisankar	...	380
Business Process Reengineering: A Strategic Tool—Its Relevance in India —S.N. Nandi & D.K. Banwet	...	387
Restructuring Creatively: The GTCL Way —C. Gopalakrishnan	...	405
Evolving Corporate Strategy to Achieve Excellence —R.M. Srivastava	...	413
Strategies for Combating Economic Crimes —A.S. Abani	...	418
In Search of Productivity Bargaining —R. Satya Raju	...	427
Productivity & Participative Work Culture Through HRD Interventions —Rameshwar Dubey	...	434
Productivity in Commercial Banks —Prashanta Athma & Pramadwara Srinivas	...	440

Multiple Constituency Model of Effectiveness: A Viable Alternative — <i>Mary Philip & S. Bhargava</i>	...	444
The Significance and Methods of Adopting Customer Loyalty — <i>Kurian Thomas & Jiju Antony</i>	...	451
Relative Prediction of Organisational Health Variables in Predicting Job Satisfaction — <i>Debdulal Dutta Roy</i>	...	458
Excellence in Manufacturing Through Waste Reduction — <i>B.M. Gupta & S.S. Kashikar</i>	...	462
Abnormal Profits Opportunity — Does it Really Exist in the Indian Stock Market? — <i>M. Kakati</i>	...	471
Social Empowerment & Economic Development — <i>Bhaskar Majumder</i>	...	477
Poverty Alleviation: Some Policy Recommendations — <i>Pundarikaksha Mukhopadhyay</i>	...	483
Seed Policy in India — An Overview — <i>M.S. Sidhu, S.S. Grewal & J.R. Gupta</i>	...	490
Drip Irrigation: A Viable Option for Future Irrigation Development — <i>A. Narayanamoorthy</i>	...	504
Factors Influencing Well Irrigation in Tamil Nadu — <i>T.R. Shanmugam</i>	...	512
Economics of Tractor Use in Agriculture — <i>Balishter & N.P. Singh</i>	...	517
Book Reviews	...	527

Seeking Solid Ground for Strategic Management

Richard J. Schonberger

A faddish succession of business strategies seem to group into two camps: tradeoffs and no-tradeoffs. Tradeoff thinking is conventional and is viewed as the exclusive purview of senior management. The other camp sees superior companies, especially in manufacturing, as having learned how to avoid tradeoffs—for example, among quality, flexibility, speed, and cost—and improve all at the same time. While initially perfected by leading Japanese export companies, that capability has now spread widely—and assumes the appearance of a universal strategy recommended for all kinds of organisations and involving all employees, not just executives.

When I look up *strategy* or *strategic* in a 1951 dictionary on my desk, I find only military definitions (Thorndike Barnhart, 1951). This suggests that strategic management in business is only a few decades old—still in its infancy. It is no wonder, therefore, that business strategy seems unstable, lurching from one direction to the next: portfolio management, restructuring, time-based competition, globalization, maximizing economic value-added, and the current “going for growth” are but a few of the business strategies that have enjoyed popularity.

Amid the apparent turbulence, however, there seem to be two major competing schools of thought. The conventional one may be called the *tradeoff* school in which executives choose one strategy at the expense of others. The other, newer one is the *universalist* school, which advocates about the same mix (but allowing differing priorities) of good business concepts and practices for every organisation.

Tradeoffs

Harvard professor Michael Porter is tradeoff's most notable advocate. His milestone 1980 work, *Competitive Strategy*, offered cost leadership, differentiation, and focus as strategic options, maintaining that it is “rarely possible” to successfully pursue more than one of the three at the same time (Porter, 1980, p. 35). While Porter stated that viewpoint explicitly, tradeoffs have been implicit in most of the conventional strategy-oriented textbooks, case studies, and journal articles. Success, we have been told, comes from high-level executives sifting information and making strategic choices, often of a win-lose nature: win with speedy delivery only to lose on quality, raise short-term earnings with cost cutting but lose customers as service deteriorates, merge and acquire new business in order to cope with a feast-famine cycle only to lose focus and ability to successfully manage the diversity.

Richard J. Schonberger is President, Schonberger & Associates, Inc. P.O. Box 88928, Seattle, WA 98166 and Affiliate Professor of Management Science, University of Washington, Seattle, Washington, USA.

Grappling with these kinds of decisions is, in conventional business-school thinking, what makes or breaks a company—and its executives. Indeed, the capstone course in MBA studies at most business schools usually is business policy, which is all about strategic planning. A colleague of mine who teaches a business policy course has reviewed most of the current textbook offerings, which, he bemoans, are mostly about mergers, acquisitions, divestitures, and other big-issue wheeling-dealing capital-investment matters. Largely missing, he says, is coverage of such bedrock topics as designing products, dealing with customers, developing human resources, buying, and producing. Presumably, to the authors, these are merely tactical and operational matters, the purview of lower-than-executive people.

Universal Strategy

The heretical idea that every company should have about the same strategic ingredients arose from studies of leading Japanese manufacturers in the late 1970s and early 1980s. Initial views of Japanese success as a cultural phenomenon gave way, upon more detailed analysis, to a realization that Toyota, Hitachi, and others among the Japanese export juggernaut were at once preeminent in quality, cycle-time speed, flexibility, and cost—a total package of higher value.

I was one of those who marvelled at and attempted to explain this multi-faceted corporate ability. The subtitle of my book, *Japanese Manufacturing Techniques*, is *Nine Hidden Lessons in Simplicity* (Schonberger, 1982). In the book, I associated simplification in various forms with continual, rapid improvement in quality, cycle time, flexibility, and cost, which, far from being tradeoff fodder, were mutually reinforcing. This improvement approach had been finely honed in the Toyota family of companies in Japan, and was sometimes called the Toyota Production System. As the book was going to press in 1981, I found time to read Porter's *Competitive Strategy* and was struck by the dichotomy between his tradeoff theory and my no-tradeoff message. I immediately wrote to Professor Porter and asked him, with appropriate respect I believe, what he might think of my divergent viewpoint. Although by that time I had written a number of articles and lectured around the United States and Canada about just-in-time, total quality, and related concepts of Japanese origin or development, I was still a relative unknown. Thus, it was no surprise that Professor Porter did not respond to my letter, busy as he surely was with requests, invitations, and letters from all over the world in response to the great success of his book.

Dreaded T-Word

A year or two later, I was co-sponsor of a series of "manufacturing institutes", with invited lecturers who had become authoritative in what I was starting to call "World Class Manufacturing" (It was *World-class*, not Japanese, because Western manufacturers were having their own successes in applying the techniques). Two of the lecturers, consultants Ed Hay and William Wheeler, had fun with the inevitable question from an audience member about tradeoffs. In mock indignation, Hay or Wheeler would tell his questioner that tradeoff is no longer an acceptable term, saying something like, "Use it, and out you go!"

In my own independent lecturing and seminars, I followed the lead of Hay and Wheeler, telling my audiences that tradeoff is the "dreaded T-word", not to be used in rational business discussion. On the few occasions when, in private, someone asked me if I seriously believed there are no tradeoffs, I would readily admit that there can be some (especially in product design, e.g., payload versus speed in a vehicle). In the main, however, it was time to put most of the tradeoff mentality to rest. Instead, expect improvement across the board. Instead of worrying about tradeoffs, managers could address the easier issue of putting the objects of improvement into some sort of priority order. For example, quality improvement may, for competitive reasons, warrant first priority for product line A, but flexible response may deserve more attention for product line B. Whatever the priorities, both A and B should nevertheless show improvement in both quality and flexible response.

Should this universal improvement approach, and the related concepts and techniques be considered *strategy*, shoving aside, as it were, many of the conventional notions about strategic management? In a 1986 book, I got at that issue by this contrived interview with a hypothetical Japanese CEO (Schonberger, 1986, pp. 219-220):

I: Mr. Amae, were you able to look over the list of interview questions that I sent you?

Mr. Amae: Yes, I did.

I: Okay. Tell me, then. What would you say are the main elements of manufacturing strategy in your company?

Mr. Amae:

1. People. We fill over 50 per cent of our professional and managerial positions with engineers. This includes positions in marketing, production

foremen, material control—even personnel. And we have a vigorous management development program in which design engineers are rotated into production engineering and so forth.

2. People and quality. We train all employees in total quality control.
3. People and operations. We follow the just-in-time production method, with worker-centered problem-solving.

I (After Mr. Amae had gone through several more points): Mr. Amae, tell me something about the development of this manufacturing strategy. How was it formulated, and when?

Mr. Amae: I just developed the strategy today after looking at your questions.

I: What do you mean?

Mr. Amae: Well, we never have formally listed the strategic factors before. I just thought about what has made us the world leader in our industry, and those factors are what I believe are most important.

In this scenario the interviewer asked about manufacturing strategy. The CEO, however, referred to his response as “what has made us the world leader”. The emergent suggestion was, in other words, that people-driven continuous improvement of quality, cycle times, and flexibility was a business, not just a manufacturing, strategy.

Beyond Manufacturing

Toward the end of the 1980s, much of what had begun as the Toyota production system was finding its way into the service and government sectors. George Stalk's article, *Time—The Next Source of Competitive Advantage* (Stalk, 1988, pp. 41-53), applied itself to every industry not just manufacturing. Stalk's article explained why time compression had become a vital competitive strategy. The just-in-time (JIT) methodology perfected by Toyota provided methods of achieving that strategy. Theretofore generally associated with manufacturing, JIT techniques, as the handmaiden of a time-based competitive strategy, would apply to non-manufacturing as well as manufacturing organisations. Thus, JIT techniques—including processing small batches, and replacing functional departments with work cells made up of co-located, cross-trained teams—could be considered as universal keys to competitiveness.

JIT techniques—including processing small batches, and replacing functional departments with work cells made up of co-located, cross-trained teams—could be considered as universal keys to competitiveness.

Similarly, total quality control became total quality management, with applications in every kind of organisation. The keys are customer-focused, employee-driven, data-based continuous improvement (though too often TQM is just treated as teaming, or as warmed-over participative management). Before long, state, national, and regional quality bodies promulgated similar sets of excellence criteria for awarding of quality prizes. Those criteria and prizes generally apply equally to industrial, service, and government organisations. In the United States, for example, the national quality award, named after Malcolm Baldrige, began in the manufacturing sector, expanded into for-profit service businesses, and recently into government, educational, and other non-profit entities. The European Quality Award, the Shingo Prize in the United States, and Japan's Deming Prize—grandparent of them all—and similar prizes around the world echo the theme that all organisations should pursue a similar set of objectives using a similar set of concepts and techniques.

Japan's Deming Prize—and similar prizes around the world echo the theme that all organisations should pursue a similar set of objectives using a similar set of concepts and techniques.

Notable among those universal approaches are employee empowerment, self-managed work teams, and supplier partnerships. These, too have roots or counterparts in the Toyota system. Furthermore, companies that are serious about empowered self-managed teams and continuous improvement (*kaizen*, in Japanese) must accept the idea of order-of-magnitude upgrades in employee training, usually year after year, not funded as a one-time budgetary trade-off decision. As to supplier partnering—good medicine for any kind of organisation—best results follow when purchasing, accounting, engineering, and other affected people form supplier development teams to work with counterpart teams in supplier organisations. Like empowerment and self-managed teams, supplier partnerships are

viewed as long-term sustaining strategies rather than as an issue for debate.

Executive Roles

The whole "world-class" package permeates much of the operational and decision-making apparatus of the organisation. When done thoroughly, implementation stretches downward into the supply chain and upward through the customer chain. Moreover, it reaches from front lines to the ranks of most-senior executives. For example, in companies that have won the Baldrige national award for quality in the United States, the Chief Executive Officer is usually the driving force. Examples include Roger Milliken of textile giant Milliken and Co., Robert Galvin (now retired) of Motorola, David Kearns (now retired) of Xerox, Fred Smith of Federal Express, Don Wainwright of Wainwright Industries, and Ron Schmidt of Zytec—to name a few that I am familiar with. It appears that these CEO's have re-fashioned their companies' strategies such that continuous improvement is the universal plan—the expectation in all areas. Quality is to improve, as are cycle times, volume and model-mix flexibility, on-time deliveries, up-time on equipment, training and cross-training of the workforce, relations with suppliers, synchronization with customer demands, fill rates in the warehouse, and on and on. Not only is this the plan and the expectation, but leading-edge companies are successfully realizing the expectation.

This is not to say that the world-class agenda firmly guides every kind of decision-making. There does not seem to be a crystal-clear, stable set of guidelines for deciding on a merger, acquisition, expansion into China, or abandonment of a major product line. These kinds of infrequent, high-impact decisions remain largely as matters for executive deliberation—the conventional view of strategic planning. Companies that excel in world-class concepts should have an advantage, however. Some of the decision making, say, approving the purchase of a machine-tool, may fall to managers of focussed factories, instead of being on long lists of such decisions that conventionally would be pushed upstairs.

Prior to industry's awareness of the many strategic universals, however, executives had to deliberate not only on these occasional capital investment matters, but also on plans for and investments in customer and supplier relations, inventories, plant maintenance, and employee training; apparent tradeoffs among quality, cost, and flexibility; and numerous other competitively significant matters. Executives in better managed companies today can ac-

cept the world standards of excellence on these kinds of matters and roll them largely intact into their strategic management. That frees up time for executives to do a better job in making large capital investment decisions. Equally important, it provides time to become visible leaders in implementation of total quality, cycle-time reduction, and an overall customer-focussed company orientation.

When executives build a customer-focussed, employee-driven set of universal concepts into their strategic infrastructures, and follow through with visible cheer-leading and celebratory activities, there are important unifying impacts. Front-line employees, middle managers, and top executives all watch and care about many of the same indicators of success: high rates of improvement in rooting out wastes and delays, labour and equipment capability, responsiveness to customers, communication with external partners, safety and health, and so forth.

Strategic Practice Versus Strategic Theory

The shifting of strategic practice, away from the tradeoff persuasion and toward the new universals, is palpable. It is evident in superior companies internationally, especially in the manufacturing sector. The theory, as explicated in the academic press, shows mixed signs of shifting in the same direction.

There is no hint of this shift in the writings of Michael Porter. One section of his article is entitled, *A Sustainable Strategic Position Requires Tradeoffs* (Porter, 1996, pp. 61-78). There is more than a hint of the shift away from a strict tradeoff view, however, in a Harvard Business Review article 12 years earlier entitled *The Incline of Quality*, where the authors, Frank Leonard and the late Harvard Professor Earl Sasser, argue that higher quality does not necessarily entail higher costs (Leonard, 1982, pp. 163-171).

Another Harvard Business School luminary, Emeritus Professor Wickham Skinner, is harder to classify. His article, "The Focussed Factory (Skinner, 1974)", may be the most widely quoted article in the business subfield of operations management. The message of that article has been variously, sometimes freely, interpreted. One interpretation is that "focussed factory" allows several kinds of focus, such as a focus on a certain set of functions or skills. This "open" view of focus suggests a need for executives to deliberate and make tradeoff choices as to which kind of focus to pursue.

The more common view, among practitioners if not academics, is that focus means just one thing: Each

An unfocussed factory—or whole business—is a bed of confusion that yields to improvement efforts reluctantly. And an organisation that has an inward functional, rather than an external customer or product focus, is resistant to improvement in such customer cares as quality and responsiveness.

factory should focus on a single, narrow range of customers or products; let another, separate factory (or another "plant-in-a-plant") produce for a different narrow range. This is a no-trade, no-options, no-deliberation kind of strategy. Such narrow focus provides an uncomplex structure for achieving rapid, continuous improvement in the eyes of its narrowed base of customers. On the other hand, an unfocussed factory—or whole business—is a bed of confusion that yields to improvement efforts reluctantly. And an organisation that has an inward functional, rather than an external customer or product focus, is resistant to improvement in such customer cares as quality and responsiveness. Such functional orientation invites tradeoff thinking. For example, strengthening one's own department may weaken department-to-department communications, leading to deteriorating service to customers. In contrast, a customer-focussed organisation puts customers first.

While the focussed-factory concept seems to lean toward the no-tradeoff school, other works by Skinner seem to bend him toward the tradeoff camp, which reigns dominant in the conventional Harvard school of strategic thought. As guest editor of a special issue on strategy in the journal, *Production and Operations Management*, Skinner writes, "Employing *Continuous Improvement, Benchmarking, JIT, TQM*, and seeking to become 'world class manufacturers' have only led, at best, to competitive stalemate." He labels those pursuits as mere "blocking and tackling," "tactical" approaches whose "fatal flaw in today's environment... ignores the dimension of strategy" (Skinner, 1996 pp. 15-24).

Another paper in the same issue of *Production and Operations Management* directly addresses the issue of tradeoffs vs. no-tradeoffs. While the article, by Kim Clark, Dean of Harvard Business School, refers to manufacturing strategy, most of its points have broader application—to business strategy in general. Clark raises the issue as follows: "Are concepts such as JIT, statistical process control (SPC), or TQM a substitute for manufacturing strategy? Is manufacturing strategy in its 1978 vintage passé? Does application of these new

concepts in manufacturing mean that traditional tradeoffs at the heart of manufacturing strategy are banished?" (Clark, 1996, pp. 42-58).

Clark's article uses a Harvard case study, the Searle Medical Instruments Group, to illustrate his points. Using graphs, he shows how Searle could, through application of JIT, SPC, TQM, and the rest, achieve lower unit cost and higher flexibility (process variety) at the same time. This moves Clark over toward the no-tradeoff side of strategy. Not all the way, though. He notes that Searle should also adopt a certain set of strategic structures (such as where to locate plants and when to launch new products) that will make the JIT/SPC/TQM/world-class set more effective. No doubt he's right. But the opposite may be just as true: A world-class foundation will clarify the structural priorities, and should improve decision making on big-ticket capital investment issues.

A world-class foundation will clarify the structural priorities, and should improve decision making on big-ticket capital investment issues.

While Clark's article opened by raising the tradeoff issue, a higher-order question is whether strategy should continue to be considered as the highest form of the executive art—and hands-off for all lower-level managers and the front-line work force. Professors in prestigious business colleges, such as Harvard or the London School of Economics see their roles as grooming students for eventual high positions in business. That kind of rarefied atmosphere probably tends to accentuate status differences. It becomes a natural breeding ground for separating decision making into operational, tactical, and strategic zones, corresponding to front-line, middle management, and executive levels in the organisation. While I can generally accept this schema, it seems overblown to me. My own discomfort with tendencies to elevate, confine, and inflate strategic management was partially addressed in an article, the rather quixotic title of which was, "Is Strategy Strategic?" (Schonberger, 1992, pp. 80-87). Earlier, in a book, I resorted to some hyperbole, titling Chapter 2 "Universal Strategy: The Shattering of Strategic Business Thought" (Schonberger, 1990).

Other Strategies

Some strategic or business approaches do not seem to quite fit into either the tradeoff or no-tradeoff camp. One example is growth through acquisition, the

popularity of which waxes and wanes. A famous advocate is Harold Geneen, who grew ITT into a giant international conglomerate in the 1960s and 1970s. Other company CEOs and boards admired the approach and followed suit. In the 1980s, however, ITT and numerous other large conglomerates, especially in the United States, fell on hard times, and large-scale divestitures followed. (At age 87 Geneen is unrepentant. In a recent article he writes about "another piece of modern-day flimflamery: the notion that the industrial conglomerate is dead". (Geneen, 1997, p. 5). Now, as formerly protected economies around the globe become more exposed to international competition, other kinds of "conglomerates" are showing strains, for example, the *chaebols* in Korea, the commercial groups in France and Italy, and the giant Tata group in India.

While there may not be a standard, agreed-upon definition of strategy, I think most authorities would at least consider strategy to have relatively long-range effects; tactics, in contrast, are more short-range. Geneen notwithstanding, conglomerates do not seem to endure. If growth is a legitimate strategy, growth by assembling a diversity of businesses may be relatively short term—a tactic.

Is there a pathway to fast growth that is more likely to endure, to create a dynasty instead of a flash in the pan? There may be. Among the growing number of large well-regarded contract electronics manufacturers (e.g., that load printed circuit boards, produce mother boards, etc., for the NECs and Hewlett Packards of the world) one stands out: Solectron. In 1991, when it received the Malcolm Baldrige quality award, Solectron was a one-plant (San Jose, California) operation with 2,000 employees. By 1996, Solectron had grown to 14,000 employees with plants scattered throughout the United States, Europe, and the Far East. Solectron is so admired for its quality, quick response, flexibility, and value that it can seemingly grow at will. As one Wall Street analyst put it, Solectron's "markets are so diversified, and its capabilities so advanced, that when one customer sneezes, another is waiting in line to take his place" (Blanton, 1997).

Nypro Corp., headquartered in Clinton, Massachusetts, west of Boston, has a similar reputation in its industry, consisting of some 40,000 plastic moulders around the world. Nypro's excellence as an injection moulder is exemplified by its quality record with Vistakon, a large contact lens company: 2 billion lenses supplied without a defect. Nypro's zero-defects performance as a supplier of plastic components to Gillette is similar. For that kind of reason, like Solectron, Nypro is in the enviable position of being able to pick its cus-

tomers, rather than its customers picking it as supplier. A few years ago, Nypro's management team deliberately reduced its customer base from 600 small and large ones to 31 big customers. Its new policy was to accept a new customer only if there was the likelihood of \$1 million in sales within two years. If so, Nypro would often build a plant right next to that customer's facility (Gabriele, et al 1993).

Both Solectron and Nypro achieve fast but controlled growth based on a foundation of excellence in quality, cycle time, flexibility, and value—all improving at the same time. In their case, growth is not the strategy; it is a salutary outcome of the no-tradeoff strategy of customer-focussed world-class excellence.

But Every Competitor Can Do It

One theme that arises in several articles in the special issue on strategy in Production and Operations Management is a concern that any competitor can easily adopt the no-tradeoff or "world-class" array of concepts and techniques. Strategies are supposed to uplift one's own firm above the strategically deprived competition. So where's the advantage?

I think this concern is unfounded, a grasping at straws. Except for very small companies whose managers do not study management, most business people all over the world today have some knowledge of total quality, just-in-time, employee empowerment, and related concepts. Most do not, however, implement those concepts, or do so feebly. The strong companies—the *Solectrons*, *Nypros*, *Hondas*, and *Hewlett Packards* of the world—do. Weaker companies are diverted, and oftentimes a major diversion is their tendency to follow the leader along a more conventional strategic pathway out of the tradeoff school: diversification, restructuring, economic value added, globalization, downsizing, maximizing shareholder value, going for growth, being number one or number two in every market, and so forth. Executives who fill their time chasing such high-sounding successions of strategic fads cannot have much time left for meeting the new competitive challenge founded on a universal, customer-focussed, no-tradeoff mindset and strategic agenda.

References

- Blanton Alexander (1997), "Notes", Blanton's Weekly Newsletter, Ingalls & Snyder, New York City, March 12.
- Clark Kim B. (1996), "Competing Through Manufacturing and the New Manufacturing Paradigm: Is Manufacturing Strategy Passé?", *Production and Operations and Operations Management*, 5, No. 1 (Spring), pp. 42-58.

- Gabriele Leslie, Robert McInturff & Michael Perview** (1993), "Nypro's Team Efforts Put the Customer First", *Target*, November-December, pp. 45-48.
- Geneen Harold** (1997), "Synergy Myth", *Executive Excellence*, August, pp. 5.
- Leonard Frank S. & W. Earl Sasser** (1982), "The Incline of Quality", *Harvard Business Review*, September, pp. 163-171.
- Porter Michael E.** (1980), "Competitive Strategy: Techniques for Analyzing Industries and Competitors", New York: Free Press, pp. 35.
- Porter Michael E.** (1996), "What Is Strategy?" *Harvard Business Review*, November-December, pp. 61-78.
- Schonberger Richard J.** (1982), "Japanese Manufacturing Techniques: Nine Hidden Lessons in Simplicity", New York: Free Press.
- Schonberger Richard J.** (1986), "World Class Manufacturing: The Lessons of Simplicity Applied", New York: Free Press.
- Schonberger Richard J.** (1990), "Building a Chain of Customers: Linking Business Functions to Create the World Class Company", New York: Free Press, pp. 17-33.
- Schonberger Richard J.** (1992), "Is Strategy Strategic? Impact of Total Quality Management on Strategy", *Academy of Management Executive*, 6, No. 3, pp. 80-87.
- Skinner Wickham** (1994), "The Focused Factory", *Harvard Business Review*, May-June, pp. 113-121.
- Skinner Wickham** (1996), "Three Yards and a Cloud of Dust: Industrial Management at Century End", *Production and Operations Management*, 5, No. 1, Spring, pp. 15-24.
- Stalk George Jr.** (1988), "Time—The Next Source of Competitive Advantage", *Harvard Business Review*, July-August, pp. 41-53.
- Thorndike Barnhart Dictionary (1951), "Garden City", NY: Doubleday & Company, Inc.



HRD Strategies for Globalisation

R.P. Billimoria

In the face of globalisation, Indian business and industry need to re-examine their HRD philosophy and redefine the strategies. Such reappraisal indeed was overdue to close the credibility gap between the pious tenets of the HRD strategist and the recipients' perception of his remedies. In this background, a holistic HRD strategy is unveiled including as its components some actions at the intra work-unit level and a few purely external ones but having an impact on quality of work life. Also outlined are trends in the coming decades of globalisation.

R.P. Billimoria is Chairman and Managing Director, Billimoria Consultants Private Limited, 299, Ashok Hotel, Chanakyapuri, New Delhi-21.

Credibility Gaps in Existing HRD

Is business and industry substantially utilising the potential of its human resources? The former Chairman, ICI, Sir John Harvey-Jones thought otherwise. "I have yet to find a company that is using more than 40 per cent of its employees' potential", he lamented. He says he was encouraged by the fact that there were now a notable number of chairmen in various organisations who had served as personnel professionals. Alas, despite their influence, he had not found any Board that discussed the total personnel environment. This, from a renowned chief executive of a successful multi-national, must make us pause and think. How do those lower down view things?

Recently after hearing me expound on HRD interventions, a young manager questioned, "I work on a high-tech job. My company pays me well. HRD strategies are well propounded and practised. But I have to commute 50 kms to work, stay in uncomfortable lodgings and worry about the safety of my family when I am at work. How does this all add up to make me happy and contented at work?"

Another reaction from a group of technicians in a large conglomerate: "Our HR Directorate moves with the times. Mission and Objectives are glamorously put. But we all know that our bosses make dealings and compromises which make us blush."

Another delicate issue. Where do sound HRD theories and practices stand when workers, trade unionists, managers, and directors are subject to physical coercion?

Where is the fount of HRD strategies? Where do they emanate from or where should they emanate from? Unless the Chairman and Directors are totally convinced to conceive and implement HRD strategies, they are bound to flounder as they filter down. Unfortunately, many companies do not have strategies and most Boards do not ask for them.

Survey of matters of high concern among top level executives:

Table 1: Issues in organisation structure

Issues	No. of Responses out of a total of 181
Distribution of authority	47
Basis of accountability	37
Coordination and control	33
Line and staff	20
Roles and positions	19
Level and span of control	16
Expansion and growth	6
Miscellaneous	3

Source: Sinha Dharni P. "Group Team Building and Organisation Development", India Society for Applied Behavioural Sciences, New Delhi.

It is interesting to note that 'expansion and growth features last. Perhaps a follow-up study on the cost effectiveness of these top executives would make shattering reading. Why is this so? It is lamentable but it is no use lamenting it. As we walk into the global areas we must ask: what is the weakness in our system which makes our top executives concern themselves primarily with authority and accountability and put such low value on growth factors which are the *raison d'etre*?

As we walk into the global areas we must ask: what is the weakness in our system which makes our top executives concern themselves primarily with authority and accountability and put such low value on growth factors which are the *raison d'etre* of their existence?

The Training Conundrum

Everyone pays lip service to the primacy of training to gain quality acceptance worldwide. The Foundation for Organisational Research and Education (FORE) made a perceptual study among the executives. The executives across top, senior and middle management levels were asked about perceived gaps existing in knowledge and skills and attitudinal aspects of the existing training programmes in their organisation.

Table 2: Gaps in existing training programmes in order of priority

Gap areas	As perceived by levels of management (1 – largest gap, 6 – least gap)			
	Top	Senior	Middle	Junior
Knowledge in the functional area	6	6	1	4.5
Leadership and human relations	4	2	3	2
Managerial skills planning (organising co-ordinating)	2	1	2	3
Job-related attitudes (responsibility ability to manage boss and shop floor workers)	5	5	5	1
Attitude – General (Relevance of attitudes and value of Indian culture social responsibility)	1	3	6	6
Team work	3	4	4	4.5

Findings of the perceptions reveal that:

- Irrespective of the areas, gaps generally increased with the decrease in level from top to junior. Is this real or is it wishful thinking on the part of the respondents?
- Major gap was in attitudinal training, development of team spirit and leadership among top levels. Development managerial skills, leadership and human relations was the major gap for the senior level.
- Major gap for the middle level was in the functional areas, developing managerial skills and in team building training.
- Major gap for junior level managers was knowledge and training for job related activities.

These findings were discussed at a National Seminar which suggested an action plan on the following lines for HRD strategies.

- Training function must be supported with total commitment in making it an integral part of strategic management planning. It is a vital tool to combat obsolescence.
- A systematic approach to programme planning and of analysing training needs is the need of the hour. Thus a Human Resource Development Cell needs to be created, which has a scientific orientation towards training and which undertakes research work on a regular basis to bring about innovation.

- More stress should be laid on training for attitudinal change of the managers at all levels.
- Emphasis on training of trainers is essential. A National Institute of Trainers should ensure update in all areas.
- Pooling of training programmes and faculty within and outside the country would lead to cross-fertilisation of ideas.
- Being able to respond to change is important. It is the responsibility of training to monitor the changes in the organisation and the environment and help to deal with them effectively, causing minimum disruption.

Being able to respond to change is important. It is the responsibility of training to monitor the changes in the organisation and the environment and help to deal with them effectively, causing minimum disruption.

Harnessing Ideas

Mere recourse to formal suggestion box schemes will not do. Brilliant concepts will not survive if they are just dropped in a box.

Toyota of Japan provides a shining example. It is recorded that during 1981, 1.4 million suggestions were submitted by Toyota employees corresponding to about 30.5 per worker per year, and of these, 94 per cent were accepted. The Strategy: Management does not patiently wait for ideas from down below but engages in a continuous dialogue with a wide level of work-persons. In India, as in many other developing countries, the number of effective suggestions per year would not even touch the level of 0.1 per worker per year. The strategy of Toyota is elaborate. It involves a continuing effort by small autonomous groups throughout the year. We would do well to emulate this. This strategy of interaction among large groups can also help in creating a Reacting Participative Base (RPB) for solving day-to-day problems.

The Reacting Participative Base (RPB) Proposition

In India as elsewhere, we have observed and acknowledged the need for closer association of workers with management in order to make management effective. In a proven HRD strategy, we have formal joint bodies and standing quality circles, but the results are

not generally encouraging. We have to expand the participating group. The strategy should be to react continually in solving new problems, meeting new situations, with the help of concerned work-persons. This is the need for global penetration.

To understand this need, we should get back to some fundamentals. The normal distribution or the normal probability curve is the famous bell-shaped curve. A number of natural occurrences of normal distribution have been shown in the curve such as heights and weights of individuals and IQ. As indicated in the bell-shaped curve, in every organisation there are a few who are below standard and there are a few who are high fliers. In-between is the 'hump' of the bell curve, covering the large majority of average workers. And we are deluded into confining the average to a vast human slag heap.

Since the onset of the industrial revolution our endeavours—generally copied from the Western countries—have been to eliminate the sub-standard and to put the high fliers in a position of power and authority with the greatest speed and despatch. This is supposed to be the total solution for effective management, leading to higher productivity and prosperity. Current experience, however, indicates that in addition to weeding out the worst and encouraging the best, excellence is only reached by those organisations which concentrate mainly on the 'hump' or the large number of average workers, by training them, motivating them and making them associate with or participate in management problems and processes.

Excellence is only reached by those organisations which concentrate mainly on the large number of average workers, by training them, motivating them and making them associate with or participate in management processes.

But do we ensure this in the existing worker participation schemes of different varieties? With worker directors on the Board, or elected or nominated worker representatives on joint bodies? No, this does not happen because, irrespective of the method of selection of the workers representatives—by election or by nomination, the level of representation—at the Board level or at the unit level, the average worker's participation is vicarious or at best, through periodic one-way communication from the joint body.

The hundreds or even thousands of other workers, say, even supervisors and managers, are not involved and, therefore, have no chance of reacting continually or being motivated, individually or en bloc, in the decision making or problem solving participative process, hence the need for setting up, what I would call, a Reacting Participative Base (RPB). This will supplement and complement formal joint bodies set up by the organisation. The RPB will not be a formalised body. It will not meet at regular intervals on a permanent basis. Nor will it discuss items to a set agenda. Whenever there is a specific problem in a section or a department, not covering matters pertaining to collective bargaining or matters coming within the traditional management prerogatives, such as relationship with shareholders, Government and top management, an RPB group will be constituted for action.

This will be tailor-made to suit the situation. The Head of the unit will select a group of work-persons not necessarily on hierarchical basis. They will, on the contrary, be among those acquainted with the problem and the environment in which it exists. The team may consist of six to ten people working together in a given area onwards a specific objective. These could be reducing rejections, improving productivity, cost reduction or other aspects of work. The emphasis for this team is to get the job done and not to manufacture bulky reports. The team not only looks into problems and provides a solution but once the solution is discussed, modified and approved by all concerned, it will also be associated in implementing it.

Once this is done, the team is disbanded. And so on to the next problem and another group of people. Some teams may succeed and a few may not. But if, say, in a large organisation, 50 such teams work for short durations during the year, you have about 500 work-persons feeling motivated in being associated with the problem solving and decision making process. Count these against hardly 40 or 50 who may be associated in formal joint committees. This experiment has been tried out successfully in a couple of organisations in India and some elsewhere. The nub of this HRD strategy is to create a

The nub of RPB is to create a psychological ambience in which individuals or groups feel secure enough in expressing what they think, without fear or ridicule or retribution. The effectiveness of an RPB is as good as the work-persons constituting it.

psychological ambience in which individuals or groups feel secure enough in expressing what they think, without fear or ridicule or retribution. The effectiveness of an RPB is as good as the work-persons constituting it.

Discerning Recruitment – A Good Strategy

It is worthwhile to remember that the work-person came at one time as a new recruit. He was selected, deliberately or accidentally, with or without knowing the profile of his personality or problems. Today's wrong recruit is tomorrow's IR problem. Many an industry in developing and developed countries has paid the price of carelessness in scrutiny at the point of entry. True, interviews and a wide variety of techniques will help in making a needs-to-person match. But scrutiny of antecedents, of his behavioural profile, will be critical indicators of his future pattern of recruitment of managers, graduate engineers and diploma holders alone. At all levels, particularly at lower levels, greater care needs to be taken. The chief executive of one of the most successful airlines in the world revealed that he involves himself personally with the recruitment at the levels of air hostesses and stewards, as they present the 'face of the airline' before the customer.

It is noteworthy that successful American giants, IBM and General Electric, assess a man's position and conduct in the community as part of general job performance. Satisfaction on this account leads to subsequent motivational inputs.

Presumptions Syndrome & Consequent Strategy

Using motivation as an effective HRD strategy has never been questioned. Notable among the studies and works documented are those by Prof. McClelland of Harvard University, besides others. In my capacity as Director of Personnel of the Tata Iron and Steel Company Limited (TISCO), the largest and most efficient steel manufacturing unit in the private sector, and as Director (Personnel) of the public sector giant Steel Authority of India Limited (SAIL) and later as its Chairman, I was associated with HRD interventions where a manager, as an act of deliberation, spoke to his workers expressing his presuming and expecting an exceptionally high level of performance because of their ability and prowess. They strove to prove him right. The response was unbelievably 'excellent'. The converse was also true. Managers who from their lofty heights denigrated them due to perceived incompetence and malaise, found that the response matched the expectations.

Findings from developed countries show similar trends. J. Sterling Livingston (1988) reports of evidence from scientific research to show that:

- What managers expect of their subordinates and the way they treat them largely determine their performance and career progress.

What managers expect of their subordinates and the way they treat them largely determine their performance and career progress.

- A unique characteristic of superior managers is the ability to create high performance expectations that subordinates fulfil.
- Less effective managers fail to develop similar expectations, and as a consequence, the productivity of their subordinates suffers.

In sum, subordinates, more often than not, appear to do what they believe they are expected to do. These conclusions indicate obvious HRD strategies for work-persons inside the work unit and outside. A word of encouragement based on empathy and interest can transform smouldering energy into a raging flame of achievement.

Strategy for a University-Training-Industry-Media (UTIM) Network

Many delude themselves that the competitiveness of a country depends solely on macro-economic factors like national resources, availability of cheap labour, interest rates and currency value. But the prime factor is the capacity of its industry to innovate and upgrade. Japan and South Korea are this shining examples of this. To achieve competitiveness, a forward looking, dynamic and challenging environment is a *sine qua non*. Innovation hones the competitive edge. It includes new technologies and new ways of doing things. It may

To achieve competitiveness, a forward looking, dynamic and challenging environment is a *sine qua non*. Innovation hones the competitive edge. It includes new technologies and new ways of doing things.

lead to a new product design or a new process, new ways of marketing or training. The work-person gets into the act almost since his childhood. His schooling, university education and training in employment should form a succession of related events. A closed loop feedback system should, in turn, influence education and training policies. We shall discuss this aspect of HRD strategy—a University-Training-Industry & Media (UTIM) network.

In many countries, education—pre-university and university—is given great importance. Changes in policy and content are hotly debated. Media give adequate coverage to these. The same is true of post-graduate training institutions and industries. But they all work in compartments. Cross-fertilisation of ideas and plans is a rarity. Education ministries run by bureaucrats also deal with education at different levels in neat but separate sections. What are the manifestations of this lacuna?

- Owing to language differences (particularly in India) and lack of uniformity in content and standards, mobility from one level to another or from one region to another within the same country becomes a nightmare for the student;
- Valuable time and training effort is wasted in making 'adjustments' and filling blanks in the previous education/training background;
- At the industry level, the directors and managers complain about inadequate school and university standards. The media joins in. Time-consuming supplementary apprenticeship and training programmes are drawn up.

In trying to solve such problems one is up against certain constraints. For instance, the well-guarded autonomy of teaching institutions is to be protected. Language sensitiveness is not to be trampled upon. So are other considerations which cannot be ignored. But someone suggests we set up an advisory committee, more training institutions and take appropriate fiscal measures, so we shall be well on the way to competitiveness and progress.

This is a fatal pretence from which we must break free. A sound HRD strategy, on the other hand is to:

- Set up a network of the State, the teaching institutions, the training institutions, industry—inclusive of unions—and media;
- Have each sector feed the other with its short-term and long-term requirements; let this be made widely known through the media;

- Have broad discussions in appropriate joint fora at one or more locations, depending on the size of the country, leading to cross-fertilization of ideas and leading to the formulation of a Master Plan; which will be disseminated by media and further discussed and finalised;
- Accelerate the implementation of the Master Plan by agreed legislative and administrative measures;
- Ensure continuing feedback from one level to another, making for modification line-tuning of the Master Plan based on experience or changed circumstances; and
- Draw up an Exchange Plan. In addition to the master Plan, industries, universities and training institutions in various regions should initiate an exchange process by which academically qualified managers and professors/trainers will change places for a specified period. The professor handling a line project and the manager teaching in an institution must provide further valuable feedback to the Master Plan and benefit themselves and their institutions in the process. Such exchange already exists in some countries.

Industries, universities and training institutions in various regions should initiate an exchange process by which academically qualified managers and professors/trainers will change places for a specified period.

The Karoshi Syndrome

Would intense and continuing application in a stress ridden environment bring all the global goodies and happiness?

Japanese industry is at the productivity pinnacle. The Japanese work-persons are known to put in more hours of work with less leisure time than those in most other developed countries. Does this always mean a better quality of work life? Now, it is reported that the reward for all that extra work could well be an untimely death. *Karoshi* is the latest buzz-word in Japan. The term coined in the 1970s means death from over-work. Compensation claims are pouring in from families of victims. Here are some instances: A police sergeant (39) worked 15 shifts of 26 hours at a stretch and passed into the great beyond; a bank worker (39) dies of a

severe asthma attack after working more than 50 hours of overtime in a single month. The competitive salesman also falls a victim—one of them travelled to the Soviet Union ten times spending a total of 103 days overseas in ten months and ultimately died in a hotel room. *Karoshi* claims increased from 499 in 1987 to 777 last year. Not all cases may be recorded.

Always innovative, Japanese companies are trying HRD strategies to reduce the general level of stress in the work place. These include scenting their offices with various artificial fragrances and piping in environmental sounds, such as the gurgle of a running stream or the chirping of song birds. Will this work or will we have to resort to the traditional strategy of de-stressing at the roots? We have to wait and watch with bated breath. The *Karoshi* problem has been documented and reported by Japan but it takes its toll in many other countries.

The ultimate HRD strategy will encompass the holistic approach referred to elsewhere. Society as a whole will have to play an active role. The person, the family, the community, the state and the employer will have to contribute towards creating an environment, an ambience, which will de-stress and provide the near optima for the work-person in the work unit and outside it as well. This may take time. It will certainly need more money. But I will ensure a continuing flow of productivity. If the golden egg is to be eternal, the goose laying it should not be slaughtered. Otherwise, today's go-getters and those who run them will collapse in slow motion.

The person, the family, the community, the state and the employer will have to contribute towards creating an environment, which will de-stress and provide the near optima for the work-person in the work unit and outside it as well.

Holistic Strategies

The global standard-bearer of sound HRD strategies, as mentioned earlier, should be the leader, the chairman. He sets the pattern. He is the role model for other managers in the company. Mere academic prowess is not enough. Corporate crematoria are full of ashes of those who slid down the greasy ladder as they assumed that academic glitter would keep everything else going. Ongoing haywire of social expenditures, forgetting that largesse often evokes suspicion and not gratitude.

Planning means much more than tabulations and formulations that are seen in standard short term and long term exercises. It calls for a holistic approach to the formal planning processes. Studying this aspect in nine large organisations J.B. Quinn has suggested an ideal approach covering, among others:

- Creation of a network of information that would not otherwise have been available;
- Insistence on operating managers extending their horizon to see their work in a larger framework;
- Insistence on frequent and vigorous communication down the line about goals, strategic issues and resource allocations;
- Induction and training of supervisors and managers in futurology principles and techniques so that they could better calibrate intuitively their short term or interim decisions;
- Creation for an attitude and a comfort factor, concerning the future. For example, by managers' less uncertain feeling about the future and consequently showing more willingness to make commitments and extend beyond the short term horizon; and
- Stimulation of long term special studies that could have high impact on specific strategic decisions.

And now for the pillar which supports the whole edifice. Workers, managers and government are made up of humans. The fundamental which we have neglected is for man to look within and to take steps towards strengthening mind and body through the concept of holistic health. The best of intellect and the best of managerial techniques fail the leader, unless he is in total control of healthy self. It is a boon unto himself as well. Maslow states in "The Farther Reaches of Human Nature":

"If you think of physical health and if you ask the question, "How do you get people's teeth to be better?" "How do you get their feet to be better?" or their kidneys, eyes, hair, etc., any physician will tell you that the best thing to do is to improve the

The best of intellect and the best of managerial techniques fail the leader, unless he is in total control of healthy self.

general systemic health. ...if you can ...then these procedures, in one single blow, will improve their intestines and everything else; that is, the whole system will be improved."

The Saturn Experiment

Few products have generated as much HRD interest as the recently launched Saturn, General Motors' new car. According to Lester Thurow, dean of the Massachusetts Institute of Technology's Sloan School of Management, "If Saturn is successful, it will prove that it is possible to junk the old bureaucracies, change the corporate culture, change the adversarial relationship between union and management, and put it all back together right. If they succeed, it will be a big positive for America. If not, it will be a huge downer."

A number of American companies have overhauled their manufacturing systems in recent years and are now producing goods in dramatically different ways. Table 3 is a synoptic presentation of such changes.

Table 3: Old and new systems of production

Old	New
Marketers demand a new product to sell at a certain price.	Simultaneous Engineering. A large group—including marketers, design and manufacturing engineers, components suppliers from other companies, production workers, accountants, salespeople, and service representatives—meet to create the new product. This process ensures that everyone's point of view is heard and that everyone agrees how to make the product.
Engineers design a product and turn it over to manufacturing engineers who then figure out how to make it.	
Bosses tell workers how to make a product. Labourers perform same tasks over and over under rigid work rules. They have no stake in the manufacturing process.	
Inventory of extra parts is maintained at every stage to keep assembly line moving.	
Inspectors check specifications reject bad part or send them off for expensive repair.	
Distributors receive large amounts of warehouse goods.	Quest for Quality Goals are set. Competitor's products are carefully studied to find the "best in class" worldwide with the idea of surpassing these efforts.

These strategies cannot be adopted *en bloc*. They may be tried out with corrections and variations but try we must, in order to face technological changes of tomorrow.

Future Global Challenges

During my brief visit to the UK and the USA a few years ago I tapped the mind of academicians and some top executives of major industries on future challenges and trends on the HRD front. All agreed that like the mystical river Hereclitus, their job will keep changing over the years. As for future HRD strategies, following are some indicators:

- The management of chaos rather than succumbing to it;
- The light shows amber for large successful companies if its managers are placid in their reactions, inflexible in their approach and peremptory in their protocol;
- The management of problems of speedier technological and managerial obsolescence;
- The resounding impact of national and international competition. It is essential to communicate with employees in order to make them react positively for survival. General Motors also feels likewise, it was reported;
- Strive towards full employment. To do so, develop accepted strategies to redeploy, rebalance, retrain and re-educate. IBM also subscribes to this view, it is said;
- Underscore the Human Resource contribution to successful acquisitions which will be on the increase. Sears Roebuck also feels this way, as is documented;
- The consequence of a universal golden handshake solution for facing intense competition in the Indian context may be non-productive; the dregs will remain, the plums will pop out for better cakes;
- Achieving highest levels of quality and productivity through, for example, profit sharing, employees involvement, training and re-training will be more actively pursued. This is Ford's thinking as well, it is said;

The classical bipartite and tripartite concept in industry will have to be modified to bring in the fourth and the most vital party, the customer/consumer/client; employees will have to be trained to emphasize on customer care;

- The classical bipartite and tripartite concept in industry will have to be modified to bring in the fourth and the most vital party, the customer/consumer/client; employees will have to be trained to emphasize on customer care;
- Information technology will have to find better ways of dealing with reams of paper presently passing through many hands so that they can concentrate on strategic technological, technical and HRD issues;
- Recruitment even at the higher levels will necessarily have to be more sophisticated by testing applicants for such attributes as leadership qualities, analytical powers, motivation, social skills, and interpersonal skills;
- Multinationals particularly will have to concentrate on employing persons who will help them survive in international markets. This will mean attracting bright and articulate persons fully skilled in modern information technology and having the knowledge of global market places and how they operate;
- HRD will not be just a tag for "goodness". It will have a major role in the creation of shared values. This means a multiple effort in the management development programme. Deeper roots for workers participation would be the new trend. The true entrepreneurial spirit and business attitude will only be maintained by providing employees with challenging assignments from which they can contribute to the strategic plan of the company. Pepsico and General Electric feel likewise, it is understood;

The true entrepreneurial spirit and business attitude will only be maintained by providing employees with challenging assignments from which they can contribute to the strategic plan of the company.

- Develop talents for grasping fraud by the neck and countering it;
- A dynamic chief executive of the moment creates a dangerous euphoria in that shareholders and work-persons assume that an equally dynamic successor will follow. They do so wrongly and pass into limbo. So, the strategy of succession must start at the apex and well in advance at that;

- Organisational behaviour (OB) of interaction will assume greater importance. Understanding the abnormalities of normal managers like aberrations of appraisals, myth of consistency would come in this category;
- Making the manager feel that his rear is secure so that he concentrates on his substantive goals and mission. Performing in a changing and at times hostile political milieu will affect performance and productivity. The worker cannot work or the manager manage if the government does not govern. This tenet has to be hammered in for acceptance at all times on all occasions;
- Interaction with self and esoteric methodologies for stress management will gain importance and acceptance over the coming years. The great socio-esoteric revolution for the last 50 years bears closer scrutiny and application.

Conclusion

We have discussed varied HRD strategies—not all but quite a few. Some pertain to the work-person in the work unit and others to strategies that are external. Fundamental pre-requisites have been pointed out.

The bottleneck is at the top, as we have pointed out time and again. The HRD specialist must accept that the

more a manager climbs up the executive ladder, the less he gets to hear of the happenings to human resources down below. A prime HRD strategy is to ensure a free flow for information and cultivate empathy so that he, in turn, can plan more meaningful strategies for the whole organisation.

As we gaze into the crystal ball we note morbid extensions of the forces that now can be seen at work. We see organisations in search of strategies. The mission and objective of a master HRD strategy would be the creation off a package of basic attitudes and policies that will consciously foster re-birth and renewal and thus prevent the deposits of mental and procedural cholesterol in its channels of survival. The package will be person-oriented. The ideal solution and strategy is not just throwing money at problems. Technological excellence and higher productivity will not always lead to a better quality of life, the person, his organisation and the State must join hands in the creation of prosperity for all by a holistic strategy of integrating HRD effort at all sensitive points affecting human resources. This will be soothing salve in a corporate world saturated with a surplus of anger and conflict. In pursuing these and other agreed strategies we must also be bold and we must experiment. The future generation should not accuse us of immobility of mind in facing great opportunities.

Reference

- Livingston, Sterling J. (1988), "Pygmalion in Management", Harvard Business Review, September-October.

Strategic Challenges of Globalisation

Mrityunjay Athreya

Divided into three sections, the paper starts with the striking observation that globalisation is itself a global phenomenon. The process had been accelerated for the OECD countries and the Asian Tigers through the post-war UNCTAD system. Seeing the overall benefits, Russia liberated herself from the Soviet Union, as much as she did the other Warsaw Pact states, and joined the global trading system. Deng modernised China out of the Maoist autarchy and has been knocking at the doors of the WTO for membership. So, India is only converging with the global wave of globalisation of the once domestic economies. The second section deals with the many challenges of globalisation and the responses thereto. The challenges are analysed under five categories. The first four arise from the opportunities, as well as the threats, in the markets for end products and services, as also in the factor markets for the inputs. The fifth is the additional challenge of an unlevel playing field, because India is a late entrant, with four decades of a protected, inefficient, corrupt, licence-permit raj, and semi-statist economy with huge lags in the infrastructure. The third and final section present an action plan. In order to optimise India's benefits from globalisation, actions are indicated not only for corporate managements and governments but also for professionals and citizens.

Mrityunjay Athreya is an independent Management Advisor, Athreya Management Systems, A-28, Chittaranjan Park, New Delhi-110 019. The article is adapted from the DDL Industries Endowment Lecture delivered by the author at the Osmania University, Hyderabad, in February 1997.

Increasing globalisation of the erstwhile domestic economies poses challenges even to the stronger ones, such as the OECD member countries. It follows that the challenges are more for late entrants and emerging economies. The challenges are probably greater for India, with a huge backlog of history, large population, entry barriers and poor human and physical infrastructure. The challenges arise from three sources—the new opportunities, threats and the unlevel playing field. They call for responses by several, concerned actors.

The paper is in three broad sections. In the first one, focus is on the fact that globalisation itself is a global phenomenon. During the cold war, the world was divided into three worlds—the first world of the richer market economies; the second world of the communist, planned economies, and the third world of the non-aligned countries. Most of the first and many of the third were active participants and beneficiaries of a global system of trade and investments. The system was being refined and expanded in successive rounds of GATT negotiations, under the UNCTAD. Globalisation got a boost when Russia courageously acknowledged its desire to restructure its failed economic system and join the world economy. Without formally declaring a perestroika, Deng Xiao Ping had already begun to globalise the Chinese economy as early as 1979. These two precedents seemed necessary for the Indian political class to pick up some courage. They used the next economic crisis of 1991 to slip in the globalisation of the Indian economy (Athreya, Mrityunjay, 1992). India is, thus, only converging into a global process.

The second section looks at the challenges before Indian industry, government and society. The challenges arise from both the new opportunities and the enhanced threats. These occur in both kinds of markets—product markets and factor markets. Globalisation is expected to enhance inward flow of funds and technologies, and thereby help raise the growth rate of the Indian economy. This should increase demand for various products and services. With the larger volumes, some part of the output could be exported. Firms also have

the opportunity to exploit India's country comparative advantage, especially in material and human resource factors. There are also threats in both markets. In the product markets, the threats arise from foreign investment with new, proprietary technology, brand equity and deep pockets; and from imports, as the tariff walls come down. In the factor markets, again, imports of equipment, components and materials; and foreign firms capturing India's factor advantage both for production for Indian demand and for exports, are the twin threats. The previous mix of externally protectionist and internally restrictive policies, combined with very late entry have created a more than normal unlevel playing field for India.

The previous mix of externally protectionist and internally restrictive policies, combined with very late entry have created a more than normal unlevel playing field for India.

The aim of identifying the two sets of threats and the handicaps of an unlevel field is not to portray globalisation as undesirable. Similarly, the purpose of noting the two sets of opportunities is not to imply that the benefits will flow automatically. The challenges call for action, in both the classical Indian philosophical tradition of karma yoga and the modern management approach of business strategy formulation, implementation, monitoring, correction and update (Athreya, 1996a). The primary action responsibility is with corporate managements. Supportive action is required from governments, professionals and citizens. The third and concluding section deals with such action points.

Global Globalisation

While listening to the current debate in any one country, one would first be led to think that globalisation is an unmitigated disaster, imposed on that reluctant country by external forces. This is generally because the threats of globalisation are seen more easily and faster than its opportunities. Besides, those adversely affected by globalisation tend to scream louder, such as the local end product manufacturers and trade unions. Those who stand to benefit, such as consumers and factor producers, tend to be more reticent, lest they be considered unpatriotic. Historical experience seems to suggest that, on balance, for every country the potential benefits of globalisation outweigh the costs. Otherwise globalisation would not have made the sustained, relentless progress that it has over the last several decades.

This does not gainsay the fact that some countries may benefit relatively more.

Historical experience seems to suggest that, on balance, for every country, the potential benefits of globalisation outweigh the costs. Otherwise globalisation would not have sustained.

The UNCTAD System

Trade between countries is an age old phenomenon in human history. It began thousands of years ago. Mostly, it was peaceful, intermittent and mutually beneficial. It continued despite wars and invasions. The rise of capitalism and the industrial revolution first in the West, interestingly, promoted foreign trade and investment, as well as restricted and threatened them. The hunger for markets and raw materials led to the shameless search for colonies and their brutal exploitation, Britain, as the leading colonist, imposed Imperial preferences on its colonies, as preferred markets for its products, and as sources of raw materials for its manufacturers. The First and Second World Wars were the last battles for colonies. These wars exhausted the colonial Western colonial world and the militarist Japan. The unsustainability of an unfree political and trading system was increasingly recognised the hard way, through horrendous costs of the Nazi holocaust, Stalinist concentration camps and genocide. The modern global trading system has evolved over the last few decades, through several stages. An appreciation of this brief history is useful in removing the wrong notion that globalisation is a sudden discontinuity (Athreya, 1994a).

The unsustainability of an unfree political and trading system was increasingly recognised the hard way, through horrendous costs of the Nazi holocaust, Stalinist concentration camps and genocide.

- Woodrow Wilson, one of the few non-isolationist, idealistic and intellectual Presidents of the US was keen to build global cooperation through the League of Nations in 1919. His own Congress did not support him. The failure to build a global trading system led to the emergence of fascism and Stalinism.

- The trauma of the Second World War had several positive lessons. Three of these strengthened world trade. The first was setting up of the Bretton Woods system consisting, particularly, of the World Bank and the International Monetary Fund. This inspired other regional institutions like the Asian and African Development Banks. The second was the historic process of reversing political imperialism, through decolonisation, beginning with India in 1947 and extending to all former Asian and African colonies. The third was the setting up of the United Nations, its Social and Economic Councils and other agencies (Athreya, 1996c).
- The UN organ with special focus on trade, the UNCTAD, has served as a legitimate forum for negotiations towards an increasingly free trading system. The negotiations were tough, with each country and group trying to concede less and get more. Nevertheless, first through the Geneva Round, and later through the Uru-guay Round, the volume of trade kept growing.
- In parallel, many countries came together to form common markets and regional trade blocks. The European Common Market is working towards a political and monetary union, with a common currency, the *ecu*. Although in each member country there has been ambivalence about joining the Common Market and the Union, on balance they have all decided to join and stay in it. Recently, Toyoto Motor Company of Japan underlined the trend by its statement that it may shift its proposed investment from Britain to continental Europe, if she did not adopt the common European currency of *ecu* by 1999. Similar useful "regionalisation" of economies has taken place in ASEAN, CACM, EACM and SAARC. Such regionalisation and globalisation are not totally contradictory trends.
- It is a plausible hypothesis that if Russia had continued with a democratic political system and a market economic system, from the Kerensky government of 1917 onward, without the violent "revolution", it would already be a significant economic power.
- The economic inefficiencies and failures of the Soviet system of the 1920-40 period were masked by a burst of patriotism due to the Nazi attack.
- Kruschev's early acknowledgement of the serious political and economic crisis came formally in the report to the 20th Party Congress in 1956.
- In the early sixties, Yvsei Lieberman and other Soviet economists brought in market style reforms and incentives to the public enterprises to raise their performance and reduce gross distortions.
- Mikhail Gorbachev rendered a historic service by acknowledging the competitive failure of the Soviet economic and political system. He liberated Russia and its satellites from the Gulag Archipelago; and the world from the Cold War.
- Gorbachev and his team pursued the twin policies of perestroika, restructuring; and glasnost, open-ness. Russia is recreating the market; relearning entrepreneurship; and engaging in world trade. While the transformation is traumatic, Russia is expected to be a significant growth economy of the future (Daniel & Gustafson, 1995).

Russia is recreating the market; relearning entrepreneurship; and engaging in world trade. While the transformation is traumatic, Russia is expected to be a significant growth economy of the future.

Russian Perestroika

Through the UNCTAD system, the world trade grew by 16 per cent per annum between 1946 and 1972. The communist countries and many nations of the third world failed to benefit from this, because of their partial or near-total isolation. The system got a shock in the oil price escalations of 1973 and 1980. But it was resilient enough to survive and respond with energy efficiency and alternative sources. Trade grew again in the 1980s. Russia finally decided to join and benefit. Perestroika is the culmination of a long, reluctant, historical learning process.

Chinese Modernisation

Mainland China joined the global trading process, de facto, even before Russia and the East and Central European, former Communist economies.

- The disastrous failure of Mao's so-called "Great Leap Forward" of 1959, was an early pointer to the weaknesses of the Chinese economic system. There was some constructive internal

debate and there appeared to be a policy to let a "hundred flowers bloom".

- But liberalisation was prevented by Mao, unleashing in 1966 the so called "Great Proletarian Cultural Revolution", the Red Guards and much trauma.
- Animosity towards the USSR drove him towards dramatic reconciliation with the US in 1971; the base was building up for the reacceptance of market-related ideas.
- Despite his humiliation during Mao's lifetime, Deng Xiaoping emerged as Mao's successor. The pragmatic Deng initiated the four modernisations of the Chinese economy and society. He created the new economic zones in southern China, with a freer, capitalist, market system. Measured by the economic growth rate, inflow of foreign investment and exports, the New Economic Policy seems to have been a phenomenal success. China has reported 10 per cent plus GNP growth; 30 billion dollars of FDI per annum and 100 billion dollars of exports in 1996.

Measured by the economic growth rate, inflow of foreign investment and exports, the New Economic Policy seems to have been a phenomenal success, in China.

- China is keen to join the World Trade Organisation. Arduous negotiations are under way.

India's Convergence

The globalisation of Indian economy can now be seen in the right perspective.

- India has not been one of the early entrants into the global trading system. It is a late entrant, even later than China and Russia—the former still, allegedly, a communist state; and the latter, a former communist economy.
- India has had to reckon with the unviability of reliance on rupee trade.
- India could no longer ignore the message of a series of Asian Tiger economies, with poorer resource endowments and later starts, overtaking her.
- Low public sector returns on huge investments;

and high, unproductive government expenditure, have caught the Indian economy in the trap of a high ICOR and a sluggish rate of savings. While liberalisation will help to raise it somewhat, globalisation is necessary to attract foreign investment.

Low public sector returns on huge investments and high, unproductive government expenditure, have caught the Indian economy in the trap of a high ICOR and a sluggish rate of savings.

- Foreign investment can help in many areas, particularly in capital intensive core and infrastructure sectors and export competitive industries (Athreya, 1995a).

In sum, there seem to be a number of compelling domestic and international driving forces, leading India to globalise its economy. To be sure, it is not all benefits. It is also not all costs. It is this cost-benefit mix that the next section discusses.

Strategic Challenges & Responses

Globalisation is done by any country, as we have seen earlier, with trepidation, but not without some hope, as well. Two kinds of challenges emanate from this mix of expectation and anxiety. The hope arises from the likely new opportunities, and the concern from the threats. These two environmental forces operate both in the product and factor markets as elaborated below.

Product Market Opportunities

A major policy aim of globalisation is to enhance the growth rate of Indian economy from the sluggish average of 3.5 per cent per annum until to about 1980, and a modest 5 per cent thereafter, to 7 per cent currently, and towards a double digit growth, say, from 2000 AD. This would require the industrial of growth rate to go up from 10 to 12 per cent and later to 15 per cent plus. Such

A major policy aim of globalisation is to enhance the growth rate of Indian economy from 7 per cent currently towards a double digit growth, say, from 2000 AD.

acceleration would open up tremendous product market opportunities for Indian business (Athreya, 1996c).

- Initially, the high growth opportunities have arisen in the consumer durables—television—colour, and black and white; refrigerators; two wheelers; cars; fans; airconditioners; washing machines, etc. Per capita incomes are rising at about 5 per cent per annum on the average, being the difference between a GNP growth of 7 per cent and population growth of about 2 per cent. But this average masks the ongoing, and temporarily rising inequality of income and wealth distribution, in a liberalised economy with higher incentives and penalties.
- The all-round rise of GNP growth and per capita incomes will also expand the mass market for consumer goods. If the durables consuming middle class is estimated at 100 million, consumer goods could reach another 600 million. Some manufacturers of fast moving consumer goods, report that they are already selling 40 per cent or more of their volumes in semi-urban and rural India.
- In due course, the unfortunate “under-class” of about 300 million, now below the poverty line should also be activated as a market, for their well-being, and the attendant multiplier benefits to the economy.
- In addition to the above domestic product market opportunities, globalisation is necessary to protect and enhance access to export markets. Such opportunities are high in those products where India has a natural comparative advantage, such as steel, agro-processed items, textiles, leather, granite, software etc.

Product Threats

Any attractive set of opportunities will, predictably, also attract more foreign competition, in a globalised environment, in addition to the domestic competition, due to the liberalisation.

- An immediate threat is the introduction of more attractive product options by MNCs already

Globalisation is necessary to protect and enhance access to export markets. Such comparative advantage, such as steel, agro-processed items, textiles, leather, granite, software etc.

operating in India. Such additional attraction for the customer could arise from innovations in existing products, new products, brands, service, etc.

- Even if an MNC has a joint venture with an Indian partner, it could opt to bring in improved or new products through a new 100 per cent owned subsidiary, now allowed by the FDI regulations.
- Another threat is the possibility of imports of products themselves. GOI has recently liberalised the imports of consumer goods. The government is also committed to reducing import tariff to ASEAN levels by 2000 and to global levels by 2003 A.D.

Factor Opportunities

Globalisation can be a breath of fresh air for both buyers of factors, and sellers.

- Indian producers of industrial materials like steel, aluminum, zinc etc. can look for a higher share of exports in their total turnover, provided they can meet international quality, cost, delivery and other expectations.
- Similar opportunities for agricultural products like tea, coffee, cotton, rubber, etc.
- Indian suppliers of intermediate bulk drugs and automobile components may also have greater export access.
- Likewise openings for capital goods—machine tools, turbines, boilers, looms, etc.
- Indian business in all fields—industrial or consumer products or services—can source technology, equipment, materials, components, funds and even talent from the global market.

Factor Threats

The other side of the coin of globalisation is the set of threats to both buyers and sellers of factors.

- The higher Indian GNP and industrial growth rates will increase the demand for factors, resulting in possible shortages and higher prices, at least in the medium term.
- Export of factors, with inelastic supply or low growth rate, could also have a similar effect.
- Incoming MNCs could bring in their global vendor partners, to set up operations in India, thus displacing, wholly or partly, local suppliers.

- MNCs could also invest afresh or take over Indian material or component manufactures, and capture shares in both the home market and in exports.
- Similarly, they could gain shares in financial, advertising, engineering, consultancy and other services.

Unlevel Playing Field

The above four sets of challenges of globalisation arise for any country at every step that it takes for integration into its regional block and into the larger global economy. For example, the US and EC are concerned about cheap imports from developing countries. The United States had a long debate about the dangers of forming the NADTA with Mexico. So did the Canadians about joining the NAFTA, dominated by the US. Forces within the ASEAN are approaching India's entry with caution. Such anxieties apply even more to India.

- Several decades of import protection and restrictions on foreign investment have created lags in the performance standards of Indian firms, in terms of quality, cost, delivery, service, etc.

Several decades of import protection and restrictions on foreign investment have created lags in the performance standards of Indian firms, in terms of quality, cost, delivery, service, etc.

- Similar, long domestic licensing restrictions have not allowed the large scales, experience curves and funds for Indian companies to invest adequately in R&D, brand building, human resource development and other such areas of potential competitive advantage (Athreya, 1995c).
- Although liberalisation seems to have broad multi-party consensus, many areas are still to be adequately freed up. The old mindsets, procedures, delays and obstruction still continue, especially at the middle and lower levels of bureaucracy.
- Crucial infrastructure areas like power, telecom, roads, railways, airlines and ports, having been under exclusive government ownership for a long time, are grossly inadequate in size and efficiency to support Indian industry in its at-

tempts to cope with global competition at home and export markets.

- Despite the noble intentions of the Constitution and the welfare policies on paper, the creation of an inefficient and corrupt statist economy, reduced the state's ability to invest in human capital, unlike the Asian Tigers (Athreya, 1995d).
- MNCs come in with deep pockets, and ability to take low margins or even losses to gain market shares, which they can exploit later, high technology, strong brands, and access to global sourcing and distribution partners.

The above five factors pose formidable challenges to Indian industry. There are two positive sets of challenges, arising from the product and factor market opportunities. These have to be met with vigorously. Every success in meeting these will help in also responding to the other three negative challenges, namely from the product and factor market threats and the unlevel playing field.

Action Plan

The challenges of globalisation are not unique for Indian firms. In fact, they cannot be met entirely by Indian companies acting on their own. Corporate managements do have the primary responsibility. But they need the support of governments, professionals and citizens. Managements in turn, should do everything to deserve and retain such support.

Corporate Managements

The promoters, senior executives and other professional managers of every Indian company need to consider the following areas of action:

- Exploiting the high growth consumer durables segment through product innovation, improved quality, distribution, service, advertising, innovation, etc. Create competitive barriers to entry for potential new entrants, including foreign companies.

Exploit the high growth consumer durables segment through product innovation, improved quality, distribution, service, advertising, innovation, etc. Create competitive barriers to entry for potential new entrants, including foreign companies.

- In the case of consumer goods, simplify product and process design, reduce costs, produce and sell large volumes, at lower margins.
- Creating a Social Constitution Budget of about 1 per cent of profits before tax for local community development, through better health, literacy and vocational skills. This will reduce hostility towards business and also bring the poor into the market (Athreya, 1995e).
- Leveraging India's country comparative advantages for export of materials, products, components and services.
- Taking vigorous steps to raise productivity of all resources—capital material, human and, above all leadership. Go beyond satisfactory increases, towards optimal productivity, with international benchmarking (Athreya, 1997).
- Creating organisation-wide cost consciousness. Enhance the climate, systems and skills for cost control, against preset standards. Go further and seek continuous cost reduction, by challenging the standards themselves, through value analysis, value engineering, global interfirm comparisons and similar techniques. Drive cost savings in anticipation of the import duties reduction, towards ASEAN levels by 2000, and global levels by 2003 A.D. (Athreya, 1995f).
- Taking the battle to international markets by aggressive exports through Indianised differentiation, raising quality and service and marginal cost-based contribution pricing, if necessary.
- Carrying out supply market research in the global market for technology, equipment, components. Counsel your domestic vendor partners to improve their supplies accordingly. In exceptional cases as a temporary measure, import, but keep developing your vendor.
- In anticipation of the likely high industrial and GNP growth rates, for India Vision 21st Century, keeping developing the existing, and if necessary, new vendors, to ensure the desired volumes, mix, quality, cost and service levels.
- In case of a vendor, being prepared for incoming foreign vendor competition. If necessary, establishing a healthy partnership.
- In case of a company over-diversified due to the compulsions of the licence raj, going through conscious restructuring, including business, financial and organisational restructuring. Focusing on the core business, and perhaps closely related ones. Reducing debt and in-

Seek continuous cost reduction, by challenging the standards themselves, through value analysis, value engineering, global interfirm comparisons and similar techniques.

terest costs. De-layering the structure and empower people.

- Escalating investments in R&D, brand equity and HRD, including the extended organisation of dealers and vendors, towards global levels (Athreya, 1995f).
- Where financially viable, building captive power, telecom and port facilities to ensure high utilisation of manufacturing and operating investment.
- In short, acting as the trustees of the Indian people, to make the Indian economy a significant, viable partner of the global economy, neither to be a victim, nor an aggressor, of economic imperialism.

Act as the trustees of the Indian people, to make the Indian economy a significant, viable partner of the global economy, neither to be a victim, nor an aggressor, of economic imperialism.

Governments

While the prime mover of India's response to globalisation has to be Indian managements, they alone can not perform a miracle. They need the support actions of Indian central, state and local governments.

- The central government should move quickly towards the following paradigm.
 - * Government to be involved only or primarily in policy.
 - * Hand over regulation of key sectors to independent, quasi-judicial regulatory bodies, to ensure a level playing field, competition, innovation and customer interest.
 - * Move all techno-commercial operations out of government departmental undertakings, into the competitive market place, subject to the above regulators.

- GOI should also invest heavily in the human infrastructure of health, literacy, primary and vocational education.

GOI should also invest heavily in the human infrastructure of health, literacy, primary and vocational education.

- To the extent necessary, to supplement Indian and foreign investment, also invest in the physical infrastructure of power, sea ports, airports, railways and roads.
- To finance the above two, crucial human and physical infrastructure investments, GOI should accelerate the privatisation all public enterprises (Athreya, 1996d).
- GOI should restructure government by reducing staff and changing and mindsets of the middle and lower bureaucracy, to be an ally of Indian industry, in coping with the challenges of globalisation.
- Each Indian state government should cherish its local and Indian entrepreneurship and create the land, infrastructure, clearances and other inputs necessary for them to be strong players.
- To the extent foreign investment in physical infrastructure like power is needed, states should facilitate their early construction and commissioning, instead of empty rhetoric, arbitrary cancellation and resumption, as in the Dabhol project.
- The local governments at the zilla, (district) and panchayat (village) levels, should strengthen the civil society, and, partnerships, between people, NGOs, industry and government, for a country-wide sense of India, Inc in the global economy (Athreya, 1996e).

Professionals

Globalisation is a double-edged sword. It brings opportunities and threats Indian professionals have a great responsibility in ensuring that the benefits of globalisation exceed the costs to Indian society.

- Instead of further aridly debating the pros and cons of globalisation, they should focus their personal, organisational and professional ener-

Globalisation is a double-edged sword. It brings opportunities and threats Indian professionals have a great responsibility in ensuring that the benefits of globalisation exceed the costs to Indian society.

gies ad creativity in preventing, reducing and meeting the threats of globalisation, in their respective areas as engineers, scientists, accountants and managers (Athreya, 1995g).

- While the public and organisational moods are more easily depressed by threats, the professionals should highlight the opportunities of globalisation. They should show and lead the way to the exploitation of these opportunities through exciting vision, strategies, organisation, HRD and systems (Athreya, 1996b).
- The Indian professional, whether manager, doctor, teacher, lawyer or administrator, should be a role model of *sreshta dharma*, the responsibilities of the privileged. He or she should first benchmark oneself against similar professionals in the major competing nations, undergo a self transformation through *sadhana*, practice, and increase one's *yogyata*, legitimacy, to provide transformational leadership.

The Indian professional, whether manager, doctor, teacher, lawyer or administrator, should be a role model of *sreshta dharma*. He or she should first benchmark oneself against similar professionals in the major competing nations, undergo a self transformation through *sadhana*, and increase one's *yogyata*, to provide transformational leadership.

Citizens

While governments, corporations and professionals can help, strength of a society in the long run rests in its citizenry.

- Each citizen should be positive and take active interest and perform all relevant karma to help oneself and India, her communities and or-

organisations cope with the impact of globalisation, understanding both its opportunities and threats.

- He/she should patronise the products and services of those companies which serve India's interests, consistent with their other stakeholder obligations, whether they are Indian private, public sector or foreign companies. Indian interests include job creation, exports, preservation of the environment, culture and quality of life.
- While striving to improve one's economic status by taking advantage of globalisation, each Indian should cherish and strengthen the Indian identity in dress, language, habits, art and culture. Globalisation should not end up in the decimation of local cultures and the creation of a monstrous monoculture of the dominant economic powers.

While striving to improve one's economic status by taking advantage of globalisation, each Indian should cherish and strengthen the Indian identity. Globalisation should not end up in the decimation of local cultures and the creation of a monstrous monoculture of the dominant economic powers.

References

- Athreya, Mrityunjay** (1992), "The Great Indian Turnaround", Keynote Address at the Annual Convention of the Calcutta Management Association.
- Athreya, Mrityunjay** (1994a), "Global Turmoil and India's Response", Public Lecture at The Park.
- Athreya, Mrityunjay** (1994b), "Strategic Brand Management", Keynote paper for Students, Association Seminar, FMS, Delhi University.
- Athreya, Mrityunjay** (1995a), "Infrastructural Imperatives for India Vision 2005", Talk at the Indian Chamber of Commerce, Calcutta.
- Athreya, Mrityunjay** (1995b), "Vision and Strategy or the 21st Century", Talk at the RPG Conference, Bangalore.
- Athreya, Mrityunjay** (1995c), "R&D and Software Base—Optimising India's Potential", Paper presented at the Assocham Conference.
- Athreya, Mrityunjay** (1995d), "Indian Human Capital Optimization", Paper presented at the FICCI Seminar.
- Athreya, Mrityunjay** (1995e), "Corporate Sector for Social Development", Paper presented at the Ford Foundation—United Way International Seminar, Delhi.
- Athreya, Mrityunjay** (1995f), "Strategic Cost Management in the Liberalised Competitive Environment", ICWAI Regional Conference, Faridabad.
- Athreya, Mrityunjay** (1995g), "Personal Vision and Strategy in the New India", Public lecture under the auspices of Apeejay School of Marketing, Delhi.
- Athreya, Mrityunjay** (1996a), "Indian Ethos for Global Competitiveness", Talk at the AIMA—Chinmaya Seminar, Delhi.
- Athreya, Mrityunjay** (1996b), "HRD for India Vision 21st Century", Paper presented at the National Conference of National HRD Network, Hyderabad.
- Athreya, Mrityunjay** (1996c), "The UN at the Crossroads", Panel Discussion at the India International Centre, New Delhi.
- Athreya, Mrityunjay** (1996d), "Transforming the Public Sector", Kaleidoscope, SCOPE, Delhi.
- Athreya, Mrityunjay** (1996e), "The Triangle of Hope—NGO Business and the State", Paper presented at the Commonwealth Foundation of London and Society for Participatory Research in Asia Workshop.
- Athreya, Mrityunjay** (1997), "Productivity to Level the Playing Field", Inaugural Address at National Productivity Week, New Delhi.
- Daniel, Y. & Gustafson T.** (1995), "Russia 2010", The CERA Report, New York, Vintage Books. □

Strategies for Creative Advantage in Banking

T.S. Ravisankar

The present paper first discusses the happenings in the financial world and their impact on the very nature of competition in banking. It is then argued that in order to survive and grow, every bank has to 'strategically reposition' itself in the market by identifying its competencies and concentrating on a few core areas. It is contended that to have a competitive edge on a sustained basis, a bank should establish a "creative advantage" by harnessing its brainpower and process power through effective use of its people and technology.

T.S. Ravisankar is Professor at the National Institute of Bank Management, Kondhwe Khurd, NIBM Post Office, Pune-411 048.

Post Globalization Banking

Indian economic scene has been undergoing transformational changes, especially during the last five years, under the new economic policy put in place in the country with its thrust towards globalization, liberalization and deregulation. The financial system with its prime role as mobilizer of monetary resources and contributor to economic growth through its multifarious activities, also did find radical changes thrust upon it under the financial sector reforms framework provided by the Narasimham Committee. But the introduction of international accounting standards and of prudential norms like capital adequacy, asset classification and provisions, etc., also brought about negative impact on the bottomlines of banking institutions initially and to a greater extent on the public sector ones. Most of the nationalized banks have by now been able to tide over these difficulties and clean up and strengthen their balance sheets, some of them with substantial support from the Government, a few through access to the capital market and a few on their own core strengths. Many of them appear to be now relatively better placed to meet the future confidently, even though the competition in the market is widening and deepening. However, to effectively compete in the future, it is believed that some of the traditional response strategies may prove inadequate. Against this background, we consider, in this paper, a few strategies that a banking organization in India may have to adopt, first to survive and then to grow in the turbulent times ahead. It is also posited that it should be possible for every unit in the financial system in general (and banking in particular) to carve out a unique place for itself and succeed amidst the competing players, provided it identifies its core competencies and builds its future on the same by "positioning" itself appropriately in the market.

Banking system in India had a fairly comfortable journey during the first two decades since independence and was mainly under private ownership; the

The nationalization of 14 large banks in 1969, followed by six more in 1980 radically changed the orientation of banking towards a mass customer base.

State Bank group however had come under the public sector umbrella since the mid-fifties. The nationalization of 14 large banks in 1969 in first instance, followed by six more in 1980 radically changed the orientation of banking towards a mass customer base, from a sparse geographical spread and low population coverage prevalent in the earlier times. It is to the credit of the banks—though not that well appreciated and recognized—that they responded admirably to the needs of the times and dramatically expanded their branch network and customer base to the nooks and corners of the country. Naturally, this accelerated expansion process brought in its wake some shortcomings and deficiencies in the banks' functioning as commercial units. The more or less stable economic environment and the comfort of a highly regulated (and even administered) system saw the two decades since nationalization of banks pass off peacefully, without also much of a real competition.

When the Indian economy started entering the liberalization mode in mid-eighties, the concerns for the costs of providing socio-economic benefits came into sharp focus and issues of profitability, productivity and efficiency started receiving greater attention in banks—all the same the public sector banks remained "profitable" under the then prevailing accounting standards and disclosure levels. Once the globalization and liberalization process received the required thrust in the beginning of nineties, adoption of international accounting norms showed the true colours of the bank balance sheets. This of course was to be expected as many weaknesses would have definitely crept into the system during the more than 15 years of continuous drive towards expansion to the branch network and more importantly, of the balance sheet size; the consolidation phase of the late eighties did bring about some rationality in the race and an element of competition. With the opening up of the economy in the nineties, competition has intensified thanks to the entry of more foreign banks and new private sector banks and the growth of non-banking finance companies. Other agencies like Indian postal service may also enter the fray with the full range of banking services at a later stage. The facets of competition have been multiplying and the parameters for evaluating/measuring the competitive strength of a bank have also been getting redefined over the years globally, and these elements are now

coming to be seen in the Indian context also. In such an environment, some of the historical advantages the various members of the financial system used to enjoy in our country may not continue any longer. One of the fundamental reasons for this situation is the changing face of competition itself.

With the opening up of the economy in the nineties, competition has intensified thanks to the entry of more foreign banks and new private sector banks and the growth of non-banking finance companies.

In the olden times there used to be clear-cut role demarcations amongst the various units in the financial system and each of them was meeting the specific needs of one or more customer segments. Banks normally used to mobilise short term funds and also deploy them as working capital loans (demand loans) and short-term loans. Financial institutions (FIs) accessed funds through long-term bonds and applied them in project finance. The capital, money, foreign exchange and securities markets catered to the diverse investment, trading and related transactional needs of individuals, institutions and corporate units. Now banks are talking in terms of long-term project finance and FIs in terms of short-term deposit schemes and working capital loans. Mutual Funds, which were created mainly to facilitate wider investor participation in capital market, are also participants in the money and securities markets and most of them are also affiliated to banking and financial companies in some form or other. With the possibility of capital account convertibility being introduced during the next few years, the money and forex markets would integrate and practically all the fire walls amidst various financial market segments would get dismantled; competition for banks will then arise both from within and outside the financial system. In fact, besides these currently visible ones, newer players may also compete with banks both in resource mobilization and credit extension. Already the signs are clear on the horizon. Many large corporates are realising a substantial part of their income from the "treasury function"—investment operations, inter-corporate lending, etc. Many of them also mobilise funds in the market through public deposits, and in the recent times through External Commercial Borrowings (ECBs)—besides of course through capital market instruments (with Indian and foreign participation). Since many of these external unsecured loans are not tied to any specific projects, a major part of these would remain on the lending/investment portfolio of the company for sometime, at least till it is

expended on capital formation, if at all. For instance, the Annual Report of Reliance Industries Ltd (1996-97) reveals that up to March 1997, the company has raised \$914 million from the international financial markets, by way of loans/ bonds/notes with maturities ranging from 7 years to 100 years with a minimum average maturity of 32 years; the company also had an investment portfolio of the size of Rs. 4456 crores as on 31-3-1997 and a loans and advances component of Rs. 1296 crores. Essentially the large corporates have started doing some sort of financial intermediation, which used to be the exclusive preserve of banks at one time. Also, in the process, their own dependence on the banks and

With the possibility of capital account convertibility being introduced during the next few years, the money and forex markets would integrate and practically all the fire walls amidst various financial market segments would get dismantled.

financial institutions for funds is being scaled down. In the further drive towards liberalization, these units may also float banking units to take care of their financial and transactional needs. This is a phenomenon witnessed abroad also where some large MNCs leverage their financial and market strengths to raise funds internationally at a finer rate and place them with mid-corporates locally and book substantial arbitrage income (even after providing for the risk elements); some of them also have financial services companies as their subsidiaries/associates. This recent tendency of Indian companies to source their funds abroad at a relatively cheaper cost, may be temporarily curtailed for some time due to the downgrading of India's sovereign rating by Standard and Poor's, from "positive" to "stable" with reduced prospects for an upgrade in the rating over the next one to three years; raising funds locally may prove to be cheaper than ECBs in this situation (*The Economic Times*, 7 October 1997). Another group of potential competitors for banks, especially in the deployment of funds, could be the provident, pension and insurance funds operating abroad who may enter the Indian market under the WTO regime sometime in future, if not in the immediate context. Essentially, the traditional banking functions are no longer the sole preserve of banks alone.

The question therefore arises as to what banks and other members of the financial world should do to function in this environment and continue to remain profitable in the future and as to what strategies they need to adopt to survive and grow. This question is addressed in a study

being carried out by the finance faculty of the Harvard Business school under a 'Global Financial System' project, with participation from many leading institutions across the world. A report of the first phase of this study has appeared in a book by Crane and Bodie. The study focuses on the underlying functions that all financial systems must perform irrespective of the country affiliation, recognizing that the institutional mechanisms to carry out these functions may vary from country to country. The six core needs identified by the study are: (a) methods of *making payments* in order to facilitate the exchange of goods and services; (b) mechanisms for *pooling resources* to fund large scale enterprises; (c) ways to *transfer economic resources* over time and across distances; (d) methods of *managing risk*, such as insuring, diversifying and hedging; (e) provision of *price information*, such as interest rates and securities prices to help coordinate decentralized decision making in various sectors of the economy; and (f) ways to *handle incentive problems* that interfere with efficient business transactions (Crane and Bodie, 1996).

The authors of the report point out that the way each of these functions gets performed would change over time due to product innovation, technological improvements and competitive pressures on efficiency in servicing. Many banking institutions which used to offer an umbrella of services have found that they could operate more effectively (and profitably) if they focus their attention on a few of the above functions and create a "niche" for themselves in the market rather than try to do everything (and not so efficiently). The authors conclude however that in future some institutions may recombine and package the functions differently to meet customer needs better and also take advantage of new technology to produce and deliver products/services at lower cost. This of course calls for ongoing creative efforts in the banks towards continuous innovation in the design of products and in the packaging and delivery systems—among other things. Interestingly, the above referred paper poses the following fundamental question in its caption: "Will the banks of the twenty-first century be banks?"—Perhaps not, in the traditional sense!

Hamel and Prahalad (1994) argue in their book that only those companies would survive and thrive in the future which lead their customers "where they want to go but don't know it yet". A similar sentiment is discernible in the words attributed to Akio Morita (former CEO, Sony Corporation): "our plan is to lead the public with new products rather than ask them what kind of products they want" (Hamel and Prahalad, 1990 p. 108). Hamel and Prahalad advocate that companies in general (and banks in particular) should build their future around the "core competencies" that they already have or have

the capacity to create. Competencies, in their thesis, are technological and production skills that enable an organisation to adapt quickly to changing markets. Of course the organisation should also have the capabilities to convert these competencies into competitive advantages in the market. The authors identify nine 'core' areas in the financial services industry of the future, structured differently from the six functions cited by Crane and Bodie and more oriented towards the operational side (Hamel and Prahlad, 1994 p. 246). Among other things they include relationship management, financial engineering and customer information capture.

Companies in general (and banks in particular) should build their future around the "core competencies" that they already have or have the capacity to create.

Some of the directional changes indicated above are already beginning to manifest in Indian banking, though not clearly as yet. At one end we have one set of banks/financial institutions which are trying to eventually get into all the six functions cited by Crane and Bodie—themselves or through subsidiaries/associates and via strategic alliances/joint ventures. At the other end, there are a few banks, mostly the foreign ones with a meagre branch network, who have carved out a 'niche' for themselves in the transfer of financial resources from foreign countries to India, by managing, co-ordinating and arranging for foreign funds for their Indian corporate clients; the bank itself may or may not have funded participation in these deals. A few banks mainly offer advisory services in portfolio and risk management and also provide access to hedging instruments like options, futures, swaps, etc., or derivatives in general. A feel of this situation could be obtained, for instance, by just looking into the advertisements of ABN-Amro Bank, Union Bank of Switzerland or of Bankers Trust that appear in the 'Foreign Investment' supplement of *Economic Times*, Sept. 25, 1997. Majority of the public sector banks find themselves midway in this spectrum with no clear cut identity or brand equity or 'niche' in the financial market. However, most of them are participants in consortium lending, a mechanism by which banks pool their resources to fund large scale projects; however, this practice has emerged mainly out of regulatory compulsions and not as a means of reducing risk exposure levels. Though the mutual funds promoted by banks and other agencies could be considered as pooling mechanisms, they are not directly involved in the funding of large enterprises, except sometimes through

subscription to the primary public issues of the projects. However, they could be viewed as institutions managing the capital market exposure risk of individual investors. Reuters could be considered as an agency whose primary function is to supply price and other related information across the world through electronic and other media.

The traditional lending role of banks could be considered as a combination of the transfer of resources and risk management functions described by Crane and Bodie. However, in the last few years, this function is also getting unbundled into different specialized components—like loan origination, loan funding and loan servicing (with the addition of loan booking in more recent times). In the western world, loan originators are usually closer to the clientele with a wider network of branch outlets while institutions with excess liquidity do fund these loans directly or through the securitization route. Loan servicing is more of a collection and transaction processing business where economies of scale do matter; electronic banking facilities have enabled institutions abroad to carry out these activities efficiently. In USA, for instance, Countrywide Credit Industries is the largest mortgage loan originator and it is *not* a banking institution (Crane and Bodie, 1996, p. 112). In India also we now have a Countrywide—a joint venture of GE Capital and HDFC—which funds consumer loans for electronic items on the spot, at some select dealer outlets; here these dealer outfits could also be considered as loan originators. In this case, the potential loanee is deemed to be credit-worthy if he is the holder of a credit card and a passport or driving licence. The evaluation of the bona fides and of the (loan) repayment capacity of the customer is expected to have been taken care of by the issuers of the passport and credit cards respectively; the issuing agencies indirectly contribute to the loan origination in this case. We also have the Citibank which originates and funds automobile loans in the country; it has now securitized some of these loans and sold out in the market, technically exiting from the funding part of these loans. That collection, transaction processing and payment mechanisms could be creatively combined by the application of Information and Communication Technology has been well demonstrated by Corporation Bank in the last two or three years by way of its cash management services operated through their CAPS (Collection And Payment Service) centres. This fast collection service has proved to be a market "niche" or differentiation factor for the bank. This service has not only made substantial contribution to the bank's bottom line, but has also brought good corporate clients to the bank's fold initially for this product and subsequently for others as well. Thus a 'niche' product can also work as customer attraction factor for a bank's wider product range.

That collection, transaction processing and payment mechanisms could be creatively combined by the application of Information and Communication Technology has been well demonstrated by Corporation Bank by way of its cash management services operated through their CAPS centres.

Moreover, banks which concentrate on one or two core functions (or their components) and/or combine them effectively to meet the customer needs, may get a competitive advantage over others in the market. In such a case, one good marketing strategy for the future is likely to be "focus" on the customer, product, geographical or functional segments or on a mix of these. Indeed, in the words of Al Ries and Jack Trout, "The word for the twenty-first century is focus. Whatever you are doing today, do fewer things tomorrow. But do them better" (Gibson, 1997). By having a clear cut idea of the market one wishes to serve and by identifying the customer needs and expectations in that segment, it may be possible for a bank to design and launch a radically new product or an old one with additional features to create a unique competitive position for itself. However, in a service industry like banking, this uniqueness is not sustainable over a long period of time as any competitor could recombine/repackage its elements in a different way and launch a "new" product with additional and distinguishing features. As such, it is argued that in current times there is nothing like sustainable competitive advantage. In fact, according to Prahlad, quality, which is considered to be a source of competitive advantage today, will be merely the "price of market entry" in the 21st century and not a differentiator (Gibson, 1997). As such, organisations may have to go one creating newer competitive spaces every now and then in order to sustain and grow. Thus, as de Boer hypothesizes, "strategy is less about sustainable advantage and more about building the capability for innovation and adaptation that allows one to create a series of temporary advantages" (de Boer, 1997).

Strategy is less about sustainable advantage and more about building the capability for innovation and adaptation that allows one to create a series of temporary advantages.

The process of strategic thinking has passed through many phases in its evolutionary development and individual members of the Indian financial system have adopted different modes at various points of time depending on their then market positions. An institution like Unit Trust of India (UTI) enjoyed an *absolute advantage* in the market for more than 20 years as the only mutual fund in the country. During that period they did not feel the pressure to innovate and come out with new products; they mainly confined themselves to a few core products like Unit-64, ULIP, etc. However, once the other mutual funds came into the picture, UTI has forced to come out every now and then with some new scheme or other. Some nationalized banks enjoy a *comparative advantage* by virtue of their natural resources endowment, in terms of wide geographical spread of branch network and/or size of the balance sheet. Some Indian private sector banks are technically better positioned to make quicker decisions and take prudent commercial risks, especially in credit matters. On the other hand, the public sector banks have the *comparative disadvantage* in this regard, having a vigilance system which is yet to come to terms with the reality that commercial banking is basically a risk-taking activity and that among many commercial judgements made in a bank, a few could turn out to be bad over time in the natural process. The new private sector and foreign banks have been able to neutralise some of these comparative advantages of others by extensive use of communication and information technology to gain a competitive edge in some aspects of banking. While the foreign banks operating in India have wide access to technology, funds and expertise internally, new private Indian banks have started their operations with technology base right from day one, providing both these categories of banks a *competitive advantage* in the market. The State Bank of India has certain unique features like a fairly large presence in every state and Union Territory of the country (giving them physical access to every nook and corner of the country), nearly 30 per cent market share of the total banking business in the country (in conjunction with its seven associate banks) and well-established systems and procedures. However, with the recent developments on the technology front, it is possible for banks to provide focussed banking services in a region without actually having many branches in that part of the country; in such a case, having a large branch network may even prove to be a cost disadvantage for banks. It is also possible that the 'home banking' and the ATM (Automated Teller Machine) services may even reduce a bank branch to just a back office support unit. Fortunately, studies in developed countries show that the society still prefers banking to remain as a service based on (human) relationships through people and to be carried out in a physical branch location, with technology only provid-

ing the support for decision-making and transaction processing. The basic questions of course are: what is going to be 'banking' in the twenty-first century and which competitive space would/should each bank occupy in this milieu?

It is also possible that the 'home banking' and the ATM (Automated Teller Machine) services may even reduce a bank branch to just a back office support unit.

As argued above, banks will be able to survive and grow in the emerging environment only by maintaining a *creative advantage* over the competitors on a sustained basis by periodically coming out with newer and/or improved products and services and by slowly shedding out those with diminishing returns; here we use the term "product" in a wider sense to include design, price, features, delivery systems, etc. Indeed, this thesis is also supported by a study of banking units around the world which identifies, among others, financial innovation, human resources, and technology as key sources of competitive strengths in the emerging financial markets (McNaughton, 1992). While the people-side requirement would be for a competent, committed and adaptable work force, innovation is essentially a function of unrestrained human ingenuity and creativity with technology playing the supportive role. In this situation, it is very likely that banking may gradually evolve into a "brain power" industry (in the sense of Lester Thurow) from its current and traditional "financial power" mode. Thurow posits that "there is no natural home for these industries. They can be anywhere on the face of the globe. Which means that anybody can potentially compete for them, if they can organize the necessary brain power to do so" (Gibson, 1997). Thus the basic requirement for a bank to establish and sustain a creative advantage over others seems to be the capacity to organize the necessary brain power!

Banks will be able to survive and grow in the emerging environment only by maintaining a *creative advantage* over the competitors on a sustained basis.

Given that every bank already has on its rolls, a complement of employees with different educational backgrounds, skills, experience levels, attitudes and

The basic requirement for a bank to establish and sustain a creative advantage over others seems to be the capacity to organize the necessary brain power!

potential, the question arises as to how to create that "brain power" within the organisation. It is posited that the "creative advantage" that a bank wants to gain over others has to be built and refurbished periodically through team effort in the organisation, even though the conceptualizer or originator of the nuclear idea of a product/service/system could sometimes also be an individual. This is due to the fact that there have to be individuals/mechanisms/processes to translate any idea or concept into a tangible product. There have to be people and organisational units to give a proper shape to the core idea and convert it into a product design, to then determine the market potential and acceptability of the designed product, to study the competition and build the "differentiation" features into the product, to examine the cost, pricing and financial viability aspects, to design the delivery systems and to finally launch the product/service through proper positioning and promotion efforts (a "creative" team as generally seen in the advertising agencies). In fact, Thurow cautions that having brain power alone is not enough and that process power is equally important to transform innovative and creative ideas into marketable products (Gibson, 1997). Processes, however, depend on people, technology and systems. It is clear that one single individual, however creative he may be, cannot do justice and be efficient in all the above cited dimensions from concept to delivery and also be able to combine them effectively. In fact, a study on the thinking preferences of human beings points out that, in each individual, there would generally be one dominant characteristic out of the four modes of thinking/learning, namely, of the analytical, structured, emotional and conceptual types (Herrmann, 1990). These four ways of thinking correspond to the respective quadrants of the physical brain, viz. left cerebral hemisphere, left limbic system, right limbic system and right cerebral hemisphere. This dominance profile evolves in every person over the growing years, gets imprinted at some stage and subsequently conditions his/her response pattern to the environment around and also his/her action orientation into the four modes of analyzer, administrator, nurturer and creative synthesizer. Since we are talking of periodic innovations (new products/systems/processes) to effectively compete in the market, and since that goes beyond the conception part into design, packaging, pricing, targeting, customising etc., all the four thinking/action preferences/orientations have to combine

well to successfully move from ideation to actual delivery and promotion of a product. In fact, Garfield points out in his extensive study of 'peak performers' that even in the case of individuals, perceived successes are actually backed up by a strong team behind the scene (Garfield, 1987). As such, it is for the top management in banks to properly identify the skills and thinking potential of various employees and mobilise them as creative (and productive) teams at various levels and this could provide the innovative thrust and competitive edge to the organisation on a sustained basis.

It is for the top management in banks to identify the skills and thinking potential of various employees and mobilise them as creative (and productive) teams at various levels to provide the innovative thrust and competitive edge on a sustained basis.

In conclusion, the main thrust of the present paper is to establish that the only way banks would be able to sustain and effectively compete in the future will be by supplementing their financial power with "Brain power" and process power. The way things are changing in the financial world abroad, after some time, it will become more and more difficult for banks in India, to identify what they should be doing, what to compete for and who really the competitors are. One of the strategies for survival and growth for a bank would then be the identification of its core competencies and redefinition of its

role with focal attention to and specialisation in a few core areas. In this process, core competencies can be built even on the unbundled components of many of the traditional banking functions. To gain a competitive edge on a sustained basis, a bank should build a creative advantage in relation to its competitors by a blend of people and technology power. And finally, even amidst the turbulent changes that are likely to take place in the Indian financial system, it should be possible for every banking unit in this country to survive and grow well, provided it snatches the opportunity to redefine itself in the market and to shape its own destiny—a hope also shared in a more general form by Hamel and Prahalad in the new preface to their old book!

References

- Crane Dwight B. & Bodie Zvi (1996), "The Transformation of Banking—Form Follows Function", *Harvard Business Review*, Vol. 74, No. 2, March-April.
- De Boer Kito (1997), "Strategy is deed", *Business Standard Supplement, The Strategist*, 18th March.
- Garfield Charles (1987), "Peak Performers", Avon Books, New York.
- Gibson Rowan (1997), "Rethinking the Future", Nicholas Brealey Publishing, London.
- Hamel Gary & Prahalad C.K. (1990), "Competing for the Future", (paperback edition), Harvard Business School Press, Mass, USA.
- Herrmann Ned (1994), "The Creative Brain", (Revised Edition), Brain Books, USA.
- McNaughton Diana *et al* (1992), "Banking Institutions in Developing Markets", Vol. I: Building Strong Management and Responding to Change", World Bank, Washington, USA.

□

Business Process Reengineering: A Strategic Tool – Its Relevance in India

S.N. Nandi & D.K. Banwet

Business Process Reengineering (BPR) is a new management tool which stands for innovative manner of organising work to the satisfaction of customers. It makes use of the potentiality of Information Technology (IT) and other evolving strategic dispositions. Quite often it involves changes in organisation structure, compensation system, corporate value system etc. After an extensive literature survey on the subject, the paper outlines a few typical approaches advocated by different authors. Further, some of the essential design guidelines on BPR in the literature are enumerated. Lastly, the existing as also emergent socio-economic environment has been analysed to examine the possibility of faster and wider application of BPR in Indian industry.

S.N. Nandi is Director, (Benchmarking & TQM), National Productivity Council, Lodi Road, New Delhi-3 and D.K. Banwet is Professor, Department of Management Studies, IIT Delhi.

Introduction

With economic liberalisation and increasing globalisation, Indian organisations are faced with great challenges. Some organisations have been adapting themselves effectively but there are many who are bewildered by the nature as well as the quantum of challenges posed to them. ISO - 9000 was regarded by many of them as a panacea but the euphoria has been short lived. Many have now realised that real improvement has to take place in the way things are done at the execution level. Excellent decisions alone may not deliver the results for long. Right decisions with right execution alone could deliver the goods.

There are a handful of organisations like Eicher Tractors, Maruti Udyog Ltd, which have been really concerned about improvement at the execution level. These organisations have adopted the Total Quality Management (TQM) path to encourage people at the operational level to make improvement through *Kaizen*. In the course of these experiences, these organisations have rightly realised the need for a major improvement to be made in their process of execution and have accordingly very recently initiated steps known as "Business Process Reengineering" (BPR). However, there is another group of companies who have adopted an Information Technology (IT) centred approach for radically improving their processes of execution. They have mostly made use of some of proprietary total business solutions like application of Enterprise Level Resource Planning (ERP) software package which provides integrated control information system to the management. This second group of organisations may or may not have provided their employees sufficient time to make improvements through *Kaizen*. A third group of organisations are trying to initiate BPR without having preparation either on TQM or IT related areas. Such kind of scenario indicates that there has not been sufficient understanding of BPR in Indian organisations. This paper

essentially aims at explaining relevant concepts, and issues, and the significance of BPR in Indian conditions.

It was Michael Hammer who popularized an approach for dramatic improvement named as Business Process Reengineering (BPR). The term Business Process Reengineering was coined in Massachusetts Institute of Technology's (MIT) research programme 'Management in the 1990's' which ran from 1984 to 1989. During this project researchers observed as illustrated by Davenport that successful organisations were using IT systems in ways quite different from the traditional automation of clerical and operational tasks (Davenport, 1993). Venkataraman elaborated these observations and identified BPR as the third stage in the five-level IT-induced organisational transformation model he has postulated (Venkataraman, 1994). The term BPR was used quite precisely to describe the use of IT to transform the way in which an organisation works internally rather than simply to automate the way that it already worked. The ideas were then further popularized by Hammer in his seminal article. "Reengineering work; Don't Automate, Obliterate" which appeared in 1990 in Harvard Business Review (Hammer, 1990). He warned against paving the cow paths with IT and suggested that organisations should rethink their businesses by capitalising on the opportunities provided by the new information technologies.

Concept

According to Hammer and Champy, Business Process Reengineering is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical and contemporary measures of performance, such as cost, quality, services and speed (Hammer & Champy, 1993).

The above definition which is accepted by all could be elaborated further if the four key components of the definition are explained to a greater extent in the light of the understanding which western countries have built up over the years as given below:

- (a) *Fundamental rethinking and radical redesign* signifies an innovation that is a new way of thinking and acting. Fundamental rethinking refers to an enquiry on the most basic thing and asking fundamental questions about the existing methods and prevailing practices in organisations. Thus one gets to the root of the things: Not making superficial changes or refinements with what is already in place. People who are conversant with work study

could remember the purpose of asking a basic question—'WHY?'. To find out an answer related to the fundamental reason for an action helps one to make a breakthrough improvement.

- (b) *Business process* is a sequence of activities or operations performed on one or more inputs to deliver an output. It is a customer/demand driven, technological ordered set of operations. For example, order fulfilment process includes several tasks which are required to be carried out by different functional departments of an organisation. Such cross-functional set of tasks is often the focus for BPR.
- (c) *Dramatic improvement* reflects achievements in terms of customer valued performance measures. It implies not to be content with 10 or 20 per cent improvement in a certain activity or process but to get 10 times improvement and so on.
- (d) *Critical and contemporary measures of performance* highlight the criteria which dominant stake holders in the prevailing markets look for. This includes assessment of the bargaining strength of various stake holders as well as the priorities in their expectations. This part of the definition makes BPR a dynamic and context-dependent contingency management approach.

There are many other definitions provided by experts throughout the world. Most of these definitions differ in emphasis. For example, according to *Business Intelligence*, BPR is "The transformation of a company from one based on functions, such as accounting, marketing and manufacturing to one based on processes, such as order processing and fulfilling customer expectations" (Business Intelligence, 1993).

The above definition stresses reorganisation from the existing functional structure to a process based structure to be the core part of the BPR. Similarly, Davenport implicitly defines BPR as "a revolutionary approach that makes use of IT & Human Resource Management (HRM) to dramatically improve business performances" (Davenport, 1993). Information technology is a dominant factor in the above view. Similarly, much more operation management perspective has been implied when Touche Ross defines: "Reengineering is a multi-disciplinary approach to implementing fundamental change in the way work is performed across the organisation with the goal of dramatically improving performance and stockholder value" (Ross, 1993).

Table 1: Comparison of Improvement Tools

Criteria	Work study	Value Engineering	Quality Improvement	IT based information solution	Business Process Reengineering
Objective	Labour productivity	Cost reduction	Conformance to customer requirements	Management control	Business performance
Focus	Micro operations	Product	Operation process	Information system	Process
Improvement Scale	Problem based Incremental	Problem based Incremental	Continuous Incremental	Discontinuous Incremental	Discontinuous Radical
Customer focus	Internal Cost driven	Internal Cost driven	Internal and external customer satisfaction	Both cost and customer related information	Customer driven
Output	Efficient operation	Cheaper/Enhanced value product	Error free operation/process	Faster and right information available	Ideal or streamlined process
Techniques	Method Study, Work, Measurement, Ergonomics	Functional Analysis, Creativity	SPC, ISO-9000, Process Maps	Critical success Factors, Data flow diagram	Process Maps IS/IT, Creativity

The above four definitions do indicate that there could be many variations of Business Process Reengineering with varying scope and complexity but the essence remains with the business process or the way work is organised to satisfy a customer.

Literature Review

The fact that BPR made tremendous impact on western societies, both in the academic and the practical arena during the nineties could be judged from the fact that more than 1000 books and articles have been published on the subject till now. However, the first half of nineties was the hey day of the subject in the west. In order to understand the nature of issues discussed during this period in the west, about 160 publications (see Annexure for details) sampled on the basis of their easy availability, were classified and categorised as per the aspects discussed in them (Fig. 1). It was found maximum number of publications, 26, on the subject appeared during 1993-94. The largest number is found to relate to the concept of BPR. This is significant as it reflects that BPR raised considerable number of debates in North America and Europe during the period. It is understandable as to the fact that BPR is an essentially market driven 'pull' oriented resource reallocation tool unlike most of the previously known management tools and techniques. It questions the general management on how a business is undertaken.

Application of BPR, in service environment is the second most popular aspect treated in the writings on BPR, with 28 publications from 1991 to 1995. This again understandable because of the easy of application of IT in re-designing service delivery process. The third in the rank of popularity with a tally of 26 is the issue of human

resources which are thrown open with increasing number of applications of BPR over a period. This is reaffirmed by the considerable number of works found on this during the current times, i.e. 1995 and onwards. Methodology of BPR ranks fourth with 21 publications, as several alternative methods were attempted during 1993-94.

Surprisingly, an interface between TQM and BPR has been discussed only in two of the articles.

Few serious articles have been written on the subject in India. However, one of the popular business magazines chose this subject as a theme of a special issue during 1996. For the rest, there has been very little academic study on business processes and their improvements and innovation in Indian environment.

There has been very little academic study on business processes and their improvements and innovation in Indian environment.

Comparison with Other Improvement Tools

Given the wide variations in conception, as mentioned earlier, BPR is often equated inappropriately with the following improvement tools:

- Work study
- Value Engineering
- IT based information solution
- Quality improvement

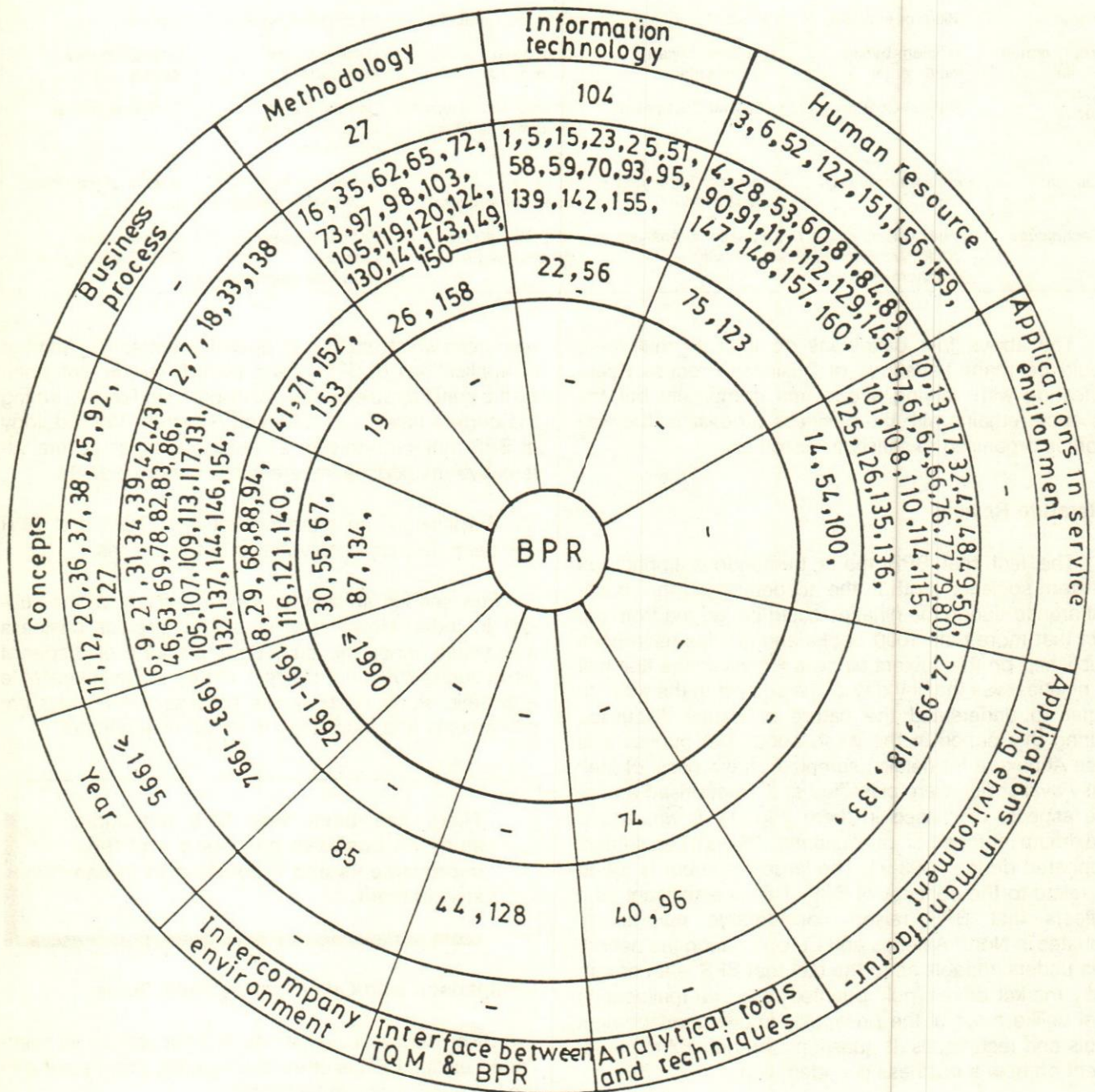


Fig. 1. Aspect-wise break-up of literature on BPR

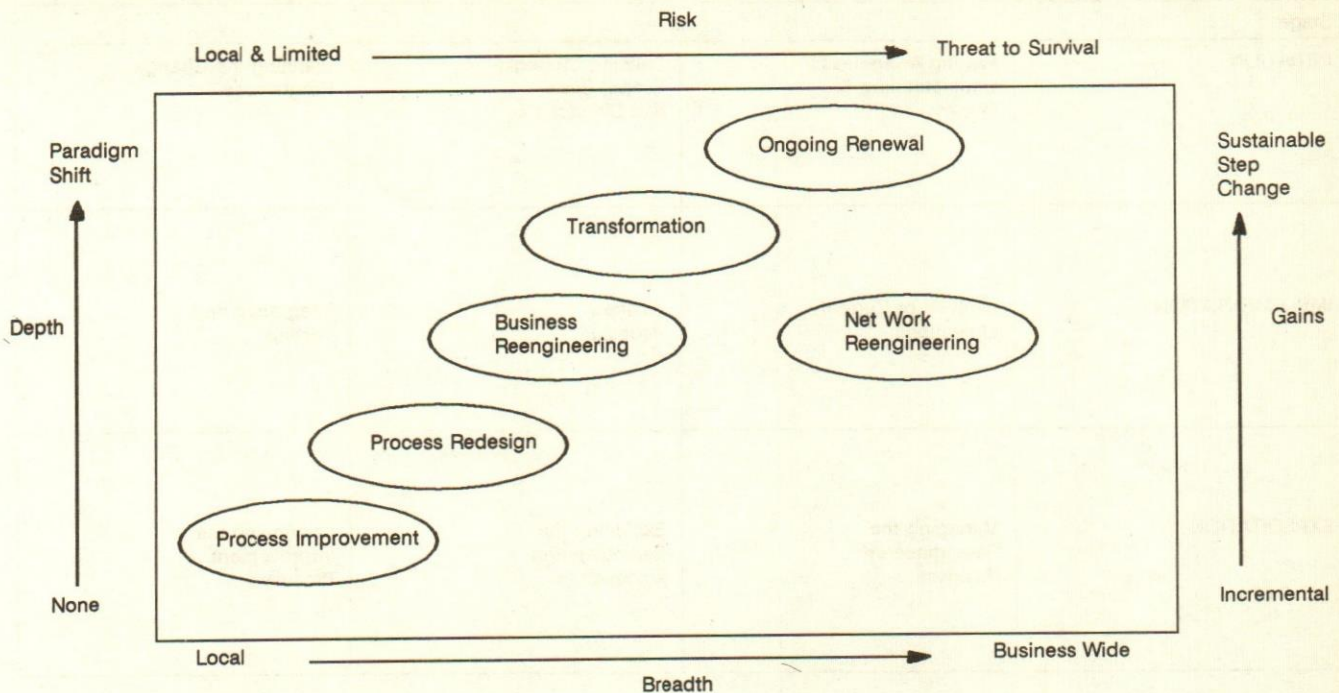


Fig. 2. Breadth-Depthwise Levels of BPR

Based on the extensive literature surveyed, it has been found that BPR differs markedly from any of the above mentioned concepts and tools in terms of objective, focus, etc. as illustrated in the Table 1.

Work Study and Value Engineering are tools which originated and subsequently were extensively used in the west till 70's when management was inward looking and markets were sellers' driven. Cost reduction and enhancement of resource productivity were the dominant concern of management. However, since 70's, management started placing increasingly more attention to 'quality' when markets became more competitive. Increasing availability, around about the same time, of IT resources also started providing faster real-time basis information as required by management for planning and control. Consequently, IT based functional and/or enterprise wide information systems came handy for management to prevent major achievements slipping from targets. Compared to all the approaches mentioned above, BPR is much more "pull" oriented. Business processes are revamped often with the help of IT to achieve substantial improvement in business performances. Thus, BPR is a tool for strategic management. It is resorted to in executing business strategy especially, when customer service based differentiation becomes a strategic lever for drawing customers.

Scope of BPR

A typical business process has two characteristics—

breadth and depth. Breadth refers to scope. A process can be narrowly defined as a single activity within a single function (normally referred to as work process) or broadly defined as the entire business system for the business unit (normally referred to as total business process). Depth of a process refers to the linkage with other aspects of an organisation like roles and responsibilities, measurements and incentives, organisational structure, information technology, shared values and skills.

Western experiences have shown that the impact of BPR greatly depends upon proper coverage of a business process in terms of breadth and depth. Many reengineering efforts fail because of insufficient process breadth. Consider a European commercial bank's reengineering effort as described by Hall *et al* (Hall, Rosenthal & Wade, 1993). By redesigning some of its back-office processes, the bank expected to reduce process costs by as much as 23 per cent. However, the actual cost reduction, when measured in terms of total business-unit costs, was only 5 per cent earnings before interest and taxes (EBIT) improved by a scant 3 per cent. The reason for such modest results: the bank had overlooked many other back-office processes in planning the redesign; in addition, back-office costs in general represented only 40 per cent the bank's total costs. The process, in short, had been too narrowly defined to have any significant impact on business unit performance as a whole.

Successful redesign of a process with high depth involves a complete restructuring of all the key drivers of

Stage	Features		
INITIATION	Raising Awareness Understanding & Interest	Defining Strategic Scope, Scale and Director	Planning the Change Programme
IMPLEMENTATION	Analysis of Current Operations	Business Redesign	Integration and Testing
EXPLOITATION	Managing the Re-engineered Business	Exploiting the Re-engineered Architecture	Continuing the Improvement Process

Fig. 3. Talwar's approach for BPR

behaviour so that the actual results measures up to the plan. The same authors narrate a case of a US electronic equipment manufacturer who realised the hard way how important, it was to address all the important depth levers for improving performance. Managers knew that one of the key performance problems was the large sales discounts given to the company's biggest customers. The redesign team felt that the solution lay in changing the existing revenue-based schemes to a profit-based one. However, the company did not initially include compensation for its accounts executives in the redesign. As a result, despite new job aids and negotiation training, managers saw little improvement in discount levels. When the company eventually switched to a profit-based compensation plan, discount levels fell from 29 to 20 per cent off the list price within a matter of weeks. The company has now projected an overall improvement of 25 per cent in EBIT.

Successful redesign of a process with high depth involves a complete restructuring of all the key drivers of behaviour so that the actual results measures up to the plan.

Depending on the breadth and depth of a business process to be re-engineered, BPR has been labelled dif-

ferently as, business reengineering, corporate (Talwar, 1994). Reengineering with a simplest process which often results in some amount of improvement, say 15-16 per cent is normally termed as process improvement. In fact, all these different types of BPR are depicted in a breadth depth continuum in Fig. 2.

Methodology

There is a wide range of methodology in which seek to synergise some of the ideas implicit in the reengineering concept. While some methods focus on the analysis and the redesign tasks, others focus on the definition of strategy or the development of the underlying information system.

Given the wide variety of methods in practice a few typical ones are given below to show the essence of BPR approaches adopted by organisations.

Talwar Model

Developed by Talwar (Fig. 3), this seeks to strike a balance between strategy formulation, process redesign, and exploitation and management of the reengineered business (Torrey, 1993; Talwar, 1994). It entails three stages below.

- Programme Initiation: Objectives and scope for the study are delineated.

- Design and implementation: Processes as decided under the scope are redesigned and prototypes are formulated.
- Exploitation of the re-engineered business: The redesigned processes and changes in enablers are implemented.

- Undertake the detailed planning of the change process.

In short, the first stage prepares the ground for undertaking a reengineering exercise.

Design & Implementation

- Map, model and analyse the current process (es), capturing performance measures to help highlight the need for change and determine if immediate improvement can be made. Identify customer requirements and expectations from the process and (possibly) benchmark the process against best-of-breed organisations. In analysing a process it is important to distinguish between the flows of activity and control in the process and the ways in which data and documents are used in the process.
- Generate a range of options for redesigning the process each of which will significantly improve performance—typically using different configurations of process roles, work tasks and technology support. Develop an outline busi-

Programme Initiation

- Build the awareness of business processes, create an understanding of the concepts of reengineering and generate an interest in the need for, and opportunities to achieve sustainable performance improvement.
- Clarify the strategic direction and target architecture. Determine the strategic objectives for the exercise. Decide on the scale of change required and the number and scope of the candidate processes for reengineering. Define the business requirements and performance objectives that the re-engineered processes will fulfil and select a programme owner and project team(s).

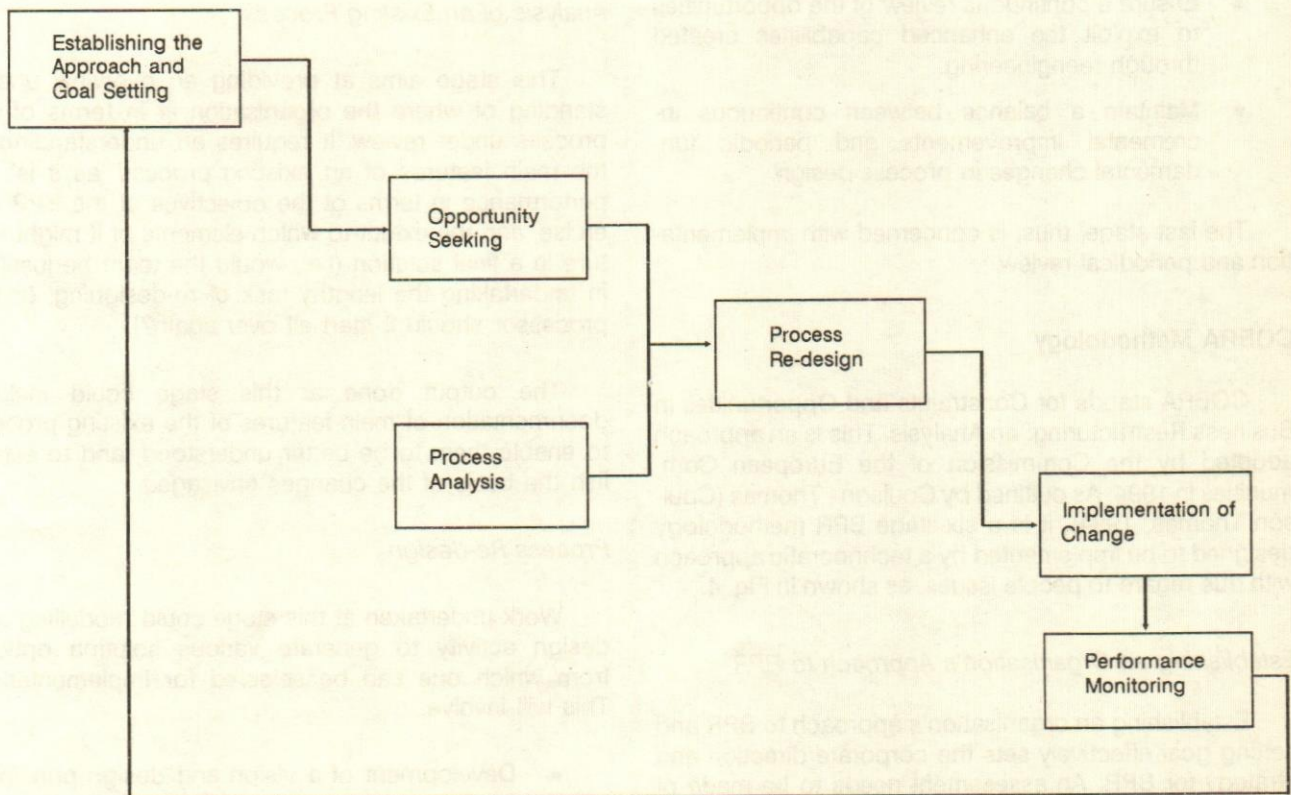


Fig. 4. Steps for COBRA Methodology

ness case for each option.

- Test the options against key measures, such as customer requirement, cost and quality objectives. Select the preferred option and develop the business case. Develop the redesigned business process (es), develop or enhance the underlying computer systems and plan the migration steps.
- Prototype, test and refine the redesign in a laboratory setting; train the users and integrate the reengineered processes into the live business environment; test them in operation and implement any immediate refinements.

Thus, the stage undertakes all the technical aspects of reengineering.

Exploitation of the Reengineered Business

- Provide ongoing support to the reengineering operation, help managers and staff adjust to new roles, responsibilities and methods of working; monitor performance and initiate ongoing refinements.
- Ensure a continuous review of the opportunities to exploit the enhanced capabilities created through reengineering.
- Maintain a balance between continuous incremental improvements and periodic fundamental changes in process design.

The last stage, thus, is concerned with implementation and periodical review.

COBRA Methodology

COBRA stands for Constraints and Opportunities in Business Restructuring: an Analysis. This is an approach adopted by the Commission of the European Communities in 1994. As outlined by Coulson - Thomas (Coulson Thomas, 1994), it is a six-stage BPR methodology designed to be implemented by a technocratic approach with due regard to people issues, as shown in Fig. 4.

Establishing an Organisation's Approach to BPR

Establishing an organisation's approach to BPR and setting goal effectively sets the corporate direction and strategy for BPR. An assessment needs to be made of the situation and circumstances, and of the context within which an organisation operates, in order to determine how much change is required, the scope of a BPR exercise, the form it should take and where it should

start. Outputs at this stage should include both a changed vision, agreed parameters for the scale, scope and nature of what needs to be done, and a shared understanding of the risks involved.

Identifying the Opportunity

Identifying areas with scope for fundamental and strategic change, opportunities for radical breakthroughs in performance and sustainable competitive advantage. The most significant opportunities and processes, from the view point of impact on the customer and the achievement of business objectives need to be assessed and prioritised, and one (or more) greenfield opportunities or process(es) selected as the focus of a reengineering exercise.

Outputs at this stage could include: (i) a list of areas of opportunity (eg. where there appear to be levers, gaps, or spring-boards) that would allow more than incremental changes to be achieved; and (ii) an agreed set of reengineering targets and priorities, along with agreed and measurable objectives in terms of what would represent a successful outcome.

Analysis of an Existing Process

This stage aims at providing an overview understanding of where the organisation is in terms of the process under review. It requires an understanding of the main features of an existing process 'as it is', its performance in terms of the objectives of the BPR exercise, and the extent to which elements of it might feature in a final solution (i.e., would the team be justified in undertaking the lengthy task of re-designing, or the processor should it start all over again?)

The output done at this stage could include documentation of main features of the existing process to enable them to be better understood, and to establish the basis of the changes envisaged.

Process Re-design

Work undertaken at this stage could modelling and design activity to generate various solution options from which one can be selected for implementation. This will involve:

- Development of a vision and design principles for the area or process being examined, based on original thought and the results of environment scanning and monitoring.
- Looking creatively at the interaction between

people, processes, information, understanding and supporting technology. This is to develop innovative ways in which these elements can be brought together together to achieve breakthrough levels of performance improvement.

In short, this stage provides the blue print of the new process.

Implementation of the Change

This seeks stage to turn the vision into reality and achieve a sustainable advantage in the delivery of value to stake holders. This includes tackling the attitudinal and behavioural issues, measuring and monitoring outcome, and ensuring that the resulting solution has in it the means of further learning and refinement.

Performance Monitoring

This stage assesses the extent to which attitudinal, behavioural and performance changes have actually taken place and the initial goals and objectives are being achieved.

Rapid Reengineering Model

Rapid Reengineering is a five-stage methodology that enables organisations to achieve swift, substantive results by making radical changes on strategic value-added business processes (Manganelli & Klein, 1994). It is based on a set of integrated management techniques that are employed to develop and analyse the information needed to identify opportunities and reengineer core business processes. Each of the five stages stresses a logical part of the reengineering process and produces results that are used by subsequent stages. In brief, these stages are:

Stage 1: Preparation

Appropriately begins with the development of an executive consensus on breakthrough business goals and objectives that signify the *raison d'être* of this reengineering project. This stage also clearly establishes the essential linkage between the breakthrough business goals and the reengineering process performance, and defines the project parameters regarding schedule, cost, risk and organisational change. This stage also brings together the reengineering team and brings form the initial change management plan.

Stage 2: Identification

Develops a customer-oriented model of business;

identifies strategic value-added processes; and maps organisations, resources and volumes to specific processes and priorities, and recommends specific processes as the highest impact reengineering targets.

Stage 3: Vision

Looks for breakthrough opportunities in the processes; analyses and structures them as "visions" of radical change.

Stage 4: Solution

Is actually divided into two nearly parallel sub-stages: one to develop the technical design to implement the visions, and the other, the "social" design, which organizes and structures the human resources that will staff the reengineering process.

Stage 5: Transformation

Realizes the process visions (and subdivisions for multi-year transitions), launching pilot and full production versions of the new processes.

Thus, this model provides more or less a linear process of undertaking a reengineering exercise.

Davenport Methodology

Davenport has suggested a highly technocratic methodology for carrying out BPR (Davenport, 1993). It comprises the following five steps.

- Identifying process for innovation.
- Identifying change levers.
- Developing a process vision.
- Understanding existing process(es).
- Designing and photocopying the new process.

This model, as is evident, very much resembles the 'Rapid Reengineering Model'.

Comparison of the Models

A review of the foregoing four methodologies brings out the following striking differences between them:

- (a) Talwar and COBRA approaches begin with a strategic analysis. This has a special significance in a country like India where the strategic planning process is yet to take deep roots.

- (b) Davenport's approach prefers developing a process vision before making an analysis of the existing process. Is this appropriate where the people concerned have a limited exposure?
- (c) It is the Talwar and COBRA methodologies that have highlighted post implementation issues.

However, the core part of the approach of each of the four methods remains the same.

Characteristics of Reengineering

The following are the common features among BPR applications as found by Hammer and Champy (Hammer & Champy, 1993).

Several jobs are combined into one

In this case one person will be doing all the tasks. Such a person will be known as case worker. In some cases it is not possible to compress all the steps of a lengthy process into one integrated job performed by a single person. In those situations, the company may require more persons, each managing parts of process. Such a team will be known as process team. In both the cases, the worker involved should be multi-skilled as his work becomes multidimensional.

Workers are empowered

Companies which go for reengineering not only compress and integrate several activities but empower the workers to make their own decisions.

Processes have multiple versions

This refers to end of standardisation. To meet the demands of today's environment, we need multiple versions of the same process, each one tuned to the requirements of different market situations or inputs. Traditional one-size-fits-all processes are usually very complex, since they must incorporate special procedures and expectations to handle a wide range of situations. A multi-version process, by contrast, is clean & simple because each version needs to handle only the cases for which it is appropriate.

Work is performed where it is directly needed

This means that work should be shifted across the organisational boundaries, i.e. the work should be done at the place where it is required most. Hammer cited the example of purchasing stationery items. When done by a central purchasing department, there is an inevitable delay. So purchasing has to be done

by the user department which requires the stationary items.

Non-value-adding activities are reduced

For effective reengineering, checks and controls should be minimised. Reengineered processes use controls only to the extent they make economic sense. In the reengineered environment a larger number of people are empowered, so people become responsible for the end product.

Reengineered company may look like a centralized as well as decentralized system

Companies which have reengineered their processes have the privilege to get the advantages of centralization and decentralization in the same process mostly on account of availability of modern IT facilities.

In fact, the above mentioned six characteristics form the basic design principles for BPR.

Reengineering Processes

When processes are reengineered, the nature of jobs changes; roles of Supervisors and Managers undergo changes and so do many other associated organisational characteristics. Robinson summarises the features of reengineered processes as below (Robinson, 1994).

Work unit change: Functional departments to process teams

Often the requirement is for people with different skills to work together in a team. Hierarchical methods of ensuring that each team member pulls his weight are avoided by putting teams together physically, in one room if need be.

Job change: Simple task to multi-dimensional task

Compared to the narrow specialist work of yesterday, the reengineering view is of a process team worker who must be familiar with—and use—a broader range of skills and have a far bigger picture in mind.

Role change: Controlled to empowered

Reengineered companies do not want people to follow rules but to make their own to exercise the judgement to do the right thing. There should be no supervisory activity to disturb on-going work. Process teams are to be self-directing. Having the necessary education, training and skills is not enough; being self-

starting, self-disciplined and motivated to do what it takes to please a customer are also essential.

Measurement changes: Activity to results

Traditionally, people are paid for their time. This must be replaced by rewards linked to achievement of value to the employing organisation.

Advancement criteria change: Performance to ability

Promotion is taken out of the reward system and ability is considered the basis for filling in a new job.

Value change: Protective to productive

Instead of working for the organisation, employees are required to show their concerns more for their organisation's customers.

Manager change: Supervisors to coaches

The Business process team needs a coach, a facilitator and an enabler to help solve problems.

Structural change: Hierarchical to flat

In a reengineered situation a typical manager is expected to have up to 30 coach and much fewer to direct. Consequently, there would be fewer levels.

Executive change: Scorekeepers to leaders

Executives have to change their roles to leaders who can reinforce values by words and deeds.

Many of the above changes may appear to be too radical in the socio-economic context of a developing country like India.

Issues

During the 90s, a large number of organisations in North America, Europe and Japan went for Business Process Reengineering with varying complexity. Numerous studies reported in the literature show that the effects of such intervention in corporate performance have been mixed. Major ones and the several issues and challenges thrown up by applications of BPR are discussed below:

BPR and Human Resources

Practitioners originally were of the opinion that BPR is essentially a top-down improvement approach. But

many argue that it is after all a process, so as to make them buy-in. On the other hand, some feel that the contribution of the working people will be very limited. Then, there is another issue in relation to the impact of reengineered processes on human resources. Theoretically, employees enjoy a higher level of discretionary powers and feel relieved from carrying out narrowly defined jobs on continuous basis. But, there are a number of examples where BPR has turned the workplace into a nightmare so far as human resources are concerned (Dubrin, 1996). There is another new point which is emerging in regard to the objective of many of the BPR exercises undertaken by management. BPR has been taken as a tool for downsizing or delayering which have scared many employees. Somebody could argue whether such kind of studies is at all BPR application or not. This problem is sure to become a major one while applying BPR in a developing society where customers and employees still have but a limited say in the market economy. Some of the experts in Europe have asserted that quality of working life should be one of the objectives in BPR exercises (Coulson, 1994; 1997). In fact, the latest book by the most popular BPR guru Michael Hammer has indicated much greater emphasis on the people issue while applying BPR in an organisation.

The latest book by the most popular BPR guru Michael Hammer has indicated much greater emphasis on the people issue while applying BPR in an organisation.

BPR and Information Technology

Even while defining BPR, it was mentioned that Information technology is one of the prime enablers for BPR applications. This has been confirmed by numerous studies. But, then there are also a number of studies where IT has not been given such a dominant role. Information Technology contributes to BPR in two stages (Lyons, 1985). The first one relates to carrying out of the BPR study itself and the second to the execution of the reengineered business processes. Several software tools like data flow diagrams, work flow modelling, project management softwares, etc., are available that could support BPR project implementation. Similarly, there are various IT enabling technologies like LAN, WAN, EDI, Data base, Enterprise Level Planning (ELP) packages, etc., which are required to be made use of while working under the redesigned business process situation. In fact, there is a growing opinion that "BPR is little more height of systems analysis and an excuse for consultants to sell hardware

and software" (Blackburn, 1996). Limited experiences in India tends to confirm the above view though this may be wrong to a large extent.

BPR and Strategic Management

There has been a strong view that BPR is essentially a strategy exercise. There is no doubt that strategy analysis is one of the early steps in BPR methodology where a process vision is to be created. Many of the strategy issues could become dominant when higher levels of business processes are considered. BPR improves operational effectiveness and thus is a tool for implementing business level strategy. But, BPR and strategic planning are not the same thing. This has been recently confirmed by Porter who is the acknowledged expert on strategy in the world (Porter, 1996).

BPR and TQM

Many think that Total Quality Management (TQM) results in incremental improvement in products and processes. On the other hand, BPR goes for a quantum jump. Therefore, the two are different tools. But then there are others who contend that both incremental and radical improvements are parts of the same performance improvement continuum. They are to be taken as complementary to each other rather than substitutes to each other. In fact, Juran, a quality guru has talked of 'Breakthrough improvement' for making periodically quality improvement (Juran, 1964).

BPR and Middle Management

Many argue that BPR will necessarily make an organisation a flat one, wherein middle management will have no role to play. But real experiences have shown that the reengineering process will work better when the middle management assumes a different role. Middle management should act more as a facilitator, coach and guide to convince people about changes as well as help them accept the changes (Towers, 1996).

SWOT Analysis of BPR in India

It is evident from the above discussions that BPR denotes radical changes in process and its supporting elements in order to enable business improve its performance in the market. It is very similar to revamping of plant and machinery and has to be done periodically. Since BPR involves major changes, it is quite obvious that organisations should have appropriate environment to initiate changes and have them accepted too, on a continuous basis. It is quite different from a one-time introduction of sophisticated computer system or major

restructuring done in the organisation. A SWOT (strengths, weaknesses, opportunities and threats) analysis of existing environment in India though a series of brainstorming workshops on BPR has led to interesting findings on the possibility of a wider and rapid applicability of BPR in India.

Since BPR involves major changes, organisations should have appropriate environment to initiate changes and have them accepted too, on a continuous basis.

Strengths

- Many Indian organisations are completely bewildered by competition and globalisation. Such perceived threats could be helpful to accept change process.
- A high percentage of Indian managers, especially in large organisations, are considerably frustrated with the way value adding activities are now carried out.
- Most Indian organisations are highly centralised and hierarchical ones, and function in a bureaucratic style.
- Most processes, especially in regard to non-factory activities, are based on extensive clerical jobs.

Weaknesses

- Existing personnel have limited IT knowledge.
- Most executives have a strong bias towards the industry their products belong to.
- Most Indian managers are reluctant to accept changes. Entrepreneurship available, is very limited.
- Strong trade unions in many large Indian organisations may strongly resist change.

Opportunities

- Increasing education level among people entering the labour market may act as a positive factor. Consumers also are becoming increasingly assertive about the quality they are entitled to.
- There is an increasing acceptance of information technology in Indian society. Also there is a

rise in the number of software specialists and business analysts available in Indian market.

Threats

- Indians by nature are phlegmatic and highly tolerant to inefficient systems and working. They are generally risk avoiding. The high unemployment in the labour market may act as a deterrent to adopting a more exacting work ethic.
- Complex economic laws and regulations militate against changes. Many of the computerised documents are still to be legally acceptable.
- Communication infrastructure in India is yet to be improved considerably.

Given all the above factors, the number of negative factors would appear to counterbalance the impact of positive ones. It is expected that many of these will gradually be out with the passage of time. Therefore, one could say that a proper appreciation is the need of the hour. In this light and with due regard to the emergent internal and external environment, Indian organisations could initiate appropriate steps.

Conclusion

A developing country like India offers vast scope to application of BPR as organisational capabilities in most sectors opened to market economy do not quite match the competitive demands. Most organisations which have hitherto been operating under a protected environment are predominantly bureaucratic in structure and style, and operating systems consist of age-old clerical operations carried out in sequential desk-to-desk manner. Rising competition is expected to force organisations to change all these.

One of the major barriers to make radical changes is improper understanding of the concept and methodology of BPR. It is often confused with improvement approaches which were developed during an era when managements were concerned only with the economic use of resources. Therefore, the basic concept of BPR is explained followed by the fundamental differences between BPR and each of the traditional tools and techniques of improvement.

Severe competition makes an organisation customer-driven. A thorough study of the market and the strategic capability of an organisation is therefore essential to pinpoint the areas requiring priority actions for

One of the major barriers to make radical changes is improper understanding of the concept and methodology of BPR.

changes and to work out in respect of which objectives changes one to be made. So, each of the four major BPR methodologies enumerated in the paper includes varying degrees of strategy analysis to be as a part of initial planning of a BPR exercise.

BPR involves changes in organisation structures, roles and responsibilities, rewards and recognition systems, etc. Such changes pose great challenges to Indian organisations. However, given the perceived threat and eagerness to change the age-old work practices, especially in the emergent liberalised economic situation, coupled with the entry of multinationals in many sectors, Indian management is believed to be willing to embark upon BPR. With the rise in education level of future employees, and a variety of IT hardware and software on offer, BPR may become a preferred choice for Indian management to make a strategic breakthrough.

References

- Blackburn** (1996), A-BPR (1996): A new wine which missed the bottle", Management Services, Institute of Management Services, May, pp. 19-21.
- Business Intelligence** (1993), "Business Reengineering: The Use of Process Redesign and IT to Transform Corporate Performance, Research report.
- Coulson - Thomas C.** (1994), "The Responsive Organisation: Reengineering New Patterns of Work, Management Services, Institute of Management Services, July, pp. 14-15.
- Coulson - Thomas C.** (1997), "The Future of the Organisation", Kogan Page, pp. 367-398.
- Davenport T.H.** (1993), "Process Innovation: Reengineering Work through Information Technology", Harvard Business School Press.
- Dubrin A.J.** (1996), "Reengineering Survival Guide", Thopson Executive Press, U.S.A., p. 25.
- Eden C. & et al.** (1979), "Thinking in Organisations", Macmillan.
- Hall G., Rosenthal J. & Wade J.** (1993), "How to make Reengineering Really Work", Harvard Business Review, Nov.-Dec. 71 (6): pp. 119-131.
- Hammer M.** (1990), "Reengineering Work—Don't Automate Obliterate", Harvard Business Review, July-August, pp. 104-112.
- Hammer M.** (1992), "Reengineering Work: A Manifesto for Business Revolution", Warner Books.
- Hammer M. & Champy J.** (1993), "Reengineering the Corporation", Nicholas Breaklay Publishing, London.

-
- Juran M.** (1964), "Breakthrough Management, MacMillan, London.
- Lyons G.** (1995), "Application of Information Technology in the Redesign and Implementation of Business Process", In Reengineering the Enterprise by Brown J. and Sullivan D. (Eds.), Chapman & Hall, pp. 42-52.
- Manganelli R.L. & Klein M.M.** (1994), "The Reengineering Handbook, Amacon, U.S.A.
- Porter M.E.** (1996), "What is Strategy?" Harvard Business Review, November-December.
- Robinson S.** (1994), "Implications of Business Press Reengineering for the Management of Telework", In Business Process Reengineering: Myth and Reality by Coulson - Thomas C. (Ed.), Kegan Page, pp. 127-141.
- Ross T.** (1993), "Reengineering for Results", T.M. Management Consultancy Services Brochure, Thouche Ross, London.
- Taiwar R.** (1994), "Reengineering: A Wonder Drug for the 90's", In Business Process Reengineering: Myth & Reality by Colin Coulson - Thomas (ed.), Kogan Page, U.K., pp. 40-59.
- Torrey E.E.** (1993), " Why should IEs be involved in Reengineering", Industrial Engineering, 25 (5) May, p. 4.
- Towers S.** (1996), "Reengineering: Middle Managers are the Key Asset", Management services, Institute of Management Services, December, pp. 17-18.
- Venkataraman N.** (1994), "IT-enabled Business Transformation: From Automation to Business Scope Redefinition", Sloan Management Review, 35 (2) Winter, pp. 73-87. □

List of Books/Papers on BPR Surveyed

1. **Abuaf A. and Medina A.** (1993), "Technology's Role in Business Process Reengineering", *Wall Street & Technology*, 11(3) Sep., pp. 72.
2. **Adair C.B.** (1994), "Breakthrough Process Redesign: New Pathways to Building Customer Value, AMACOM, US.
3. **Ascarl Rock and Dutta** (1995), "Reengineering and Organisational Change", *European Management Journal*, 13 (1), March.
4. **Ash P.R.** (1993), "Reengineering Compensation and Benefits Management", *Journal of Compensation & Benefits*, 9(3) Nov-Dec, pp. 26-31.
5. **Ballou M-C.** (1994), "Market for Reengineering Tools Burgeons, *Computer World*", 28(6) Feb 7th, pp. 95.
6. **Barlett C. and Ghosal S.** (1995), "Rebuilding Behavioural Context: Turn Process Reengineering into People Rejuvenation", *Sloan Management Review*, Fall, 11-23.
7. **Barrett J.L.** (1994), "Process Visualization, Information Systems Management", 11(2), Spring, pp. 14-23.
8. **Batram P.** (1992), "Business Reengineering: The Use of Process Redesign and IT to Transform Corporate Performance, Business Intelligence, London.
9. **Belmonte R.W. and Murray R.J.** (1993), "Getting Ready for Strategic Change: Surviving Business Process Redesign, *Information Systems Management*, 10(3) Summer, pp. 23-29.
10. **Bergman R.** (1994), "Reengineering Health Care, Hospital & Health Networks", 68(3) Feb. 5th, pp. 28-36.
11. **Berrington C.L. and others** (1995), "Translating Business Reengineering into Bottom-Line Results, *Industrial Engineering*, Jan., pp. 24-27.
12. **Black burn** (1996), A—BPR (1996): A new wine which missed the bottle", *Management Services*, Institute of Management Services, May, pp. 18-21.
13. **Blackwell G.** (1993), "Reengineering Financial Systems", *I.T. Magazine*, 25(8) August, pp. 14-18.
14. **Bollenbacher G.M.** (1992), "Reengineering Financial Processes", *Bankers Magazine*, 154(4) July/Aug, pp. 42-46.
15. **Borthick A.F. and Roth H.P.** (1993), EDI for Reengineering Business Processes, *Management Accounting*, 75(4), October, pp. 32-37.
16. **Bozman J.S.** (1993), "Framing Reengineering Plans", *Computer World*, 27 (47), November 22nd, p. 10.
17. **Brittain C.** (1994), "Reengineering Complements BellSouth's Major Business Strategies, *Industrial Engineering*, 26(2) Feb., pp. 34-36.
18. **Browning J.** (1993), "The Power of Process Redesign, *McKinsey Quarterly*, 1, pp. 47-58.
19. **Burelman R.A.** (1983), "A Process Model of Internal Corporate Venturing in a Diversified Major Firm, *Administrative Science Quarterly*, 28(2), pp. 223-244.
20. **Burke G. and Pappard J.** (1995), "Examining Business Process Reengineering, Kogan Page.
21. **Business Intelligence** (1993), "Business Reengineering: The Use of Process Redesign and IT to Transform Corporate Performance, Research report.
22. **Butler Cox Fundation** (1991), "The Role of Information Technology in Transforming the Business", Research Report, Jan.
23. **Cafasso R.** (1993), "Reengineering Plan Preserves Mainframe Role", *Computer World*, 27(15) Apr. 12, pp. 63-68.
24. **Callahan C.V., Quarls H.F. and Treat J.E.** (1993), "Restructuring opportunities: New Rules and New Tools for Today's Oil Company Managers", *Oil & Gas Investor*, Summer, pp. 4-6.
25. **Carey D.** (1993), "Nine I.T. Executives Tell you How to get Reengineering Success", *I.T. Magazine (Canada)*, 25(11) Nov., pp. 12-20.
26. **Carr D.K. and others** (1992), "Breakpoint: Business Process Redesign", *Coopers and Lybrand*, U.S.
27. **Carr D.K. and Johanson I.J.** (1995), "Best Practice in Reengineering: What Works and What doesn't in the Reengineering Process, *Mc. Graw Hill*, N.Y.
28. **Chamberlain W.W.** (1993), "CIO Reengineer thyself, Chief Information Officer Journal, 5(7) Sep./Oct., pp. 20-25.
29. **Charan R.** (1991), "How Networks Reshape Organisations for Results, *Harvard Business Review*, Sept./Oct., pp. 104-115.
30. **Checkland P.** (1981), "System Thinking Systems Practice", *John Wiley & Sons*.
31. **Chester A.N.** (1994), "Aligning Technology with Business Strategy, *Research-Technology Management*, 37(1) Jan./Feb, pp. 25-32.
32. **Coate L.E.** (1993), "Reengineering Administrative Processes, *NACUBO*.
33. **Collins B.S. and Mathews S.** (1993), "Securing your Business Process", *Computers & Security*, 12(7) Nov. pp. 629-633.
34. **Coulson C.J.** (1994), "Business Process Reengineering: Myth & Reality", *Kogan Page*.
35. **Coulson - Thomas C.J.** (1994), "Initiating and Preparing for Reengineering In Business Process Reengineering: Myth & Reality, By Colin Coulson - Thomas (ed), *Kogan Press*, U.K., pp. 82-126.
36. **Coulson - Thomas C.** (1996), "The Responsive Organisation: Reengineering New Patterns of Work, *Management Services*, Institute of Management Services, July, pp. 14-15.
37. **Coulson - Thomas C.** (1997), "The Future of the Organisation", *Kogan Page*, pp. 367-398.
38. **Crego E.T. Jr. and Schiffrin P.D.** (1995), "Customer—Centred Reengineering", *Remapping for Total Customer Value*, Burr Ridge, Illinois, Jrwin.
39. **Cross K.F.** (1994), "Corporate Renaissance: The Fine Art of Reengineering, US, *Blackwell*, US.
40. **Currid C.** (1994), "Twelve Reengineering Tools", *Rocklin*, CA: *Prima Publishing*
41. **Curts B., Kellner M.I. and Over J.** (1992), "Process Modelling", *Communications of the ACM*, 35(9) Sep. pp. 75-90.

42. **Cypress H.L.** (1994), "Reengineering, OR/MS Today, Feb., pp. 18-29.
43. **Davenport T.H.** (1993), "Process Innovation: Reengineering Work through Information Technology", Harvard Business School Press.
44. **Davenport T.H.** (1993), "Need Radical Innovation and Continuous Improvement?" Integrate Process Reengineering and TQM, Planning Review, 21(3) May/June, pp. 6-12.
45. **David P.** (1995), "Business Process Reengineering", Management Services, Feb., pp. 14-17.
46. **Davis T.R.V.** (1993), "Reengineering in Action", Planning Review, 21(4) July/Aug., pp. 49-54.
47. **Deevy E. and MacINNIS P.** (1994), "Reengineering Service in an Cute Care Hospital", Journal for Quality & Participation, 17(1) Jan./Feb., pp. 84-87.
48. **DeJong J.** (1993), "Redesigning Design. Computer World", 27(47) Nov. 22th, pp. 87-90.
49. **DeRoulet D.G.** (1993), "Reengineering the Order-to-delivery Cycle", Transportation & Distribution, 34(6), June, p. 57.
50. **Dolan N.** (1993), "Insurance Industry Leads Pack in Reengineering", National Underwriter, 97, (31) Aug. 2nd, p. 12.
51. **Donovan J.L.** (1994), "Business Reengineering with Technology, Prentice-Hall.
52. **Dubrin A.J.** (1996), "Reengineering Survival Guide", Thompson Executive Press, U.S.A., p. 25.
53. **Duck J.D.** (1993), "Managing Change: The Art of Balancing", Harvard Business Review, Nov./Dec., pp. 109-118.
54. **Dur R.C.J.** (1992), "Business Reengineering in Information Intensive Organisations", PhD. thesis, Delft University of Technology (The Netherlands).
55. **Eden C. & others** (1979), "Thinking in Organisations", Macmillan.
56. **Embley D.W. & others** (1992), "Object-oriented Systems Analysis: A Model-driven Approach", Prentice-hall.
57. **Evans E.** (1993), "Business Process Redesign: A Purchasing Opportunity, Purchasing and Supply Management", Nov., pp. 30-33.
58. **Furey T.R. Garlitz J.L. and Kelleher M.L.** (1993), "Applying Information Technology to Reengineering", Planning Review, 21(6) Nov./Dec., pp. 22-25.
59. **Gates W. (Bill)** (1994), "Role of Client/Server in Reengineering, Computer Reseller News, Feb. 7th, p. 186.
60. **Greencard S.** (1993), "HR's Role in the Reengineering Process", Personnel Journal, 72(12) Dec., p. 48.
61. **Greengard S.** (1993), "IDS Financial Services Reengineers to Reduce Turnover, Improve Customer Service", Personnel Journal, 72(12) Dec., p. 48.
62. **Guha S., Kettinger W.J. and Teng. J.T.C.** (1993), "Business Process Reengineering: Building A Comprehensive Methodology", Information Systems Management, 10(3) Summer, pp. 13-22.
63. **Hagel J.** (1993), "Keeping CPR on Track, McKinsey Quarterly, 1 pp. 59-72, ('CPR Means Core Process Redesign').
64. **Haigh P.J.** (1993), "Health Care Reengineering Via Network Technologies: A Critical Combination", Computers in Health Care 14(12), Nov., pp. 36-40.
65. **Hall G., Rosenthal J. & Wade J.** (1993), "How to make Reengineering Really Work", Harvard Business Review, Nov.-Dec. 71 (6): pp. 119-131.
66. **Hallberg C. and Defiore R.** (1993), "Reengineering the Information Services Function", SIM Network, 8(3), pp. 1-4.
67. **Hammer M.** (1990), "Reengineering Work - Don't Automate Obliterate", Harvard Business Review, July-August, pp. 104-112.
68. **Hammer M.** (1992), "Reengineering Work: A Manifesto for Business Revolution", Warner Books.
69. **Hammer M. & Champy J.** (1993), "Reengineering the Corporation", Nicholas Breaklay Publishing, London.
70. **Hansen G.A.** (1994), "Automating Business Process Reengineering: Computerised Quality & Productivity Improvement", Prentice-Hall.
71. **Harrington H.J.** (1991), "Business Process Improvement", McGraw- Hill, New York.
72. **Harrison D.B. and Pratt, M.D.** (1993), "A Methodology for Reengineering Business", Planning Review, Mar./Apr. pp. 6-11.
73. **Harrison D.B. and Pratt M.D.** (1993), "Transforming the Enterprise", Canadian Business Review, 20(2) Summer, pp. 22-25.
74. **Hazell M.** (1992), "Activity Mapping for Business Process Redesign", Management Accounting, Feb., pp. 36-38.
75. **Herzong J.P.** (1991), "People: The Critical Factor in Managing Change", Journal of Systems Management, Mar., pp. 6-11.
76. **Hill G.M.** (1993), "Reengineering Electric Utilities: What Works and What doesn't", Electrical World, 207(12), Dec., pp. 8-9.
77. **Hoffman T.** (1993), "Reengineering pays off at Cigna", Computer World, 27(32) Aug. 9th p. 70.
78. **Hosseini J.** (1993), "Revisiting and expanding Taylorism, Business Process Redesign and Information Technology", Computer & Industrial Engineering, 25(-4) Sept., pp. 533-535.
79. **Housel T.J., Bell A.H. and Kanevsky V.** (1994), "Calculating the Value of Reengineering at Pacific Bell", Planning Review, 22(1), Jan./Feb., pp. 40-43.
80. **Housel T.J., Morris C.J. and Westland C.** (1993), "Business Process Reengineering at Pacific Bell", Planning Review, 22(3) May/June, pp. 28-33.
81. **Huber G.P.** (1993), "Organisational Change and Redesign: Ideas and Insights for Improving Managerial Performance", Oxford University Press, New York.
82. **Hyman H.** (1993), "The French have no Word for it—but Rhone- Poulenc does it Chemical Week, 153(20) Nov. 24th, p. 46.
83. **Inman P.** (1993), "High Roller", Computer Weekly, Sept. 16th, p. 26.
84. **Janson R.** (1993), "Thanks to its Employees, this Reengineering Effort Worked", Journal for Quality & Participation, 16(7) Dec., pp. 78-80.
85. **Jayachandra Y.** (1994), "Reengineering the Networked Enterprise", McGraw-Hill.
86. **Johansson H.J. and others** (1993), "Business Process Reengineering: Breakpoint Strategies for Market Dominance", Chichester: John Wiley.

87. **Juran M.** (1964), "Breakthrough Management, MacMillan, London.
88. **Kaplan R.B. and Murdock** (1991), "Core Process Redesign, McKinsey Quarterly", (2), pp. 27-43.
89. **Katzenbach J.R. and Smith D.K.** (1993), "The Rules for Managing Cross Functional Reengineering Teams", *Planning Review*, Mar./Apr., pp. 12-13.
90. **Kavanaugh P.** (1993), "Downsizing: Reengineering Business for Open Client-server Systems, Bantam.
91. **Kavin-Lovers J. and Kelty J.** (1993), "Designing Incentives to Support Business Reengineering", *Journal of Compensation and Benefits*, 8(5), pp. 55-58.
92. **Kermally S.** (1996), "Total Management Thinking, Butterworth-Heinemann", U.K., pp. 148-149.
93. **Kilov H. and Ross J.** (1994), "Information Modeling: An Object-oriented Approach, Prentice-Hall.
94. **King R.A.** (1992), "Breakpoint: Business Process Redesign, US: Coopers Total Quality, US.
95. **Kirkpatrick D.** (1993), "Groupware goes Boom, *Fortune*, 128 (16) Dec. 27th, pp. 99-106.
96. **Klein M.M.** (1994), "Reengineering Methodologies and Tools", *Information Systems Management*, 11(2) Spring, pp. 30-35.
97. **Klein M.M.** (1993), "IEs Fill Facilitator Role in Benchmarking Operations to Improve Performance", *Industrial Engineering*, 25(9) Sept, pp. 40-42.
98. **Krpan J.** (1993), "Reengineering the Right Way: 10 tips, *CMA Magazine*, 67(5) June, pp. 14-15.
99. **Kuehn S.E.** (1993), "The Process of Reducing Nuclear O&M Costs", *Power Engineering*, 97(5) May, p. 18.
100. **Lawrence P.J.** (1991), "Reengineering the Insurance Industry", *Best's Review*, May, pp. 68-72.
101. **Layne C.R.** (1993), "Reengineering the Payment Process Using EDI, ERS and Imaging Technology", *Journal of Cash Management*, 13(5), Sept., pp. 10-19.
102. **Lopes P.F.** (1993), "Fine-tuning Reengineering with Workflow Automation: Blueprint and tool", *Industrial Engineering*, 25(8) Aug., pp. 51-53.
103. **Lowenthal J.N.** (1994), "Reengineering the Organisation, A Step-by-step Approach to Corporate Revitalization: Part 2", *Quality Progress*, 27(2) Feb., pp. 61-63.
104. **Lyons G.** (1995), "Application of Information Technology in the Redesign and Implementation of Business Process", In *Reengineering the Enterprise* by Brown J. and Sullivan D. (Eds.), Chapman & Hall, pp. 42-52.
105. **Manganelli R.L. and Klein M.M.** (1994), "The Reengineering Handbook, Amacon", U.S.A., pp. 35-36.
106. **Marcum J.W.** (1993), "Reengineering your Business", *National Productivity Review*, 12(4) Autumn, pp. 584-585.
107. **Marcum J.W.** (1993), "Process Innovation: Reengineering Work through Information Technology", *National Productivity Review*, 12(4) Autumn, pp. 582.
108. **McCrandell J.Q.** (1994), "Value-added Invoiceprocessing: A Reengineering Case Study", *CMA Magazine*, 68(1) Feb., pp. 30.
109. **McManus G.J.** (1994), "Reengineering: Art or Science?" *Manufacturing Systems*, 11(9) Sept., p. 8.
110. **Meel J.W. van** (1994), "The Dynamics of Business Engineering: Reflections on Two Case Studies within the Amsterdam Municipal Police Force", *Doctoral Dissertation, Delft University of Technology.*
111. **Meyer N.D.** (1993), "Theory X Lives on, *Computer World*", 27(25) June 21, p. 96.
112. **Miron D., Leichtman S. and Atkins A.** (1993), "Reengineering Human Resource Processes", *Human Resources Professional*, 6(1) Summer, pp. 19-23.
113. **Mitroff I.J.** (1994), "Framebreak: The Radical Redesign of American Business", Jossey-Bass.
114. **Monczka R. and Morgan J.** (1994), *Reinventing Purchasing, Purchasing*, 116(1) Jan. 13th, pp. 74-79.
115. **Morrall K.** (1994), "Reengineering the Bank (Part 2), *Bank Marketing*, 26(2) Feb, pp. 67-72.
116. **Morton M.S.** (1991), "The Corporation for the 1990's", Oxford University Press.
117. **Motley L.B.** (1994), "Reengineering should Help Marketers", *Bank Marketing*, 26(2) Feb, p. 60.
118. **Mullin R.** (1993), "Instrumentation Expo takes a Reengineering Spin", *Chemical Week*, 153(11) Sep. 29th, p. 16.
119. **Mullin R.** (1993), "Top Management's Prescription for Successful Reengineering", *Chemical Week*, 153(20) Nov. 24th, p. 46.
120. **Nich D.L.** (1994), "Finding Internal Auditing's Role in Work Reengineering", *Internal Auditing*, 9(3), Winter, pp. 76-79.
121. **Omran D.** (1992), "Business Process Reengineering: A Business Revolution", *Management Services*, Oct., 36 (10), pp. 12-14.
122. **Orman M. and Wellins R.S.** (1995), "Reengineering's Missing Ingredient", *The Human Factor, Institute of Personnel and Development, U.K.*
123. **Ostroff F. and Smith D.** (1992), "The Horizontal Organisation: Redesigning the Corporation", *McKinsey Quarterly*, (1), pp. 148-167.
124. **Parker J.** (1993), "An ABC Guide to Business Process Reengineering", *Industrial Engineering*, 25(5) May, pp. 52-53.
125. **Pearson J.R.W. and Skinner C.** (1993), "Business Process Reengineering (BPR) in the UK Financial Services Industry: The First Research into BPR Programmes", University of Bristol: Dept. of Continuing Education, U.K.
126. **Peltz M.** (1993), "Reengineering the Finance Department, Institutional Investor", 27(10) Oct., pp. 151-155.
127. **Porter M.E.** (1996), "What is Strategy?" *Harvard Business Review*, November-December.
128. **Raynor M.E.** (1993), "Reengineering: A Powerful Addition to the Arsenal of Continuous Improvement", *CMA Magazine*, 67(9) Nov., p. 26.
129. **Richards-Carpenter C.** (1993), "How a CPIS Helps Reengineering", *Personnel Management*, 25(11) Nov., p. 23.
130. **Richards T. and Koontz C.** (1993), "How Benchmarking can Improve Business Reengineering", *Planning Review*, 21(6) Nov./Dec., pp. 26-27.
131. **Robinson S.** (1994), "Implications of Business Press Reengineering for the Management of Telework", In *Business Process Reengineering: Myth and Reality* by Coulson - Thomas C. (Ed.), Kegan Page, pp. 127-141.
132. **Ross T.** (1993), "Reengineering for Results", *T.M. Manage-*

Restructuring Creatively: The GTCL Way

C. Gopalakrishnan

The article presents a blow-by-blow account of how a profitable manufacturing undertaking regressed into a state of near bankruptcy and how it was pulled back from the brink. The revival package basically comprised trimming of staff strength and divestment accompanied by partial externalisation of manufacture in workers cooperatives and worker controlled ancillary units. Complemented with indigenisation, introduction of new models, quality improvement and skill development, and above all an emphatic leadership, the restructuring has been a run-away success with the firm now looking forward to privatisation.

C. Gopalakrishnan teaches at the B.K. School of Business Management, Gujarat University, Ahmedabad-380 009.

Introduction

Corporate restructuring has become synonymous with organisational surgery to remove a diseased organ. It is widely assumed that a "lean and mean" organisation can meet the needs of the present day and make it competitive in the market. This may indeed be so if there is excess fat, but surgery does not solve the many problems facing a tottering organisation, as some other problem crops up elsewhere before long and the organisation moves from one crisis to another.

The generally prescribed rule for restructuring includes: sell off part of the organisation, retrench staff, introduce new products or expand to other markets. Better communication with employees, training and organisational restructuring are also suggested. The framework for restructuring is the same almost everywhere and therefore standardized. What happens to motivation of staff, its implications on their morale and commitment, are old fashioned questions which are hardly asked. Organisations rarely deviate from the standard prescription for restructuring.

So much so, only rarely, if ever, one comes across organisations searching for creative solutions to the problems they face. This paper presents the case study of an organisation which had attempted very innovative solutions to its problems. The paper is divided into two parts; the first part presents the case and second analyzes it.

Part I: The case of GTCL

GTCL, Gujarat Tractor Corporation Ltd., was found by Shri Pashabhai Patel, businessman-cum-politician, a relative of Sardar Vallabhbhai Patel and a close associate of Mahatma Gandhi. Pashabhai Patel & Co. Pvt. Ltd. (a predecessor of Hindustan Tractors Ltd.) was formed in September 1946 for the import, sale, and service of tractors, ploughs, bulldozers, and other farming and earth moving equipments. Pashabhai, a forceful person, and considered an outstanding salesman,

pioneered the use of tractors in remote villages. As plans for entry into manufacture took shape, a new company, Tractors and Bulldozers Pvt. Ltd. was formed in 1959 and became the successor company to Pashabhai Patel & Co. Pvt. Ltd. It was in turn converted into a public limited company in 1964 with Pashabhai & Co. as the managing agents.

In February 1965, equity shares of Rs. 50 lac were issued to the public. Pashabhai Patel, his relatives and friends held about 50 per cent of the equity in 1972. LIC, UTI, nationalised banks and insurance companies held 35 per cent of the equity. LIC alone held almost 100 per cent of the preference shares issued in 1968.

In 1967, Pashabhai was elected to the Lok Sabha from Baroda on a Swatantra Party ticket. He continued as the chairman of the company. The company changed its name to Hindustan Tractors & Bulldozers Ltd. in 1965 and to Hindustan Tractors Ltd. in 1967. When the managing agency system was abolished in 1970, brothers Chandrakant and Indrakant, who were members of the board of directors earlier, became managing directors.

The Green Revolution had led to increased demand of tractors in the late 1960s. The tight supply position made the government impose price and distribution controls. In early 1967, Government of India declared tractors an essential commodity within the scope of the *Essential Commodities Act, 1955*, and introduced price control.

Pashabhai like other manufacturers, thought that the statutory prices were unremunerative. He felt that Hindustan's prices were fixed particularly low and was quick to represent to the government the serious impact the "unrealistic" statutory prices would have on the profitability of the company. Based on a report by the Bureau of Industrial Costs and Prices, the government revised upwards the statutory prices in September, 1971. A substantial increase in prices—over 30 per cent was granted in 1972 because of sharp rise in the prices of raw materials and components.

The workers formed a union under the leadership of Shri Sanat Mehta who was a member of the then Praja Socialist Party and a prominent politician. The conflict on wage rise between the management and the union led to an illegal one-day strike in October 1970 which was followed by a lockout that lasted 35 days.

The company retrenched 560 workers in May 1971, mostly unskilled workers in the foundry and machines shop. In 1972, the morale was low and there was no

work for many as quite a few production departments had been partially or wholly closed down.

Contractual Agreement with GAIC (1972 to 1977)

Pashabhai was worried about the serious financial stringency of the company. Secured loans were more than 3 times the equity and the interest burden had nearly tripled from Rs. 18 lac in 1969-70 to Rs. 53 lac in 1971-72. Most normal financial sources, including the directors' loan, were exhausted. Pashabhai was seeking cash credit from State Bank of India, the company's bankers, who were now insisting on guarantees from the state government or financial institutions.

In mid 1971, Pashabhai approached the state government to provide a guarantee for the bank loan. The state was under President's rule then. The Gujarat Agro Industries Corporation Ltd. (GAIC), Ahmedabad, a company incorporated by the central and the state governments as equal partners to promote enterprises for manufacture of agricultural inputs and allied products, was consulted on the proposal. GAIC wanted exclusive control of management while Pashabhai wanted joint management—two managing directors, one from the state government and the other from among the Patels. The negotiations however failed.

On 12 March, 1973, Government of India took over the management of Hindustan Tractors Ltd., Baroda, under the *Industries (Development & Regulation) Act, 1951*. The Ministry of Industrial Development appointed GAIC as the authorized controller of Hindustan Tractors Ltd. for five years.

Despite increase in production and sales, besides the prices of tractors, operating losses increased from about Rs. 30 lac each in 1973-74 and 1974-75 to Rs. 41 lac in 1975-76. The accumulated losses stood at Rs. 2.22 crore on 31 March, 1976, in excess of the level as of 31 March, 1973.

While the company had not yet started generating net surplus, the long term questions of the legal and financial structures of the company and the position of the company's owner's and creditors still remained. GAIC was only trustee and controller.

At the end of the five year period, Government of India handed over the management of the company to the Government of Gujarat. The company was renamed as Gujarat Tractor Corporation Ltd., but it continued to make losses throughout the decade of 80s as given below:

Table 1: Financial Performance of GTCL in 80's

Year	Losses (in lac Rs.)
1980-81	56
1981-82	53
1982-83	324
1983-84	158
1984-85	430
1985-86	239
1986	381
1987	536
1988-89 (15 months)	548
Total	2725

Kirloskar Committee Report, 1986

A comprehensive revival plan for GTCL was prepared by Kirloskar Consultants (Kirloskar Report of 1986). The report was commissioned by GSFC (Gujarat State Fertilizer Corporation) which was asked by the Govt. of Gujarat in 1985 to look into the possibilities of acquiring GTCL before GNFC showed interest in the unit.

The reasons for GTCL's poor performance as identified by the consultants were:

- Inappropriate financial structure
- Insufficient working capital
- Wrong product mix by way of exclusive reliance on production of 45 HP and above tractors
- Overstaffing
- Very low productivity
- Heavy percentage of rejection in foundry and machine shops
- In-house manufacturing of unnecessarily large number of components
- Lack of quality control
- Poor dealer network
- High procurement cost due to small quantity
- Demoralised managerial staff

GTCL's Steps for Improving Performance

Voluntary retirement scheme

Pending introduction of the revival plan for the company, a voluntary retirement scheme (VRS) was intro-

duced in 1986 to rationalize the operations in the company which was overstaffed. Ninety-four employees availed of the benefit. To induce more voluntary retirements a modified VRS was offered in 1987 which was availed of by 429 employees.

After a series of negotiations with the new management, some more workers decided to leave the services of the Corporation by accepting a slightly lower voluntary retirement benefits than was offered to those who were leaving for good, but agreed to invest a substantial portion of the terminal benefits in creating an infrastructure that they could utilize to become independent entrepreneurs. Since they wished to operate in groups, the cooperative structure was considered to be ideal.

Massive Indigenisation

The import content was reduced from 60 per cent in 1986 to 2 per cent in 1990. This led to self reliance and helped the company in controlling costs.

Market Share & Product Mix

GTCL had been manufacturing tractors in the 50-60 HP range which has a limited application. This range of tractors enjoyed a minor share, 16 per cent, in the total tractor market. GTCL's market share was 6 per cent in the 45 HP and above category. The company never tried to extend their product range to lower power tractors of 35 HP, 25 HP, etc, to align itself with the changing/developing market mix and improve its capacity utilization to sustain its economy. Despite having better features like robust design and fuel efficiency, GTCL did not improve on its market share.

As a part of the turn-around strategy, GTCL expanded its product range to include 30, 75 and 80 HP tractors.

Financial Problems for GTCL's Revival Plan

In a meeting held in Gandhinagar in January 1989, it was agreed that GSFC, GNFC, GAIC and GSIC would provide loans totalling Rs. 3 crore and that a project report for expansion and indigenization of GTCL should be prepared for IDBI's consideration. In October 1989, IRBI approved a revival plan of Rs. 529 lac with a stipulation that IRBI will contribute Rs. 265 lac in conjunction with IDBI to contribute Rs. 64 lac.

The revival plan got delayed because the company could not settle a dispute with SBI regarding working capital assistance (which was a precondition for sanc-

tion of loan from IRBI) and so the loan was cancelled by IRBI. Later, repeated requests and clarification led to out-of-court settlement with SBI. Apart from this, the steady uptrend in production as also improvement in operational performance convinced IRBI to revive the loan proposal.

However, funds from IRBI or the State Corporations did not come in when most needed. When it did come in trickles, it carried a high interest rate of 21 per cent. The Managing Director of GTCL, Shri C.J. Jose said that it was not possible to turn-around the company using funds with such high interest rate. GTCL, therefore, paid back all the loans to IRBI by March 1991. Instead it took advances against tractors booked and also negotiated better terms with the suppliers.

Programme of Cooperative Societies

The company initiated a path breaking movement under which assets worth more than Rs. 100 lac were transferred to the cooperatives on hire purchase basis. These cooperatives were totally autonomous. However, GTCL provided technical and accounting guidance as and when required. GTCL remained one of the members in all the cooperatives.

Nine such cooperatives are functioning as ancillaries to GTCL. They are engaged in job work only for which GTCL supplies the raw material. The nine cooperatives were formed by 130 ex-employees of GTCL and they in turn are employing approximately 60 workers.

A Memorandum of Understanding (MOU) was prepared at the time of formation of the cooperatives, which formally laid down the relationship between GTCL and the cooperatives. As per the agreement, GTCL has to be given priority in supplying spare parts. The cooperatives are free to use the additional capacity in serving other customers.

As regards transfer pricing for supplying spare parts to GTCL, there is no formal costing method. GTCL goes by the market value of the spare parts in deciding the costing. If the spare parts are custom built then GTCL ensures that pricing is fair.

The cooperatives programme of GTCL has turned out to be very successful. In fact, many of them are now quality suppliers of machined components to a number of nationally known companies like Voltas, Padmatex, Elecon, Blue-star, etc. As a result of this initial success, the cooperatives have decided to ven-

ture into new fields. Components machined by the cooperatives have even been exported to various countries. Indeed according to Shri H. Bhambhani, Financial Controller of GTCL, a few cooperatives are doing extremely well.

Table 2: Cooperative Societies Floated by GTCL

Cooperative	Major Activity
Adarsh	Hobbing – gear manufacturing
Akshay	Sub-assembly of transmission parts
Ajay	Materials handling
Mahashakti	Fitment of engines and other external parts
Parishram	Machining of components
Pragati	-do-
Sarvodaya	-do-
Urja	Assembly and testing of engines and painting
Bhagyalaxmi	Supply of castings

Apart from the cooperatives, GTCL has supported 12 ancillary units promoted by former employees. These units have been provided sheds on rent in the mini-industrial estate located within GTCL's Manjalpur (Vadodara) land.

Table 3: GTCL Ancillaries

Ancillary	Activity
Katiyar Fab	Fabrication
Gujarat Tractor	Tractor spares dealer
Nirman Engg.	Machining of components
Hemant Enterprise	Fabrication of components
Nitin Enterprises	Machining of gear blanks
Bhavana Engg.	Machining of components
Parth Engg.	-do-
Vimal	-do-
Naya Gujarat	-do-
Ekta Engg.	-do-
VJS Engg.	-do-
Friends Engg.	-do-

Current Status of GTCL

Financial Impact of the Turnaround

The following table illustrates the yearwise rallying of GTCL's finances:

Table 4: Performance in '90s

(in Rs. lacs)

	1991-92	1992-93	1993-94	1994-95	1995-96
Sales	3175	2734	2601	3507	4394
Material cost	2282	2178	1434	2552	3010
Wages	283	318	295	363	405
PAT	31*	106	11	166	534
Acc. losses	2166**	2081	2078	1919	1384

* PAT before prior period adjustment of Rs. 1295 lac on account of waiver of interest on Govt. loan.

** After prior period adjustment of above mentioned interest waiver.

Production Capacity

GTCL's present capacity is 2200 tractors per annum which includes all models of various HP ratings. The company has a flexible assembly line thanks to which switching production from one HP rating to an other does not pose much problem. The company has increased its capacity utilization from 30 per cent in 1986 to 85 per cent in 1996.

Product Profile

GTCL has the widest product range for any Indian tractor manufacturer, consisting of tractors in the range of 20, 25, 28.5, 31, 45, 50, 61 and 80 HP. Of these, only the 31, 45, 50, 61 and 80 HP tractors are in regular commercial production, at present.

A few distinct features of the GTCL tractors as claimed by the company are:

- Elegant styling and 21st century looks
- Substantial savings in fuel cost owing to fuel efficient engine
- Lower wear and tear
- Heavy and robust
- Easier and less expensive maintenance

According to company sources, the prices of its tractors are highly competitive. In the low HP segments the margins are high due to fewer players in this sector.

Marketing

GTCL manufactures and markets tractors under the brand name "Hindustan". Even after the name of the company was changed to GTCL from Hindustan Tractors Ltd., the brand name continues to be the same.

Selling of tractors is through dealership networks. Every region has a marketing (or administrative) office which coordinates with the dealers but does not sell directly.

GTCL operates through a network of 143 dealers in the different states as below:

Table 5: Dealer Network Details

State	No. of Dealers
Andhra Pradesh	8
Karnataka/Goa	8
Tamil Nadu/Kerala	9
Gujarat	11
Maharashtra	25
Bihar	4
Orissa	1
West Bengal	2
Haryana/Delhi	10
Rajasthan	10
Uttar Pradesh	30
Punjab/H.P./J&K	12
Madhya Pradesh	13
Total	143

These are supported by branch offices in Mumbai, Chennai, Bhopal, Belgaum, Hyderabad, Bhatinda and Allahabad. Recently the tractor market in India has become a buyers' market from a sellers' market. This is mainly due to capacity additions by the existing competitors as also their aggressive marketing.

Exports

GTCL feels that exports hold a great potential for future expansion. To translate this strategy into reality, the company started to export some four years ago. Since then exports have grown to 560 lac units in the year 1995-96. GTCL tractors have been exported to Sri Lanka, Bangladesh, Nepal, Malaysia, Sharjah, USA and Burkina Faso. The company bagged global tenders against stiff international competition for the supply of tractors to the Govt. of Ghana. The company received the Award for Export Excellence from the Engineering Export Promotion Council, Western Region, for three years in a row, 1993-94, 1994-95 and 1995-96.

Personnel Aspects

Through the VRS scheme introduced in 1987, GTCL was able to trim its workforce from 1303 to 674. Al-

though this served the purpose of increasing productivity, some good employees left taking advantage of this scheme. One of the strengths of GTCL is the fact that the management structure is non-hierarchical and informal, facilitating free flow of ideas and creativity. According to the Personal Manager, Shri Dinesh Amin, "No policy is our policy. Our policies and structures are flexible enough to accommodate the changes in the environment." The workers have formed a union, 'Gujarat Engineering and General Kamdar Union' which is affiliated with INTUC. Shri Amin observes, "Five years ago the situation was *We versus Them*. But today the relationship between the workers and the management is very cordial. We don't sit across the table rather we sit on the same side of the table to solve the problems."

Everyone from top to bottom wears the same uniform and there are no name plates for any of the managers.

Industry Overview

Use of tractor in India started only after independence with indigenous production in the late 50s. More companies started manufacturing in the early 70s, by which time production reached 25,000 to 30,000 units annually. The second half of the 70s saw a high growth rate with comfortable agricultural credit. The early 80s were marked by erratic growth leading to marginal players closing down. In 90s growth has averaged 7 per cent per annum and is expected to continue at the same rate till 2005.

Table 6: Global Trends in Tractor Use

Country	Tractor Population (Nos./1000 hectares)
Japan	444
Turkey	26
Sri Lanka	17
Pakistan	13
China	8
Thailand	8
India	8
Developing countries average	8
Developed countries average	31
Asia average	13
World average	18

Tractors are used for farming, haulage and as a power source. As tractor usage increases, there is a clear shift towards its greater use as a tractor vehicle to carry passengers as well as goods. With increasing

levels of tractors per hectare, hiring out tractors for farm use (seasonal in any case) becomes less attractive than haulage.

With increasing levels of tractors per hectare, hiring out tractors for farm use (seasonal in any case) becomes less attractive than haulage.

Usage level of tractors in India is fairly low compared to international standards. Table 6 gives a comparative picture of tractor usage in various countries.

Factors Affecting Demand

Tractor penetration level is highest in the state of Punjab. Assuming that level of penetration, the potential demand for tractors in the domestic market is estimated at 49 lack numbers, thrice the current tractor population of 16.81 lac numbers. This indicates that tractor sales in India has a long way to go before reaching saturation.

Some of the factors affecting the growth of tractor industries and demand for tractors are as follows:

Availability of Agricultural Credit

Nearly 95 per cent of tractor purchases are financed by credit extended by commercial and regional rural banks, which is eligible for refinance by the National Bank of Agricultural and Rural Development (NABARD). NABARD's refinancing policy is formulated yearly, based on the planned allocation for agriculture, amongst other factors.

Rainfall

The fortunes of the agricultural sector are directly related to the timely arrival of monsoon rains.

Irrigation

The demand for tractors is highest in states with high proportion of irrigated areas to total sown areas, such as Punjab, Haryana and U.P. With the completion of the Sardar Sarovar Project, the demand for tractors in Gujarat will rise substantially.

Rate of Excise Duty

The rate of excise duty is 10 per cent for tractors of 25 HP and above while those below this are exempt

from excise. Since 1976, components for these tractors were also excise exempt, but the Union Budget for 1994-95 withdrew this. Manufacturers cannot avail of modvat set off on duty paid on these inputs, as the end product in this case is exempt from excise. Tractors in this category consequently became costlier, and led to consumer preference shifting to higher power machines owing to the lower price differential.

Government Policy

Government's policy on the whole has been progressively favourable for the tractor industry, as would illustrate the following table:

Table 7: Evaluation of Govt. policy on Tractors

Year	Development
1973	Tractor imports banned
1974	Price controls on tractors removed
1976	Excise duty abolished on tractors below 25 HP and engines smaller than 1800 cc
1993-94 Budget	Excise duty on 35 and 45 HP reduced to 10 per cent
1994-95 Budget	Excise exemption on components for 25 HP tractors withdrawn
1996-2000 (expected)	Dereservation of SSI's manufacture of mechanized agricultural implements

Exports

As current production and technology is not fully geared for higher HP tractors, and the lower HP tractors are predominantly being used in India, export potential is limited to developing countries. But in developed countries like USA and in Europe, there exist niche markets for lower HP tractors.

According to the Tractor Manufacturers Association (TMA), there is attractive medium term opportunity for Indian manufacturers in USA and Europe, owing to domestic economies of scale and the shift to higher HP sizes in India. However, technological sophistication levels of Indian tractors remain a major concern as far as exports are concerned.

Recent Developments

The shift to higher power tractors and the new markets in southern India are the strongest drivers of growth. The highest growth rates yet have been in

Gujarat, Rajasthan, Karnataka and Andhra Pradesh. In contrast, the relatively matured northern market has shown slower growth. Simultaneously, there has been a shift towards higher HP tractors with 35 HP and 45 HP segments improving that share.

As major tractor markets move to cultivation of cash crops, dependence on credit will reduce. And reduced dependence on credits, especially in the 45 HP segment, could make sales less susceptible to NABARD banking credit fluctuations. Price of the produce and the resultant cash flow to the farmer, rather than credit availability terms, will then mainly determine demand.

Indian tractor market which is world's largest and fastest growing has already become a target for the future growth plans of various global players like New Holland, Case and Kubota. New Holland, a fully owned subsidiary of Fiat group is setting up a Rs. 175 crore tractor plant in Greater Noida in Uttar Pradesh. These players face strong entry barriers as Indian manufacturers enjoy strong brand loyalty and have extensive distribution and after-sales network.

In addition, certain other developments, such as the following will have a significant impact on the tractor industry:

- Entry of cooperatives into farming
- Wasteland development projects, and
- Horticulture growth

GTCL's Future Prospects

After the process of liberalization was initiated in 1991, Government of India started disinvestment in central PSUs. This trend has now begun in state PSUs also. Accordingly, GTCL also is a candidate for this. Indeed disinvestment to the extent of 51 per cent has become almost a necessity owing to the following reasons:

- The loan sanctioned by Asian Development Bank (ADB) for restructuring of state level PSUs has a precondition of reducing Government's stake in them.
- Government is unable to fund the much needed expansion programme which would afford GTCL economies of scale.
- With the entry of foreign players, there is a general feeling that a professionally managed company would be better able to cope with the market reality better.

According to the company sources, disinvestment process will be over in an year's time and a fair bidding process would be adopted for the purpose. Since the Co-operatives are very much a part of GTCL (GTCL has a stake in them), there would be no major change on this front due to privatization.

Part II: A Unique Solution

Trimming of staff strength is one of the most favoured recipes for turnaround of organisations while divestment is another. GTCL also did both, but in its own unique way which is the interesting aspect of this turnaround story.

Shri C.J. Jose, IAS, Managing director of GTCL, who pioneered the Worker Cooperatives acknowledged that he was inspired by the Anand pattern of Cooperatives. Being influenced by an example is one thing but adapting it to solve the problems of another business organisation is altogether different. What has actually been done is not a solution for any book of rules on turnaround. No follower of such a book, Shri Jose devised his own unique solutions to GTCL's problems in the shape of Worker Co-operatives.

GTCL's major problem was low volume of production. This was compounded by insistence on many low runs of a large number of parts in-house, which pushed up the production costs. What was worse, continuous losses also demoralised production personnel. In the market, it depended upon one model while the market demand was for other models.

While divestment and retrenchment are well known routes to Jose applied them in a novel way. His divestment took the shape of worker cooperatives and worker promoted ancillaries unknown till then. This brought down production cost. Because of larger volume of production the worker cooperatives could achieve through job-work for the general market. Cost of production came down also because of lower inventory and better utilisation of machines. Due care was taken of quality too since the worker cooperatives had their own stake in the success of GTCL. The idea of worker co-operatives thus reduced the host of problems GTCL, had faced.

Leadership & Creativity

Implementation of the idea of worker co-operatives, however, was by no means easy. The most difficult task

was that of changing the mindset of the employees and the adversarial attitude of the union. To bring about discipline among the work force, Jose became a role model himself through a series of actions as under:

- Started wearing uniforms whereupon managers and workers also followed it (Earlier, workers would sell away the cloth given for making uniforms).
- Introduced card punching machine system for managers including himself and started coming to the office half an hour in advance.
- Would work on jobs himself on the shop floor side by side with the workers. This made easy for a wage agreement based on productivity norms, in 1987.
- Renounced all perks including company car and air conditioner not even accept the vehicle allowance of Rs. 750 per month. All these naturally had a psychological impact on workers as well as managers.

Conclusion

In sum, GTCL's turnaround was a unique case, where creative solutions were applied to put the engine back on the rails. Worker cooperatives, worker controlled ancillaries, indigenisation, introduction of new models, better communication with the work force, quality improvement and skill development were all part of a consistent and well thought out revival strategy. It is no exaggeration to say that the leadership role played by Jose was most crucial in the transformation of GTCL from a sick undertaking to a vibrant and promising organisation. The organisation is now looking forward to privatization.

GTCL's turnaround was a unique case, where creative solutions were applied to put the engine back on the rails.

Acknowledgement

Research assistance received from Ravi Lalvani, Sonali Rawal, Arpita Jotwani and Karthikeya Jani is gratefully acknowledged. □

Evolving Corporate Strategy to Achieve Excellence

R.M. Srivastava

Achieving excellence in every sphere of corporate business is the key to the success and survival of an organisation. This enjoins upon the organisation's central management to evolve suitable strategies for the enterprise as a whole and give practical shape to them through formulation of functional strategies and effective leadership. In a highly dynamic and competitive environment, product-market strategy has to be crafted within the parameters of corporate purpose and mission besides long-term attainable objectives with exclusive focus on customers, taking into account the opportunities available in a situation and the attendant threats, and the core competence of the enterprise. To sustain an improved competitiveness in domestic as well as overseas markets Indian corporates will have to ensure value to the customers. This in turn will entail creating a system of benchmarking, reengineering the process, if necessary, and empowering the employees.

R.M. Srivastava, a Senior Professor, Head and Dean, Faculty of Management Studies, Banaras Hindu University, Varanasi-221 005.

Post-liberalisation Scene

The post liberalisation era in India is characterised by tectonic structural reforms and explosion of economy into paroxysms of activity leading to foray of powerful transnationals into almost every conceivable sector of the economy, fierce competition and flurry of joint ventures between Indian corporates and transnationals with frequent divorces too. There has also been dramatic streamlining and restructuring of processes, products and structure of organisations to satisfy the needs of finicky customers. Side by side, personal, social, familial and cultural values have been changing fast. And so have consumer tastes following a bewildering development in the field of information technology and the ever growing recognition of human force as the most vital resource of corporation. Indian corporate managers hitherto operating in highly protected and regimented systems, and adept in managing government are learning to manage the market and grapple with business complexities and uncertainties for survival and success.

Indian corporate managers hitherto operating in highly protected and regimented systems, and adept in managing government are learning to manage the market and grapple with business complexities and uncertainties for survival and success.

Although corporate managers desperately tried to safeguard their organisations against the onslaught of transnationals by forging unplanned alliances with global leaders in a hurry, they are now realising that the key to long-term survival and growth is achieving excellence in corporate business. Which in turn could

result from doing superior things in through simple means and leveraging given resources by harmonizing the company's streams of technologies and manufacturing expertise, stretching the imagination and aspirations of the organisation and by creatively reshaping the way it competes. This enjoins upon the corporate management to evolve suitable strategies for the organisation as a whole and give practical shape to them through formulation of functional strategies and effective leadership.

The corporate strategy has to be crafted within the parameters of corporate purpose and mission besides long-term objectives. In the changed economic milieu in India and abroad, Indian firms will have to think with a vision for the future which would involve redefining their corporate purpose and mission and resetting their objectives. Through purpose and mission a firm has to visualise what business it desires to engage in and where the primary emphasis has to be placed. A firm to survive and grow must customerise its purpose so that its entire efforts are focussed on customers' satisfaction in terms of low price, high quality and good service. The new vision must be shared by the managers and the workers who will be called upon to translate it into reality.

Within the framework of overall corporate purpose and mission, a firm has to develop long-term achievable objectives especially in critical areas. However, in the changed environment the immediate goal of a firm has to be survival for which the emphasis should be on maximising market share rather than profit. The ultimate objective of the firm should be to achieve international competitiveness.

Once these objectives are laid down, the question arises as to how best to reach there. This involves what products to be manufactured, which ones to be abandoned, and in which markets. Thus, an Indian corporate has to evolve overall strategy spelling out its future product-market spectrum. This calls for a perspicacious winnowing of emerging opportunities and impending threats in the domestic as well as global environmental developments, on the one hand, and a dispassionate corporate capability analysis, on the other, to discern the firm's strengths and weaknesses vis-à-vis those of transnationals.

A close look at the current and future business milieu in India and abroad reveals that winds of change are blowing all over the world. Besides USA and European Countries, third world countries including Asian and southern African countries have, of late, embarked on liberalisation, opening up their markets to foreign investors. The Government of India also sought

to bring about structural changes in the economic system through various reforms in industrial and financial policies encouraging participation of private sector—both domestic and foreign—in the core and basic industries as also in the infrastructural sector.

Enter Transnationals

The metamorphic changes in the policy environment of India and other countries of the world have opened new vistas for global players. India being the third largest market for consumer goods is attracting transnationals from Japan, USA, Germany and France. These transnationals with their superior technology and knowledge garnered from operating in a number of and a variety of markets worldwide, economies of scale, easy access to cheaper finance, a willingness to invest for the long-term before earning adequate returns in the Indian market, global brand reputation and high coordinating skills are posing a threat to the very survival of even the large and so called successful Indian corporates, both on cost and quality planks. However, these transnationals are finding it difficult to exploit in full the opportunities of the domestic market because of the complications involved in handling local labour laws, civil administration and quirks of the market place. To prise open the complex Indian market, they are on the look-out for suitable Indian partners who are well versed with the Indian market and its customers.

Transnationals are finding it difficult to exploit in full the opportunities of the domestic market because of the complications involved in handling local labour laws, civil administration and quirks of the market place.

Transnationals coming into India, it should be noted, offer a great opportunity to Indian firms contemplating to enter overseas markets. They are an extremely important source of equity investment, and through such investments, offer opportunities for exports. In addition, they provide a window to advanced technology on a continuing basis. Indian firms can seek their help in identifying niche markets and concentrate growth in such areas. They could invest overseas through acquisitions and projects. They can use the domestic market to create the volumes required for sustaining growth.

Indian corporates may have a competitive edge over transnationals in respect of their access to natural

resources in certain areas and cheap labour. Together with high domestic as well as foreign demand this presents tremendous opportunities to Indian firms in agro-based industries, steel, paper, cement, textiles, leather, power generation, etc. It is precisely these areas which are receiving increasing attention of the transnationals. It must, however, be noted that in a global economy that is competing with technology and dwindling resources and labour intensity, one can not sustain a competitive advantage for too long except through technological excellence, better productivity and product differentiation.

In a global economy that is competing with technology and dwindling resources and labour intensity, one can not sustain a competitive advantage for too long except through technological excellence, better productivity and product differentiation.

Recent changes in the policy environment in third world countries are offering unprecedented opportunities to Indian firms primarily owing to our level of technology suiting their needs. For instance, southern African and Asian countries are very attractive market for passenger vehicles and goods carriers, textiles, pharmaceuticals, footwear and dyestuffs. Israel is targeting India as market for its agro-technology, health card and environment technology. And for India, Israel is a good base to sell garments and textiles.

Corporate Capability Analysis

All the same, Indian companies should not be swayed by the rich opportunities in domestic and overseas markets. They should assess their intrinsic capabilities to match them with the opportunities so identified to charter the future course of action. While doing so they should take a dispassionate look at their critical activities in order to find out their strengths and weaknesses in relation to the domestic as well as overseas competitors, especially in the aspects of technology, production, marketing, finance and managerial skills.

In the liberalised and competitive environment, major thrust in corporate capability analysis must be on the identification of a firm's Core Competence which provides the best fit between its strengths and the opportunities presented to it. Core competence of a firm is its basic strength particularly in the technological or the

manufacturing area. Core competence involves the know-how and know-why, finely tuned to the nuances of the market, a cross fertilization of technologies, institutionalising of the technology and predicting future trends therein and in the new products, ending with materialising them. It focusses on leveraging the limited resources of a firm by harmonising its streams of technologies and manufacturing expertise, by stretching the imagination and aspirations of the organisation, by creatively reshaping the way it competes and by freely drawing upon the resources and expertise of domestic firms. Core competence, thus, enables the management to conceive of synergies among related as well as dissimilar products so that the firm brings out new and innovative products to cater to the existing as well as emerging market requirements at a competitive price. For instance, Canon while building on its core competence in three areas—precision machines, fine optics and micro electronics—has acquired leadership in a host of products in the areas of cameras, video cameras, copiers, colour copiers, faxes, laser faxes, printers and laser beam printers.

Core competence enables the management to conceive of synergies among related as well as dissimilar products.

After matching a firm's core competence and other capabilities with the opportunities, available in a situation, the corporate management has to identify various strategic alternatives and evaluate each of them to eventually choose the one that accomplishes the corporate objective of combating threats from transnationals at home and emerging as a major player in its own right in global markets.

Indian corporates will, therefore, have to adopt a consolidation strategy followed by a growth strategy but concentrate, to start with, only on those product-market areas where they possess the core competence. Which means that they should confine their attention to certain areas, such as cement, steel, paper, machine tools, electricals and electronics, automobiles, power-generation, consumer durables and consumer non-durables. Transnationals too are evincing keen interest in these areas because of the tremendous demand for these products in the country and the availability of natural resources and cheap labour. But Indian corporates have an edge over their transnational counterparts thanks to their easier access to natural resources, cheap labour and domestic customers. Accordingly, individual firms should develop within these area, along the lines of their core competence and avoid indiscriminate diversification.

Advantage Indian Firms

Within the above product-market complexion, Indian firms should accord top priority to those products which enjoy consumer loyalty and whose brands have become household names. For instance, Mysore Sandal Soap, Nirma Washing Powder, Dabur Hajmola have over the years become eponymous for their respective product categories. Thus, certain local products with Indian brands have a substantial lead over their transnational competitors. This lead will have to be retained through huge investments in research and development to improve their product quality and penetrate new markets.

Indian firms can pre-emptively cover viable value propositions. Indeed, companies like United Breweries (UB) have already started doing so. Through pre-emptive new brand launches and premium extensions of existing brands, UB has managed to squeeze and perhaps confine foreign brands to ever higher price-value segments.

Indian corporates can improve or defend their position in the domestic market through product innovations based on market research as has lately been done by Tata Tea, Velvet Shampoo maker and Reckitt & Colman. Tata Tea successfully carved out a market share for itself by positioning its tea as garden-fresh and packaging in polybags instead of adopting the then prevalent practice of selling packaged tea in expensive paper cartons. The makers of Velvete Shampoo launched velvete sachets to cater to a large number of consumers, especially rural consumers who could not afford the high cost of pack sized shampoo available in the market. Robin Blue Brand in the fabric whitener market of Reckitt & Colman was sold in powder form. Fears of cannibalisation of its powder sales led the company to soft-pedal the marketing of its Robin in liquid form, facilitating Ujala's entry into the leadership position in this segment.

Besides improvement in product quality, product innovation and market penetration, Indian firms' existing advantages of natural resources and cheap labour will have to be reinforced by advanced technology and economies of scale, if they want to retain their competitive edge over the transnationals in the domestic market. For that, they have to create larger capacities in certain select sectors without compromising on quality. Large domestic demand for the products can play a vital role in this regard. It encourages firms to invest in large scale plants, technology development and productivity improvement. It will be prudent on their part to divest multiple uneconomic units in similar and other product lines and avoid spreading of resources too thin-

ly among many ventures. They should go for coalitions among domestic firms so as to prevent transnationals from taking away a predominant share of their domestic market. Such coalitions may also help them in expanding in overseas markets. Unfortunately, Indian companies are reluctant to work with each other. Indeed, in some cases, they work against each other. In multinational contracts, Japanese firms bid as a cartel to ensure that a Japanese firm gets the contract. But Indian companies undercut each other. There are many opportunities for Indian companies to form consortia to further their individual global interests.

Indian firms' existing advantages of natural resources and cheap labour will have to be reinforced by advanced technology and economies of scale, if they want to retain their competitive edge over the transnationals in the domestic market.

Indian firms should form strategic alliances, on selective basis, with NRIs and transnationals who could, besides providing foreign equity and latest technology, help them in penetrating and exploiting overseas markets.

Indian firms should form strategic alliances, on selective basis, with NRIs and transnationals who could, besides providing foreign equity and latest technology, help them in penetrating and exploiting overseas markets.

However, the competitive advantages can be sustained only by the development of indigenous capability to assimilate, innovate and upgrade the technology continuously.

After consolidating their position in the domestic markets, Indian firms should plan to enter overseas markets, and after extensive appraisal of the socio-economic and political environment and assessment of country risks, choose the most potential market. Their strategy in this regard should be to seek out the least crowded segments. In the present scenario, it will be in the fitness of things for Indian firms to target the emerging markets of the third world which hold immense opportunities for Indian goods. For this purpose they can

draw upon the expertise and services of their transnational partner.

Competitiveness – The Essence

So as to sustain competitiveness in domestic as well as overseas markets, Indian companies must ensure value to the customers. Which means that companies must be close to their markets. They must understand their markets and their customers, and build value not only into existing products but maintain it in new products as well. They have to create a whole range of new products, in the light of market research if necessary, totally redesign their processes for the purpose. Some system of benchmarking should be inducted which should be against the best practices, not just within the country but more importantly against the best practices worldwide.

So as to translate the overall corporate strategy into action, supporting strategies will have to be developed in critical areas, such as marketing, production, finance, research and development, and human resource along with country specific strategies.

Formulating a corporate strategy as well as its component functional strategies in a highly volatile and fiercely competitive environment and implementing them to

achieve the desired results is a herculean task which demands an effective strategist as a leader. Such a leader in the present liberalised atmosphere is one, who, by the dint of his perceptive and incisive brain, envisions the forces that will determine the change as well as the direction of the change. He elaborates the future scenario and the vision of how his enterprise will be positioned thereon, how it will excel locally and compete globally. He is one who will be fully committed to translating this vision into result. He has to be customer-friendly and ensure that his organisation is responsive to the needs and preferences of the customers. Further, a corporate leader has to create an invigorating climate in the organisation and secure the commitment of the employees to the implementation of his plans and programmes through proper communication and empowerment. He has to be a searcher looking for strategies, creating networks, alliances, joint ventures, and acquiring and merging organisations to bring about promised future. While grounded locally, he envisions globally. A global organisation leader needs to have a global mindset, value interdependence and competition. To sustain competitiveness in the global market, strategic leadership requires updating and coping with each of these forces concurrently. Finally, the strategist leader needs to have the skill to coordinate activities and link capabilities across national and functional boundaries. □

Strategies for Combating Economic Crimes

A.S. Abani

The rampant rise in financial crimes, particularly scams involving more than Rs. 10,000 crore, severely affected Indian economy in recent years and provoked emotional responses among enlightened people. This paper, after critically examining the issues relating to it, presents a causative analysis, and goes on to expound a practically applicable framework of strategies based on four purposefully, rationally and systematically classified categories to facilitate its implementation at the Regulatory level, Intermediary institutional level, Corporate level and Public level. Implementation of these strategies, it is hoped, will put a brake on the recurrence of scams.

A.S. Abani is professor of management at South Gujarat University, Surat-395007.

The rampant rise in the number of scams in recent times in the country is the cumulative outcome of long years of corrupt practices. These have severely affected our economy and also provoked emotional responses among the people. During the 50 years of independence, there have been over 30 known major scams involving about Rs. 10,000 crore (Chakarbarty, 1996). All these have occurred despite a series of regulatory acts covering Excise, Customs, Wealth Tax, Income Tax, Company Law, *Banking Regulation Act*, FERA, etc. Corruption in government is not a new phenomenon, but, when it grows as a cancerous economic disease, it is difficult for the society to ignore it. Moreover, when politicians who represent citizens to give direction for the growth and development of the nation, bureaucrats who are accountable to guide the destiny of the nation, and businessmen who are expected to play a productive role in operating the economy of the country have cynically ganged up to play a deviant role, dysfunctional consequences were inevitable. This situation points a fundamental weakness developed in our value system, leadership style (*Business World*, Vol. 17-2, 16 April, 1997) and objective approach in our action. It is highly frustrating to note that there is no strong and determined resistance to put a brake on the deterioration of the value system. Such a lackadaisical attitude has encouraged people in authority to twist the regulatory system to suit them and allow them to use powers ignoring objectivity, and ignoring accountability to supervise and control the subordinates from indulging in unethical practices as they are themselves a part of it (Dalal, 1997). Since most of the scams do not directly affect a large number of people on a daily basis, it is unlikely that the average citizen would be motivated to invest his/her time and resources in a systematic reform, (Paul, 1997). Apart from the attitudinal aspect, factors relating to systems are equally important for contributing to this situation. The major reasons include the quality of governance (Editor, *Financial Express* July 1997 and Tapan Das, 1997, and Mehta 1997), weak regulations (Gupta, 1997, p. 4), slow and long drawn out trail by judiciary (Dalal and Sudarsan, 1997 and Editor FEIW 1997), non professional approach by reputed profes-

sional firms and professionals like chartered accountants, auditors, credit rating agencies, etc. (Khapre, 1997, Murthy 1997, Panja 1997). A detailed study of these factors brings out that the performance of various groups at different levels has not only been far from satisfactory but disgusting too. There is hence a need to strategically have a fresh look at the entire system to strengthen the different agencies for improving their performance and to put a brake on the recurrence of economic crimes.

There is a need to strategically have a fresh look at the entire system to strengthen the different agencies for improving their performance and to put a brake on the recurrence of economic crimes.

A review of the existing literature on dealing with such crimes reveals that a few people including politicians, bureaucrats and the government have off and on shown, concern about it. Therefore the Santhanam Committee (1960), the Joint Parliament Committee on Bofors and that on Harshad Mehta (1992) were appointed by the government from time to time to investigate the spread of corruption, leading to grand corruption like scams. Besides, the government created institutional structures like CBI, and other investigative agencies under various departments, e.g., Company Law Board, Income Tax, Excise, Customs, Sales tax, RBI ((DOS), Securities and Exchange Board of India, (SEBI), CAG, etc. Besides many acts Non Comptroller and Auditor General of India as *Prevention of Corruption Act*, *Lokpal Bill* (yet to be passed by parliament) Companies Act, FERA. But how far these efforts have yielded the desired results is a debatable point. There are a few stray examples where the retribution was swift in cases of corruption and scams. In 1949 Rao Sheo Bahadur Singh and in 1951 S.A. Vankatraman had to go behind the bars thanks to the crusading effort of Jawaharlal Nehru and Sardar Patel. Hon'ble Justice Chagla took less than a month to submit his report on the Mundra Scam in 1957 and T.T. Krishnamachari the then minister had to quit (*Business World*, April, 1997, p. 80). Similarly Ramkrishna Dalmia in 1963 was jailed on account of misappropriation of Bharat Insurance Co's fund (*Business World*, 1997, p. 81). Late Ramnath Goenka and Arun Shourie raised their voice against the kickback received by Sanjay Gandhi and Indira Gandhi from Hongkong based oil Co.. Mantosh Sondhi, the then Secretary of Industry, the then CAG T.N. Chaturvedi also contributed to exposing the unethical means used by politicians (*Business World*, 1997, p. 82-83). It is sad

that such a spirit has slowly vanished today. There is a general feeling that 'key men of India' did not do enough to prevent defects or deals with economic crimes. They rather allowed the situation to overtake the country inspite of enjoying the country's trust, and the great authority vested in them. They thus permitted a series of scams to take place (Santanusen, 1996).

Against the above background and the current environment, an attempt has been made in the following to identify suitable strategies which can be implemented without much problems to put a brake on the frequent occurrence of scams, which if left unchecked would bring about economic ruin. Since many people are involved in the management of funds and economic resources in one way or the other, they are classified in four categories of levels. This purposeful, rational and systematic approach will help clearly understand the action programme and the underlying strategies. While appreciating the present mindset of Indians (Paul; 1997), the hope perceived by professor Samuel Paul is affirmed and a framework of strategies is suggested at the Regulatory level – comprising ministries, judiciary, SEBI, RBI, Parliament, etc; at the Intermediate Institutional level mainly consisting of financial institutions, Non-banking Financial Companies (NBFC), Banks, Stock Exchanges, etc.; at the Corporate level consisting of public and private limited companies; and at the public level, mainly of individuals and civil service institutions.

We are conscious of and concerned as few other people are (Paul, 1997) about "Who will bell the cat?" Therefore, it is intended to point out categorically who can initiate action to implement a specific strategy even in the present vitiated environment, a obstructing any change. The few top level capable people in authority have to rise to the occasion and organize themselves to act as effective agents of change holding back the nation from economic ruin.

The few capable people in authority have to rise to the occasion and organize themselves to act as effective agents of change holding back the nation from economic ruin.

Regulatory Level Strategies

Strengthening of judicial activism

The strategy to continue judicial activism is highly desirable. None but those who are accessories to crimes will oppose this as they would be affected. The

few judges of various high courts and supreme court, who have demonstrated courage and uphold professional values deserve praise. Their initiative has forced others including in administration, who are sitting on the fence on account of confused vision and a lack of courage though otherwise, honest, to bring about a change in the attitude of the 'unconcerned'. Besides, it has encouraged public interest litigations (PIL) to offer challenges to masters involved in corruptions and scams. Today, in the supreme court and high courts there are about 300 and 2000 PIL petitions registered respectively (Chakrabarty: 1997). Some of these PILs are very important with reference to the Jharkhand Mukti Morcha case, Jain Hawala, Import of Medical Equipment scam, out-of-turn allotment of petrol pumps, etc. These were initiated by visionaries on account of their faith in the judiciary. Therefore, judiciary has to further intensify its activism by speeding up the trials in PILs. Such a strategy will bring up civil service institutions to face challenges.

It is expected that the lower level judiciary also will follow their seniors and start acting so that grassroot level economic crimes leading to mega crimes can be checked. If at the lower judiciary level, people do not act professionally but abet local political leaders or administrators, then they should be given severe punishment under wide publicity to bring about a change in the environment. Simple transfer or setting up "local inquiry committee" without a time-frame is not sufficient. By and large, the service of retired high court judges should be requisitioned to deal with such cases without delay. This will help restore the people's confidence the judiciary at grassroot level.

Shifting CBI's accountability to Supreme Court

It is perceived that if the power of appointment of chief of CBI is taken away from politicians and the accountability of CBI is formally shifted to supreme court, it will play a more effective and purposeful role under the present situation. This will further strengthen each other and generate synergy. Currently, despite Supreme Court directions and sincerity of a few CBI officers, they are handicapped on account of interference by political executives who have also made unsuccessful attempts to influence judiciary at the highest level (Varma, 1997).

Knowing that executives and politicians will be least enthusiastic about this, there is hope from but one person, i.e. the President of India. He can issue directives using his powers under the Constitution. Had the CBI been under judiciary, things would have been quite different today. The person who threatened the judiciary (Hon'ble Justice Verma's statement) or the chief minister of a state involved in scams would have been be-

If the power of appointment of chief of CBI is taken away from politicians and the accountability of CBI is formally shifted to supreme court, it will play a more effective and purposeful role under the present situation.

hind the bars much earlier without avoidable delay. It is no over-expectation from the President of India to 'bell the cat' and launch "Operation Clean-up" in the real sense to save the country from economic and social disaster. This initiative, if taken by the President of India, would be a gift to the nation in its 50th anniversary year to declare a crusade against economic crimes by strengthening the hands of the judiciary. This arrangement would definitely avoid unnecessary delay and the CBI would operate more effectively on account of empowerment under the supervision of judiciary. It is hoped that the proposed amendment of the Act for appointment and transfer of judges will not be approved by him.

Selective capital punishment

Apparently one may shudder at this suggestion, particularly in civil cases. The current provisions do not give deterrent punishment to involved people (Gupta, 1997). Having cornered a huge fortune, they are only aware of and even ready for imprisonment. But then, today, going to prison, is hardly a 'social stigma'. So, a few selected cases of capital punishment under wide publicity would create fear and restrain the venal. Some times a surgeon has to remove a part of the body to save the life of a person. The same strategy is required to save the nation for national interest is supreme.

A strategy to treat serious economic crimes as criminal and not civil cases, should be adopted. Accordingly at least life imprisonment should be awarded to the guilty. This would bring about a speedier change in the situation.

A strategy to treat serious economic crimes as criminal and not civil cases, should be adopted. Accordingly at least life imprisonment should be awarded to the guilty. This would bring about a speedier change in the situation.

It is evident that deep deliberation is needed while changing any law, or modifying procedures and framing Acts to plug existing loopholes. Examples, such as abolition of *Capital Issue Control Act* without alternative mechanism allowed free pricing for shares, companies to raise funds from capital market without adequate stake of promoters and poor new worth, private placement and buy-back facilities without safeguard of small investors, allowing mushroom growth of NBFCs and plantation firms without proper control framework are eye openers in this regard. Although government has initiated action to appoint Justice Dhanuka Committee to review *Company Act* (June 1997), RBI and SEBI also acted to review their internal system (*Business Times*, 1997), such actions are generally taken after the events more as ritual exercises.

One may believe that non-availability of a Compendium of Instructions from the huge mass of circulars running into 2000 pages issued over the years will only bring confusion to a decision maker. He will have to unsuccessfully wade through dozens of circulars on a topic to find out the relevant updated instructions on a particular issue (Bhattacharya, July 1997). In order to put a check on the recurrence of scams, financial irregularities in banking operations, it is high time a separate 'task force' of competent people was appointed to thoroughly examine the various laws and procedures, and read between the lines to detect 'gaps' and take corrective measures to create a 'self regulatory structure'.

In order to put a check on the recurrence of scams, financial irregularities in banking operations, it is high time a separate 'task force' of competent people was appointed to thoroughly examine the various laws and procedures.

Single self regulatory system under joint SEBI-RBI-CLB monitoring

It was painful to observe the passing of responsibility back and forth by SEBI and RBI in the case of CRB Scam. Instead a joint swift action was required. But then it should also be noted that neither SEBI nor RBI has inadequate infrastructure in the context which led to mushroom growth of NBFCs and plantation companies. This limitation indicates lack of seriousness on the part of both organisations to equip themselves with 'adequate infrastructure' (Augustine, 1997, p. 72). One can understand the teething troubles still being faced by SEBI, but

why RBI, responsible to monitor NBFCs did not initiate to arm itself? Passing the buck between each other indicates lack of role clarity for monitoring NBFC's and other financial intermediaries. This resulted in betrayal of public trust by not revealing the fact they knew of the irregularities in CRB's case for three years. RBI's role in the whole affair is even perfidious. It appears that the competent officers of RBI's Board for financial supervision defaulted on analyzing the inspection reports thoroughly (Bhattacharya, July 1997).

In view of this, a strategy of joint monitoring through a single agency comprising task forces may be adopted. A coordination monitoring committee consisting of top SEBI, RBI, Company Law Board officials should be made jointly responsible and accountable for the effective functioning of these task forces. A detailed work plan has to be developed for them and they should be provided a computer network and other communication facilities. These Evaluating Task Forces (ETF) should be made transparent and accountable for ensuring compliance of checklists by NBFCs and others. They should counter-check the information data returned by the alter to ensure that scams do not take place. In order to finance the manpower and other resources, all the companies and NBFCs should be charged an 'annual monitoring fee'. This strategy of creating a self regulatory structure would ensure regular and effective control which is absent at present. It is to be noted that RBI has very recently formulated a three-tier supervisory structure to strengthen their DOs. This consists of, off-site monitoring, on-site inspection which fails to comply with *prudential norms* and external audit of special nature (Rangrajan, 1997, p. 7).

Professional institutions as regulators

Professionals like Chartered Accountants and Cost Accountants and statutory bodies like CAG play a vital role in dressing up annual accounts and audit reports. It is believed that these people played an upsy-daisy role along with promoters of scams (*Business India*, July 1997). At present, the maximum punishment to these people is 'withdrawal of membership' which is nothing. Instead, it is suggested that such institute should also file 'Defamation Cases' with a large compensation claims against members who have betrayed the professional ethics of the institute and brought disrepute. This strategy will enforce professional ethics with a greater sense of duty and restrain the accounting firms from abetting scam stero. It is expected also from the institutes to exhibit greater transparency with a demonstrative approach in the matter. Another strategy could be to involve more than one or two firms by rotation depending upon their size and distribute the work. This will reduce the chances of hiding the facts for long.

They should be made 'accountable' to highlight abnormalities and their possible implications to the public as well as to regulatory authorities like SEBI, CLB, RBI on quarterly and half-yearly basis to allow quick remedial action. It should also be the accountability of these professional accounting firms to ensure that 'standardized accounting procedures' and rating standards are followed. For this, they may even charge more fee and engage more people to have greater detailed audit on concurrence basis. Professional accountants, who are auditors have to be forced to adopt a strategy of making investors 'aware' of the pitfalls of major events which were noticed during audit through publication of "Special audit observations" like Chairman's speech in newspapers. Such strategy of communication will improve control framework at the Regulatory level.

Parliamentarians & public representatives as vigilantes

It is unfortunate that we have to count on a handful of parliamentarians and public representatives to stand up and be counted. There have been instances where even Joint Parliamentary Committees set up by the Parliament to investigate scams remained ineffective. The report in the case of HDW Submarine in 1986 was written in the Defence Ministry (Chaturvedi, 1997) and the securities scams JPC of 1992 proved another disaster on account of closed door hearing, inability of several members to understand the complexities of securities transactions, with the result that the twice revised report was a nothing less than a political compromise with victims chosen or let off (Dalal, 1997). Many of the findings were not accepted by the Government. It was disgusting to see even opposition parliamentarians remained silent spectators. However, there is a change in the situation. Therefore it is suggested that a strategy of creating pressure on the government should be continued with greater rigour. This will produce heartening results like the final arrest of the Chief Minister of a state in Animal Husbandry Department (AHD) scam and resignation by a Prime Minister on account of suspected involvement in another scam. It is not only essential but highly desirable to hold the approval of amendment to the *Act for Appointment of Judges*. In case the proposed bill is passed, it will be a black day for the country in that it will cut the wings of the judiciary, who proved fair and committed to their profession rather than 'overactivists' as termed by scamsters and politicians. It is expected from those few relatively fair public representatives to rise above political expediency and play a positive role in the interest of the nation rather than a handful of self-seekers.

The discretionary powers and privileges enjoyed by politicians have been another contributing factor for the housing allotment scams, out-of-turn allotment of petrol

pumps, etc, besides many more at lower levels. Assuming that political masters would not like to sacrifice powers, the alternative strategy of using discretionary powers and privileges with equity and transparency could be pursued. While exercising such powers, the grounds therefore may be explained and made public. The strategy of sharing information with greater transparency will infuse confidence in the political system.

Assuming that political masters would not like to sacrifice powers, the alternative strategy of using discretionary powers and privileges with equity and transparency could be pursued.

Intermediary Institutional Level Strategies

Committed professionals as Nominee Directors

Effective internal management of companies will depend upon good governance laws, vision and an active role of Board of Management; without this, companies will fail to meet stakeholders' expectations. A recent study (Mathew, 1997) reveals that 50 per cent of companies including reputed ones failed to keep promises. This indicates that the Board members were not doing adequate home work to play an effective role in Board meetings. Currently directorship of boards is perceived as 'ornamental' and in many cases, even purposeless. In order to bring about a change in the role of directors and make them true contributors, a replacement strategy is needed by which committed professionals with sound experience from business, management, accountancy, law, engineering etc, preferable in the 35-65 age group could be appointed in place of political nominees (Mehta, 1997). They should be rotated in companies every 3 years.

Critical role for nominee directors

Efforts are under way for amending *Companies Bill, 1997*, to bring the performance of executive directors under close scrutiny and making non-executive directors more accountable with statutory protections for acts outside the Board. The Confederation of Indian Industry's Task Force Report has elaborated what directors have to collect and reveal information to shareholders, examine and discuss issues (Kuttikrishnan, 1997). However, it is difficult for us to agree that nominee directors should not be planted by financial institutions. In fact it is strategically recommended that intermediary financial institution's non-working, non-promoters directors should be 30 per cent of the total strength. It should be mandatory for them

to attend meetings regularly rather than occasionally and after adequate homework to play an effective 'interrogative role'. Strategically, there should be a shift in focus to business plan, funds utilization, equity raised, loans provided to directors, appointment of agents, brokers, credit rating, audit observations, etc. They should be accountable to share the information with others associated with respective companies. This strategy of changing their role will improve corporate governance and allow them to be vigilant about financial scams, and protect the interest of financial intermediaries with regard to their stake in the companies.

Research & Analysis Wing

The nominee directors will get a lot of useful and relevant information/data regarding operations of companies. These information/data should be critically examined in detail at intermediary institutional levels. The practice of filling the report without going into details has to be replaced with greater amount of efforts (Bhattacharya, 1997). It would be a good strategy to involve post graduate students of management and related areas in this task during their summer training. This will, on the one hand, provide opportunities to future young managers to develop analytical skills and, on the other, help managers of financial institutions and banks for effectively monitoring the operations of companies in which they have invested funds. Besides, this group can review from time-to-time procedures and compliances. To make RAW useful, it should be asked to prepare a 'Quarterly report' of its completed vis-à-vis assigned work for the Managing Director/Chairman/Board.

Application of SARP Strategy

In order to create and maintain an objective role of the monitoring people, it is recommended to adopt a strategy of spontaneous announcement of reward and punishment (SARP) for outstanding performance and careless performance respectively. But this should be done with transparency and justification. This will restrain officials from joining hands with the parties and

In order to create and maintain an objective role of the monitoring people, it is recommended to adopt a strategy of spontaneous announcement of reward and punishment (SARP) for outstanding performance and careless performance respectively.

keep their morale and commitment high to look after the interest of the organisation.

Being wary of 'Fly-by-night' companies

Financial institutions and intermediaries have not been quite serious in checking the credentials of many firms before investing funds in them. A recent study indicates that many companies fiercely lure investors (Thukral, 1997). These companies have special arrangement for investing black money and they keep two records. It is difficult to rely on the promises made by them. Very high interest rates of 24 per cent (against 10 - 12.5 per cent offered by banks) with most attractive commissions up to 6 per cent will cost the capital 30 per cent. These have the ideal makings of more scams to follow. Hence a highly critical investigative approach is imperative to investing money in non-manufacturing organisations. Indeed it would be appropriate to appoint independent consultants to detect any scope of siphoning of funds into sister organisations. A strategy of commercial intelligence by such agencies would be beneficial.

Mounting non-performing assets (NPA) called for a strategy of intensified debt recovery programme by financial institutions and banks. NPA in the banking sector alone has reached to Rs. 40,000 crore by March 1996 (Lahri, 1997). In order to make the Debt Recovery Tribunal effective and useful, the screws should be tightened on the field officers to submit loan documents and collateral securities within a stipulated time so that they are available when a debt becomes overdue or bad debt. If they fail to do so, there should be a provision for collecting the overdues/bad debts from their salaries with dissemination of such information in house journals.

Mounting non-performing assets (NPA) call for a strategy of intensified debt recovery programme by financial institutions and banks.

Corporate Level Strategies

Effective surveillance & pursuing of criminal cases for forgery

A recent study by the Bombay Stock Exchange (D'Souza, 1997) shows that a large number of stock market operators are involved in luring uneducated, greedy and unorganised small investors by supplying fake investment instruments, shares, debentures etc.). Out of the 600 brokers in BSE, 365 (60 per cent) are involved in introducing fake, forged and tainted shares.

This is the case with just one exchange, where bad delivery reported amounted to 3.3 per cent. If all exchanges are taken into consideration, it would be much higher. Out of this, 80 per cent of the claims were traceable to signature discrepancy. This is another mega scam going on in the country despite the excellent network of computers and communication. It is recommended to substantially raise the security deposits of brokers and sub-brokers. In the event of any malpractice, the deposit may be forfeited with withdrawal of licence to operate, and even institution of criminal proceedings. For this purpose, stock exchanges have to set up/re-organise their surveillance system on the lines of New York stock Exchanges 'Stock watch'. It is good that the National Stock Exchange has started 'Pre-verifying the instrument before 'pay in' and have detected fake shares worth Rs. 4 crore. To prevent this menace from spreading it is recommended to create a task force at the Stock Exchange level.

Transparency in disclosure of useful information

The corporate sector publishes annual reports and sometimes half-yearly performance information. These are published in English which remains outside the ken of a majority of investors. Therefore essential aspects of performance should be published in Hindi too. The six-seven page information on salary and perks of employees (fine print), though mandatory, is of very limited use. This should be replaced by real 'vital information' in both English and Hindi. These will not involve much additional cost.

Besides, companies must add in their annual/half yearly/quarterly reports, information about—investment in sister concerns, power of attorney signature on companies' document by non-employee, non-director, etc. (e.g. CRB scam), directors having membership in other boards. Other details to be disclosed likewise are: credit ratings from all credit rating agencies, inter-corporate transfer of funds, appointment of close relatives of officials of company's banker, government officials, etc, private placement of securities or under directors' quota, disposal of company's fixed assets above Rs. 1 lakh and its parties. Indeed SEBI is in the process of finalizing the report on consolidation and rationalizing of its guidelines for disclosures and investment protection (Thakur, 1997). It will include details on the scope, purpose and data appraisal, capacity and capacity utilization, activity-wise and phase-wise break-up of project cost, managerial competence, litigations, defaults, unsecured loans, etc. This strategy of disclosure of 'vital' information will provide opportunities to those who are capable of and interested in the analysis of information and appraising the investors by professional comments and writings in newspapers, journals, etc.

Orientation for directors & executives

As mentioned earlier, 50 per cent of companies including good ones fail to meet the expectations of investors/shareholders. This could be due to inadequate capabilities of planners and board members to make projections, etc. Besides, they may have limitations in appreciating the analysis of 'rating' by rating organisations. Their earnestness notwithstanding, these limitations do not allow some people to participate actively in interrogative style during discussion/the decision process. Therefore periodical orientation programmes may be organised for such people to update their knowledge and sharpen their skills to understand and appreciate the intricacies of operations and to minimize chances of blunders and financial disasters.

Mandatory management audit

Currently, most audit agencies conduct proprietary and financial audit based on sample checks. But this is inadequate as would show the rising rate of financial crimes. The number of financial crimes detected in banks during 1994, 1995 and 1996 are 1476, 1167, 1330 respectively (TOI, 1997). Even internal audits centered around the procedural part of routine checks. Hence, it is desirable to make "Management Audit" mandatory, which would focus on analysis of vital managerial decisions including special resolutions of board, empowerment of executives and board members, terms of reference for major financial contracts and negotiations, applications of standards and norms in respect of performance and accounts, compliance with regulatory stipulations, degree of transparency provided in the system, belated decisions and their impact. These are some of the issues concerning the structure, system, style which are generally not covered by financial and proprietary audit but have far reaching economic and financial implications. Therefore, expansion of the scope of audit is inevitable.

Donations to political parties vice financing individuals

It is well known that business organisations provide finance to politicians for their election. This has spawned collaborative economic and financial crimes. Therefore such financial aid to individuals should be replaced by institutionalized donation to political parties. Consequently, politicians will turn to their parties for funding their election. It may be possible that a person with greater integrity and commitment to public service will be attracted to politics which is financed based on 'values' without strings attached (Paul, 1997). Such financial aid also should be given only after verifying that the recipient political party have got their accounts,

complied with tax regulations and made public disclosure of information.

Public Level Strategies

Strategy planning and its implementation at public level is equally important to put a brake on rising economic crimes. Admitted that a group of individuals possess greater capability to bring about a change through many tactics. Therefore, specific strategies are planned to bring together such people who have the conviction to fight economic crimes, provided they direction. Those few, who have courageously initiated legal proceedings can implement the following strategies for a faster change.

Fostering demonstrative strategy

It is noticed that the 'demonstrative strategy' of courage exemplified by a few enlightened people, judges of senior courts and bureaucrats in recent years, particularly in respect of scams involving political leaders of highest echelons has restored the shattered confidence of the public. Therefore, such strategy should fostered and implemented with greater vigour. This will inspire and motivate more people to do likewise. The media also should help this process of consolidation through wider coverage of the campaigns of these people.

Investigative reporting to the fore

It is heartening to know that media in the country are really very active in investigative reporting as financial crimes (Basu, 1993), *Indian Express*, *Financial Express*, *Economic Times*, *India Today*, *Business India* and *Business World* have made significant contributions in collecting and disseminating information on economic offences. The research bureau staff of these papers and magazines deserve appreciation for bringing awareness among the people in a competent fashion. If the media continue their crusade, government would be forced to take note and reform even if lacks the will to bring scamsters and politicians, to hook.

Facilitating non-government organisations

While many have either lost faith in their efforts or do not have the desire to act, for stopping the not, many more have not given up yet. Notwithstanding the absence of common values and vision in the society, we still notice protests and initiatives challenging abuse of powers. Therefore, there is a good hope to 'shape' these 'wellsprings' into organised in-

stitutions. Recently the Koyna Jeewan Hakka Sangrakshan Sangthan (KJHSS), an NGO, unified all villagers in the Patantuluk of Maharashtra to challenge an engineer for not distributing rehabilitation funds for repairs of houses damaged in the Killari Quake of September 1993 (Deshmukh, 1997). A few NGOs should focus their efforts in galvanising the people to pressurise government for taking action against scamsters.

Providing insulation to crusaders

In order to encourage initiative by individuals in government and society in unearthing scams, such people should be provided adequate protection. Society's civil institutions like NGOs, media, legal experts and organised groups of society should stand with these people in their crusade. Innocent people were made scapegoats and punished whereas masterminds were let off (Dalal, 1997) in the Harshad Metha hawala scandal. Therefore, it is imperative to provide insulation to such 'initiators of reform' and innocent people really used as a 'means'.

Conclusion

Economic crimes can be checked provided the 'individual's or society's activism' against crimes is substantially increased and demonstrated with the support of society's civil institutions. Besides, corrective measures are to be taken through appropriate strategies at the regulatory intermediary, institutional and corporate levels, with a close monitoring to push them to their logical outcome. Such close watch coupled with pressure tactics would force the people at these levels to convert themselves as 'activists' in combating scams and other economic crimes.

Acknowledgement

The author is indebted to Shri Apurva Sonex, Post Graduate Student of Management, South Gujarat University, for his valuable assistance in this paper.

References

- Augustine Babudas (1977), "Rogue Banker", *Business India*, No. 502, June 2-15.
- Business World* (1997), Vol. 17.2, April 16.
- Bhattacharya Abhijit (1996), "Is the RBI going the wrong way?", *Financial Express*, Mumbai Ed., 26, July.
- Chakarbarti A.K. (1996), "Ethics in the area of scams", *Management Accountant*, Vol. 31, No. 11.
- Chaturvedi T.N. (1997), "50 years of freedom: Age of scams", *Business World*, Vol. 17.2.

- Dalal Suchitra** (1997), "End the system of trial by humiliation", Times of India, Business Times, 8 July.
- Dalal S. & Sudarshan** (1997), "CRB Caps: Absurdities, tragedies and realities", Business Times, Times of India, Ahmedabad.
- Dalal Sucheta** (1997), "Resist the urge to appoint another JPC", Business Times, Times of India, July.
- Das Tapan** (1997), News Item, Indian Express, 7, July.
- D'Souza Nalini** (1997), "Half of brokers brought in fake shares", Financial Express, Mumbai-Investor.
- Deshmukh Vinita** (1997), "When a PWD Engineer was made to return bribe", Indian Express, Vadodara, 27 June.
- Editor (1997), Casual Surveillance, Financial Express: 15 July.
- Editor (1997), Financial Express Investment Week, Vol. 7, No. 30, 21-27 July.
- Gupta L.C.** (1997), "No system under which investment can be protected", Times of India, Baroda Ed., 1 July.
- Khapre, Kirpal & Shivani** (1997), "Ransom", Express Magazine, Flair, 15 June.
- Kuttikrishnan P.P.** (1997), "Governance: best foot forward – The CII report on corporate governance deserves all kudos", Financial Express, Mumbai, Ed. 11 July.
- Lahri Jaydeep** (1997), "Kick starts bank recovery", Economic Times, Mumbai, 1 July.
- Mehta S.K.** (1997), "Governance: A mixed bag", Economic Times, Mumbai, 16 July.
- Murthy N.R.** (1997), "Standardizing Credit Rating Symbols", Economic Times, Mumbai, 27 June.
- Mathew George** (1997), "Company's failing to make profit", Indian Express, Vadodara, 30 June.
- Paul, Samuel** (1997), "Corruption: who will bell the cat?" Economic and Political Weekly, Vol. XXXII, No. 23, 7-13 June.
- Panja et al** (1997), "Rogue Banker", Business India, No. 502, 2- 15 June.
- Praveen Kumar** (1997), "Amendment called for empowering the CBI", Indian Express, Vadodara, 10 July.
- Rangarajan C.** (1997), "Three tier supervisory framework to regulate NBFCs, FE Banking Bureau", Financial Express, Mumbai, 20 July.
- Santanusen** (1996), "Scam tainted", Business India, No. 486, 21 October.
- Thukral Naveen** (1997), "Plantation firms mushroom despite shady past", Financial Express, Bombay 22 July.
- Thakur, Rajeshwari Adappa** (1997), "SEBI consolidates disclosures, investor's protection norms", Economic Times, Mumbai, 31 July.
- Times of India (1997), Ahmedabad: "Frauds detected in Nationalised Banks", 7 August.

In Search of Productivity Bargaining

R. Satya Raju

Productivity bargaining is a continuous process which seeks improvements in the way products and services are designed, manufactured, sold, used and maintained. It underlies long term agreements concluded between managements and unions. The main issues entering into productivity bargaining relate to: Minimising material, labour and overhead costs; reducing unauthorised absenteeism; improving customer service; retraining and redeployment; effective utilisation of resources; adopting better work practices; maintaining industrial peace and harmony; minimising overtime; redeployment of excess manpower; improving quality of work life; work culture; and industrial peace. The author illustrates these in the light of actual agreements reached in 14 industrial undertakings of varied size and manufacturing operation. In conclusion, a framework is suggested encompassing all aspects of productivity improvement for all levels. Salient among these are: commitment of top management; creating a productivity environment; employee empowerment; technology modernisation; and integration of productivity with corporate plans.

R. Satya Raju is Professor, Department of Commerce & Management Studies, Andhra University, Visakhapatnam-530 003.

Productivity is a universal concept which reflects the relationship between output and input. It is doing the right things and also doing things rightly. It is a form of efficiency; effective utilisation of resources; a ratio; a measure of some kind and a rate of return. Productivity bargaining is an on-going continuous process which seeks improvements in the way products and services are designed, manufactured, sold, used and maintained. Productivity is finding better ways to do the most with the resources an organisation has. It is the process of creating conditions in which every employee—chief executive to peon—contributes towards improvements. Productivity becomes a way of life. Employee becomes a source of improvement rather than a mere resource for management. It emphasises organisational productivity, long term gains and synergetic aspects. In the liberalised economy, several productivity bargaining agreements were concluded in Indian organisations. In India, industrial relations scenario shows a steady improvement in the last few years following economic reforms. Mandays lost due to strikes and lockouts declined significantly from 34.57 million in 1991-92 to 19.20 million in 1994-95 (Satya Raju, 1996).

Productivity is finding better ways to do the most with the resources an organisation has. It is the process of creating conditions in which every employee contributes towards improvements.

This paper seeks to examine the issues relating to productivity bargaining under competitive environment, productivity bargaining agreements and some measures for labour—management cooperation.

Competitive Environment

Porter states, "The principal goal of a nation is to produce a higher and rising standard of living for its

citizens. The ability to do so depends upon the productivity with which a nation's labour and capital are employed. The productivity of human resources determines employee wages; the productivity with which capital is employed determines the return it earns for its holders. A nation's standard of living depends on the capacity of its companies to achieve higher levels of productivity—and to increase productivity overtime" (Porter, 1980).

The productivity of human resources determines employee wages; the productivity with which capital is employed determines the return it earns for its holders.

The essence of formulating competitive strategy is relating to a company and its environment. The five competitive forces—entry, threat of substitution, bargaining power of buyers, bargaining power of suppliers, and rivalry among current competitors—reflect the fact that competition in an industry goes well beyond the established players (Porter M.E., 1980). In coping with these competitive forces, there are three potentially successful generic strategic approaches to outperforming other firms in an industry; overall cost leadership; differentiation and focus. ILO reckons the role of productivity in socio-economic development as follows: First, productivity growth is essential for socio-economic development; Second, productivity growth is a leading factor in raising the standard of living of workers; Third, productivity growth must generate additional resources for additional employment opportunities; Fourth, productivity growth is a common concern of government, the employer and the trade unions. As companies design strategies to meet the new realities of global competition, unions need to jettison their traditional passivity and start contributing to productivity, quality and flexibility. The four factors to be considered are training, work redesign, employee ownership and the new work force.

Productivity Bargaining – Indian Experience

In India, long term settlements have been reached in various organisations incorporating the productivity bargaining concept. A few such (recent) cases are briefly detailed below with reference to the bargaining issues in them.

Bharat Heavy Plates and Vessels Ltd. (BHPV)— Both parties recognised that an engineering industry

should grow at a fast rate in order to meet the nation's economic and strategic needs and also to generate the resources required to meet the urgent needs for modernising the industry. And also that BHPV being essentially a jobbing industry, has requirements peculiar to it which call for special attention. This would necessitate further intensifying all efforts by both the parties to achieve viability of the industry. To this end, the parties committed themselves to work together to attain higher levels of production, productivity and profitability.

Accordingly, joint efforts would be made continuously in the following areas: Minimising material handling cost and avoiding material wastages; improvements in yields and reducing operating cost; reducing energy consumption; improving quality in all operations; improvement in house keeping; continuously adopting better work practices; training of workmen in multi-trades; reducing unauthorised absenteeism; improving customer service and delivery; help attain full capacity utilisation; effective strengthening of the participative forums.

It was also realised that retraining, redeployment and readjustment of manpower are essential or the organisation and hence there was a need to: Keep manpower at the optimum level and achieve the best utilisation of human resources; achieve better overall productivity; increase the profitability and growth of the organisation and continue to have reasonable share in the highly competitive market in which the company has to operate.

A nation's standard of living depends on the capacity of its companies to achieve higher levels of productivity—and to increase productivity overtime.

Hindustan Petroleum Corporation Ltd. (HPCL)— Visakhapatnam Refinery—In the context of the ongoing environmental changes in the petroleum sector in India and their effect on the day-to-day activities of the Corporation, an urgent need was felt by the Management and the Unions to take such actions as are considered necessary and feasible to improve the performance of the Corporation and to meet the future challenges jointly.

Accordingly the Unions and the Management through discussions arrived at a consensus to take concrete actions for enhancing productivity through

better role play by the Unions. The role of the Unions has jointly been identified and listed as under:

- Bringing about sustained improvement in the performance of the Corporation in physical and financial terms, including quality improvement.
- Continuously upgrade "value addition" and achieve quantum jump in productivity and profitability.
- Reduce operating costs including establishment cost and revenue expenses to the utmost minimum level.
- Improve effective utilisation of all resources including human resources through Organisational Restructuring.
- Continuously improve quality in operations, services and products so as to ensure better customer service and achieve excellence in customer satisfaction.
- Constantly adopt better working practices.
- Create and sustain the climate and systems for enhancing merits/performance.
- Continuously support in achieving ISO 9000 accreditation and bringing about Total Quality Management (TQM).

Owing to introduction of new technology or upgradation of existing technology, if any manpower becomes surplus, the same will be discussed with the Unions and reassigned/redeployed in any other process/section as per exigencies. They will be given the necessary training for the purpose.

In case of additional facilities in unit block/off-site facilities within battery limit, the existing manpower will handle the job without any additional manpower. However, if the need was felt, a study will be conducted within a reasonable period of time for assessing the actual manpower requirement and the same will be implemented. It was agreed that all shift personnel of the Instrumentation Section, Electrical Section, General Fitter Section, Welder Section and Field Machinist Section would attend to the jobs arising from the start-up and shutdown of the Plant and other planned shutdowns in all the existing units. It was also agreed that the usual emergency jobs and running repairs will be carried out by the Shift Personnel. And also depending on the job requirements, the personnel will be asked to continue the job in the succeeding shift. It was further agreed that the General Shift Workmen will also undertake all the maintenance jobs in all the existing Units.

In shifts, as and when more manpower than the normal requirement was available, such manpower will be reassigned wherever it is needed for running the plants/units. At the time of shutdown, the shift compliment will be decided at the discretion of the Management.

The onus of deciding the number of workmen required during shutdowns/exigencies of work to be carried out, would solely be the Management's discretion.

The onus of deciding the number of workmen required during shutdowns/exigencies of work to be carried out, would solely be the Management's discretion.

In the matter of promotion to higher grades within the non-management cadre, the present system of selection by Departmental Promotion Committee (DPC) will continue. The Unions will cooperate in redesigning the performance appraisal format within three months from the date of signing of this settlement.

Hindustan Steel Ltd. (HSL)—HS Labour Union and HS Staff Association agreed for the full implementation of the identified good work practices as finalised and mutually agreed to with effect from 01-02-1992. HS Labour Union and HS Staff Association further agreed that restrictive practices coming in the way of production and Productivity would be completely eliminated.

In order to achieve a progressive reduction in the mandays per unit during the next four years, the management, the HS Labour Union and the HS Staff Association agreed to the following norms:

- To achieve the target of 200 manhours per Gross Equivalent Tonne under the Steel Complex, progressively by 1992-93 by elimination of restrictive practices and implementation of good work practices.
- Overall productivity levels including outfit wing of the yard should reach 3000 mandays per unit of production by improving mandays utilisation through implementation of good work practices.
- To step up production commensurate with the increased wage levels. Also to formulate a productivity linked incentive scheme for achieving higher level of production and productivity norms over those stipulated above.

- Maintain industrial peace and harmony and make every effort to increase productivity.
- Introduce the practice of discussing production targets with workers at shopfloor level; the workers' representatives, on their part, will give all cooperation to ensure fulfilment of targets.

Introduce the practice of discussing production targets with workers at shopfloor level; the workers' representatives, on their part, will give all cooperation to ensure fulfilment of targets.

It was recognised by both parties that discipline at all levels is essential for the smooth functioning of the company. They therefore assured full cooperation for maintaining discipline and optimising production and productivity.

National Thermal Power Corporation (NTPC)—While making unequivocal commitment to maintenance of industrial peace and improvement of generation and construction efficiency, the Unions agreed:

- To extend to the management full support and cooperation in improving productivity and discipline in the Project/Division/Offices.
- To cooperate and work out ways and means to identify and eliminate all wasteful practices.
- To introduce the system, including its revision as necessary, relating to time keeping, attendance procedure and gate control for ensuring attendance, punctuality, etc.
- To work out system of re-deployment and rotation of employees as may be required.
- To identify and eliminate non-uniform practices at different places.

Oil and Natural Gas Commission (ONGC)—The Unions agreed that discipline at all levels was of utmost importance for the smooth functioning of the organisation and for improving productivity of the employees. They, therefore, assured full co-operation to the management in maintaining discipline, and in their efforts to improve productivity of the employees. Indiscipline of any kind will not be compromised at any cost.

The Commission and the Unions also agreed to cooperate in:

- minimising overtime;
- creating a healthy climate for industrial relations, promoting efficiency all round and making every effort to increase productivity; and
- ensuring a high level of performance, consistent with safety, health, environment, inputs and sustained efforts to achieve not only the targets of production, but even exceed them.

The Commission and the Unions also agreed to cooperate in ensuring a high level of performance, consistent with safety, health, environment, inputs and sustained efforts to achieve not only the targets of production, but even exceed them.

Pyrites, Phosphates & Chemicals Ltd. (PPCL)—It was agreed to mechanise various mining and related activities and introduce innovative ideas to economise on cost of production and to achieve higher productivity. It was further agreed that the management would establish norms based on improved performance with mechanisation and the Union would give full support in implementing it. The Union agreed to increase productivity by 15 per cent and to wholeheartedly cooperate to make all the schemes successful.

Bharat Earth Movers Ltd. (BEML)—It was agreed to continue adhering to the existing industrial climate of coordination, understanding and sense of cooperation. By continuing the existing spirit of resolving disputes and differences peacefully through negotiations and constitutional means, contribute to industrial peace, productivity and overall efficiency of Company.

The parties agreed to achieve highest efficiency, performance and productivity consistent with safety; health and other measures, viz., effective handling of resources, reducing wastages, improving quality and diminishing cost.

To achieve optimum utilisation of human, machine and material resources by promoting productivity oriented practices, the personnel shall be redeployed and redistributed wherever required. The management would ensure training consistent with skill, dignity and earnings of employees keeping in view modernisation and sophistication.

They also agreed to make effective contribution to achieve excellence by adhering to the following objectives: Harmony and Co-operation; striving for betterment; effective strengthening of participative forums; reduction of absenteeism; efforts to improve quality of work life, job satisfaction and job enrichment. Necessary facilities would be provided to improve the skill of employees. It was agreed to: cooperate and maintain discipline at all levels; further improve house keeping; further improve safety consciousness among employees at all levels; and further improve customer service and delivery through possible.

Bharat Electronics Ltd. (BEL), Ghaziabad—The agreement began with the following general statement: "In the context of increasing competition, fast changing technological environment and the need to retain the leadership role of the Company in the chosen fields of electronics, both the unions and the management commit themselves to work together: (i) to achieve higher levels of production, productivity and profitability; and (ii) to attain the optimum utilisation of manpower through retraining, redeployment, increased availability of the employees at the work spot, avoidance of overtime and redefining of work assignment consistent with the changing product mix and technological processes."

TELCO—The Union agreed to support the management to optimise the utilisation of manpower through flexibility of movement, redeployment of excess manpower and also by advising the workmen/employees to carry out the normal work during the period of high absenteeism with available manpower.

The Union agreed to support the management to optimise the utilisation of manpower through flexibility of movement, redeployment of excess manpower and also by advising the workmen/employees to carry out the normal work during the period of high absenteeism with available manpower.

Owing to fluctuation in production schedules, if any, workman/employee is rendered idle for a period of time, the workman/employee would be required to work on any other job in any section or department on *Loan-in* and *Loan-out* basis so as to earn their efficiency bonus as well as to optimise the utilisation of manpower.

Bhilai Steel Plant, Bhilai—Efforts are made for more effective and better utilisation of the available manpower through the following, wherever possible:

By reorganising, restructuring/rationalising work; job enrichment; elimination of non-productive working habits/practices; elimination of forced idleness, wherever existing; selective optional re-deployment with protection of wages; reducing unauthorised absenteeism; productive bargaining; improvement in the skill of the employees through technical education and re-orientation.

Thermax Pvt. Ltd., Pune—With the increasing need felt for diversification and introduction of new products and designs, it was necessary that the workmen adopt the multi-skills concept by suitable retraining and upgradation of their skills.

In order to implement the one-man crew concept effectively, it was felt necessary to train some of their workmen in skills supplementary to their own, such as fitters being trained to do gas cutting and tack welding, or welders trained to do minor machining jobs, etc.

The retraining programme for multi-skills would be implemented on the shop floor in consultation with the Union representatives. The workmen's representatives have been informed that no extra benefits would accrue out of this concept since it had been agreed in the Productivity Linked Earning Scheme that no workman would be retrenched due to the implementation of the Scheme.

By introducing the multi-skills concept effectively the crew size in a work centre would be automatically reduced and members of the work centre would be equally loaded and utilised to the fullest extent. This would result in higher work centre and plant performance index and all the workmen would thus benefit in terms of higher work centre and Plant Productivity Linked earnings.

Damodar Valley Corporation (DVC)—The DVC Karmachari Sangh extended whole-hearted cooperation to the Corporation for the following:

- To ensure that the Plant Load Factor of DVC does not fall below 50 per cent and to maintain productivity in all other spheres to conform to all-india norms; and

By introducing the multi-skills concept effectively the crew size in a work centre would be automatically reduced and members of the work centre would be equally loaded and utilised to the fullest extent.

- To reduce overtime to the maximum extent, subject to proper manning.

Bajaj Auto Ltd., Pune—The agreement provided for a minimum hike in wages of Rs. 695 per month per worker (as opposed to the Union's initial demand for a minimum hike of Rs. 2,800 per month) subject to two main conditions: productivity of the workers would have to go up by 20 per cent over and above the prevalent norms; and, a worker would attend to two machines running simultaneously when asked to do so. Workers were liable for disciplinary action if they flouted productivity norms.

Indian Aluminium Company Ltd., Ranchi—The Union and the Management agreed that rationalisation of work standards and work methods which may also include mechanisation of operation and handling and rationalisation of crew strength are to be undertaken to achieve higher productivity. The workmen would extend full co-operation to the management in this regard. To improve productivity and work efficiency, changes in work practices were agreed upon. It was also agreed that there shall not be any retrenchment or loss of earnings of existing workmen as a result of rationalisation, mechanisation or method changes.

Hindustan Copper Limited (HCL)—Both the management and representatives of the Unions agreed that HCL should grow at a faster rate and aim to meet the nation's requirement, improve the quality of work life, work culture and industrial peace. In order to achieve these, both the parties agreed to work together by:

- Jointly pursuing in promoting industrial peace and harmony; achieving highest efficiency by way of excellence in performance and productivity consistent with safety, health and other measures; improving utilisation of installed capacity of the plants; maintaining discipline at all levels; improving housekeeping and working conditions, and resolving all disputes through mutual dialogue.

Both management and unions are committed to create a healthy and safe working environment for all employees in the copper industry and jointly promote the effective functioning of bipartite forums and statutory committees.

A Suggestive Framework

It is observed that several measures are taken for union—management cooperation for increasing productivity. There is no doubt that industry would flourish when there is a positive attitude towards achieving the mission of the enterprises.

The important areas on which the managements and unions would work together for better results are: employee welfare; grievances management; matching of skills; job ability and education with remuneration; participation in decision making; encouragement of positive culture; introduction of safety measures at work; social security; training and development.

Productivity agreements are needed in the areas of: efficient handling of raw materials, reducing costs, controlling operating costs; procurement of materials at economic prices; improving quality; reducing energy consumption; better house keeping and work practices; reducing unauthorised absenteeism, better capacity utilisation; redeployment of people with skill and abilities; identification of wasteful practices; improving customer satisfaction, etc.

Meaningful productivity bargaining is possible when the following conditions are satisfied: (a) The general environment must be favourable for launching a productivity improvement drive; (b) Workers and their unions must not only be taken into confidence but their support secured for productivity movement; (c) The management must have clear ideas about the prevailing practices and levels of production, otherwise, fixing of norms will be difficult; (d) Infrastructural facilities should be provided by the management; (e) Management must be professionalised; (f) Negotiation skills should be improved; and (g) The productivity agreement must be drafted with great care and confidence.

According to a study by the ILO, direct means of raising productivity are: Better management by reducing work content of the product; process research; process planning; operator training; reducing the ineffective time of plant, etc. (ILO, 1964, p. 39).

According to a study by the ILO, direct means of raising productivity are: Better management by reducing work content of the product; process research; process planning; operator training; reducing the ineffective time of plant, etc.

Insights gained during the two-year White Collar Productivity Improvement Research Project (American Centre, 1985) led the American Productivity center to eight general observations: (a) White collar productivity improvement is founded on basic issues of vision, orientation and management practices; (b) Attention to

operational issues will enable productivity improvements to take place; (c) Training and coaching are required to deliver services effectively; (d) Organisational systems and processes offer a major opportunity for productivity improvement; (e) Management of white collar work is both possible and desirable; (f) Justification of technology is best linked to critical features of service development and delivery; (g) Service reliance is a key to on going productivity improvements; (h) It is dependent on some critical success factors, such as, innovations, risk taking, emphasis on service; a flexible methodology; technology and inputs.

Productivity would increase when companies adopt the 5S model and also follow a four-phased approach namely, assessment, foundation, basic productivity improvement and advanced productivity improvement.

In order to improve productivity, all the organisations have to follow the following basic elements (Monga, 1992).

Commitment of top management and trade unions; creation of productivity culture and environment; employee empowerment to do Kaizens; creating a mechanism to involve all employees from peon to managing director; technology modernisation; HR development; sharing gains of productivity; audit and evaluation of productivity; integration of productivity with corporate plans, budgets, performance appraisals and long-term strategies.

For a high performing organisation, features required are: Management commitment; organisational awareness; management responsibilities; productivity goals; reward system; visible productivity measures; quality improvement; employee involvement; integration of productivity with budgeting, planning and financial reporting systems. In Modi Xerox, the company first followed employee involvement strategy in 1979; Later, it implemented quality of work life in 1980; participative work practices in 1985; and in 1990s high performing organisations pursued the objective of productivity through people.

For a successful productivity improvement programme, the following guidelines are to be adopted for overall corporate strategy; creating awareness; productivity measurement; productivity evaluation; productivity planning; productivity improvement and productivity reporting.

References

- American Centre (1985), "White Collar Productivity Improvement: Action Research Project Summary and Findings", Houston, Texas.
- ILO (1964), "Introduction to Work Study", Indian Labour Organisation, Geneva, p. 39.
- Monga R.C.** (1992), "Dynamics of Productivity Management", Productivity, Vol. 33.
- Porter Michael E.** (1980), "Competitive Strategy", Free Press, New York.
- Ministry of Finance, "Economic Survey 1995-96", Government of India. □

Productivity & Participative Work Culture Through HRD Interventions

Rameshwar Dubey

The paper traces the chequered labour-management relations in the country and analyses the reasons behind the phenomenon. Erosion of native values, compounded by uncritical copying of foreign methodologies, it argues, have prevented participative work culture from taking roots. For a positive work culture to develop in Indian enterprises, enlightened HRD interventions in tune with traditional altruism and emphasising motivation and commitment, are advocated in place of the simplistic ones solely aimed at skill development and capacity enhancement.

Rameshwar Dubey is Senior Deputy Director (HRD), National Productivity Council, Lodi Road, New Delhi-110 003.

Labour and capital are the two pillars of productivity. The shape, size, beauty and strength of the edifice of productivity in any enterprise, industry, economy of a country depend upon the strength/weakness of the above two factors and their inter-relationship. There is a general consensus that increased productivity is a major prerequisite for improved work culture and quality of life, and that the basis for achieving higher productivity is positive and constructive relationship between labour and capital, i.e. between workers and employers, wherever possible, in the form of labour-management co-operation. In order to bring about such co-operation, many countries have initiated legislations providing for setting up of works councils, employee committees or similar machinery while others have left such institution building to the concerned parties without much government involvement. Some examples are the Standing Labour Committee and the State Labour Advisory Boards in India, the Bangladeshi Tripartite Consultative Committee, the National Advisory Council in Sri Lanka, the Standing Labour Committee in Pakistan, the Malaysian National Labour advisory Council, the National Tripartite Body and the Regional Tripartite Bodies in Indonesia, the Tripartite Industrial Peace Council in the Philippines and the Advisory Council for National Labour Development in Thailand. A standing body that meets regularly can be helpful in promoting among the parties the habit of pursuing an ongoing dialogue (Schregle, 1995).

In Europe, standing bodies at the central level for labour-management cooperation are, for example, the social and economic councils in France and Italy, the (tripartite) Social and Economic Council and the (bipartite) National Labour Council in Belgium, and the (bipartite) Foundation of Labour and the (tripartite) Economic and Social Council in the Netherlands. Some of the Central and Eastern European countries which are at present engaged in the transformation of their societies from a communist into a democratic system with a market economy have also established central advisory

and negotiation bodies in which employers' and workers' organisations are represented. Examples are the Council for the Reconciliation of Interests in Hungary and in Poland the Tripartite Committee for Socio-Economic Issues, set up by the Council of Ministers in March 1994 within the framework of the Social Dialogue programme of the Polish Government.

Tripartite Consultation – Its Origin & Progress

Tripartite Consultation has a long tradition in India going back pre-independence days. As early as 1931, the Royal Commission on Labour recommended tripartite consultation and the first tripartite national labour conference was convened in 1941, simultaneously with the setting up of the Standing Labour Committee, also of tripartite composition. The tripartite national labour conference which has held 33 sessions between 1941 and 1996 is successful in the sense that it has prepared the ground for a number of important legislative enactments and brought about several agreements between employers and workers' organisations, including an agreed code of discipline, a resolution on industrial truce, the setting up of special tripartite machinery for structural adjustment reforms among others (APO, 1996).

The tripartite national labour conference is successful in the sense that it has prepared the ground for a number of important legislative enactments and brought about several agreements between employers and workers' organisations.

A brief account of the efforts made in the recent past in India will not be out of place here in this regard. In 1975, the Constitution was amended and article 43(a) was inserted in the Directive Principles of State Policy to encourage and secure the participation of workers in management. Accordingly the first scheme of Workers' Participation in Management for manufacturing and mining industries was formulated in 1975. Two years later, in 1977, commercial and service organisations with 100 or more employees were brought within the purview of another participative scheme, broadly similar to the 1975 scheme. In December 1983, following a review of the progress of participative scheme in industries, a new comprehensive scheme for 'employees' participation in management was prepared and notified. In order to monitor the implementation of the scheme and also to review working from time to time and suggest remedial

measures, a Tripartite Committee on Workers' Participation in Management under the chairmanship of Secretary (Labour) Govt. of India was constituted in August 1984. Keeping in view the shortcoming of the various schemes implemented from time to time and also the experience gained in this regard, the Participation of Workers in Management Bill was, therefore, drawn up and introduced in the Rajya Sabha on 30 May, 1990. In the changed economic and industrial environment of the country, the Govt. is proposing some amendment in the bill accordingly. Nevertheless whatsoever initiatives are taken at national level, the need for participation at unit level is always imperative.

It is to be noted that the above schemes covered only public sector units and not private sector ones. Except for a handful of progressive private companies who have introduced their own schemes for evolving participative work culture through involvement of workers and unions, no authentic data is available for the totality of industries operating in the private sector. Out of 220 Central Public Sector Undertakings (CPSU) for which data are available, 100 have implemented one or the other participatory scheme of the Ministry of Labour at the shop floor and/or plant level; 63 have not implemented any due to problems connected with representation of workers in the participatory councils; and 23 do not consider the scheme suitable as they employ only a few workers. It has been observed from the feedback received from the CPSUs that multiplicity of unions and intra/inter union rivalries are posing problems in implementing the scheme in many enterprises. In some the objectives of the scheme are sought to be achieved through deliberations in works committees, safety committees, suggestion committees, joint consultative committees, canteen committees and Quality Circles, etc. (Ministry of Labour, 1994).

It has been observed from the feedback received from the CPSUs that multiplicity of unions and intra/inter union rivalries are posing problems in implementing the scheme in many enterprises.

On the whole, the results have not come in the desired fashion nor to the required extent despite the efforts at various levels to encourage the participation of labour in management. Hostility, mistrust and over dependence on legal framework at macro level have been among the main reasons behind participative work culture not developing for enhancement of productivity at micro level, i.e. at enterprise and industry level.

There is, however, one aspect that is basic to every policy aimed at strengthening labour-management cooperation at the undertaking level. It is the inter-relationship between labour-management relations at the enterprise level, on the one hand, and the relations between workers' and employers' organisations at the level of broad sectors, entire branches of economic activity or industries, and the national economy as a whole, on the other. In other words, there is a close link between micro-level and macro-level labour relations. The character and quality of labour relations at these different levels depend on each other, act upon each other and determine each other.

There is a close link between micro-level and macro-level labour relations. The character and quality of labour relations at these different levels depend on each other, act upon each other and determine each other.

Constructive Labour Management Relations

This means that efforts directed at more constructive labour-management relations within companies stand a better chance of success in those countries where the relations between employers' and workers' organisations at the economy level are marked by a climate and spirit of cooperation and mutual trust. On the other hand, countries where employers' and workers' organisations are in conflict with each other and their attitudes are marked by mistrust and hostility, labour-management relations at the enterprise level can hardly be expected to be cordial and constructive. Translated into more practical terms, this means that employers' and workers' organisations operating at the economy level can and, in fact, should take concrete steps to help in the promotion of labour-management cooperation at the level of individual companies.

It has also been experienced widely that, in our country, at micro level, improvement in productivity and quality is being enhanced essentially by 'Top-Down Approach' in private enterprises, whereas in public and government concerns it is the 'Dump Yard Management System' (DYMS—Right from top, every body passes off or dumps the papers down) which is mainly adopted without seeking real involvement of the workmen or the lowest functionaries in decision making and democratic participation. Thus decisions taken for improving work culture and participative management remain more or less on paper.

Alongside this attitude, alien management systems like MBO, QCC, 5-S, Kaizen, TQM, TPM, JIT, Benchmarking are being propagated in order to improve participation and creativity of employees to shop floor level. Likewise, in the past, all possible theories like Scientific Management in 1900, Time and Motion Studies in 1910, human relations Approach in 1930, Behavioural Science Movement in 1950 emanating from business schools and companies of United States and other western countries had been introduced and propagated at shop floor without any thought about their need or suitability for our country.

Lately, especially since 1980, there has been a constant shift towards Japanese styles of management in place of western systems. Indeed management experts are advocating 'Japanisation' of Indian Industry by blindly adopting Japanese styles of management. Nowadays the considered opinion in management and social science circles is that technology can be and should be imported for development, since while transfer of technology could be easy, the management system, work ethics, proactive work culture and environment have to be created internally and developed indigenously failing which improvement in productivity and quality may not be achieved in reality.

Close association and interaction with a number of public and private companies has shown that many times decisions not related to personnel policy but even concerned with production, quality of product, house keeping and maintenance in which employees themselves are interested are taken in no time without consulting the partners and employees who are actually to implement the decisions on shop-floor. This results in delay in implementation or sometimes forced withdrawal of decisions due to resistance of concerned employees. This results in loss of productivity and strained and unhealthy industrial/shop floor relations. Such situations are the result of not understanding man as distinct from other resources by executives, managers and supervisors.

Man—A Complex Being

Man is so unique and different from other resources that no uniform generalised idea or a standardised icon of man can be made. If he is an enigma

If man is an enigma as an individual, his behaviour in a group is even more complex and his mind much more unpredictable.

as an individual, his behaviour in a group is even more complex and his mind much more unpredictable. Because of this complex nature of man's interaction at any place, men getting together to work or live naturally leads to conflict or co-operation. Lessening friction and conflict in human relations and improving co-operation for a better work place and work life are the basic objective of Human Resource Development (HRD).

HRD is not merely a fancy title or a management fad. It emphasises the ultimate recognition of people as the most vital resource to be constantly nurtured and developed for achieving optimum results in order to stay ahead in the present day competitive world. Achieving HRD excellence leads to organisational excellence. Practising HRD excellence involves human beings who are most complex and unpredictable in nature. Human beings are guided and controlled by themselves and their families, society, culture and ethos. They influence and are in turn, influenced by success and failure, and therefore excellence. We are concerned with Indian companies and institutions and therefore with Indian ethos. Faced with failures, historical servile attitudes and for the sake of discussion, we are accustomed to bringing in examples of Japan and America in all our training programmes, seminars, symposia and workshops on human resources development. During such times, we forget that there are a number of good Indian companies which owe their success to practising good HRD in Indian environments. We also forget that nobody can achieve real success by copying alien culture, values and system. We forget that from the inception of civilisation man had to deal with fellow human's for survival and progress. The fundamentals of HRD like openness, trust, honesty, love, concern, team work, achievement, motivation, creativity have not changed since then and will never change too. Only the methods of application have changed. Therefore, the shared values, attitudes, customs and beliefs of companies towards work should be assiduously nurtured in the desired direction, keeping our own distinctive traditions, customs, conditions and circumstances in mind.

We also forget that nobody can achieve real success by copying alien culture, values and system.

Management – Workmen Adversarial Mindset

Thanks to alien management systems propagated and practised in our industry for many decades now, the mistrust and hostility prevalent in the minds of people

manifest as resistance to any HRD intervention both on the part of management and the workmen.

Management thinks it is a waste of time and money, workman will tend to be more demanding, will not be compliant but start questioning, and not be satisfied with perks etc.

Workmen will suspect why all of a sudden management thinks terms of developing them. It is a gimmick used to extract more production and productivity. It is using a third party (HRD experts) to brainwash workmen for settlement of more work; the company stands to benefit indirectly.

Such problems arise because workers think they are not part of the factory, or the profit accruing to the factory will in no way benefit them. To run the factory or developing it and diversifying it, they feel, is the sole responsibility of management. Managers also hold and nurture such views.

Corruption of Native Concepts & Values

There is a common feeling in our country that no one is working for himself (barring of course the self employed). In government concerns, people work for the government while in private concerns one works for the employer. Since no one is working for 'himself'/'herself' he/she contents himself/herself into generating or doing the minimum work/output for one's survival in employment. This shows the lack of motivation for work among the masses. This single alien concept ingrained in the brains of people is enormously militating against enhancing productivity, quality and work culture in our country. This is not native to the Indian psyche but alien. In the ancient past, 'Varnashram' system was practised everywhere in Bharat. 'Ashram' meaning surrounded by labour (work) denotes a place where everyone is engaged in physical/intellectual labour. Never in our history was physical labour despised. The term 'shudra' meant a person who sweats by doing work. This way every person who earned his living by working honestly and deligently is a 'shudra'. But then over centuries this word came to be misused, even abused by many for their selfish ends. Thus in our Indian society an inferiority complex attended those engaged in physical labour. Since industries are part of the same society, this feeling hampers productivity and becomes a hindrance to positive work culture in industries also.

Due to the influence of the imported concept of employer – employee because labour is thought to be just only one factor among several inputs employee

considers the employer an agent of exploitation for profit motive. Thus since the original concept/old culture has been replaced by the new alien culture, workers/employees try to give no more than the minimum output to the employer while expecting maximum benefit in return whereas the employer wants to pay just the minimum or incur minimum expenditure on labour but expecting more work and loyalty from the employees. In view of this dichotomy, there is need for developing an Indian style of management or HRD system based on local values, ethos, culture and practices.

There is a need for developing an Indian style of management or HRD system based on local values, ethos, culture and practices.

In order to create a conducive work culture through HRD intervention, various participative systems have indeed been formulated for different levels in the organisation. The essential features of a few such systems are discussed in the following paragraphs. In these, even the designation of the group to be organised is kept flexible and left to the consensus of the local employees. For instance, it could be Productivity Party, Quality Committee, Humanity Forum.

Four Level HRD for Positive Work Culture

The objective of building positive work culture is achieved in the long term through a systematic and successive pursuit of the following in the order mentioned:

- Awareness
- Motivation
- Sustained Effort
- Skills
- Capacity

A basic lacuna in Indian industry and systems of management has been the very low emphasis on training and education of workers at lower levels. The efforts so far have been mostly towards skills and capacity development for executives and managers. As a result, the right kind of awareness which generates motivation and commitment towards sustained effort seems widely lacking. In Japan training given per employee is 40 days on an average per year whereas in India, it is 2.5 days

per employee per year in PSU and government. It is even less in private companies. In fact, this is inclusive of both officers and workers. Therefore, primary emphasis in the scheme suggested is as creating the right kind of awareness.

In Japan training given per employee is 40 days on an average per year whereas in India, it is 2.5 days per employee per year in PSU and government. It is even less in private companies.

The second level of training suggested is for creating motivation and commitment. This is necessary as even with enough awareness and knowledge, employees are not sufficiently motivated or committed to exert themselves or to achieve the desired results. Consequently, organisations are not able to compete in the changing competitive environment particularly with foreign companies (Dubey, 1994).

Once sufficient motivational climate and commitment are created, the third level of training and intervention is for sustaining the spirit for longer. This level of intervention is found necessary because many a work or project is started with all enthusiasm and fervour which peter out after some time. The resultant cost and time overruns bring neither any benefit to the employer nor satisfaction to the employees and customer (to use the new word to denote the affected party). This has particularly been the experience when motivation was sought to be created through alien management theories/practices like MBO, QC, JIT, Kanban, Kaizen, etc.

The fourth and the fifth levels respectively address development of skill to do the job and enhance the capacity so as to turn out more work and at a faster rate. Only after reaching the final stage can it be (truly) claimed that the enterprise and the employees are near perfecting productivity. Only then the dictum '*Yogah karmashu kaushalam*', excellent definition of productivity namely, achieving excellence (perfection in skill) in one's duty/work can be said to have been followed. Only when such an HRD intervention is implemented systematically, productivity will be achieved which manifests in excellence in work and knowledge.

But the prevailing thinking in most enterprises is that awareness, motivation and commitment already exist in all employees to the desired extent and training is required is only for skill upgradation and capacity enhancement (Dubey, 1989). So much so, training and HRD intervention in a majority or cases are also directed accordingly. But

then, as underlined earlier, until and unless local values and custom are embedded in the HRD interventions and training, the employees will not be able to reach their peak performance and consequently the organisation/industry will find it difficult to survive and grow in the fast changing environment of global competition.

References

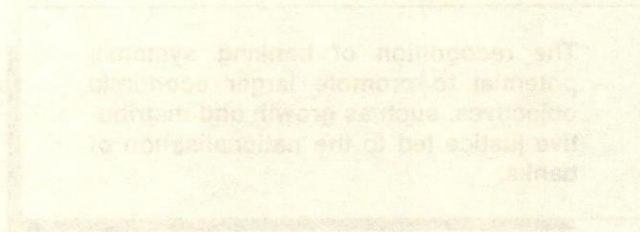
Asian Productivity Organisation (1996), Labour-Management Co-operation: From Labour Disputes to Co-operation, Tokyo.

Dubey Rameshwar (1989), "Quality Development: An Analysis", Ut-padakta, National Productivity Council, New Delhi, Nov.-Dec.

Dubey Rameshwar (1994), "Productivity: An Aspect beyond Machinery", the Financial Express, New Delhi, 9th Nov.

Ministry of Labour (1990), Background Paper on the "Participation of Workers in Management", Govt. of India, New Delhi.

Schregle Johannes (1995), "Labour-management Co-operation: Role of Workers' And Employers' Organisations", Asian Productivity Organization, Tokyo.



Recent Evolution of Indian Banking System

The Indian banking system has been in a process of rapid expansion and growth since the early 1970s. This growth has been driven by a number of factors, including the liberalisation of the banking sector, the introduction of new financial products, and the increasing demand for credit by the private sector. The government has played a key role in this process, through its policies and regulations. The Reserve Bank of India (RBI) has been instrumental in maintaining the stability of the financial system and in promoting the growth of the banking sector. The introduction of the New Economic Policy (NEP) in 1991 led to a significant restructuring of the banking system, with the merger of several public sector banks and the introduction of private banks. This has led to a more competitive and efficient banking system, which is better equipped to meet the needs of the Indian economy.

Productivity & Financial Performance

The relationship between productivity and financial performance is a complex one. While it is generally accepted that higher productivity leads to higher financial performance, the reverse is not always true. There are a number of factors that can influence this relationship, including the quality of the workforce, the efficiency of the production process, and the overall economic environment. In the Indian context, the rapid growth of the banking sector has led to a significant increase in the availability of credit, which has in turn led to a rapid expansion of the private sector. This has led to a significant increase in productivity, which has in turn led to higher financial performance. However, there are still a number of challenges that need to be addressed in order to ensure that this growth is sustainable and that the benefits are shared by all sections of society.

Productivity in Commercial Banks

Prashanta Athma & Pramadwara Srinivas

Briefly tracing the evolution of commercial banks in India from the nationalisation phase, the authors point out how profitability has become crucial for the long-term survival and growth of banks in the post-liberalisation era of Indian economy. As profitability is linked to productivity, an inter-group analysis of productivity indicators for public sector, private sector Indian and private sector foreign banks is presented. The ability of public sector banks to adjust to the new operating environment is revealed.

Ms Prashanta Athma is Faculty Member, Department of Commerce, Osmania University, Hyderabad-500007. Mrs. Pramadwara Srinivas is Lecturer, Department of Commerce, G.M. Sanghi College of Commerce, Tarnaka, Secunderabad-500017.

It is common knowledge that, commercial banks play an important role in the country's economy by financing the requirements of trade, industry and agriculture with a greater degree of responsibility. Banks mop up deposits by drawing the community savings into the organised sector, which are then allocated to different economic activities according to the priorities laid down by the Reserve Bank of India in consonance with the fiscal policies of the Government of India.

The recognition of banking system's potential to promote larger economic objectives, such as growth and distributive justice led to the nationalisation of banks. As a result, there was a rapid expansion in branches, quick growth in deposits and advances.

The recognition of banking system's potential to promote larger economic objectives, such as growth and distributive justice led to the nationalisation of banks.

Recent Evolution of Indian Banking System

The banking structure as at present is the outcome of a process of expansion, reorganisation and consolidation which has been going on for many years now. More notably, pre-nationalisation period and post-nationalisation period are the two distinct phases of the developmental process that the banking system has undergone. Lately, it has extended to a third phase, namely, of market development, through innovation and diversification into new areas of financial services.

Prior to nationalisation, growth of banks was motivated purely by economic considerations which were replaced by social objectives after nationalisation. The Narasimham Committee appointed to study the financial system submitted its report in November 1991. The Report called for adoption of prudential norms

pertaining to capital adequacy, income recognition, provisioning, transparency in financial reporting, etc. Consequently there is now, a greater emphasis in Banks on efficiency of operations, and recovery and recycling of funds by reducing and arresting the growth of non-performing assets, enhancing their performance in terms of efficiency and profitability. Thanks to the new norms, a larger number of nationalised banks' balance sheets showed huge gaps in income.

In the present economic scenario, the banks have to mobilise funds from household savings, resort to qualitative lending, continue to lend to priority sectors and exports, emphasize on recovery of loans to reduce/arrest the growth of non-performing assets, and above all, stress on profitability and productivity aspects, making service ever more customer friendly.

The profitability of commercial banks in general and Public Sector banks in particular has, of late, been adversely affected and their costs have considerably increased in the process of rapid branch expansion. As a result, greater pressure is being exerted on banks to reduce their transition costs.

Banks, as business concerns, cannot overlook the profitability aspect since profit signifies efficiency. For the long term survival and growth of banks, profits are imperative. "It is considered as an indicator of productivity in the deployment of resources of banks. Only strong and viable banks will be effective in playing their defined role as per national policy" (Pawar, 1988). A change brought into banks' presentation of accounts by making them transparent and consistent has yielded results.

Productivity is one of the major factors affecting profitability among others like a high share of low yielding advances, expansion of bank's operations in areas where the avenues for profitable deployment of funds are less, increased overdraft, higher overhead expenses, increase in sickness in industrial units financed by the banks, non-performing assets, etc.

Banks, as business concerns, cannot overlook the profitability aspect since profit signifies efficiency. For the long term survival and growth of banks, profits are imperative.

We now proceed to analyse the productivity in commercial banks group-wise i.e., Public Sector Banks, Private Sector Indian Banks and Private Sector Foreign Banks, before and after the banking sector

reforms. Public sector banks have of late demonstrated a remarkable ability to adjust to the new operating environment and acquired a high level of business strength. As a result, the banking system now operates within a set of internationally recognised prudential accounting norms of income recognition, asset classification, provisioning and capital adequacy.

Public sector banks have of late demonstrated a remarkable ability to adjust to the new operating environment and acquired a high level of business strength.

Productivity

Broadly, productivity refers to an organisation's effectiveness in using all its resources, viz., labour, financial resources, fixed assets, premises, etc. Thus, it is an input-output relationship. But, there are major difficulties in measuring productivity in service industries where quality of service assumes greater importance. In the case of commercial banks, the distinction between inputs and outputs is not clear. One aspect of productivity is the measurement of business (deposits + advances) per-branch and per-employee, and the other aspect is cost responsiveness and return on working funds. These data in respect of the three bank groups are presented in table I.

It may be seen therefrom that productivity—both per-branch and per-employee—showed a rise for all the three bank groups though it was relatively higher in the case of private sector foreign banks (PSFBs). Productivity-per-employee which was lowest in the case of private sector Indian banks (PSIBs) till 1992-93 showed an improvement over public sector banks (PSBs).

Cost Responsiveness (CR) measures the degree of cost effectiveness which reflects the bank's profitability to a greater extent. "In the context of regulated interest rate structure, the profits of a bank have a greater bearing on profitability than the spread management", (Angadi, 1984). In the case of bank, a service industry, earnings are in the nature of output and costs in the nature of input.

Therefore, the profits of a bank can be evaluated by CR, which is defined as follows:

$$CR = \frac{\% \text{ variation in cost}}{\% \text{ variation in earning}}$$

Table 1: Productivity in Commercial Banks

Year	(Rs. in Crores)														
	Public Sector Banks (28)*					Private Sector Indian Banks (23)					Private Sector Foreign Banks (23)**				
	PPE	PPB	CR %	Profit	ROWF %	PPE	PPB	CR %	Profit	ROWF %	PPE	PPB	CR %	Profit	ROWF %
1982	0.144	3.044	-	77.57	0.12	0.104	1.161	-	3.15	0.126	0.260	21.667	-	17.01	0.808
1983	0.158	3.406	1.007	84.36	0.110	0.123	1.326	0.998	3.53	0.111	0.317	26.326	0.961	19.59	0.785
1984	0.175	3.839	1.013	82.53	0.090	0.136	1.548	0.985	4.21	0.110	0.370	29.856	1.011	26.76	0.903
1985	0.192	4.164	0.984	117.77	0.108	0.138	1.744	1.032	6.79	0.149	0.440	35.564	0.971	34.27	0.943
1986	0.216	4.825	0.969	192.23	0.151	0.156	2.065	0.930	9.21	0.154	0.544	45.150	0.858	61.20	1.335
1987	0.244	5.408	0.983	261.78	0.173	0.174	2.344	1.047	12.25	0.196	0.580	49.400	1.558	60.89	1.141
1988-89	0.299	6.458	1.006	364.90	0.191	0.202	2.723	0.976	18.70	0.252	0.856	76.222	0.790	112.88	1.345
1989-90	0.348	7.236	1.314	302.40	0.133	0.235	3.177	1.027	21.89	0.249	1.126	101.550	0.842	179.92	1.538
1990-91	0.383	7.894	0.988	475.26	0.183	0.271	3.724	0.981	36.83	0.348	1.403	129.640	0.995	226.96	1.459
1991-92	0.434	8.970	0.971	803.70	0.266	0.354	4.916	0.903	80.97	0.572	1.988	186.386	1.050	386.96	1.570
1992-93	0.476	9.801	3.623	(3368.88)	(1.000)	0.435	6.055	1.115	61.10	0.344	2.332	223.786	7.339	(899.27)***	(2.880)
1993-94	0.503	10.389	1.605	(4348.96)	(1.147)	0.556	7.564	0.886	129.49	0.570	2.864	259.556	6.832	503.99	1.514
1994-95	0.589	12.059	0.036	1116.00	0.254	0.738	9.924	0.771	358.38	1.157	3.266	286.709	0.896	605.38	1.605

PPE Productivity per employee = Volume of business/No. of employees

PPB Productivity per branch = Volume of business/No. of branches

CR Cost Responsiveness = % Variation in Costs/% Variation in earnings

ROWF Return on working funds = Profit × 100/Working funds

Note: Figures in parantheses denote negative values.

* From 1993-94 onwards PSBs are 27 only as New Bank of India has been merged with Punjab National Bank

** From 1994-95 onwards PSFBs are 26 as State Bank of Mauritius, ING Bank and Chase Manhattan are added

*** In the years 1991-92 and 1992-93, Standard Chartered Bank Incurred Heavy losses

Source: Indian Banks Association Bulletin, Vol. XV, No. 1, Jan. 1993; and Vol. XVIII, No. 1, Jan. 1996.

A high CR results in a lower productivity and vice versa. The average cost per unit of output (earnings) increases, if the percentage increase in cost (input) is higher than that in earnings (output) over a period of time and vice versa.

There is a sudden spurt in CR for all the Bank Groups in 1992-93 owing to the banking sector reforms. This is followed by a decline in 1993-94 and 1994-95 which is *inter se* much steeper in the case of PSFBs. Indeed a clear symptom of cost effectiveness/productivity is noticeable for 1994-95, resulting in profits though they were in the red during 1992-93.

Productivity is generally linked to profitability, because, higher the productivity, proportionately lower will the establishment cost be. It also indicates the kind of business a particular bank may be doing. A high productivity indicates that, along with smaller transactions, a bank does high volume transactions too. A lower productivity increases relative operational cost and often becomes the cause of losses as inter-

mediary returns are directly related to the quantum of productivity.

Productivity is generally linked to profitability, because, higher the productivity, proportionately lower will establishment cost be.

It is only in the case of PSIBs, there is a continuous increase in profits barring 1992-93 when there was a marginal decline. Similar is the trend with PSFBs. Here again, a heavy loss was registered in 1992-93 owing to the losses of a single foreign bank, i.e. Standard Chartered Bank. However PSFBs recovered from losses and showed a profit in 1994-95.

As a result of the recent reforms, there has been a thrust towards qualitative assets growth and profitability. The reforms introduced for the purpose include adop-

tion of prudential norms on income recognition, asset classification, provisioning and capital adequacy, deregulation of interest rate structure and emergence of a memorandum of understanding for nationalised banks so as to make them financially healthy.

An analysis of profitability of working funds reveals how effectively the working funds/resources of a bank are utilised.

The return (spread-burden), i.e. net profit on working funds (ROWF) enables us to know the overall profitability of the working funds. ROWF shows the productivity of capital employed in a bank.

By and large, an increasing trend is noticeable in the percentage of the profit on the working funds over the period of study in the case of PSIBs. It is however a negative percentage for PSFBs in 1992-93, which recovered the very next year whereas PSBs recovered a later in 1994-95.

It may be observed that all the three bank groups, by and large, made efforts to improve their productivity in 1994-95 and succeeded in earning profits by recovering the operative costs fully.

In sum, it can be concluded that efficient operation, prompt recovery, proper appraisal of credit risks and avoidance of risky investments hold the key to profitability in banking.

In sum, it can be concluded that efficient operation, prompt recovery, proper appraisal of credit risks and avoidance of risky investments hold the key to profitability in banking.

Directions for Future

From the financial scams of banks, it is learnt that lack of prudence, absence of concern for national wealth, selfish attitude on the part of bank employees are at the root of many a disaster. In other words, a flawed management is the root cause of many a malady. So it is imperative to scrupulously avoid misutilisation of financial and other powers and exercise discipline even in lending under priority sector. Performance of assets should be everyone's concern and Indian banks must be made to achieve their primary objective of being more professional and internationally competitive.

References

- Angadi V.B.** (1984), "Some Issues Relating to Productivity of Indian Scheduled Commercial Banks", The Journal of the Indian Institute of Bankers, Vol. 58, No. 4, p. 184.
- Pawar B.B.** (1988), "Indian Banking Profile for 1990s", The Journal of Indian Institute of Bankers, Diamond Jubilee Special Issue, Vol. 59, No. 1, p. 74. □

Multiple Constituency Model of Effectiveness: A Viable Alternative

Mary Philip & S. Bhargava

Literature on organisational behaviour shows voluminous research on organisational effectiveness(OE). A careful analysis of the studies reveals a trend wherein univariate measures of OE are being replaced by multivariate measures. To explain and improve the OE different models exist. However, it is difficult to accept fully or discard completely any of these models. Some of the models of OE are critically examined and this shows that the multiple constituency model of OE could prove to be a viable alternative. To face many of the contemporary challenges of organisations and enhance OE, application of the multiple constituency model as an alternative is put forward.

Mary Philip is Research Scholar and S. Bhargava is faculty member (Psychology) in Department of Humanities and Social Sciences, Indian Institute of Technology, Power, Mumbai-400 076. The paper is based on a seminar report submitted by the first author as part of her Doctoral Programme.

Reviewing 94 articles on management and administration of organisations in developing countries Kiggimdu, Jorgensen, and Hafsi (1983) found that theories developed in the west could be successfully applied to developing countries (Kiggimdu, *et al.*, 1983). Conversely, one can put forward an argument that theories developed in developing countries can also be applied to organisations in western countries successfully. So there is a need to improve the state of affairs in the field of research in developing countries to develop theories that are universally applicable.

The Concept of Effectiveness

Concepts of organisational efficiency and effectiveness date back to Barnard's time (1938). Barnard defined effectiveness in terms of organisational goal attainment and efficiency in terms of satisfaction and cooperation of organisational participants (Barnard, 1938). Over the years the two terms came to be defined differently by different researchers. Etzioni conceives effectiveness in terms of goal attainment while efficiency is defined in economic terms (Etzioni, 1984). Thompson noted that in scientific management, administrative science and bureaucratic theory it is efficiency that is viewed in terms of goal attainment (Thompson, 1967).

Many scholars tried to identify the univariate measures of organisational effectiveness. It is striking

Effectiveness is the degree to which an organisation is accomplishing all its objectives. Productivity is the quantity or volume of major product or service an organisation provides. Efficiency reflects some aspect of unit performance to costs incurred for that performance.

how effectiveness, productivity and efficiency were conceptualised as univariate measures of effectiveness. Effectiveness is the degree to which an organisation is accomplishing all its objectives. Productivity is the quantity or volume of major product or service an organisation provides. Efficiency reflects some aspect of unit performance to costs incurred for that performance (Steers, 1977).

According to Katz and Kahn effectiveness is the maximization of return to the organisation (Katz & Kahn, 1978). Efficiency of an organisation is given by the ratio of its energetic output to its energetic input. They differentiated efficiency from profit, although the two are related. Maximization by economic and technical means increase efficiency, but maximization by non-economic and political means increase effectiveness without increasing efficiency.

Mott considered organisational effectiveness as "the ability of the organisation to mobilise its centres of power to produce, adapt to change and cope with emergencies" (Mott, 1972). Effective organisations are not only high in production but are also effective in problem solving and maintaining quality. Rushing is of the opinion that organisational correlates of efficiency and effectiveness differ depending on whether the organisation is profit oriented or a non-profit one (Rushing, 1974).

Since there is little agreement among researchers on what OE is, it is obvious that the measures of OE are conceptualized differently. The available literature indicate that OE is still an ambiguous concept.

Evaluation Criteria of OE

Steers (1975) reviewed 17 models of OE and compared the frequency with which each of the evaluation criteria is mentioned in the models. Khandwalla looked at post 1976 research on OE in India and found that the effectiveness criteria used by Indian researchers were as varied as the very research studies (Khandwalla, 1988). A comparative analysis of both the reviews is presented in table 1. It throws light on the evaluation criteria of OE used by Indian and western researchers.

Adaptability-flexibility appeared the maximum number of times and was used in more than half the studies under review by Steers (1975). Productivity likewise was an indicator of OE in more than half the studies of the same author under review. Innovation emerged as the most important determinant of OE by Indian researchers. Organisational health and creativity also received much attention in their studies in addition to adaptability-flexibility and productivity. Indian as well as western researchers considered evaluation criteria of

OE like adaptability, productivity, satisfaction and profitability significant. On the other hand, for evaluation criteria like growth, innovation, creativity and organisational health, there is a significant departure from the western thinking.

Table 1: Frequency of Occurrence of Evaluation Criteria of OE

Criterion	Frequency of Occurrence in review by as per	
	Steers (1975)	Khandwalla (1988)
Adaptability-Flexibility	10	5
Productivity	6	5
Satisfaction	5	4
Profitability	3	4
Resource acquisition	3	1
Absence of strain	2	-
Control over environment	2	-
Development	2	-
Efficiency	2	1
Employee retention	2	-
Growth	2	5
Integration	2	-
Open communications	2	-
Survival	2	-
Quality of work life	-	2
Creativity	-	5
Innovation	-	6
Organisational Health	-	5
Strengthening of the client by the organisation	-	2
All other criteria	1	1

In the absence of uniformity about the measures of effectiveness, the findings will remain different. So much so, it is difficult to develop a single model to measure effectiveness. Moreover differences between the characteristics of organisations make building of a single model difficult. Even within a specific model different researchers have employed different measures. Lastly, the measures of OE considered significant by Indian researchers differ from those of their Western Counterparts.

Models of EO

Organisation theory shows that the various models of OE are a fallout from the various paradigms in the

organisation theory. The systems (Katz & Kahn, 1978), contingency (Lawrence & Lorsch 1967), strategic choice (Child, 1972) and synergy (Khandwalla, 1988) paradigms have replaced the earlier 'single-organisation' design for all organisations. With the emergence of these theories, closed-system perspective gave way to open-system perspective. Followers of the closed-system perspective believe that managing the internal working of an organisation is sufficient to increase its efficiency and effectiveness. On the other hand, those who follow the open-system perspective consider external environment as an equally important variable.

The systems approach considered organisations as a process of input-throughput-output (Katz & Kahn, 1978). Its protagonists assume that the organisation is dependent on its external environment for resources. The adherents of the contingency model consider organisation contingent upon the nature of the external environment (Lawrence & Lorsch, 1969). Strategic choice perspective considers that an organisation chooses the best response from among available alternatives (Child, 1972). The synergy perspective views organisations as a process of maximising good fit or synergy between the various elements of an organisation like goal, structure and technology.

The Goal Model

Different researchers have classified goals differently. Perrow distinguished five types of goals based on the viewpoints of different stake holders (constituencies) (Perrow, 1970). Rhenman introduced constituencies or stakeholders in his work on "industrial demography". Employees, owners, customers, suppliers, creditors, etc., are examples of constituencies or stakeholders (Rhenman, 1968)

The five levels of goals according to Perrow are—(i) Societal goals—Production of goods and services, maintenance of order, generation and maintenance of cultural values, etc; (ii) Output goals—Consumer goods, business services, health care, education, etc; (iii) System goals—State or manner of functioning of the organisation, independent of the goods or services it produces or its derived goals; (iv) Product goals—The characteristics of the goods or services produced; and (v) Derived goals—Power of the organisation to pursue other goals. For example, political motive, employee development, etc., affect the community.

Mohr (1973) classified goals as transitive or reflexive. For example the goal of Cancer Aid Association of India of detecting cancer and helping cancer patients is a transitive objective since the referent is a person external to the organisation. The

goal of Cricket Club of India of satisfying its members is a reflexive one.

Etzioni (1975) related effectiveness to the degree to which an organisation realises its goals under a given set of conditions. Organisations are seen as goal seeking entities. Etzioni talks of stated goals, order goals, economic goals, cultural, political, social and educational goals.

When organisations have multiple goals, there is a possibility of having goals that are not measurable. Another problem of the model is that in addition to official goals there will be derived goals that lead to official goals. It is difficult to decide which of these need to be considered for measurement. A criticism is that bias comes into deciding weightage given to the various goals.

When organisations have multiple goals, there is a possibility of having goals that are not measurable.

The System Model

The problem with system theory is that it is more abstract and hence measurement of OE depends on the operationalization. Even operationalized OE on the basis of four systemic processes—inputs, transformations, outputs and feedback effects (Evan 1976). Katz and Kahn conceptualised an organisation as observing the cycle of input, throughput and output (Katz & Kahn, 1978). Throughput is conceived as the processing of production inputs to yield some outcome which is then used by an outside group or system.

All system models deal with relationships among subsystems (Etzioni, 1975). Etzioni mentioned two types of system models—survival and effectiveness models (Etzioni, 1969). According to the survival model, a set of requirements are a prerequisite for the functioning of the system. All the requirements are a necessary condition. In the effectiveness model, removal of any one condition is not going to stop the existence of the system. In this case there are a number of options to choose from to make the system most effective in the service of a given goal.

Goal model grew out of the mechanistic theory of organisational dynamics whereas system theory developed with the development of human relations approach to organisational management (Strasser *et al*, 1981). This is indicative of the differences between the two approaches. Having developed at a time when the

human relations approach was receiving much attention, naturally, system model gave much importance to the processes in the organisation.

Having developed at a time when the human relations approach was receiving much attention, system model gave much importance to the processes in the organisation.

The Structural Contingency Model of OE

Contingency paradigm suggests that environment and technology are related to the structure of complex organisations (Katz & Kahn, 1978). According to the structural contingency model, OE is a function of the goodness of fit or contingency between environmental and structural variables. A look at the literature on structural contingency theory shows that confusion abounds regarding the variables environment and the structure (Pennings 1975). Those who concentrated on environment as well as technology used this model. In addition to the confusion between environment and technology there are methodological shortcomings. Studies that rely on subjective data give strong evidence of structural contingency theory (Lawrence & Lorsch, 1967; Burns & Stalker, 1961). Studies that use objective data like company records do not support the model (Tosi *et al*, 1973; Mohr).

In addition to the type of data, type of organisation as well as cultural differences affect the contingency between environmental and structural variables.

Maheshwari noticed strong dependency of Indian organisations on external environment (Maheshwari, 1985). Osborn and Hunt studied 48 social service organisations and found that external environment did not affect OE since social service organisations were not competitive in nature (Oshorn, Hunt 1974). It is evident that, in addition to the type of data, type of organisation as well as cultural differences affect the contingency between environmental and structural variables.

The Multiple Constituency Model of OE: An Alternative

The multiple constituency (MC) model has been proposed as a viable alternative to the goal and systems

approaches for studying and measuring OE. There are various approaches which fall under the MC model. They are either descriptive which say how things work or normative which address how things ought to work. For example, the *relativist* model of Connolly, Conlon and Deutsch is descriptive in nature while the *social justice* model of Keeley is normative (Connolly *et al*, 1980; Keeley, 1984). The central idea behind all these various models is the same. According to the MC model an organisation is effective to the extent it satisfies the interests of one or more constituencies associated with it.

The MC model has sought to incorporate the goal and the system models and to find a way to solve the ambiguities. Indeed, many theorists have formulated their own explanations on these premises. Keeley called these approaches as participant interest theories (Keeley, 1984). Tsui called these as multiple constituency models (Tsui, 1990). In fact, several variants of the MC model exist under names such as ecology model (Miles, 1980), relativistic approach (Connolly, 1980), developmental approach (Zammuto, 1982), power approach (Pfeffer & Salancik, 1978), social justice approach (Keeley, 1978).

Connolly, Conlon and Deutsch (1980) contend that judgements of effectiveness are inevitably contingent upon which individuals or groups (constituencies) supply the criteria for evaluation. Individuals become involved in an organisation in a variety of capacities like owners, managers, employees, suppliers, etc. So their evaluation is contingent upon their interest in the organisation. Each constituency's evaluation is considered equally valid. Hence it is difficult to decide the effectiveness of an organisation, when the evaluation by the multiple constituencies is significantly different.

In response to the above ambiguity, Zammuto proposed an evolutionary theory of effectiveness. He suggested that "effectiveness stems from the ability of an organisation to satisfy changing preferences of its constituencies over time" (Zammuto, 1982, p. 82). As an example of adaptation, Zammuto cites the strategy of General Motors during the 1970s when it strengthened its international operations to satisfy emerging constituency preferences. Zammuto assumes that this approach does not raise the question as to whose preferences should be satisfied but how the preferences are going to be satisfied.

"Effectiveness stems from the ability of an organisation to satisfy changing preferences of its constituencies over time."

Pfeffer and Salancik conceptualise an organisation as coalitions of self-interested groups or participants (Pfeffer & Salancik, 1978). According to them "Organisational participants may come into the coalition when there is some advantage to be gained and leave when there is no longer any advantage. The gains and costs are defined in terms of the individual participant and groups, not in terms agreed upon by all or promulgated by the organisation's management" (Pfeffer & Salancik, 1978). Thus OE is reflecting the criteria and preferences of various interest groups. Organisational participants with similar expectations regarding organisational benefits are grouped together, forming interest groups. However there is the problem of specifying what is to everyone's advantage and what resources are critical to its attainment. Pfeffer and Salancik (1978) believe that while the preferences of participants may vary, all have an instrumental interest in perpetuating the organisation itself. The critics point out that some people participate in an organisation because they have no choice or they joined the organisation with mistaken expectations. People may realise very late that the cost of participation exceeded the benefits.

Miles defines OE as the ability of an organisation to minimally satisfy the expectations of its strategic constituencies (Miles, 1980). The extent to which a constituency becomes strategic is a function of the organisation's dependence on them. Ecology model treats structures and processes within and between organisations as determinants of effectiveness.

Keeley applied philosophical notions of justice to problems of effectiveness (Keeley, 1978). Principles for optimizing the welfare of participants in a social order have been debated by social and political philosophers for centuries. These principles are referred to as those of social justice which is what Keeley has drawn on. The common aspect of the various theories of social justice is a criterion for valuing social systems insofar as the good of the participants is realised. The point is that the minority who do not participate willingly in the system can in the long run generate adverse system consequences which may not be tolerated by others. Hence giving equal importance to the cooperative majority and to the minority will result in a more stable organisation. There is an implication of impartiality in the concept. Respect for persons is the central theme.

"Human beings can themselves experience well-being or other emotions, choose plans, and respond to interests of their own; and it is this capacity to experience, choose or value for one's self that sets persons apart as sources (rather than mere objects) of value and ends in themselves. For evaluative purposes, every organisation is much like a sewage pipe, that is, it acquires worth from its functional value to persons,

whereas individual persons have inherent worth" (Keeley, 1984). An organisation can be considered effective if the wellbeing of each participant is given equal consideration in policy making and implementation. Hence the question is how to decide what is contributing to wellbeing? Can a general policy be framed when individual preferences show great variation?

Human beings can themselves experience well-being or other emotions, choose plans, and respond to interests of their own; and it is this capacity to experience, choose or value for one's self that sets persons apart as sources (rather than mere objects) of value and ends in themselves.

The various approaches to OE in a way lead to complicating the model. Keeping in mind the central idea of MC model it is important to identify the determinants of OE. It is then that MC model becomes a viable solution to the measurement of OE. Tsui studied the human resource (HR) sub-unit in three large organisations to test the MC model (Tsui, 1990). Several core postulates of the MC model were examined empirically. Results supported the theoretical efficacy of the model.

Thompson considered the social test to be most suitable for those units that can not be measured with absolute, empirical standards due to the interdependent nature of the unit's technology and the lack of clear, measurable outputs (Thompson, 1967). Effectiveness is measured by the opinion of some referent groups that rely on the unit being assessed. The task of assessment of HR units' performance is difficult owing to the presence of multiple objectives arising from the interdependent nature of the unit. Therefore the social test of effectiveness was used.

It was seen that most of the independent variables in the study were correlated with effectiveness ratings of different constituencies. The HR unit's effectiveness was influenced by both its adaptive responses, such as the use of human resource committees and control of employee absenteeism; and environmental context variables, such as assistance from corporate human resource groups and demographic heterogeneity of the constituents. Moreover effectiveness models of multiple constituencies were non-equivalent. In short, a model to measure OE without considering the impact of constituency expectations and preferences on assessment will not reap results. In order to resolve the ambiguities surrounding definition and measurement of effective-

ness, it is imperative to consider the influence, individual constituencies wield.

In order to resolve the ambiguities surrounding definition and measurement of effectiveness it is imperative to consider the influence, individual constituencies wield.

Institutional Theory and OE

Institutional theorists argue that widely held beliefs and rules in the environments of organisations often influence their structure and behaviour irrespective of their technologies and resource exchanges (Scott, 1987; Zucker, 1987). D'Aunno tried to relate institutional theory to the study of EO (D'Aunno, 1992). When organisations face environments characterized by strong belief systems and rules, survival and effectiveness depend more on "legitimacy required from conforming to widely held expectations than on efficient production" (Di Maggio, & Powell, 1983, Meyer & Rowan, 1977).

Institutional theorists distinguish between two kinds of environmental pressures faced by organisations—pressures for efficiency and effectiveness in the production of goods or services, as well as to conform to expectations about how they should behave. Pressure regarding production brings to the surface competition among the organisations *inter se* as well as the quality of their goods or services. The main contention of institutional theory surrounds the pressure to conform to norms or risks created by the society.

D'Aunno is of the opinion that for organisations like schools, hospitals or other service oriented organisations, whose 'production' is difficult to evaluate, it is imperative to consider their impact on the community (D'Aunno, 1992). Conformity to widely held expectations make organisations legitimate in society's view and legitimacy, in turn brings external support, including funds and other resources, organisations need for their survival. Projection through advertisements depicts the organisation's need to be socially acceptable, and through the values conveyed by the advertisements, the organisation hopes for an increase in its sales.

"An institutional-theory approach to effectiveness thus focuses on the extent to which organisations are conforming to widely held expectations about their structure and processes. The less that organisations deviate from societal norms for them, the more likely

that they will be viewed as legitimate and rewarded a continued resource support. In short, institutional theory equates OE with resource acquisition and survival which in turn, depend on conformity in structure and process, and the legitimacy, conformity bestows on organisations" (D'Aunno T., 1992).

Similar to MC approaches, an institutional perspective emphasizes preferences of important external constituents as key to OE. The assumption is that satisfying such preferences will enable organisations to be viewed as legitimate. According to D'Aunno institutional theory extends MC approaches, by hypothesizing what the preferences of such constituents are (D'Aunno, 1992). In other words, effectiveness depends on how well organisations have adopted the practices that are valued by important groups in their environment. Environmental actors reward organisations that conform to their expectations about appropriate structure and process.

Effectiveness depends on how well organisations have adopted the practices that as valued by important groups in their environment. Environmental actors reward organisations that conform to their expectations about appropriate structure and process.

Conclusion

Effectiveness is often seen by theorists as conveying evaluative information. Steers and Keeley call this evaluative information as organisational success and say that in addition to this, OE considers organisational intentions too (Steem, 1977; Keeley, 1978). Hence there seems to be a need to define OE more specifically, instead of adding intentions, values and the like. Probably it is better to deem organisational success *per se* as OE and leave the intention and value part to inferences. Reputation of the organisation may answer a part of this value contention.

As already mentioned, the central tenet of all the approaches to multiple constituency model is the same. An organisation is effective to the extent it satisfies the interests of one or more constituencies associated with it. If the focus is on the measurement of OE using multiple constituency model rather than developing various approaches to the model, a viable solution can be found to the measurement of OE. As has been enumerated in Table 1, different researchers used different evaluation criteria to measure OE. This can lead to difference in findings even while adhering to the above definition. So uniformity has to be brought into the measures of OE.

Whether to adapt the classification of Tsui of the factors contributing to OE, or to modify/change them needs further research.

When performance criteria are difficult to measure and not shared or are conflicting, Hasenfeld feels institutional theory is appropriate to measure OE (Hasenfeld, 1983). On the other hand, when performance criteria are measurable and changing, MC evolution models will be useful to measure effectiveness. When performance criteria are stable and measurable but conflicting MC power models may be appropriate (e.g. Pfeffer & Salancik, 1978).

It is evident that when one considers the goals as well as the processes in the measurement of OE, it is imperative to choose an appropriate model to measure OE. Just as there are significant departures in the profit and non-profit organisations, there are specific characteristics common to the profit and non-profit sector. These characteristics should be taken into account before developing a model to measure OE.

References

- Burns & Stalker** (1961), "Management of Innovation", London, Tavistock.
- Barnard C.** (1938), "The Functions of the Executive", Cambridge, Mass: Harvard University Press.
- Child J.** (1972), "Organisational Structure, Environment, and Performance: The Role of Strategic Choice", *Sociology* 6.
- Connolly T., Conlon E.J. & Deutsch S.J.** (1980), "Organisational Effectiveness: A Multiple Constituency Approach", *Academy of Management Review*, 5.
- D'Aunno T.** (1992), "The Effectiveness of Human Service Organisations: A Comparison of Models", In Hasenfeld (Ed) *Human Services as Complex Organisations*, Sage Publishers, New Delhi.
- Di Maggio P. & Powell W.W.** (1983), "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organisational Fields", *American Sociological Review* 48.
- Etzioni A.** (1964), "Modern Organisations", N.J., Englewood Cliffs, Prentice Hall.
- Etzioni A.** (1969), "A Sociological Reader on Complex Organisations", NY, Holt, Rinehart & Winston.
- Etzioni A.** (1975), "A Comparative Analysis of Complex Organisations", NY, The Free Press.
- Evan W.M.** (1976), "Organisation Theory", NY, John Wiley & Sons.
- Hasenfeld Y.** (1983), "Human Service Organisations", Englewood Cliffs, NJ: Prentice-Hall.
- Katz D. & Kahn R.L.** (1978), "The Social Psychology of Organisations", N.Y., John Wiley.
- Keeley M.** (1978), "A Social Justice Approach to Organisational Evaluation", *Administrative Science Quarterly* 23, 272-292.
- Keeley M.** (1984), "Impartiality and Participant Interest Theories of Organisational Effectiveness", *Administrative Science Quarterly* 29, 1-25.
- Khandwalla P.N.** (1988), "Organisational Effectiveness", In Pandey J. (Ed.), *Psychology in India: the State of the Art*, Vol. 3, N. Delhi, Sage Publications.
- Kiggimdu N.M., Jorgensen J.J. & Hafsi T.** (1983), "Administrative Theory and Practice in Developing Countries: A Synthesis", *Administrative Science Quarterly* 28, 66-84.
- Lawrence P.R. & Lorsch J.W.** (1967), "Organisation and Environment", Boston, Harvard University.
- Maheshwari B.L.** (1980), "Decision Styles and Organisational Effectiveness", N. Delhi, Vikas Publishing House Pvt. Ltd.
- Meyer J. & Rowan B.** (1977), "Institutionalized Organisations: Formal Structure as Myth and Ceremony", *American Journal of Sociology* 83, 340-63.
- Miles R.H.** (1980), "Macro Organisational Behaviour", Santa Monica, California, Goodyear Publishing Company inc..
- Mohr L.B.** (1971), "Organisational Technology and Organisational Structure", *Administrative Science Quarterly* 16, 444-459.
- Mohr L.B.** (1973), "The Concept of Organisational Goal," *American Political Science Review* 67:2, 470-481.
- Mott P.E.** (1972), "Characteristics of Effective Organisations", N.Y., Harper and Row.
- Osborn R.N. & Hunt J.G.** (1974), "Environment and Organisational Effectiveness", *Administrative Science Quarterly* 19, 298-307.
- Pennings J.M.** (1975), "The Relevance of the Structural Contingency Model for Organisational Effectiveness", *Administrative Science Quarterly* 20, 393-410.
- Perrow C.** (1970), "Organisational Analysis—A Sociological View", London Tavistock.
- Pfeffer J & Salancik G.G.** (1978), "External Control of Organisations", N.Y., Harper and Row.
- Rhenman E.** (1968), "Industrial Democracy and Industrial Management", London, Tavistock.
- Rushing W.** (1974), "Differences in Profit and Non Profit Organisations: A Study of Effectiveness and Efficiency in General Short Stay Hospitals", *Administrative Science Quarterly* 19:4, 474-484.
- Scott W.R.** (1987), "The Adolescence of Institutional Theory", *Administrative Science Quarterly* 32, 493-511.
- Steers R.M.** (1975), "Problems in the Measurement of Organisational Effectiveness", *Administrative Science Quarterly* 20, 546-558.
- Steers R.M.** (1977), "Organisational Effectiveness: A Behavioural View", Santa Monica, California, Goodyear Publishing Co..
- Strasser, Eveland, Gaylord, Lynn & Romani** (1981), "Conceptualising the Goal and System Models of Organisational Effectiveness—Implications for Comparative Evaluation Research", *Journal of Management Studies*, 18: 3, 321-40.
- Thompson** (1967), "Organisations in Action", N.Y., McGraw Hill.
- Tosi H., Ramon A. & Storey R.** (1973), "On the Measurement of Environment: An Assessment of the Lawrence & Lorsch Environmental Subscale", *Administrative Science Quarterly* 18, 27-36.
- Tsui A.S.** (1990), "A Multiple—Constituency Model of Effectiveness: An empirical Examination at the Human Resource Subunit Level", *Administrative Science Quarterly* 35, 458-483.
- Zammuto R.** (1982), "Assessing Organisational Effectiveness", Albany, N.Y., State University of N.Y. Press.
- Zucker L.G.** (1987), "Institutional Theories of Organisations", *Annual Review of Sociology*, 13, 443-64. □

The Significance and Methods of Adopting Customer Loyalty

Kurian Thomas & Jiju Antony

This paper defines what customer loyalty is, and why it is important to adopt this concept and proposes a method for the purpose. It argues that lack of non-financial indication in complementing financial ones provides only a short-term view of an organisation performance. The inherent weakness of financial parameters owing to that being derived from accounting techniques makes it almost impossible to link any quality initiatives to bottom-line results. The proposed method of adopting customer loyalty includes improving four areas in a business strategy and introduction of a conceptual measurement which is still in a development stage.

Kurian Thomas & Jiju Antony are with Portsmouth Business School, University of Portsmouth Portsmouth, United Kingdom, PO4 9JF, U.K.

Introduction

The recession and financial debt of the 90's have replaced the economic boom of the 70's and 80's. The whole paradigm of businesses has shifted towards meeting customer needs rather than fulfilling producer's needs. With the emergence of the Total Quality Management (TQM) concept, themes such as customer satisfaction, customer focus, 'customer is first' are the motto of many of today's organisations in driving their Quality Improvement Program. This is clearly evident by the emphasis in various articles and quality workshops phrasing the term "customer satisfaction" as their title (Wood, 1997). At a glance, this may seem appropriate to TQM concept, but it tends to influence the readers to accept the idea that customer satisfaction is the sole factor influencing a TQM strategy against an organisation's business performance (Wood, 1997).

An analysis of several case studies (Thomas, 1996) identified four non-financial factor which have paramount influence on the overall performance of an organisation, amongst which customer loyalty is the key factor. The objective of this paper is to highlight the significance of customer loyalty and how organisations can support the paradigm shift from customer satisfaction to customer loyalty.

Why adopt non financial performance measurement?

Market demand for better product and service flexibility has forced organisations to improve their competitiveness and reduce overall cost (e.g. Just In Time). Consequently, organisations have had to reengineer their business processes to support this strategy. These changes required better performance measurement to identify opportunities for improvement within the business cycle. Traditionally, organisations rely mainly on financial results as the report card to the shareholders.

Which places excessive emphasis on result, net profit, return on capital invested and so on, instead of the drivers of these results, such as customer loyalty, employee loyalty and process management. Measuring these drivers is known as non-financial performance measurement. The existing performance measurement system is finance based and hence incapable of monitoring non-financial measures. In addition, the current financial (accounting) techniques have certain fundamental flaws in terms of portraying the overall performance of an organisation. Research indeed has identified some of these flaws (Zairi, 1992; Lockamy, 1994; Kaplan & Norton, 1992) which are:

- Cost accounting information does not consider customer's perspective, internally and externally. Without this perspective, an organisation is unable to identify and satisfy customer's needs.
- Cost-accounting performance measurement relevant and adequate by itself in a low-technology, labour-intensive type business is no longer relevant in a majority of today's business, in view of the sophistication in technology.

A survey carried out by the Economist Intelligence Unit (KPMG, 1994) shows that over 70 per cent of companies surveyed are not satisfied with their current performance measures because:

- Current performance measures are too financially oriented, too internally focussed with no bearing on meeting customer satisfaction.
- Current performance measurement systems, which are financially oriented, are too historical and lack future oriented indicators of an organisation's performance.

Today's management accounting information, driven by procedures and cycle of the organisation's financial reporting system, is too late, too aggregated and too distorted to be relevant for managers planning and control decisions (Johnson & Kaplan, 1987).

Today's management accounting information, driven by procedures and cycle of the organisation's financial reporting system, is too late, too aggregated and too distorted to be relevant for managers planning and control decisions.

In fact, such is the financial performance measures that direct linking of quality and bottom line profits

seems impossible (Oakland. *et al*/ 1994; Wisner & Eakins 1995). One such research was conducted by Bowie and Owens (1996), which identified the following:

- There is no evidence of a clear link between successful quality initiative and improved financial results
- Quality Improvement does not seem to have short-term or direct impact on organisation's profitability
- Quality initiatives cost more than companies realize.

However, the above research found the practice of TQM does make an organisation more proactive, receptive to customer's needs and flexible enough to adopt to market changes in the long term. All in all, in practice, researches as above and others have shown that it is very difficult to discern a clear link between quality and bottom line profit. A solution in hindsight might be to consider non-financial performance measures as well, rather than financial measures alone, as the basis of health check in an organisation. Lately, certain organisations are adopting a similar concept called the shareholder value. This concept looks into possible methods of increasing the value of all stake holders in an organisation, such as employees, community, shareholders, suppliers and customers. Similarly a tool known as the Balanced Scorecard including both financial and non-financial parameters was introduced. It is a tool for strategic decision making (Kaplan & Norton, 1992). It helps the decision makers in an organisation to view all factors (financial and non-financial) to develop a better understanding of their business. Identifying which non-financial parameter to measure is important so that the numerous trivial ones may not overshadow the few vital ones.

Customer Loyalty Vs Customer Satisfaction

Customer loyalty is not just one more of a consultants' or academics' fad but the paradigm next to customer satisfaction. Repurchasability frequency is the core difference between customer loyalty and customer satisfaction. When a customer is happy with the product or service, he leaves the shop with a degree of satisfaction, but this level of satisfaction does not stop him from doing business with your competitors as well. A loyal customer on the contrary will predominantly continue to do business with you only because he knows that he will get value for money (competitive cost), is comfortable doing business with you (efficient pre- and post-sale service) and you are able to meet their particular demands and at an integral cost (wide product range and introduction of new products). He will have no

reason to turn to your competitor instead (Jones *et al*, 1995). Many organisations today measure customer satisfaction in terms of meeting only one goal, i.e. increase the number of satisfied customers to increase sales, which is but a short term view of profitability (Gould, 1995; DeSouza, 1992; Struebig 1996). However, research has identified that it is more profitable in the long term to increase the satisfaction of current customers, building loyal customers, rather than increasing the number of satisfied customers (Gould, 1995; Jones *et al*, 1995). Unlike banking business and certain retail stores (Loyalty Card scheme), manufacturing organisations were not identified through case studies on measuring customer loyalty. Research has identified that loyal customers have the capability to sustain an organisation's profitability and longevity. For instance, it is estimated that a 5 per cent increase in customer loyalty can increase the profit from 25 to 85 per cent, which is why the 'quality' of market share is as important as 'quantity' (Reicheld *et al*, 1996). Another statistics says that the 80-20 rule holds true for sales. That is, 80 per cent sales of many firms comes from 20 per cent of their customers (Wayland, 1994). In the banking industries, customer retention measures in terms of the number of services used and the depth of relationship (value of services) are monitored periodically as part of their customer loyalty strategy. The findings from such measures are fed back to the organisation strategic areas for improvement (Hesket *et al*, 1994).

Repurchasability frequency is the core difference between customer loyalty and customer satisfaction. When a customer is happy with the product or service, he leaves the shop with a degree of satisfaction, but this level of satisfaction does not stop him from doing business with your competitors as well.

Rank Xerox conducted a research on the relationship between customer satisfaction, loyalty and profitability (Jones *et al*, 1995). Their initial experience was that a 'satisfied' customer will always have the freedom to make choices about a particular product or service, but a 'loyal' customer will forego that freedom and stick to a particular organisation. The most probable reason for this is firstly, by staying with a certain product or service, customers will be able to receive personalized treatment, service or the product itself at a very competitive cost. As a corollary, no other company will be able to serve better than the customer's current choice at that cost. They also found that it is much more cost effective to retain existing customers than to attract new customers.

The strategy of growing business at McDonald's Corporation is not just selling food but one of investing to catch the attention of high-value prospective customers and make them stay till they are converted into committed customers, something which has been proven of low maintenance (Blattberg *et al*, 1996). This makes the makes the point that increasing the number of 'satisfied customers' alone does not guarantee bottom line results but increasing the satisfaction of customers to the stage of 'loyal customers' does. Research conducted by Harvard Business School (Hallowell, 1996) proves that profitability has a strong direct correlation with customer loyalty in the service industry. But in manufacturing industries, no such research seems to have been conducted.

Could this be due to the complexity of business in manufacturing industries, such as in products of low repurchasing pattern, i.e., generators, refrigerators, etc.? Is it possible that the concern for customer loyalty surfaces only on products of high repurchasing pattern or such as in service industry?

How to Adopt the Concept of Customer Loyalty?

Improving marketing strategy

Having the right marketing strategy is a precursor to the concept of customer loyalty. Developing a platform where an organisation have a continuous dialogue with the customers and vice versa is the key driver to customer loyalty. The right marketing strategy is capable of ensuring that customers are aware of the organisation and it's range of products, involving the customers in identifying their needs and anticipating future market trends. There are three new perspectives in improving existing marketing strategy.

Time to acceptance

The traditional approach of marketing, *time to acceptance*, is no longer very effective in attracting customers. To induce customers to buy a product, they should first be informed of the existence of such a product, i.e., their awareness is of paramount importance. This can be achieved by involving the customers right at the development (concept, design and testing) stage of a product or service. The whole concept revolves around the idea of maintaining a continuous dialogue between the customers and the organisation. Philips Consumer Electronics developed a similar strategy to market their CD-ROM interactive product for children (McKena, 1995). They sent out designers, psychologists, anthropologists and sociologists to the designated market to talk with the parents and children

in Italy, France and Netherlands for their opinion on the product. Both parties interactively imagined new possibilities, narrowed down on the critical requirements, developed them and tested the product with the parents and children. This proves that interactions between designers and customers during the development of new products or service can provide managers with valuable information that can help make the products more acceptable in the market place. By making them more acceptable, attracting customers will become easier and thereby the degree of loyalty towards the company will further improve. Affording customers the experience to participate in the design of a product wins their loyalty (McKena, 1995). This concept is similar to that of Cost of Quality where intervention for improvement at the earlier stage of product development is much cheaper than that at a later stage.

Interactions between designers and customers during the development of new products or service can provide managers with valuable information that can help make the products more acceptable in the market place.

Real Time Marketing

The involvement of customers should not end with development of the product but continue through the company's support to customer's experience in using the product. This is known as real time marketing. At Sony Audio, for instance, products are designed after discussion with and feedback from targeted customers. Once these products hit the market, Sony's marketing department follows up with the customers who have purchased these products for their feedback and provides assistance where necessary. At the same time, customers are also briefed of other Sony products in the market (McKena, 1995). By doing so, Sony is able to further improve on their products (quality, design, reliability and cost) and gain customers' trust by making them feel important. This feeling is capable of converting them into the company's ambassadors and loyal customers, even as they are continuously kept informed or the company's other products in the market. To achieve this, the marketing strategy should make use of restructuring techniques because these can simplify interactions between the company and the customers. In doing so, an organisation will be able to design, develop and produce a product or service which has a higher probability of acceptance in the market as opposed to time-to-market (McKena, 1995). The synergy of time-to-acceptance and real time marketing is what determines

success in a crowded market place as opposed to time-to-market.

Societal Marketing

In addition to time-to-acceptance and real-time marketing concepts, societal marketing is another concept which is necessary to sustain customer loyalty. Since the emergence of TQM and the concept of customer satisfaction, some organisations have eventually begun to recognize the importance of long term benefit of customer satisfaction. In this background, the societal marketing concept holds that an organisation should identify and deliver the needs and satisfy consumer interests better than its competitors in a way which improves the well being of the targeted market's consumer and society (Kotler, 1994). This may sound radical but in the present age of population growth, environmental problems and depleting resources, it makes sense to serve the society where it trades, to foster trust and forge long term relationships. The result of such actions, referring back to the concept of customer loyalty, develops the necessary foundation for an organisation to inherit loyalty from its customers.

Societal marketing concept holds that an organisation should identify and deliver the needs and satisfy consumer interests better than its competitors in a way which improves the well being of the targeted consumer and society.

One such company which was recently voted in US as the most admired one for community and environmental responsibilities is Johnson & Johnson (Kotler, 1994). Under the J&J community policy, they would rather absorb a big loss rather than ship a bad batch of product. This will be borne out by, the recent recall of one of their medical products owing to a tragic tampering which cost them \$240 million in earnings. But, in the long run, the company now boasts that their product still remains the nation's leading brand of pain reliever, making it one of the most admired and profitable companies in US.

Employee Loyalty

Research has revealed a strong correlation between achieving customer satisfaction and employee loyalty. A regression analysis conducted by Opinion Research Corporation identified that successful organisations (those who are able to satisfy majority customers) are also the ones enjoying a high employee satisfaction.

Organisations, such as Grundfos who have been using the performance measuring system to monitor business, identified that measuring employee satisfaction as part of the above measurement system is crucial to the company's well being (KPMG 1994).

Successful organisations (those who are able to satisfy majority customers) are also the ones enjoying a high employee satisfaction.

The service-profit chain also advocates the same concept. It holds that profit and business sustainability are stimulated by customer loyalty which is itself a product of sustained customer satisfaction. Sustained customer satisfaction is largely influenced by the value of the services and/or the product provided. Valued services or products are created by satisfied, loyal and productive employees (Hesket *et al*, 1994). South West Airline, the seventh largest US domestic carrier was recently voted by the USA Aviation Federation as the best place to work in with an employee turnover less than 5 per cent year all across its operating locations (Hesket *et al*, 1994).

Taco Bell, a subsidiary of Pepsi Co. has found that 20 per cent of their stores with the lowest employee turnover rates record twice as much sales and 55 per cent higher profits than the 20 per cent of stores who have the highest employee turnover rate (Hesket *et al*, 1994). As a result Taco Bell extends financial and other forms of incentive to reduce the overall turnover rate. This supports the fact that measuring employee satisfaction as part of the non-financial performance measurement system has a strong correlation to bottom line results.

Measuring employee satisfaction as part of the non-financial performance measurement system has a strong correlation to bottom line results.

Honda, the Japanese automobile giant deems employees' perception of their working environment as critical. As a measure, Honda introduced a unique method of gathering information on the morale of their employees (Phillips, 1997). This simple technique requires every employee to pick up a card which portrays three different facial expressions (smiling face, no ex-

pression and sad), mark it appropriately and drop into a collection box. This enables Honda to monitor the morale of their employees on a monthly basis. As it progressed, they realized that in the event of poor morale, often production problems followed. This link enabled the management team to talk to their employees and sort the problems out.

Strategy Review and Development

For an organisation to stay profitable and successful, TQM should be its watch word and its strategy must be focussed on exceeding and anticipating future customer needs. This calls for participation of the entire organisation as one man in the efforts to achieve the target using the right strategy (Howe *et al*, 1995). Organisations such as British Airways have always emphasized the use of non-financial measures to develop and monitor their business strategy (Geanuracos *et al*, 1994). In this regard, British Airways have identified five critical non-financial factors, namely, operational integrity, seat access, ground service quality, in-flight service quality and value for money data on all of which are sent to all concerned departments through the network for their improvement programs.

Successful strategy implementation depends on effective performance measurement linkages (Grady, 1991). This is the platform where review strategy is carried out vis-à-vis financial performance measurement to sustain the profitability and competitiveness of the company. One such tool is the Balanced Scorecard devised by R.S. Kaplan and P. Norton. It is a comprehensive framework that translates company's strategic objectives into a coherent set of performance measures. It is a system which ensures that important performance measures do not get overlooked as in many traditional management accounting systems.

Process Management

At the end of the day, however good a service may be, the product which the end user uses should be reliable and have value for money. To achieve a state where a product or service is reliable and is good value for money, the process management in an organisation should be well balanced. Critical success factors such as the business strategy should be translated in terms of processes capable of being managed. These processes, in turn, should be experimented to identify their critical variables and optimized to deliver optimum output in terms of specification, quality, quantity and cost. Advanced statistical techniques such as Design of Experiments (Box, 1978) and Taguchi's orthogonal array can be applied for the purpose. Techniques such as

SPC can then be applied to monitor deviations in these optimized variables.

Process management requires commitment from the top management to sponsor the improvement program, cross-functional teams for cohesive partnership between departments and well trained employees who understand the application of such tools and techniques. In addition, supplier management plays an important role within this chain. Their process stability relates to the organisation's own process stability (Howe *et al*, 1995). Which means adequate effort to train and improve suppliers processes.

Process management requires commitment from the top management to sponsor the improvement program, cross-functional teams for cohesive partnership between departments and well trained employees who understand the application of such tools and techniques.

Measuring Customer Loyalty

Measuring customer satisfaction is the beginning towards achieving customer loyalty, not the end. However, such measurements should not be implicitly accepted as the customers' voice, because they lack depth and understanding of the reasons behind the customers' replies. Activities such as focus groups, personal interviews (especially front line personal), market research and direct observation are other means to supplement the data on customers' opinion (Bound *et al* 1994). Currently, customer loyalty can be measured in three different methods which are:

- *Intent to purchase*—Though intent to purchase is no more than a prediction of future behaviour and not an assurance, the ability to measure it at any time through surveys, interviews, especially during the early days of purchase makes it a valuable input. Research in the automobile marketing revealed that on an average, out of 60 to 80 per cent of customers expressed their intention of buying the same brand again after three months of purchase, 30 to 40 per cent actually do so at the end of 4 years, (Jones *et al*, 1995).
- *Primary behaviour*—Concepts like loyalty card provide an organisation with various information on customer's primary purchasing pattern, such as recency, frequency, quantity and retention.

This enables the organisation to further customize their service or product to retain their customers. All the same such information can sometimes be misleading, as in the credit card industry. The increased percentage of customers willing to pay their annual fees was considered a measure of their loyalty, whereas the percentage of card transaction actually decreased, i.e. customers were no longer using the card as often as they did earlier (Jones *et al*, 1995).

- *Secondary behaviour*—This is best described as word of mouth, endorsements, etc. A loyal customer who actually recommends your company to his friends is an unpaid advocate of your business (Gould, 1995). Since we generally mix among people of a reasonable degree of commonality, such recommendations tend to be influential. Information of this type can be obtained through interviews and questionnaires.

Alternatively, however, customer loyalty can perhaps be measured as an index (Thomas, 1996). This concept measures the customer loyalty index per product type. Though still in its infancy and yet to be tested in the market, it is believed to be capable of use as a benchmark between organisations per product type. Theoretically, this concept will be able to provide a popularity index for each product sold in the market vis-à-vis its competitors. Over a period of time, this index would then signify how successful an organisation is able to continuously market its products in a particular segmented market. Segmented market is calculated based on the market size in terms of population size, economic viability, culture, range of competitors, etc. Investors and shareholders will then be able to use this index in addition to other financial parameters (i.e. P/E ratio, share price, solvency, etc) as the basis for deciding further investments. The key to this concept is the weighted rating table of the constant factor, k which is dependent on a product's repurchasability pattern, value and its reliability. A research study is required to develop this weighted rating table based on industrial and consumer averages per product type. The branding factor is assumed as constant between products of similar specification and value. It is believed that by comparing this information against financial results, stake holders (i.e. customers, investors, employees, shareholders) would get a more comprehensive picture of how well an organisation is performing, especially on a long term perspective.

Conclusion

In today's business environment, the rate of change in terms of customer perspective, stakeholder's interest

Concern for business and environment issues has given a new edge to investment strategy. As a result, investors today not merely look for organisations which are financially stable but those which in addition can serve the society they trade amongst in terms of ethical and environmental issues.

and increasing the share holder value requires more than just a financial measure for gauging an organisation's performance. What is more, concern for the business and environment issues has given a new edge to investment strategy the ethical investors. As a result, investors today not merely look for organisations which are financially stable but which in addition can serve the society they trade amongst in terms of ethical and environmental issues. In which light, customer loyalty demands not only value for money for products/service offered but visible indulgence of a company in community's social interest.

Reference

- Blattberg Robert C. & Deighton John** (1996), "Manage Marketing by the Customer Equity Test", *Harvard Business Review*, July/August.
- Bound Creg** *et al* (1994), "Beyond Total Quality Management", McGraw Hill.
- Box G.E.P.** *et al* (1978), "Statistics for Experimenters", John Wiley & Sons.
- DeSouza Glen** (1992), "Designing a Customer Retention Plan", *Journal of Business Strategy*, March/April.
- Geanuracos John & Meiklejohn Ian** (1994), "Performance Measurement: The New Agenda", *Business Intelligence*.
- Gould Graham** (1995), "Why it is Customer Loyalty that Counts and How to Measure it", *Managing Service Quality*, Vol. 5, No. 1.
- Grady Michael W.** (1991), "Performance Measurement: Implementing Strategy", *Management Accounting*, June.
- Hesket James L.** *et al* (1994), "Putting the Service-Profit Chain to Work", *Harvard Business Review*, March/April.
- Hallowell Roger** (1996), "The Relationship of Customer Satisfaction, Customer Loyalty and Profitability", *Int. Journal of Service Industry Mgt*, Vol. 7, 1996.
- Howe R.J.** *et al* (1995), "Quality on Trial", McGraw Hill, 2nd Ed.
- Johnson H.T. & Kaplan R.S.** (1981), "Relevance Lost: The Rise and Fall of Management Accounting", Harvard Business School, Boston Press.
- Jones Thomas O. & Sasser Jr. W.E.** (1995), "Why Satisfied Customers Defect", *Harvard Business Review*, Dec.
- Kaplan Robert S. & Norton David P.** (1992), "The Balanced Scorecard—Measures That Drive Performance", *Harvard Business Review*, Jan/Feb.
- KPMG Consulting Group (1994), "The New Look of Corporate Performance Measurement", Economic Intelligence Unit, KPMG, USA.
- Kotler Philip & Armstrong Gary** (1994), "Principles of Marketing", (6th Ed) Prentice Hall International.
- Lockamy A. & Cook James F.** (1994), "Reengineering Performance Measurement: How to Align Systems to Improve Processes", *Products and Profits*.
- McKena Regis** (1995), "Real Time Marketing", *Harvard Business Review*, July/August.
- Oakland J.S.** *et al* (1994), "TQM and Bottom Line Results", *Quality World*, Sept.
- Phillips Richard** (1997), "Will we ever find the Financial Holy Grail", *Independent Sunday*, 26 Jan.
- Reicheld Frederick F.** (1996), "Learning from Customer Defections", *Harvard Business Review*, March/April.
- Struebig Laura** (1996), "Customer Loyalty: Playing For Keeps", *Quality Progress*, Feb.
- Thomas Kurian** (1996), "The Significance of Non-Financial Performance Measurement in a Business Strategy", M.Sc. Dissertation, University of Portsmouth, UK.
- Wayland Robert E. & Cole Paul M.** (1994), "Turn Customer Service into Customer Profitability", *Management Review*, July.
- Wisner J.D. & Eakins S.G.** (1996), "A Performance Assessment of the US Baldrige Quality Award Winners", *IJQRM*, Feb.
- Wood Michael** (1997), "The Notion of Customer in TQM", Internal Publication, University of Portsmouth, UK.
- Zairi Mohd** (1992), "TQM based Performance Measurement" (Practical Guidelines)—Technical Communication Publishing.



Relative Prediction of Organisational Health Variables in Predicting Job Satisfaction

Debdulal Dutta Roy

The study investigated the relative predictive capacity of organisational health variables in predicting job satisfaction. Data were collected from managers (n=34), supervisors (n=73), and staff (n=82) of a steel plant in public sector. Hierarchical multiple regression analysis across organisational hierarchies shows that managers gave more importance to organisational need satisfaction and organisational awareness for job satisfaction. To supervisors, autonomy in decision making, satisfactory relationship between organisation and task environment, awareness of changes in task environment and organisational need satisfaction were relatively more important. To staff, problem solving opportunity and good interpersonal trust were relatively more important for job satisfaction. The role of hierarchical regression analysis in organisational change has also been discussed.

Debdulal Dutta Roy is Lecturer in Psychology Research Unit, Indian Statistical Institute, 203, B.T. Road, Calcutta- 700035.

Organisational health refers to a relative but quasi enduring state of physical, mental and social well-being of an organisation and not merely absence of strikes and lockouts (Dutta Roy, 1989, 1996, 1997). For research purposes, it is defined in terms of 11 process variables measured by the organisational health scale. These are: (a) Awareness of organisation, (b) Autonomy in making decision, (c) Opportunity for problem solving, (d) Evaluation of performance, (e) Interpersonal trust, (f) Coping with environmental uncertainty, (g) Organisational involvement, (h) Awareness of task environment, (i) Satisfactory relation with task environment, (j) Organisational satisfaction, and (k) Adequate physical working conditions (Dutta Roy, 1989). Since Bennis (1966), studies on organisational health have received importance in the literature on organisational behaviour (Miles, 1971; Pareek & Rao, 1977; Patten, 1981). Organisational health scale is a valuable tool for understanding the phenomenological world of employees in relation to organisational health for purposes of organisational development. Mere knowledge of the means or percentages (Dutta Roy, 1996, 1997) may not help in deciding whether a change in organisational health perception could lead to a change in the job satisfaction level of employees or not. Earlier studies had noted that individual's perception about the quality of working life (Dutta Roy, 1991) and about his/her satisfaction with different off-the-job life events (Dutta Roy,

Organisational health scale is a valuable tool for understanding the phenomenological world of employees in relation to organisational health for purposes of organisational development.

1992) was determined by the changes in his/her perception of organisational health parameters, whereas, less attention has been directed to investigate the relative status of organisational health variables in predicting job satisfaction across organisational hierarchies.

Organisational Health and Job Satisfaction

One's perception of objective work environment causes change in the phenomenological world of individual. For example, people whose jobs are repetitive in nature, report feeling of meaninglessness. Again perception of phenomenological world causes change in individual's affective behaviour. Campbell, Converse and Rodgers (1976) suggested that experience of work shapes one's satisfaction with on-the-job life. Zelesney *et al* noted that adequacy of lighting, temperature, equipment, etc, accounted for a significant amount of variability in job satisfaction (Zelesney *et al*, 1985). Walton (1975) assumed relationship between perception of physical settings in work place and job satisfaction. Several studies noted that awareness of organisation (Lichtman, 1970; Adams, 1975), perceived autonomy in decision making (Morse & Reimer, 1956), opportunity in problem solving (Burke & Wilcox, 1969) and adequate awareness of job significantly contributed to variance in job satisfaction. In another study, Dutta Roy (1989) noted significant relationship among organisational health variables and its relationship with job satisfaction. Since the results were analysed in terms of pooled data, it was difficult to reveal how to make employees across different organisational hierarchies satisfied with their jobs by altering the different organisational health variables. Given the foregoing limitations of the earlier study, the present study aimed at determining the relative predictive capacity of organisational health variables in predicting job satisfaction across three levels through hierarchical regression analysis.

Perception of phenomenological world causes change in individual's affective behaviour.

Methods

Sample: Participants in the study were 34 managers, 73 supervisors and 82 staff of a public sector steel plant. Stratified random sampling was followed to collect data. Respondents were requested individually to fill out the questionnaire. Managers were elder (mean age 43.47 years) than supervisors (mean age 36.49

Awareness of organisation perceived autonomy in decision making opportunity in problem solving and adequate awareness of job significantly contributed to variance in job satisfaction.

years) and staff (mean age 36.05 years). Managers were more senior (mean tenure 16.05 years) to supervisors (mean tenure 12.01 years) and staff (mean tenure 11.71 years).

Job sat' 72: It is a 9-item Likert type measure to assess attitudes to comfort, challenge, pay, relationship with workers and resources as a whole. It was facet-free form. Some of the items were—"All in all, how satisfied would you say you work with your job?" Responses ranged from "very satisfied" (5) to "very dissatisfied" (1). "I am free from the conflicting demand the other people make of me"; "My supervisor is competent in doing the job". Responses ranged from "strongly agree" (5) to "strongly disagree" (1). Alpha coefficient of the total scale was 0.70.

Organisational health scale: A Likert type (Dutta Roy, 1989) five-point scale with 57 items covering 11 areas (mentioned above) of organisational health. Internal consistency and construct validity were estimated through Cronbach's alpha. The alpha value ranged from 0.50 to 0.84 (Dutta Roy, 1989).

Results & Discussion

Step-wise multiple regression analysis was performed and the results are given in table 1.

Managers: Linear combinations of the two variables, namely, organisational satisfaction ($R^2 = 0.43$, $F(1, 32) = 24.52$, $p < .01$) and organisational awareness ($R^2 = 0.53$, $F(2, 31) = 17.6$, $p < 0.01$) predicted job satisfaction of managers significantly. Which shows that managers placed more importance on organisational need satisfaction and awareness of organisation for their job satisfaction.

Managers place more importance on organisational need satisfaction and awareness of organisation for their job satisfaction.

Table 1: Stepwise multiple regression for predicting job satisfaction

Step No.	Organisational health variables	R ²	F	Change in R ²	df	F-value
Managers (n=34)						
1	OS	0.43	24.52	0.43	1,32	24.52
2	OA	0.53	17.62	0.1	2,31	6.51
Supervisor (n=74)						
1	AU	0.27	26.98	0.27	1,72	26.98
2	ES	0.36	20.19	0.09	2,70	9.99
3	EW	0.42	17	0.06	3,69	7.09
4	OS	0.48	16.29	0.06	4,68	8.57
Staff (n=82)						
1	CR	0.31	35.59	0.31	1,80	35.59
2	TR	0.43	26.64	0.12	2,79	16.71

Supervisors: When job satisfaction of supervisors was regressed, a composite of four organisational health variables, namely, autonomy in decision making ($R^2=0.27$, $F(1, 72)=26.98$, $p < .01$), satisfactory relationship between organisation and its task environment ($R^2=0.36$, $F(2,70)=20.19$, $p < .01$), awareness of changes in task environment ($R^2=0.42$, $F(3,69)=17$, $p < .01$) and organisation's satisfaction ($R^2=0.48$, $F(4, 68)=16.29$, $p < .01$) were found to be strong predictors. So, to make supervisors satisfied, it is important for the organisation to provide them more autonomy in making decisions, and make them aware of organisation's satisfactory relationship with task environment and of organisation's internal functioning. It was interesting to note that organisational awareness and organisational satisfaction acted as strong predictors of job satisfaction for both managers and supervisors. Importance on these two variables is related to job responsibility of managers and supervisors. To play adequate managerial and supervisory roles, they want to know more about organisational goals, productive processes, safety systems, and strength and weakness of organisa-

To make supervisors satisfied, it is important for the organisation to provide them more autonomy in making decisions, and make them aware of organisation's satisfactory relationship with task environment and of organisation's internal functioning.

tion. Again, they also wanted to know the extent of organisation's satisfaction with its basic (profit, security, morale) and higher order needs (diversification, innovation). Awareness of organisation contributes to: (a) development of image about the organisation, (b) fostering economic consciousness, and (c) taking decision over cost and waste control (Adam, 1975).

Job satisfaction level of staff was high when they got opportunity to solve different problems of their departments and perceived adequate trust worthiness among the workers in the organisation.

Staff: Results show that linear combinations of two variables, namely, opportunity for problem solving ($R^2=0.31$, $F(1, 80)=35.59$, $p < .01$) and good interpersonal trust ($R^2=0.31$, $F(2, 79)=26.64$, $p < .01$) predicted job satisfaction of staff significantly. This suggests that job satisfaction level of staff was high when they got opportunity to solve different problems of their departments and perceived adequate trust worthiness among the workers in the organisation. Significant relationship between opportunity for problem solving and job satisfaction is also supported by earlier study (Burke & Wilcox, 1969).

It would be desirable to relate these findings with earlier researches devoted to relationship between or-

Four organisational health variables, namely, organisational awareness, autonomy in decision making, interpersonal trust, and awareness of task environment, could be considered as strong predictors of quality of working life.

organisational health variables and two indicators of quality of working life, i.e., quality of life or general well-being and life satisfaction. In predicting general well-being (Dutta Roy, 1991) and life satisfaction (Dutta Roy, 1992), it had been noted that comfortable physical work place acted as a strong predictor which failed to regress hierarchically job satisfaction in the present study. Four organisational health variables, namely, organisational awareness, autonomy in decision making, interpersonal trust, and awareness of task environment, acted as sig-

nificant predictors regressed significantly, general well-being and life satisfaction in earlier studies. It means that these four variables could be considered as strong predictors of quality of working life (QWL).

The study illuminates the role of hierarchical regression analysis in organisational development. Organisational development (OD) is a data based process of change in organisational variables to improve quality of working life (QWL). In OD, usually consultants provide feedback about how the employees perceive an organisation in terms of percentage analysis or in terms of mean levels. Both these statistical methods are useful in studying at-

Before introducing any change in an organisation, it is important to know the relative predictive capacity of each organisational health variable through hierarchical regression analysis.

titudinal patterns of employees towards job. But mere pattern analysis may not be effective until relationship between attitudinal variables and expected dependent variables could be established. When many independent variables are inter-related, hierarchical regression analysis is useful. So, before introducing any change in an organisation, it is important to know the relative predictive capacity of each organisational health variable through hierarchical regression analysis. The present study, through hierarchical regression analysis, has identified important organisational health variables to improve job satisfaction of employees at different hierarchies.

References

Adam E.E., Jr. (1975), "Behaviour Modification in Quality Control", *Academy of Management Journal*, 1, 4.

- Bennis W.G. (1966), "Changing Organisations", Bombay: Tata McGraw Hill Publishing Co. Ltd.
- Burke R.J. & Wilcox D.S. (1969), "Characteristics of Effective Employee Performance Review and Development Reviews", *Personnel Psychology*, 22, 3.
- Campbell A., Converse P.E. & Rodgers W.L. (1976), "The Quality of American Life", N.Y.: Russell Sage Foundation.
- Chatterjee A. & Dutta Roy D. (1991), "Awareness of External Environment, Environmental Satisfaction and Mental Health", *Indian Journal of Applied Psychology*, 29, 2.
- Dutta Roy D. (1989), "A Study of Organisational Health and Its Effect on Quality of Working Life", Unpublished Doctoral Dissertation, Indian Institute of Technology, Kharagpur.
- Dutta Roy D. (1991), "A Model of Change in Organisational Health to Improve Quality of Life", *Social Science International*, 16, 4.
- Dutta Roy D. (1992), "Organisational Health and Life Satisfaction: A Path-Analytic Model", *Managerial Psychology*, 51-62.
- Dutta Roy D. (1996), "Organisational Health Survey", *Productivity*, 37, 3.
- Dutta Roy D. & Ghose M. (1997), "Assessing the Health of a Hospital: A Process State Approach", *Management of Labour Studies*, 22, 1.
- Lichtman C.M. (1970), "Some Interpersonal Response Correlates of Organisational Rank", *Journal of Applied Psychology*, 54, 1.
- Miles M.B. (1971), "Planned Change and Organisational Health: Figure and Ground", In Francis, M. Trusty (ed.) *Administering Human Resources*, Berkeley: McCut Chan Publishing Corporation.
- Morse N. & Reimer E. (1956), "The Experimental Change of a Major Organisational Variable", *Journal of Abnormal and Social Psychology*, 52.
- Pareek U. & Rao T.V. (1977), "A Conceptual Model of Decision Making in the University System", In R.J. Matthal, U. Pareek and T.V. Rao (eds.), Oxford and IBH, New Delhi.
- Patten J.H. Jr. (1981), "Organisational Development Through Team Building", N.Y.: A Wiley Inter Science publication.
- Walton R.E. (1975), "Criteria for Quality of Working Life", In L.E. Darvis E. & Cherns A.B., (eds.), *The quality of working life*, The Free Press, New York.
- Zalesney M.D., Farace R.V. & Kurchner H.R. (1985), "Determinants of Employee Work Perceptions and Attitudes", *Environment and Behaviour*, 5. □

Excellence in Manufacturing Through Waste Reduction

B.M. Gupta & S.S. Kashikar

In an industry, waste occurs at every stage of manufacturing and therefore a need is felt for waste reduction and to know the reasons behind the occurrence of these wastes. This paper discusses the basic concepts regarding waste along with the ways and means to eliminate it. A case study of a large boiler manufacturing unit is also presented, illustrating the methodology for identification and quantification of the waste, along with a solution to reduce the waste, so identified.

B.M. Gupta is Assistant Professor of Mechanical Engineering, Department of Mechanical Engineering, Visvesvaraya Regional College of Engineering (VRCE), Nagpur. S.S. Kashikar has submitted his dissertation for M.Tech (Industrial Engg.) at VRCE, Nagpur.

Today's dynamic market situation is customer driven. Customers decide the fate of any manufacturer in the market. Thus customer oriented manufacturing is essential in order to survive and grow in the market. Customers need products of good quality, at lowest possible cost, with minimum lead time. The rising industrial competitiveness is based on this need of the customer. In order to meet this requirement of the customers, every manufacturer has to reduce the cost of a product without compromising its quality. Cutting down manufacturing lead time is essential in order to meet market requirements. To reduce the cost, manufacturer must focus on identifying the opportunities to eliminate waste. In other words, reduction of the waste of various manufacturing resources is vital to meet the requirements of the customer.

To reduce the cost, manufacturer must focus on identifying the opportunities to eliminate waste. Reduction of the waste of various manufacturing resources is vital to meet the requirements of the customer.

What is Waste?

Every manufacturing organisation consumes some resource(s) or other. For manufacturing any product, whatever be the resources ideally required, never matches with the actual consumption of these resources. It always consumes more than what is ideally required.

Thus generation of waste, in one or other form, is inevitable in the functioning of any manufacturing organisation. Resources, such as money, manpower, material, time, space, which are ideally used, is the

essential requirement of manufacturing. Anything in excess of this is a waste. Thus waste has been defined as unnecessary input of any of the manufacturing resources. In other words, anything required beyond the bare minimum, to manufacture a product, is a waste.

Types of Waste

Waste can be classified in a variety of ways, depending upon the basis of classification. There could thus be four bases for classification:

- (a) The resources wasted,
- (b) The source or origin of the waste,
- (c) The property of the waste, and
- (d) The recoverability of the waste.

Limiting our scope to the first category, i.e. waste of all resources, we can identify various wastes as shown in fig. 1. Some of the basic forms in which waste of these resources may occur are as below: (i) Waiting time, (ii) Unwanted motion, (iii) Inventory, (iv) Waste processing, (v) Overproduction, (iv) Unnecessary transport, and (vii) Defects, rejects and rework.

Of the above forms, waiting time is one of the most important, resulting in the waste of time, which can be

measured in terms of the hours required in excess of the budgeted hours.

In any manufacturing situation, a number of hours are wasted because of unnecessary transport of job and for unwanted movements of workers. Excess inventory results in the waste of money, as money gets blocked during the period inventory is held. In the salvaging of defectives, a lot of hours are required for reworking, resulting in waste of time. Overproduction locks valuable shop floor space when it remains on the shop floor. Unnecessary processing adds to waste of time and material.

Why Waste Occurs in Industries?

There are no specific reasons for the occurrence of waste. The reasons for waste vary from industry to industry. They may be avoidable or unavoidable. Improper planning, lack of coordination in manufacturing, absence of proper system to identify and prevent the occurrence of waste, technological limitations, etc., all result in waste.

Waiting time occurs if all the resources required for manufacturing are not available as and when required. Improper shop layout and poor housekeeping causes unnecessary movements to workers on shop floor resulting in waste of valuable manhours.

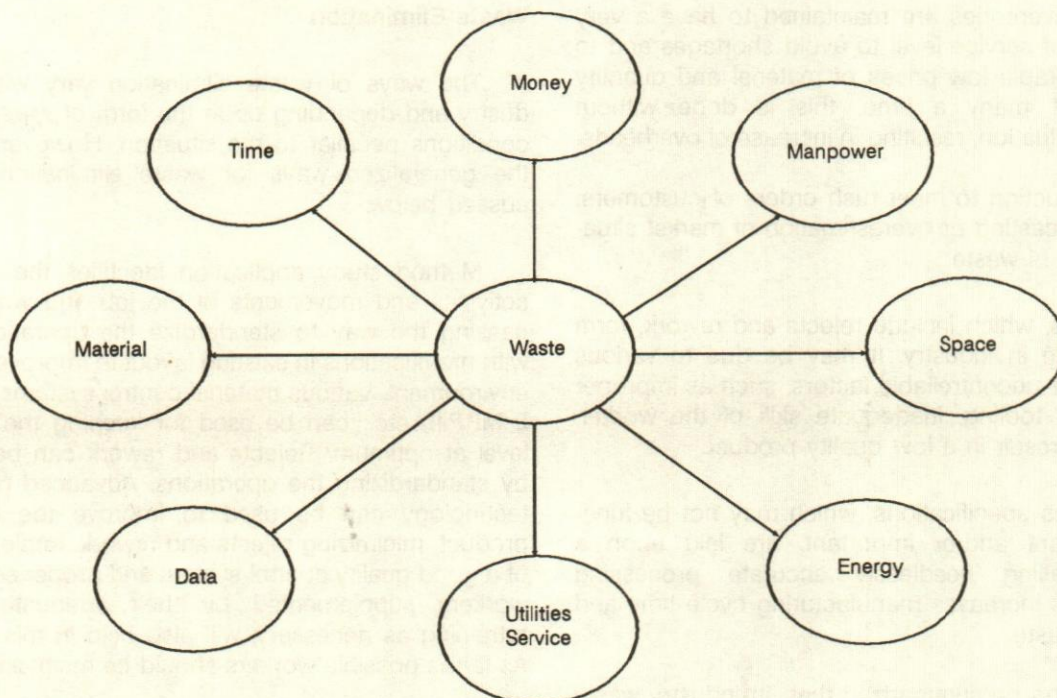


Fig. 1. Kinds of waste

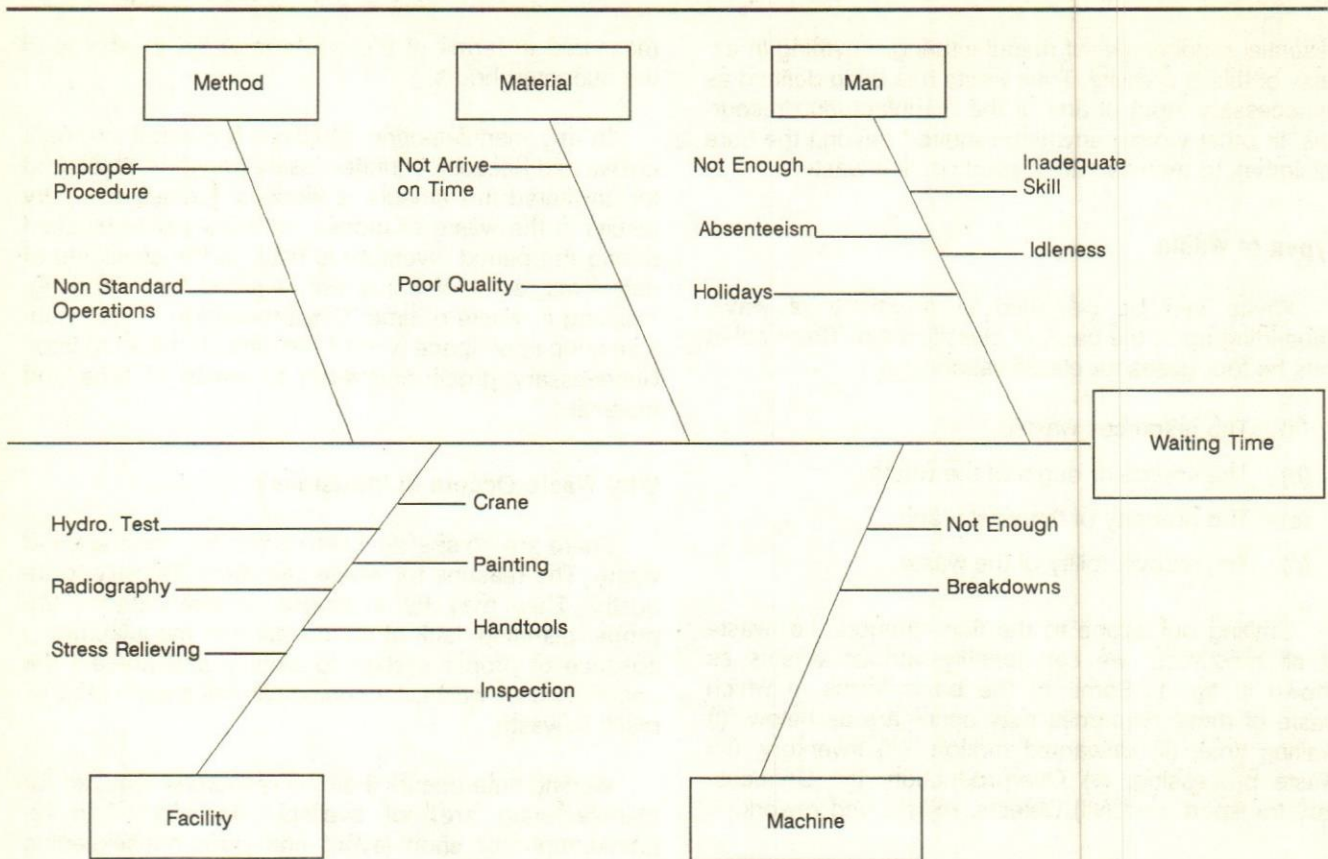


Fig. 2. Cause-and-effect diagram for waiting time

Excess inventories are maintained to have a very high degree of service level to avoid shortages and to avail of favourable low prices of material and quantity discount. But many a time, this is done without economic evaluation, resulting in increase of overheads.

Overproduction to meet rush orders of customers, improper forecasting or overestimation of market situation create lot of waste.

Defectives, which include rejects and rework, form a major waste in industry. It may be due to various controllable or uncontrollable factors, such as improper methods and tooling, inadequate skill of the worker. But all these result in a low quality product.

Sometimes specifications, which may not be functionally relevant and/or important, are laid upon a product entailing needlessly accurate processing method which increases manufacturing cycle time and creates the waste.

Thus, it can be summarized that in industry waste occurs not because of any one reason in particular but owing to a combination of various factors.

Waste Elimination

The ways of waste elimination vary with the industry and depending upon the form of waste and the conditions peculiar to the situation. However, some of the generalized ways for waste elimination are discussed below.

Method study application identifies the unwanted activities and movements of the job and worker, thus passing the way to standardize the operations along with modifications in existing layout to improve the shop environment. Various material control systems like MRP-I, MRP-II, etc., can be used for keeping the inventory level at optimum. Rejects and rework can be reduced by standardizing the operations. Advanced production technology can be used to improve the quality of product, minimizing rejects and rework. Implementation of a good quality control system and proper selection of workers supplemented by their adequate training, retraining as necessary, will also help in this direction. As far as possible workers should be multi-skilled.

Overproduction, necessitating a huge inventory, can be eliminated by forecasting the market demand with

greater accuracy and a high confidence level. Production level, should be regulated on the basis of continuous feedback from the market.

Overproduction, necessitating a huge inventory, can be eliminated by forecasting the market demand with greater accuracy and a high confidence level.

Waiting time, being one of the most important forms of waste, can be ascertained by locating the areas where waiting occurs and then critically analyzing the causes contributing to waiting time. Proper planning and coordination of the shop floor activities can greatly reduce the waiting time.

Case Study

The above discussion would prove that waste of time is critical, because time is a resource which can not be created or manufactured. So it should be utilized most judiciously.

In a large boiler manufacturing plant, analysis of past data revealed that actual Through-put time (TPT) was for higher than budgeted. It was also found that the level of rejects and rework was almost negligible. Observations indicated that jobs remained idle on the shop floor most of the time for want of some or other resource, thus increasing the TPT. Therefore waiting time of the product was identified the most probable reason for the high TPT. A detailed study was then carried out to quantify the waiting time and remedies suggested for its elimination.

Methodology

For quantifying the waiting time, different causes were first identified by drawing a cause-and-effect diagram as shown in fig. 2.

Then to determine the contribution of each cause to the waiting time, Work sampling technique was selected as the best and most appropriate. Each unit on the shop floor was considered a subject for observation. Assuming 95 per cent confidence level and a 95 per cent accuracy, total number of observations were computed. Random observations were made at different time points chosen using random number table. During each round, jobs on the shop floor were observed for working or non-working state. Simultaneously the reasons for

non-working state were found out and a code assigned to each reason.

Table 1: Summary of Work Sampling Study

ITEM	Code	Total Observations	Percentage
Jobs in working stage	W	1478	44.92
Jobs in non-working stage with reason/purpose for waiting			
Worker not available	NW	1053	32.01
Worker idle	WI	185	5.62
To Hand over job	WHO	170	5.17
Material	WM	143	4.35
For external inspection	IBR	80	2.43
For maintenance	WMT	55	1.67
For painting	WP	31	.94
For Radiography	WR	24	.73
For Machine not available	WM/C	20	.61
For internal inspection	QC	15	.46
For stress relieving	WSR	13	.40
For Hydro test	WH	10	.30
For hand tools	WHT	8	.24
For Crane	WCR	5	.15
Total waiting time %			55.08

The summary of work sampling study along with various reasons for non-working state with their respective code is given in table 1.

Pareto analysis of the total waiting time was done and the results are depicted in fig. 3. It can be seen therefrom that for a major portion of the duration 'no-manpower' condition existed in the shop resulting in high waiting time. Analysis of availability of manpower on the shop floor indicated that a certain number of jobs can only be processed by the available manpower. Whenever the number of jobs on the shop exceeds this limit, extra manpower is needed, which the company can not provide and hence no-worker condition existed most of the time. This indicates that high work-in-progress level is the basic reason for existence of no-worker condition. This creates a need to adjust WIP level to the existing manpower.

Thus snags in the shop are: (i) High WIP on shop floor; (ii) Improper planning and lack of coordination; (iii) No traceability and accountability regarding the activities on the job; and (iv) Work always lagging behind the schedule.

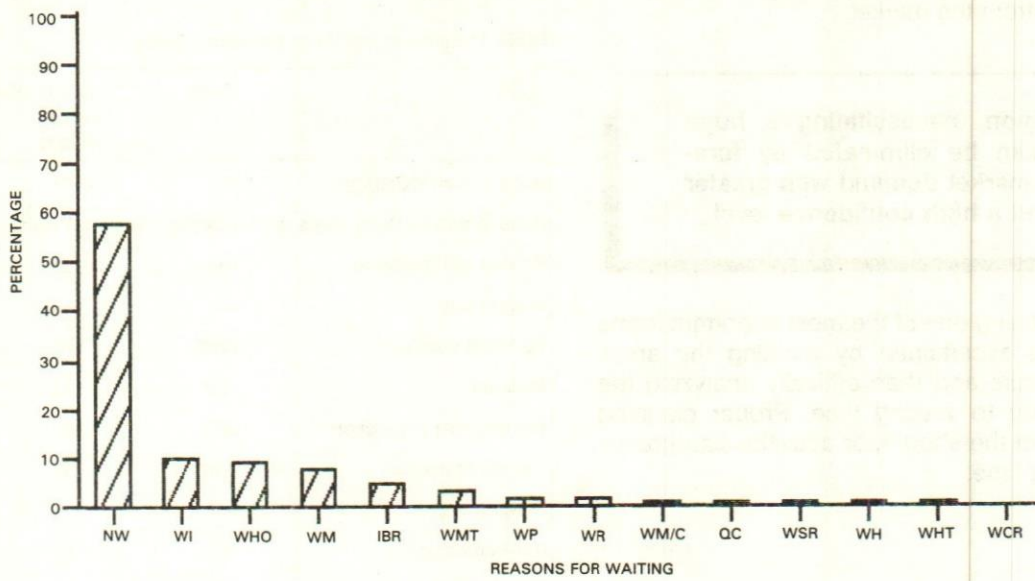


Fig. 3. Pareto Analysis for Waiting time

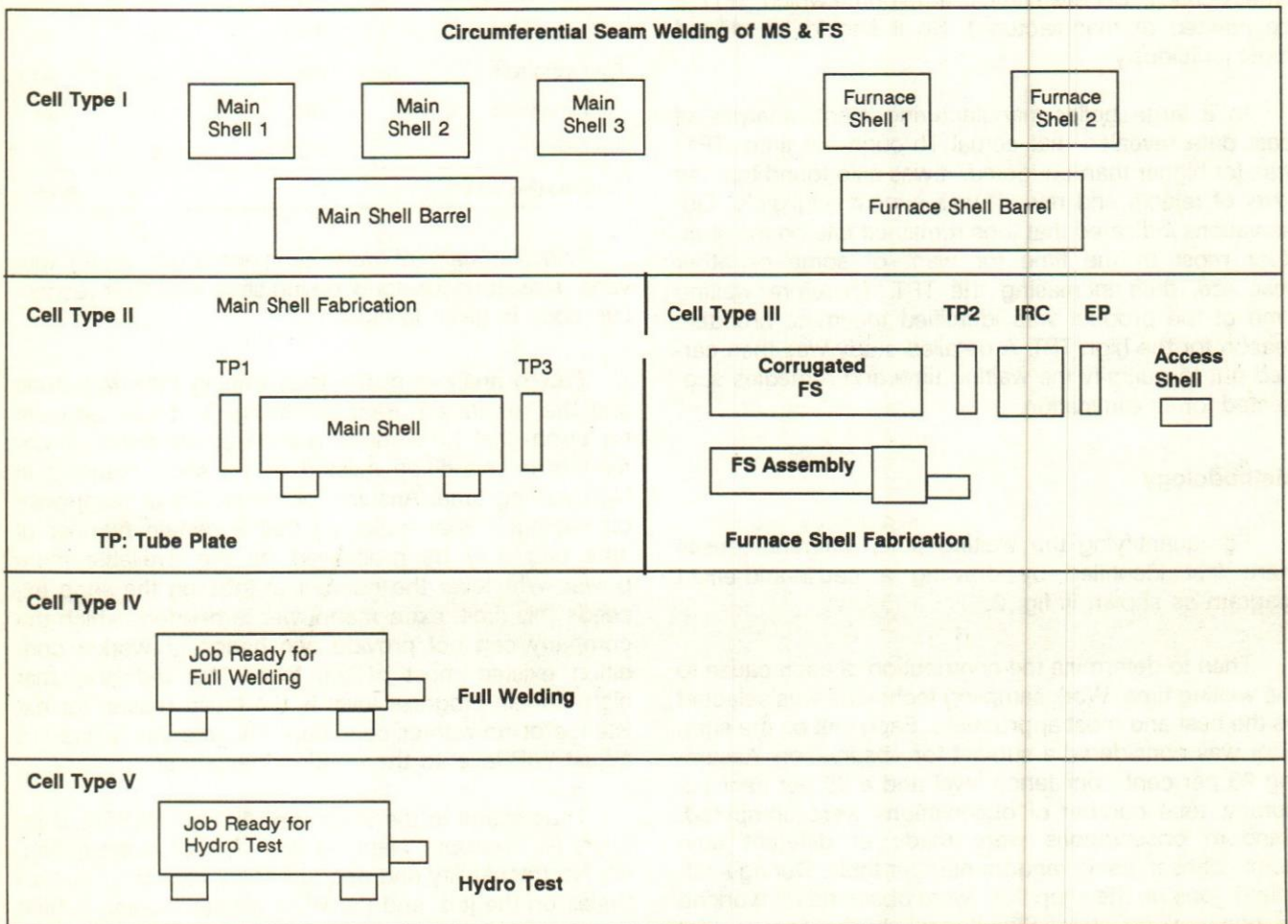


Fig. 4. Different cells identified for cellular arrangement of the shop

Table 2: Resources for cells

Activity	Equipment and Facilities	Material	Tools and Consumables
Fabrication Furnace Shell (FS)	Rotator (5 Tons)	Corr Furnace	Gas cutting
	Welding Transformer	I.R.C.	Hammers
	F.S. Cutting M/C	Access shell	Chisels
	Access shell rack	Tube & End Plate	Sander wheel
	T.P. Grinding Table		
Main Shell Fabrication	Rotator (30 Tons)	Main shell barrel	Grinders
	Transformer	Tube Plates	Sander wheels
	CO2 Welding M/C	Gussets	Dye penetrant
	Gas Cutting Facility	F.S. Assembly	Hammers
	T.P. Rack	MH/HH Ring	Chisel
	Material Pallet	MH/HH Pads	Cotton waste
	Working Table	Nozzles	Grinding Wheel
		Internals	Wire brush
		Baffle plate	Lamps
		Stay bars	Portable oven
		Tubes	
		Front ring	
		Lifting hooks	
	Saddle		
Full Welding (FW)	CO ₂ Welding M/C	Job ready for FW	Grinder
	Vertical fixture		Chisel
			Wire Brush
M.S. & F.S.C. Seam	Set up rotation	MS1, 2 & 3	Gas cutting
	Saw boom	FS1, 2 & 3	Grinder
	Lathe M/C	Pads for offering	Wire brush
	Power hacksaw	Nozzles Pipes	Sander
	Bending M/C	Flanges	Portable oven
	Gas cutting M/C	Stay Bars offer	
	Welding Transformer		
Hydro testing	Hydro test facility	Job ready for HYD	Spanners
		Blind flanges	Nut & Bolts
		Refractory door	Pipes
		Smoke chamber	Blanks
		Sight Glass	
		Name Plate	
		ACC Refractory	
		Burner box	
		Door hinges	
		ACC Shell Ring	
		Cat walk pad	

Cellular arrangement

It is known that arrangement of the shop floor in cellular form, in which related activities are carried out in one cell, has various advantages. It affords visual control of the activities, and makes accountability and adherence to the schedule possible. Cellular manufacturing arrangement also reduces unnecessary movement of job which in turn improves quality and gives an efficient material handling arrangement. Reduction in setup and downtime can be possible with this arrangement. Operator as well as supervisory staff utilization gets increased. All these features of cellular manufacturing arrangement reduce manufacturing cycle time resulting in low WIP level.

In cellular manufacturing arrangement, all resources, such as machine tools, material handling equipment and such other auxiliary facilities required for producing a particular part/component are grouped

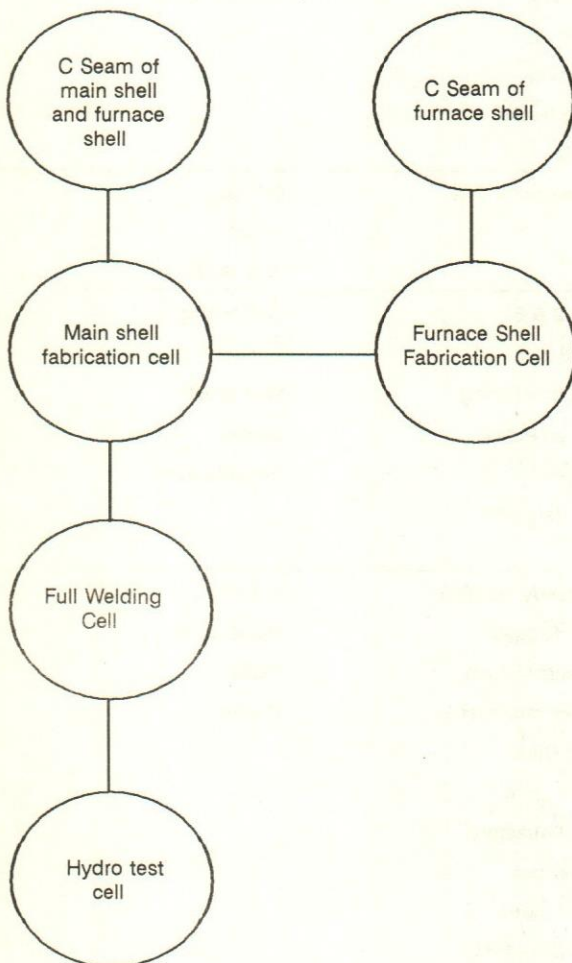


Fig. 5. Interdependency of Cells

together and made available at one place.

In cellular manufacturing arrangement, all resources and other auxiliary facilities required for producing a particular part/component are grouped together and made available at one place.

Thus it was concluded that cellular manufacturing arrangement is the best suitable for eliminating the existing problems in the system. The action plan for creating such an arrangement consists of the following stages: (i) Identification of the different cells, (ii) Identification of the resources required for each cell, (iii) Arrangement of the cells on the shopfloor, (iv) Feedback system for each cell, and (v) Scheduling of each cell.

Identification of cells—To identify the different cells, activities required to manufacture the product were first listed. The related activities were when so grouped that each cell should be able to produce an identification output. Thus in our case five kinds of cells were identified as shown in fig. 4.

Interdependence of the cells is depicted in fig. 5.

Resources for each cell—Resources, such as material, machine, tools and facilities required for each cell were identified as given in table 2.

Arrangement of cells—The space required for each cell was first estimated by considering the space needed for various resources as well as the working space, etc. Then the number of cells of each category was decided by taking into account the available shop floor space and TPT of each cell. Cells having less TPT were kept fewer in number as compared to those with high TPT to maintain the interdependence between the cells. This reduces the in-process waiting time.

Information system for each cell—To monitor the progress of each cell a display board was prepared

Reduction in waiting time directly reduces the TPT of the product, which, in turn, cuts down the manufacturing lead time.

Table 3: Continuous Monitoring Sheet for the Month of...

Date	Total Units on Shop	Working Units	Number of Idle Units by reason		
			Manpower	Material	other*
3	30	18	9	1	2
4	30	17	7	1	5
6	30	21	5	2	2
7	30	20	3	2	5
8	30	19	4	2	5
9	30	19	6	1	4
10	29	18	6	2	3
11	28	18	5	1	4
13	28	18	5	2	3
14	28	18	4	2	4
15	26	18	4	2	2
16	26	18	4	2	2
17	26	18	4	2	2
18	26	18	3	2	3
20	23	18	3	2	0
21	23	18	3	1	1
22	23	18	3	2	0
23	23	16	4	1	2
24	23	16	3	2	2
25	23	16	3	1	3
27	23	16	3	2	2
28	23	14	3	2	4
29	23	14	3	2	4
30	23	14	3	2	4
Average	26	17	4	2	3

* Other reasons include idle due to inspection, machines, facilities, etc.
Summary for two months

Month	Average Units	Working Units	Idle due to		
			Man	Material	Other
Sept.	26	17	4	2	3
Oct.	24	16	4	1	3

Table 4: Total Time Distribution Among Various Reasons for the Months of Sept. & Oct.

Month	Total Observations %	Working Units %	Waiting Units			Total Waiting Time (%)
			Man %	Material %	Other %	
September	100	66.51	15.63	5.90	11.96	33.49
October	100	67.53	17.62	4.32	10.71	32.47

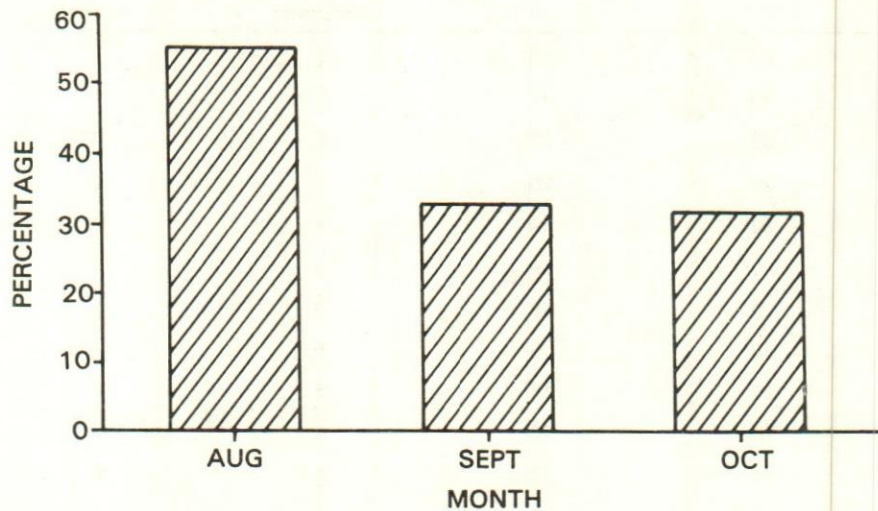


Fig. 6. Progressive reduction in waiting time distribution period

recording the details of material required on a particular day, analysis of the TPT of that cell, etc. This was also helpful to determine the exact status of any job on the shop floor.

Scheduling of each cell—For a perfect planning of the activities performed in a cell, schedule for each cell was individually prepared instead of a total schedule for the job. This helped in determining the exact dates of material requirement along with the inspection dates, etc. Project management packages like PRISM can be used for scheduling of the activities.

Continuous monitoring of the cells—The whole shop floor was monitored each day to find out the progress of each cell using a monitoring sheet (see table 3). In addition, it informs about the non-working cells and reasons for idleness. Average WIP level during a particular month and details of working and non-working of the job can be calculated from the data collected.

Effect of Cellular Manufacturing Arrangement

Data collected as above from continuous monitoring can also be used to calculate the waiting time during the month. Waiting time for various months is given in

table 4. It was found that waiting time reduced to 33.49 per cent from 55.08 per cent in the first month of implementation of cellular arrangement. In the next month, it further reduced to 32.47 per cent. The progressive reduction over the two months is shown in fig. 6. Reduction in waiting time directly reduces the TPT of the product, which, in turn, cuts down the manufacturing lead time.

This demonstrates the success of this arrangement in reducing waiting time and fulfilling of the objective. Hence cellular manufacturing arrangement is one of the best ways to reduce waiting time of the product and eliminate delays.

Conclusion

Granting that some amount of waste is inevitable in any manufacturing organisation and it can not be totally eliminated, substantial reduction is still possible through a structured approach in identifying the wastes followed by steps to minimize them. In this regard cellular manufacturing arrangement is eminently useful. Indeed, reduction of waste occurring in manufacture greatly helps improve an organisation's productivity without calling for substantial additional resources. □

Abnormal Profits Opportunity – Does it Really Exist in the Indian Stock Market?

M. Kakati

The article presents an insight into the residual risk and returns of 500 Indian stocks with the sole objective of examining the opportunity to earn abnormal profits, and the potential to add value in the Indian stock market. It is found that the Indian stock market in general provides only limited opportunity to earn abnormal profits after the scam tainted period. However, for those investors who are aggressive and creative with distinct skills, good opportunity still exists but with a considerable residual risk.

M. Kakati is Associate Professor, Department of Business Administration, Gauhati University, Guwahati.

One of the assertions of modern portfolio theory is that, in a highly efficient market, no investor can earn abnormal profit or residual return, i.e. return over and above the market rate of return after adjusting for its risk. Fortunately or unfortunately, none of the world markets is efficient enough to entirely eliminate the abnormal profit opportunity. Hence, there is a need to examine abnormal/residual return of Indian stocks after the scam tainted period. During this period, mid 1990 to mid 1992, the Indian stock market seemed to offer abnormal profit opportunity mostly owing to unprecedented manipulation by a section of market operators. A sequence of market corrections thereafter seems to have reduced the scope for such manipulation. The objective of this study is to provide analytical insights into the residual return and risk for 500 Indian stocks. The findings of this study have many implications for active managers/investors whose goal is to beat the market, and for passive investors/managers who are generally interested in buy-and-hold market portfolio, popularly known as "index fund".

- The existence of abnormal profit opportunity means the market is inefficient in pricing its securities. Indeed it is one way of testing market efficiency. A positive residual return indicates undervalued security and a negative one, overvalued security. Numerous profit opportunities mean, any attempt to identify mispriced securities is not futile.
- It is the degree of opportunity that determines whether securities should be actively managed or passively managed. Active management entails continuous search, and selling or purchasing mispriced security whereas passive management involves a long term, buy-and-hold approach to investing and prefers investment in broad, diversified market index. When opportunity exists, active investors, by accurately identifying and adroitly purchasing or selling mispriced securities, can outperform passive in-

vestors; when it does not exist, passive investors are likely to outperform active investors because of transaction cost difference. Passively managed portfolios usually experience very small transaction costs, whereas depending on the amount of trading involved, active management transaction costs be quite high.

- Knowing the level of abnormal profit opportunity, an investor may concentrate either on forecasting residual return (alpha) when the opportunity is high or alternatively on forecasting beta and the market return when the opportunity is low.

The Theoretical Foundation

One of the major contributions of beta concept is that it allows us to separate the excess return (i.e. return over the risk-free rate of return) of any stock or portfolio into two uncorrelated components—a market return and a residual return (Equation 1). The first component of return is generated by the market consensus on the expected excess return. The market index is the tide that raises or lowers this return; and it is generally not under the investor's control. This return component requires good beta and a reasonable guess at market returns. The second component is due to the existence of mispriced securities and the investor's ability to select these securities.

The Capital Assets Pricing Model (CAPM) contends that the market generally discounts only market risk (beta), and does not pay premium for residual/unique risk (omega) which can be dispersed and hence, the expected as well as realised residual return on every stock or portfolio is zero. This is really very controversial. Most recently, Fama and French have generated significant publicity by claiming to refute the CAPM (Fama & French, 1992, pp. 427-65). The CAPM is based on assumptions that may not be quite true. In particular, market players have different information and thus different management expectation.

Consequently, this has led active—passive management debate with little resolution in sight. The

The proponents of active management argue that capital markets are inefficient enough to justify the search for mispriced securities, and possess a fundamental belief in the existence of consistently exploitable securities.

proponents of active management argue that capital markets are inefficient enough to justify the search for mispriced securities, and possess a fundamental belief in the existence of consistently exploitable securities. The proponents of passive management, on the other hand, contend that the capital markets are efficient enough to prevent consistently being able to earn abnormal profits. They point out that examples of past success in earning abnormal returns are more likely the result of luck rather than skill. They question the wisdom of actively managing all the assets, and emphasis on buy-hold of a broad base market index, i.e. 'index fund'.

The proponents of passive management, contend that the capital markets are efficient enough to prevent consistently being able to earn abnormal profits.

As mentioned earlier, the excess return on any stock 'i' can be decomposed into two uncorelated components:

$$r_{it} - r_{ft} = \beta_i (r_{mt} - r_{ft}) + (\alpha_i + e_{it}) \quad (1)$$

Where:

$r_{it} - r_{ft}$ = excess return on stock 'i' for a given period 't'.

$r_{mt} - r_{ft}$ = excess return on market index for the same period 't'.

β_i = stock beta (market risk)

α_i = stock alpha (average residual return)

e_{it} = random error term of stock 'i' whose mean is zero, (hence average residual risk is α_i).

r_{ft} = risk-free rate of return in period 't'.

The standard deviation of random error term represents unique risk/residual risk (ω_i). A positive alpha indicates a stock's return which is higher than the market return even after adjusting for its market risk, and a negative alpha indicates a lower return (Sharpe *et al*, 1995; Jensen, 1969, pp. 167-247).

Investment decision is not solely based on return component, rather it is based on risk-return tradeoff. The information ratio (IR) (Grinlond & Kahn, 1995) or appraised ratio (Treyner & Black, 1973, pp. 66-86) captures

the risk-return tradeoff of a stock. This IR as ex-post represents a measure of achievement and as ex-ante represents a measure of opportunity, i.e. it describes the opportunities available to the investors to earn abnormal profits. The IR for the market index is defined to be zero. It can and frequently will be negative.

Investment decision is not solely based on return component, rather it is based on risk-return tradeoff.

The objective of active management is to maximise the value added from residual return where value added from the stock 'i' is measured as:

$$VA_i = \alpha_i - \lambda \omega_i^2 \quad (2)$$

(Grinlond & Kahn, 1995)

This objective awards a credit for the residual return (α_i) and a debit for residual risk (ω_i). The parameter λ measures the aversion to residual risk and the investors' aggressiveness/willingness to exploit the opportunities.

Equation 2 can be rewritten by replacing α_i by $IR_i \cdot \omega_i$ (since $IR = \frac{\alpha_i}{\omega_i}$). Hence

$$VA_i = \omega_i \cdot IR_i - \lambda \cdot \omega_i^2 \quad (3)$$

By taking the first order derivatives, one can work out the optimal level of risk as

$\omega_i^* = \frac{IR_i}{2\lambda}$ and then, the value added for the optimal level of risk is

$$VA^* = \frac{IR_i}{2\lambda} \cdot IR_i - \frac{\lambda}{4\lambda^2} IR_i^2 = \frac{IR_i^2}{4\lambda} \quad (4)$$

Thus, the potential to add value increases as the square of the information ratio and decreases as the investors/manager become more risk averse.

Research Methodology

The stocks of 500 Indian companies from 18 industries were selected at random for the study. The quarterly return on each of these 500 stocks was calculated for 16 quarters from July 1992 to July 1996 considering market price appreciation, dividend, bonus and rights issues. Quarterly return on BSE Sensex and 91-

days treasury bill was considered as proxy for the market return and risk-free rate of return respectively, and worked out for each of the 16 quarters. The selection of Sensex (comprising 30 scrips) over Natex (comprising 100 scrips) as proxy is largely inspired by the findings from the work of Varma which concludes that Natex is a sluggish index which responds too slowly to market conditions (Varma, 1991). On the other hand, Sensex is more volatile and thus needs to be taken more seriously as a sound market index. Similarly, the 91-days treasury bill matches the quarterly time period considered in this study. All the data and information were obtained from the CMIE report, BSE daily stock quotation, *The Economic Times*, BSE Stock Exchange Official Directory, and RBI reports on Currency and Finance.

The quarterly excess stock return and excess market return (i.e. excess over risk-free return) has been regressed for Equation 1 to obtain beta, alpha and subsequently omega of each stock {as suggested by Sharpe *et al* (1995)}.

$$\text{Beta } (\beta) = \frac{(T \cdot \sum XY) - (\sum Y \cdot \sum X)}{(T \cdot \sum X^2) - (\sum X)^2}$$

$$\text{Alpha } (\alpha) = \frac{\sum Y}{T} - (\text{beta} \cdot \frac{\sum X}{T})$$

$$\text{Omega } (\omega) = \left[\frac{\sum Y^2 - (\text{alpha} \cdot \sum Y) - (\text{Beta} \cdot \sum XY)}{T-2} \right]^{1/2}$$

where:

T = Number of time periods (16).

X = excess return on market index (i.e. Sensex).

Y = excess return on stock 'i'.

The t -statistic has been used to measure whether alpha is significantly different from zero. The opportunity to earn abnormal profit has been examined by using the IR concept and the potential to add value by using Equation 2.

Results

Figure 1 depicts the frequency distribution of alpha (residual return). Out of the 500 stocks, 49.4 per cent have positive alpha and the rest negative alpha. None of the stocks has alpha exactly zero. The existence of too many positive and negative alphas means stocks are mispriced, and hence the market is inefficient. The result of t -test, however, reveals that only 6.6 per cent of the

stocks have earned significantly higher return than that of Sensex, and 9.6 per cent significantly lower return at 95 per cent confidence level. This suggests that majority of positive and negative alphas may be due to chance factor only. Though the evidence in regard to whether Indian stock market is efficient or inefficient is really puzzling, the Indian stock market appears to be much closer to efficiency than to inefficiency.

Only highly creative and disciplined investors with distinct skills on fundamental and economic analysis may be consistently able to earn abnormal profits.

Though the evidence in regard to whether Indian stock market is efficient or inefficient is really puzzling, the Indian stock market appears to be much closer to efficiency than to inefficiency.

Only two stocks (TVS Suzuki and Sundram Clayton) provided exceptional opportunity (i.e. $IR > 1$) to earn abnormal profits (Figure 2). Seven stocks provided very good opportunity ($IR > 0.5$), 70 stocks mediocre opportunity ($IR > 0.25$), and 144 stocks provided negligible opportunity to earn extra profits.

The remaining half (50.5 per cent) entailed negative opportunity ($IR < 0$). The study of stocks' position in the residual risk-return map (Figure 3) reveals that the exploitation profit opportunity does not exist without high residual risk. In other words, exploitable opportunity is not at all risk-free. Further, for a randomly selected stock, the chance of falling on either side of the market index (where $IR = 0$) being almost equal (refer to the distribution of IR in Figure 2), there are 50 per cent chances that the luck factor simply will not work; investors have to bear a minimum 50 per cent risk of earning less than Sensex or even negative. Only highly creative and disciplined investors with distinct skills on fundamental and economic analysis may be consistently able to earn abnormal profits.

Table 1: Industrywise Analysis of potential for value addition (VA)

Industry	Sample Size	Number of stocks promising positive Value Addition*			
		Level of risk aversion			
		$\lambda = 0$	$\lambda = 0.01$	$\lambda = 0.05$	$\lambda = 0.1$
Machinery (Mining agri. etc.)	31	29 (90.0)	4 (14.0)	0	0
Pharmaceutical	48	28 (56.0)	9 (18.7)	0	0
Paper and Plastic	32	12 (37.5)	5 (15.6)	1 (3.1)	0
Tea and Coffee	30	10 (33.0)	4 (13.3)	0	0
Electronics	23	14 (60.0)	3 (13.0)	0	0
Agro base	20	8 (35.0)	2 (10.0)	0	0
Cement	33	14 (42.0)	6 (18.0)	1 (3.0)	0
Chemicals	24	8 (33.0)	2 (8.3)	0	0
Organic chemicals	30	18 (60.0)	3 (10.0)	0	0
Steels and steel products	27	18 (66.0)	4 (14.8)	0	0
Computers	26	7 (27.0)	3 (11.5)	0	0
Textiles	30	8 (26.6)	1 (3.3)	0	0
Rubbers	15	9 (60.0)	2 (14.0)	0	0
Automobiles	27	23 (85.0)	14 (52.0)	2 (7.4)	1 (3.7)
General engineerings	27	9 (30.0)	3 (11.0)	0	0
Electrical	27	16 (59.0)	8 (29.6)	1 (3.7)	0
Construction	28	14 (48.7)	4 (13.7)	0	0
Food	22	2 (9.0)	1 (4.5)	0	0
Total	500	247 (49.0)	78 (15.6)	5 (1.0)	1 (0.2)

* Figures within brackets represent the percentage of stocks having positive VA for the particular level of λ .

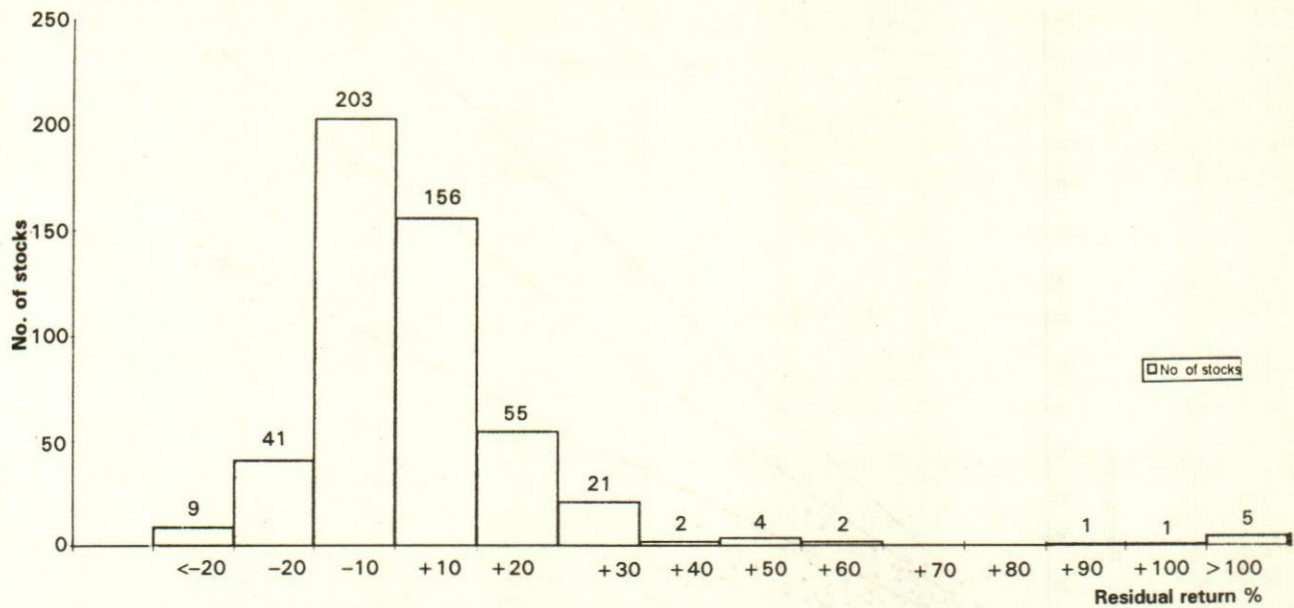


Fig. 1. Frequency distribution of residual return of 500 stocks

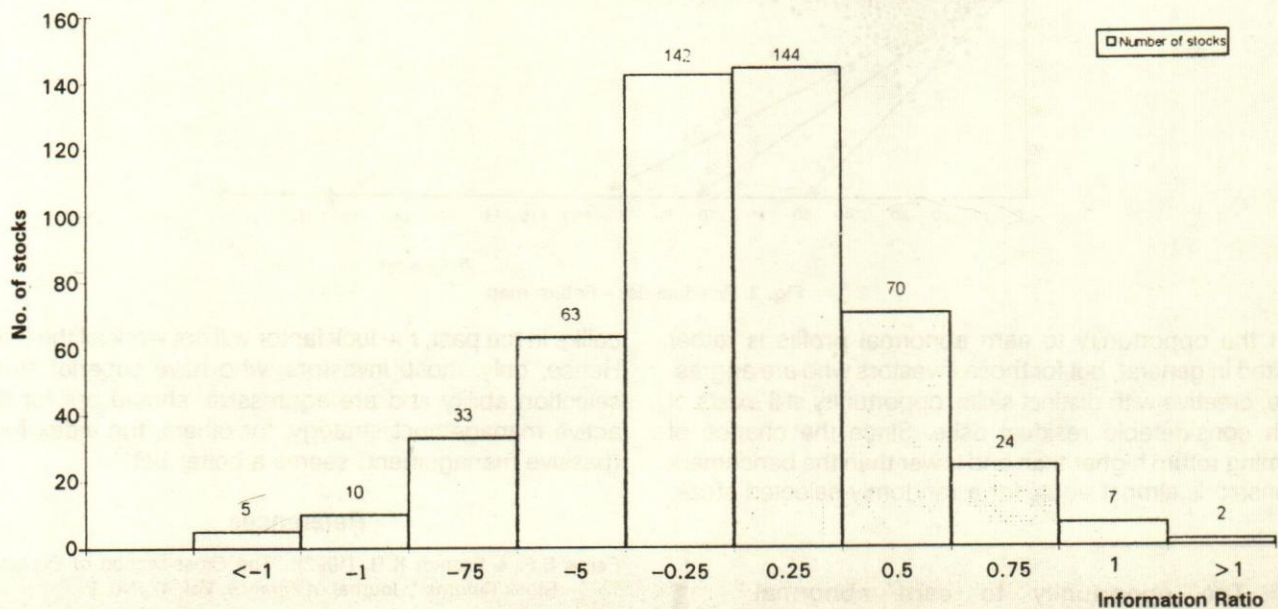


Fig. 2. Frequency distribution of Information Ratio (IR)

The potential for value addition industry-wise for the 18 industries the 500 stocks represent is given in Table 1. It shows the potential to be high for those investors who are aggressive and ready to take very high residual risk (i.e. $\lambda = 0$), and it is almost non-existent for those who are restrained and averse to residual risk ($\lambda = 0.1$). As many as 247 (49.5 per cent) of the stocks studied have promised positive value addition when $\lambda = 0$; but when the level of risk

aversion increases, the number of stocks promising positive value addition have decreased exponentially. Amongst the 18 industries, auto and auto ancillary have evidenced the greatest potential to add value and food, computers and textiles the lowest.

The purpose of this study was to examine the opportunity for earning abnormal profits and potential to add value in the Indian stock market. The results indicated

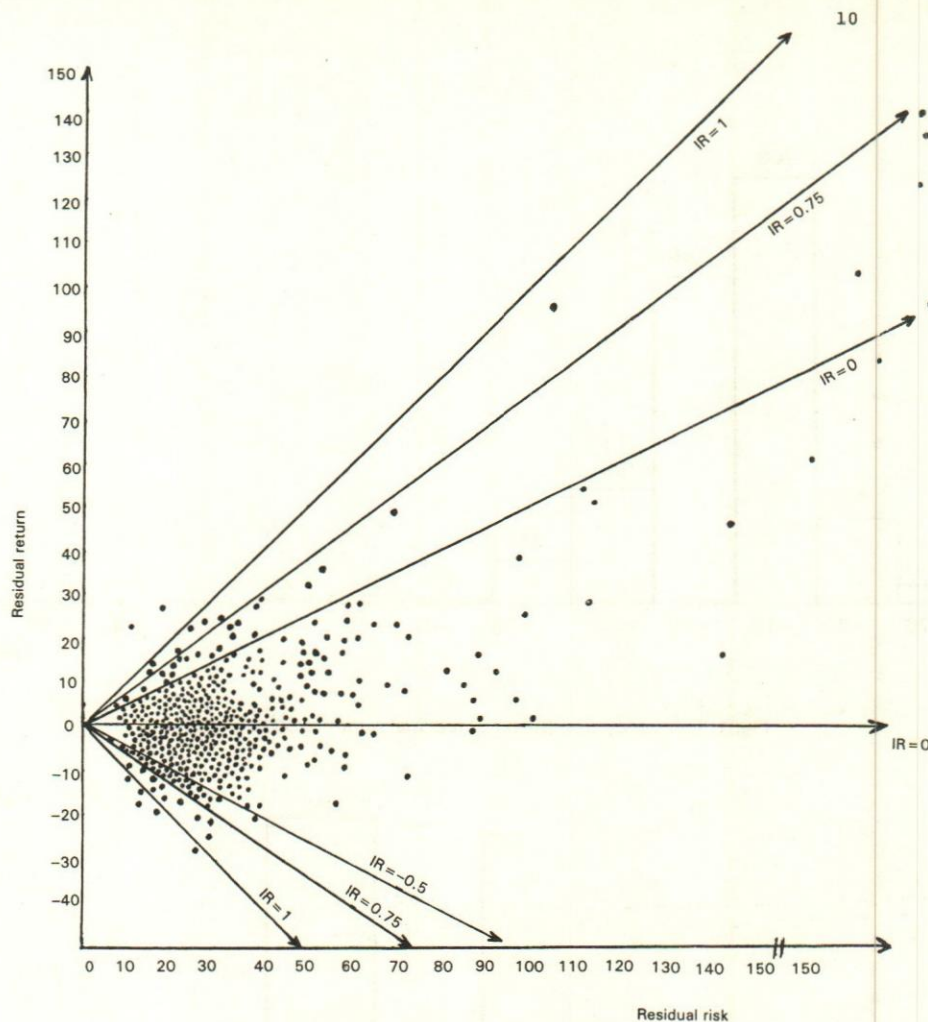


Fig. 3. Residual risk-Return map

that the opportunity to earn abnormal profits is rather limited in general, but for those investors who are aggressive, creative with distinct skills, opportunity still exists of with considerable residual risks. Since the chance of earning return higher than and lower than the benchmark 'Sensex' is almost equal for a randomly selected stock,

unlike in the past, the luck factor will not work all the time. Hence, only, those investors, who have superior stock selection ability and are aggressive, should opt for the active management strategy, for others, the index fund (passive management) seems a better bet.

The opportunity to earn abnormal profits is rather limited in general, but for those investors who are aggressive, creative with distinct skills, opportunity still exists of with considerable residual risks. Since the chance of earning return higher than and lower than the benchmark 'Sensex' is almost equal for a randomly selected stock, unlike in the past, the luck factor will not work all the time.

References

- Fama E.F. & French K.R. (1992), "The Cross-section of Expected Stock Returns", *Journal of Finance*, Vol. 47, No. 2.
- Grinlond R.C. & Kahn R.N. (1995), *Active Portfolio Management*, S. Chand & Company Ltd., New Delhi.
- Jensen M. (1969), "Risk, the Pricing of Capital Assets, and the Evaluation of Investment portfolios", *Journal of Business*, Vol. 42, No. 2.
- Sharpe W.F. et al (1995), *Investments*, Prentice Hall of India, New Delhi.
- Treynor J. & Black F. (1973), "How to Use Security Analysis to Improve Portfolio Selection", *Journal of Business*, Vol. 46, No. 1.
- Varma J.R. (1991), "Is the BSE Sensitive Index Better than the National Index?" Working paper No. 988, Oct-Dec, Indian Institute of Management, Ahmedabad. □

Social Empowerment & Economic Development

Bhaskar Majumder

Economic development denotes expansion of the roles and activities of individuals in an interdependent social framework. Thus, economic development ultimately hinges upon how effectively an individual avails himself of the opportunities the system offers him and how exactly he exercises his choice. Empowerment of people in any society should be rooted in proper planning by the state for expanding the choice available to the people. This requires a vibrant democracy manifest by its qualities elevated from the base.

Empowerment of people in any society starts with fulfilment of their basic needs of life. This empowerment, in turn, is circumscribed by the socio-economic parameters in the given political setting. The empowerment of an individual is expected to enhance the power of the organisation or institution, of which he forms parts, in any society that has developed a system of democratic functioning. By democratic functioning is meant a political system based on dialogues and debates to identify problems and a process of peoples' voluntary participation to solve those problems.

In this perspective, Section we will first analyse what the Approach Paper to the Ninth Five-Year Plan (1997-2002) pledges in the matter of social empowerment, particularly with respect to education and health. We shall then focus on the performance in terms of indicators in these fields, for social empowerment in Indian economy. Finally we shall examine the qualitative indices of empowerment and the potential for economic development.

Social Empowerment: Approach of the 'Approach Paper'

The aspects on social empowerment, as incorporated in the 'Approach Paper', are reflections of the Common Minimum Programme accepted by the United Front Government at the Centre since mid-1996. At the international level, this question on social empowerment cannot be seen in isolation from 'human development' as is being emphasized by the UNDP since 1990. At the national level, the aspects taken up for consideration are recognizing and reorganizing the contents of the Minimum Needs Programme (MNP) and the Revised MNP the economy had the chance to have since the Fifth Five-Year Plan (1974-79), though the difference is that now it has come to be the 'central' aim of growth rather than being its 'appendix' as it previously was.

Bhaskar Majumder is Reader, in Economics in G.B. Pant Social Science Institute, Allahabad-221506.

The Approach Paper echoed what the Eighth Five-Year Plan accepted as a basic proposition, viz. that the ultimate goal of planning and public action is human development (GOI, 1997, p. 16). Human development manifests in the quality of life which encompasses "not only the economic opportunities available to the people, but also their ability to take advantage of these opportunities and the existence of living conditions which permit a healthy and productive life" (GOI, 1997, p. 17). Thus the Approach Paper appreciated a 'participatory planning process' as an "essential precondition for ensuring equity as well as accelerating the rate of growth of the economy" (GOI, 1997, p. 1). The Approach Paper sought to ensure 'growth with equity' via democratic decentralization: "The process of social mobilisation and development of peoples' initiatives cannot be achieved without the active support and involvement of the political system at all levels.... Peoples' involvement via their elected representatives will be realized through genuine democratic decentralization" (GOI, 1997, pp. 13-14).

Human development manifests in the quality of life which encompasses "not only the economic opportunities available to the people, but also their ability to take advantage of these opportunities and the existence of living conditions which permit a healthy and productive life".

While social empowerment is rooted in the promotion of a whole range of aspects, eg. education, health, housing, family welfare, urban development, etc., this paper will focus on education and health, and that again, in terms of some broad aggregates.

Education

The National Policy on Education, 1986 (revised in 1992) declared access to education a fundamental human right. Parallely, primary education got priority during the Seventh (1985-90) and the Eighth (1992-97) Five-Year Plans in the shape of Universal Elementary Education (UEE).

The Approach Paper (1997-2002) pledges to make "the nation fully literate by the year 2005..." (GOI, 1997, p. 81). For which, it outlines the following action plan:

- * 'Mid-day Meal Scheme' to check drop-out;

- * 'Open Learning System' (OLS) for those unable to join the institutional education system;
- * 'Adult Education' through active support from NGOs, local bodies, etc;
- * Teachers' training and quality improvement;
- * Consolidation and optimal utilisation of the infrastructure in existence in the institutional system (GOI, 1997, p. 82);
- * Empowerment of backward social groups through education, consistent with their special needs, eg, hostel facilities, scholarships, etc (GOI, 1997, p. 92); and
- * Participation of NGOs, corporate sector and various other groups to meet the needs of disadvantaged groups, particularly in backward States/districts to have access to UEE.

The Approach Paper professed to earmark 6 per cent of GDP for education by the year 2000.

Health

Regarding Health, the Approach Paper outlined the following action plan:

- * Development of a well-structured organization of urban primary health care to ensure basic health and family welfare services to all inhabitants within 1-2 km of their dwellings (GOI, 1997, p. 87);
- * Development of indigenous systems of medicine to cater to the needs of tribal population (GOI, 1997, p. 92);
- * Control of communicable and non-communicable diseases through utilization of appropriate affordable technology at all levels of health care (GOI, 1997, p. 86);
- * Ensuring accountability to health needs of the people through Panchayati Raj institutions;
- * "Skill upgradation of all categories of health personnel, as a part of structured continuing education" (GOI, 1997, p. 88); and
- * Making use of available local and community resources and encouraging team work.

The Approach Paper pledged to ensure proper sanitation facilities, supply of safe drinking water accessible to all population, and provision of facilities for solid and liquid waste management as part of the Health Development Programme (GOI, 1997, p. 90).

Social Empowerment : Performance by Selected Indicators

People in the Third World countries, including India, have accepted socio-economic insecurity as a fact of life (UNDP, 1995; UNICEF, 1997). However, the Indian perspective needs to be conditioned by the fact of completion of 50 years of her independence.

In the sphere of education, the Eighth Plan took two major initiatives: (a) District Primary Education Programme (DPEP), (b) Nutrition support to primary education (Mid-day meals). The National Literacy Mission (NLM) aimed to make increasing number of people literate by the end of the century (GOI, 1997, p. 81). Table 1 shows the literacy status of people in India for select years between 1970 and 1992.

Table 1: Literacy and Education in India, Selected Indicators, 1970-1992

Indicators	Year	
Illiterate adults (age 15 and above)	1992	271.8 Millions
Illiterate females (age 15 and above)	1992	169.9 Millions
Adult literacy rate	1970	34.0 %
	1992	49.9 %
	1995	52.0 %
Enrolment ratio for all levels, %	1980	40.0 %
	1990	50.0 %
	1992	55.0 %
Pupil-teacher ratio at primary level	1990	47.0
Daily newspaper circulation, copies per 100 people	1992	3.0
Televisions, number per 100 people	1992	4.0

Source: United Nations Development Programme (UNDP), Human Development Report, Oxford University Press, 1995, p. 159, 161, 163, 175; UNICEF, 1997, The State of The World's Children, Oxford University Press, New York.

Increasing enrolment ratio may be taken to indicate enhanced access to education, and increasing adult literacy rate may be taken to mean a higher proportion of potential labourers fit for an industrial economy.

Increasing enrolment ratio may be taken to indicate enhanced access to education, and increasing adult

literacy rate may be taken to mean a higher proportion of potential labourers fit for an industrial economy. While pupil-teacher ratio seems not too high yet in 1990, the figure may be more concealing than revealing the true nature 'quality of education'.

Consideration health, the situation regarding water supply and sanitation over 1985-93 is depicted respectively in tables 2 and 3.

Table 2: Magnitude of Deprivation of People in India, 1985-93

Indicators	Year	Percentage in Total Population
Population without access to		
Health services	1985-93	15
	1990-95	15
Safe water	1988-93	21
	1990-95	19
Sanitation	1988-93	73
	1990-95	71

Source: As in Table 1

Table 3: Availability of Drinking Water and Sanitation Facilities, 1980-92

Item	Percentage of beneficiary population	
	By the End of VI Plan	By the End of VII Plan
Rural water supply	54	about 87
Rural sanitation	about 1	about 3
Urban water supply	72	84.9
Urban sanitation	28.40	47.9
Villages without drinking water ('000)	n.a.	3.0*
Villages partially covered (less than 40 LPCD) +	n.a.	150.0*

* tentative; relates to 1991-92

+ lines per capita per day

n.a.: not applicable

Source: GOI, Planning Commission, Eighth Five-Year Plan, 1992-97, Vol. I, New Delhi, p. 29.

The tables are self-explanatory in their exposition of the vulnerability of the life of people in India.

There can be no trade-off in quality of life between generations. Even so, the socio-economic potential of a nation is best understood by the care its children get in the society. While table 4 shows the general indicators on health, table 5 gives them for children, in particular.

There can be no trade-off in quality of life between generations. The socio-economic potential of a nation is best understood by the care its children get in the society.

In a state of acute malnourishment, undernourishment and high mortality rate of children, indicators like increased life expectancy and reasonable calorie supply have little significance.

Table 4: Selected health indicators for people in India, 1960-1993

Indicator	Year	
Life expectancy at birth	1960	44.0 years
	1992	60.4 years
	1995	62.0 years
Population per doctor	1988-91	2439
Population per nurse	1988-91	3333
Pregnant women aged 15-49 with anaemia	1975-91	88 %
Births attended by trained health personnel	1983-93	33 %
Oral rehydration therapy use rate	1987-93	37 %
Daily calorie supply per capita nutrients	1992	2395 cal
Maternal mortality rate per 100,000 live births	1980-92	460
Malaria cases per 100,000 people	1991	260

Source: Same as in table 1

Table 5: Selected health indicators for children in India

Indicator	Year	
One-year old fully immunized against		
Tuberculosis	1990-93	92 %
Measles	1990-93	82 %
Under-5 mortality rate per thousand live births	1960	236
	1995	115
Infant under-1 mortality rate per thousand live births	1960	144
	1992	82
	1995	76
Underweight children under age-5	1975	71 %
	1990	63 %

Source: Same as in Table 1

It goes without saying that in a state of acute malnourishment, undernourishment and high mortality rate of children, indicators like increased life expectancy and reasonable calorie supply have little significance.

Direct intervention by Government of India in these areas may be seen in terms of its expenditure on education and health as shown in table 6.

Table 6: Public expenditure on education and health, 1960-90

Public expenditure on	Year	
<i>Education</i>		
As % of GNP	1960	2.3
	1990	3.5
As % Government expenditure	1990	11.2
Primary and secondary education as % of all levels	1990	71
Higher education as % of all levels	1990	17
<i>Health</i>		
As % of GNP	1960	0.5
As % of GDP	1990	1.4

GNP – Gross national product
GDP – Gross domestic product

Source: Same as in table 1

Table 7: Investment on education and health as percentage of public sector investment

Sector	Seventh Plan (1985-90)	Eighth Plan Target	Actuals (1992-96)
Education	3.51 (21.98)	4.52 (24.80)	3.89 (23.39)
Medical and public health	1.69 (10.55)	1.75 (9.59)	1.62 (9.69)
Total social sector investment, (Rs. crores)	34960	54890	36647

Note: Calculations are at Seventh Plan Prices

Figures in brackets are percentage to total Social Sector Investment

Source: GOI, Planning Commission, Approach Paper to The Ninth Five-Year Plan (1997-2002), p. 10.

As will be clear, public expenditure on education as percentage of GNP rose by 50 per cent, but from a very low base, during the last three decades of planning (Third

Plan to Seventh Plan). Public expenditure on health remained insignificant during this whole period.

The picture regarding public investment on education and health during the last two Plans is given in table 7.

This low percentage of public sector investment on education, in particular, reflects ultimately on formation of technical manpower, as shown in table 8.

Low percentage of public sector investment on education, in particular, reflects ultimately on formation of technical manpower.

Table 8: Scientific manpower, All India, 1978-1990

Year	Scientists, Engineers & Technicians per thousand population	Scientists, Engineers & Technicians engaged in R&D per thousand population
1978	2.97	0.10
1980	2.63	0.10
1985	3.43	0.20
1990	3.76	0.27

Source: Institute of Applied Manpower Research (IAMR), Manpower Profile, India, Yearbook 1993-94, New Delhi, 1994, p. 29.

Public expenditure on education and health, as they obviously aim at formation of manpower, is dependent on the degree of access people enjoy to the opportunities offered.

Qualitative Indicators of Social Empowerment and the Possibility of Economic Development

Socio-economic opportunities, through access to education and health, as primary determinants of empowerment of people, are limited in a society in which vast majority of people do not participate, to start with, in money-based exchange of commodities and services (Dreze & Sen, 1995). While empowerment of people is conditional upon their power to exercise and reveal their needs and values, in practice it becomes "difficult for persons who live in a condition of acute insecurity and dependence to challenge the inequalities of which they are victims..." (Dreze & Sen, 1995).

To be effective, in any circumstances, this empowerment has to emerge 'from within' and not as a gift 'from

Public expenditure on education and health, as they obviously aim at formation of manpower, is dependent on the degree of access people enjoy to the opportunities offered.

above'. The choice of an individual for a domain of activities surely is not individual centric but centres around the socio-economic development of a group of which the individual is an integral part. The route for empowerment of people in a democracy is shown in fig. 1.

Subject to the existence of the opportunities indicated by the indices, manpower is expected to be built up, to eventually translate into economic development.

Subject to the existence of the opportunities indicated by the indices, manpower is expected to be built up, to eventually translate into economic development.

Economic development denotes expansion of the roles and activities of individuals in an interdependent social framework. Thus, economic development ultimately hinges upon how effectively an individual avails himself of the opportunities the system offers him and how exactly he exercises his choice, say maintaining or by restructuring the system he was initially offered. It could be assumed here that economic development and development of individual proceed together and in parallel.

Each individual is a nucleus, participating in, or abstaining from, activities around him. While people's participation is a necessary condition for the successful functioning of democracy, often providing a counterweight to a bureaucratic state, participation cannot be imposed by one section of people on others (Nun-

While people's participation is a necessary condition for the successful functioning of democracy, often providing a counterweight to a bureaucratic state, participation cannot be imposed by one section of people on others.

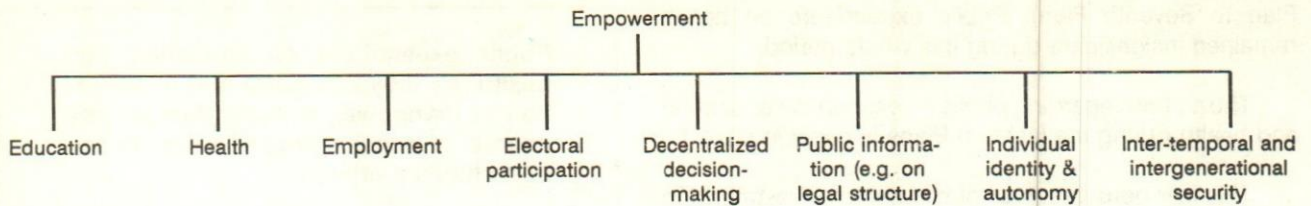


Fig. 1. Indices of Employment

nenkamp, 1995). What causes concern is not the deleterious consequence of non-participation by individuals in government centered mainstream society, but the pressure by the government in alienating these individuals by: (i) disregarding indigenous knowledge in use and orally handed down (ii) recognizing only formal institutional knowledge, and (iii) not recognizing local-level associations formed by so-called illiterate people. The process is reinforced by possession of arms and information (media and public administration). If "the system of formal democratic governance appears dependent upon a formal knowledge system and does not have much space for recognizing and facilitating indigenous knowledge", then disempowerment of people at the base is a logical corollary.

If "the system of formal democratic governance appears dependent upon a formal knowledge system and does not have much space for recognizing and facilitating indigenous knowledge", then disempowerment of people at the base is a logical corollary.

A section of the population may be unwilling to participate in a particular setting or social formation while the same section may be willing to participate in a yet-to-come alternative setting. The Approach Paper seems to have recognized this, rather late than never, as it stresses on "promoting and developing peoples' participatory institutions like Panchayati Raj institutions, cooperatives and self-help groups" (GOI, 1997, p. 17) and "ensuring environmental sustainability of the development process through social mobilisation and participation of people at all levels" (GOI, 1997, p. 16).

The possibility of economic development through empowerment of people, particularly at the base, is not

just a matter of arithmetic of the literacy rate and access to health facilities offered by formal Government funded institutions. The sustainability of development requires something more. In fact, the much talked-about empowerment of people at the base by 'trickle-down' mechanism or 'target-group oriented' approach is a concealment of their non-participation in the power structure (Majumder, 1996, p. 307). If the real intention of the State is not to treat this people at the base as a group of beneficiaries bracketed in the appendix of the divisible power enjoyed by the elite, the state will have to generate 'national power' accommodating the knowledge-base at the bottom. Development of the 'knowledge-reservoir'—led formation of 'national power' is a long-term goal. It involves conversion of historical time into knowledge through institutions and open learning system (OLS), as the Approach Paper did not bypass, for each individual and for the society. Let the 'utilization-of time-converted knowledge' be the basis of empowerment of people and economic development.

Acknowledgement

The author is indebted to Prof. P.K. Chaubey for his valuable suggestions while preparing this paper. However, for the views expressed as well as the omissions and commissions, the author alone is responsible.

References

- Dreze J. & Sen A. (1995), "India, Economic Development and Social Opportunity", Oxford University Press.
- Government of India (1997), Planning Commission, Approach Paper to the Ninth Five-Year Plan (1997-2002), Govt. of India, Delhi.
- Majumder B. (1996), "Market, State and Manpower Planning in the Third World", *Productivity*, Vol. 37, No. 2, July-September.
- Nunnenkamp, Peter (1995), "What donors mean by good governance", *IDS Bulletin*, Vol. 26, No. 2, April.
- United Nations Development Programme (UNDP) (1995), *Human Development Report*, Oxford University Press, Delhi.
- UNICEF (1997), "The State of the World's Children", Oxford University Press, New York. □

Poverty Alleviation: Some Policy Recommendations

Pundarikaksha Mukhopadhyay

Policies of the Indian economy, in most cases, do not address the twin objective of growth promotion and poverty eradication in the same capsule. This paper suggests some policies which can tackle both these problems at the same time. It emphasises on promotion of rural non-agricultural activities by setting up labour intensive small industries at the periphery of the rural and the urban economy. It also suggests suitable public employment schemes which have a two-fold effect of employment generation and infrastructure development. In this respect it prescribes the development of social infrastructure as well.

Pundarikaksha Mukhopadhyay is a Sir John Crawford researcher in the Department of Economics, The University of New South Wales, Sydney 2052, New South Wales, Australia.

Most of the poor in developing countries depend on income from labour—from work on their own land, from wages or from self employment. The countries that have succeeded in reducing poverty over long term have encouraged broad based rural development and urban employment, thereby increasing the returns to small farm production and wage labour. Successful approaches to development, however, have varied according to initial economic conditions.

As labour is an abundant resource in developing countries, encouraging its use is generally consistent with efficient growth. Regrettably in most of the cases, countries have adopted policies that are implicitly biased against labour. But successful rural development requires avoidance of excessive taxation on agriculture, provision for strong support for rural infrastructure and making technical innovations accessible to small farmers. Moreover a rising urban demand for labour (in industry and services) plays an important role. Government can raise urban job creation by providing suitable urban infrastructure.

Successful rural development requires avoidance of excessive taxation on agriculture, provision for strong support for rural infrastructure and making technical innovations accessible to small farmers.

Expansion of agriculture is the main force behind effective rural development which, in turn, lays the foundation for broad based, poverty-reducing growth. The poor benefit directly if they are farmers and indirectly from growth in demand for farm labour and for products of rural non-agriculture (RNA) sector. Especially in low income countries there is a strong association between

growth in agricultural purchasing power and rural wages (World Development Report, 1990). Moreover, agricultural growth helps the rest of the economy. Typically, countries with rapid agricultural growth have also had rapid industrial growth (World Development Report, 1986).

The main policies that affect agricultural performance are taxation and public support for agricultural development. In quantifying taxation it is important to take into account both direct taxes on agricultural products and indirect taxes that are implicit in industrial production. Other aspects of policy may add to the bias against labour. Credit subsidies, for instance, foster excessive mechanisation and research suggests that they have reduced the demand for farm labour in India. A highly unequal land distribution also limits the extent to which the poor gain from agricultural growth.

The goals of Indian planning emphasise a steady rate of growth of 5 to 6 per cent per annum, a continuous and perceptible improvement in the standard of living in the future, a more equitable distribution of income and wealth, a balanced pattern of regional development, lesser dependence on foreign aid, which are to be achieved by pursuing policies of export promotion and import substitution in basic, heavy and defence industries within the object of building a strong industrial base of the economy. There is no doubt that a judicious and harmonious process of development requires a balancing of these objectives. It would, at this point, be worthwhile to outline the contours of an employment oriented strategy which not only makes for an overall development of the country but also a more equitable distribution of wealth.

Data on employment elasticity of the Indian economy indicate that a 1 per cent growth in GDP was accompanied by 0.6 per cent growth in employment during 1972-73 and 1977-78. This figure continued to be reasonably high at 0.55 per cent during the next five years, i.e. 1977-78 to 1982-83, but steeply declined to 0.38 per cent during 1983-84 to 1987-88. To achieve a 4 per cent growth of employment, where population is growing at nearly 2.5 per cent rate, would require, on the basis of employment elasticities of the eighties, 10.5 per cent growth of GDP per annum which is totally unrealistic. Thus, it is necessary to attack the problem from a different angle.

There is a tremendous increase of non-agricultural employment in rural areas in India. This trend needs to be strengthened further with an orientation towards growth so that the employment generation potential of rural areas can be realised. This can be done in two ways—firstly, by setting up labour intensive small

industries at the periphery of rural and urban economy and secondly by suitable public employment schemes.

Employment generation potential of rural areas can be realised in two ways—by setting up labour intensive small industries at the periphery of rural and urban economy and by suitable public employment schemes.

Rural Industrialisation—Diverse Schemes

To relieve unemployment and under-employment in rural areas, a programme of rural industrialisation has to be launched, of course, after due deliberation of the type of industries to be started, their location their organization as viable units, etc. Understandably, such a programme would primarily envisage processing of agricultural produce near its place of origin so that rural labour gets gainfully employed.

Processing rice (at Andhra Pradesh, West Bengal), wheat (Punjab, Haryana, UP) cotton ginning (Maharashtra, Karnataka, MP), oil extraction (UP, MP, Maharashtra) production of milk and milk products (Gujarat), extraction of sugar (UP) are some examples of industries which can be created to provide full time employment to a large number of people. They can also serve to provide supplementary part-time employment to farmers and their families.

Small scale units for fruit and vegetable processing, such as canning and preservation, preparation of jams, pickles and other food products can also be set up which can absorb quite a large number of persons. Indeed, the first phase of packaging in some cases can be done at the very location of production, which will serve the twin purpose of preventing spoilage and providing employment.

And then there are a number of by-products which can serve as raw materials for manufacturing industries. Notable among them are molasses for making alcohol, bagasse; rice husks; broken rice for wine making and rice bran for making oil, etc. These industries offer good scope for rural employment.

Cottage and village industries also have a good scope for development. Already village handicraft products, mainly of West Bengal, Bihar, Orissa, Gujarat, Rajasthan, Haryana, Assam, Andhra Pradesh, have started earning foreign exchange. This needs to be encouraged further.

Village industries, which manufacture agricultural implements, such as ploughs, picks, shovels, wheel-barrows, can suitably expand and diversify their feeder production to serve as industries for the large scale sector. For instance, certain components of agricultural machinery and other equipment can be produced by them to given specification.

Village industries, which manufacture agricultural implements, such as ploughs, picks, shovels, wheel-barrows, can suitably expand and diversify their feeder production to serve as industries for the large scale sector.

The growing interdependence of agriculture and other sectors is a feature fundamental to the structural transformation process. This predicated an expansion in the production and commercial sales of food rapidly enough to meet the requirements of the growing non-agricultural population. It is also widely recognised that in most instances it is important to achieve a net transfer of resources from agriculture to the faster growing non-agriculture sector. And stress has been placed on the so called contribution of agriculture in providing a major part of the additional labour required by the non-agriculture sector. However, owing to the demographic characteristics of our country, it is pertinent to emphasise on the reciprocal contribution represented by the expansion of employment opportunities in the rural non-agricultural (RNA) sectors, because it is this increase in off-farm opportunities which initially attracts the farm labour force and eventually permits a reduction in their numbers.

There is however, another facet of this interdependence between agriculture and non-agriculture which has received less attention. It is the fact that the level and composition of inter-sectoral commodity flows largely determine the agricultural sector's demand for non-agricultural products. This pattern of rural demand exerts a strong influence on the type of manufacturing growth it spurs. On the demand side, restricted purchasing power constrains the agricultural sector's demand for inputs from outside. The extremely low level of farm cash receipts and expenditure illustrates how the existing economic structure limits the volume of inter-sectoral commodity flows.

Such constraints on the level of inter-sectoral commodity flows owes to low productivity and larger dependency on agriculture. The result is a low marketable surplus and thus low income.

The level and composition of inter-sectoral commodity flows largely determine the agricultural sector's demand for non-agricultural products.

Further, whether or not a country's agricultural strategy engenders a wide participation of the rural population in technical and economic advance will decisively influence the rural demand for consumer goods as well as farm inputs; these, in turn, largely the pattern of industrial expansion.

Rural Employment—Its Wherefores

Rural public employment schemes have two functions: firstly creating and maintaining rural infrastructure, e.g. roads, tanks and the like, soil conservation, afforestation, etc., secondly and more importantly at that, poverty alleviation through employment to those in need. Public employment schemes implemented in this context are often cost-effective, owing to the low wages, at which they can be got done. Further these benefit the poorest among the poor. For instance in the Maharashtra Employment Generation Scheme (EGS), the proportion of participants with income below poverty line was no less than 90 per cent in the 1980s. Indeed, such schemes attract people who are often excluded from other programmes. Many countries in Latin America and Sub-Saharan Africa run similar programmes. A small sample survey in the region may be able to answer the important question whether these schemes are more cost-effective than food pricing and food distribution policies.

Since these schemes usually produce economic assets, such as roads, they have second round effects on the income of both the poor and non-poor. Other second round effects are possible too. The EGS may push up wages in general. Rural public employment schemes in particular may help labour markets to work better by reducing wage differentials between the sexes and ethnic groups.

Since EGS are partly intended to absorb economic shocks, recourse to it has been highly seasonal and varied from year to year—although this variability has declined as the scheme has grown and the wage rate has risen (World Bank Development Report, 1989). By providing work, and thus increasing the purchasing power, EGS have not merely raised the average earning through the year but also reduced the fluctuations from month to month.

By providing work, and thus increasing the purchasing power, EGS have not merely raised the average earning through the year but also reduced the fluctuations from month to month.

Public programmes to provide services, infrastructure, research and technology for agriculture have a decisive influence on the level and pattern of agricultural growth and on private investment in the sector. A study of 58 countries by the World Bank during 1969-78 found that a 1 per cent increase in irrigation coverage was associated with a rise in aggregate crop output of 1.6 per cent and that a 1 per cent increase in paved roads was associated with a rise in output of 0.3 per cent. Investment in infrastructure also helps improve and maintain natural resources. Cost effectiveness, however, is important. An analysis of completed World Bank supported projects to create infrastructure in agriculture found that economic rates of return averaged 17 per cent, well above the 10 per cent deemed to qualify a project as successful.

Infrastructure—The Prime Mover

Better infrastructure can lead to increased productivity, technical upgradation strengthened marketing linkages. Irrigation and water control have been crucial for higher yields (through the adaptation of modern varieties and multiple cropping) and reduced variability of output in the past 20 years. Although landowners might benefit most from the above, absolute gains from infrastructure can be widely dispersed. In Andhra Pradesh, for example, the monthly per capita expenditure of small farm units and wage earning households in 1983 was 35 per cent higher in the irrigated than in the non-irrigated districts. A World Bank study of 16 villages of Bangladesh shows how development of infrastructure affects the incomes of rural households. The study divides the villages into those that benefited from the provision of public infrastructure and those that did not. With other factors controlled, it was found that greater infrastructural development was associated with one-third increase in average household incomes. Crop income increased by 24 per cent, wage income by 92 per cent and incomes from livestock and fisheries by 78 per cent what was more, these changes largely benefited the poor. Roads, electricity and other economic services encouraged production of new farm products (including perishable commodities) and higher output in transport, construction services and small scale industries. All these have a substantial effect on the pattern of labour demand. Although households worked roughly as many

days a year in the developed as in the undeveloped villages, in the former they spent less time on family labour, which had low implicit returns, and much more on wage labour, especially in the relatively higher paying RNA sector. Poor households with few physical assets, including landless households, gained substantially.

Infrastructural projects normally benefit a majority, but sometimes they can also affect certain sub-groups adversely unless planners anticipate and counter the ill effects. For instance 39 dam projects approved by the World Bank in 27 countries during 1979-85 brought considerable benefits to the poor in the common areas but also entailed relocation of about 7,50,000 inhabitants of the reservoir areas. Such displacement can cause profound distress, disruption of social and productive structures, aggravate poverty and environmental damage. But stopping such projects on this score is no solution and the motive of the activists in confronting the government and the aid agencies is anti-growth to say the least.

Infrastructural projects normally benefit a majority, but sometimes they can also affect certain sub-groups adversely unless planners anticipate and counter the ill effects.

In an earlier paper it was reported that the eastern states' contribution to the total poverty in India is more than 40 per cent during recent times (Mukhopadhyay P. 1994, pp. 148-56). These states, viz., Assam, Bihar, Orissa and West Bengal present a problem situation in Indian agriculture. Their 171 million rural population constitutes 27.3 per cent of the total rural population of India but they account for only 15.65 per cent of the total arable land, 17.8 per cent of the gross cropped area, and 15.7 per cent of the total irrigated crop area of the country. On the other hand, all the crop land (excepting about 6 per cent in Bihar) in these states is located in high rainfall regions (i.e., with an average annual rainfall of more than 1100 mm), and about 24 per cent of the ultimate irrigation potential of India is located in these four states. Despite the larger share of the region in ultimate irrigation potential, it appears that three of the four states, viz. Assam, West Bengal and Orissa, have at present a much smaller percentage of their gross cropped area irrigated than the percentage for India as a whole (30 per cent)—it is 15, 24 and 24 respectively for the three states. Only Bihar has 34 per cent of its crop area irrigated. The ultimate irrigation potential of these states is much higher than for India: for Bihar it is 100 per cent and for the others it varies

between 64 per cent and 75 per cent. Which means, that these states have a long way to go in the extension of irrigation, both from surface and underground sources. Investment directed towards this objective will not only increase agricultural output but employment also will be generated through public works programmes and the grim poverty will be eradicated.

The western part of India (covering Gujarat, Maharashtra, Madhya Pradesh and Rajasthan) also accounts for nearly 30 per cent of India's rural poverty. In this context, the Sardar Sarovar project will be extremely helpful in both achieving growth and poverty alleviation. Resettlement plans may become integral components of such projects, which may also include funds for acquiring land and providing infrastructure and services for the resettled areas.

It is observed that RNA activities typically account for 20-30 per cent of rural employment in India (as is also the case for Asia and Latin America and 10-20 per cent for Africa according to World Bank Report). If rural towns also are included, the proportion rises substantially. Employment in RNA in India grew to 30 per cent since 1970s (compared with 14 per cent for employment in agriculture); without that growth, rural wages would have risen much more slowly. In Kenya, among small holder families, per capita income from RNA sources climbed 14 per cent a year between 1974-75 and 1981-82; incomes from RNA employment rose only 3 per cent a year. Although the RNA sector has often expanded faster than the farm sector, agriculture should be the key to the growth of non-farm activities as well. As expanding farm economy would demand inputs from and supplies of raw material to transport, processing and marketing firms, rising farm incomes would lead to greater demand for consumer goods and services.

RNA activities typically account for 20-30 per cent of rural employment in India (as is also the case for Asia and Latin America and 10-20 per cent for Africa according to World Bank Report).

Poor farmers typically have less access to public infrastructure than the more prosperous ones. Rural roads and electricity, for example, are first extended to the relatively well-off-sections. Supply of water to marginal farmers is especially erratic and inadequate. The low quality of canal construction and maintenance mean that surface irrigation reaches only a fraction of the intended area. Further, small farmers cannot afford deep wells, tube wells or pump sets.

Although the RNA sector has often expanded faster than the farm sector, agriculture should be the key to the growth of non-farm activities as well.

The distributive characteristics of the assets created are much harder to assess. For the purpose of analysis, all types of projects generally undertaken in public works programmes can be divided into three categories. *First*, directly productive projects, such as drainage or irrigation projects which increase production on existing land and therefore benefit only those who hold land. These projects are most highly productive in benefit-cost terms but in most cases are the least desirable in the distributive term. The most effective type of project from distributive point of view is land reclamation, if the reclaimed land is given to the landless or near landless. *Secondly*, economic infrastructure, upon which most special public works programmes concentrate. Feeder roads are probably the most common, but they do also include conservation or market construction. These projects distribute the benefits more widely but generally the benefits accrue in greater proportion to those who already possess productive assets. *Thirdly*, social infrastructure which has potentially more wide spread benefits. Schools, clinics or drinking water supplies can be of substantial benefit to all rural citizens whatever their prior economic position. However, there are some social factors that may, but will not necessarily, discriminate against the poorer groups in taking advantage of these facilities. Poorer families need to use their children on the fields during part of the year. They may not be able to pay school fees or to buy the necessary resources to enable their children attend school.

Thus, the distributive benefits of projects carried out under special public works programmes may vary greatly depending on the existing distribution of income and productive assets in the area where the projects are implemented. For example, if the project area is almost

If the project area is almost exclusively inhabited by small farmers who are a target group, they will benefit from the assets, and the distributive benefits of wages are relatively less important. On the other hand, in an area dominated by large landlords, wages may be about the only benefit available to the target group.

exclusively inhabited by small farmers who are a target group, they will benefit from the assets, and the distributive benefits of wages are relatively less important. On the other hand, in an area dominated by large landlords, wages may be about the only benefit available to the target group.

The lessons from recent experience in rural infrastructure and technology programmes in several countries are broadly as follows. Local institutions can mobilise resources, such as savings and labour. They can help to ensure that project benefits reach the poor, that specific local needs are met, and that the projects remain financially viable. Successful programmes have not realised exclusively on government agencies, which can provide effective central support, but often lack both in field staff and the flexibility to work at the local level. Instead, they have employed a combination of institutions, that is, non-government organisations, private operators and local groups. Large programmes that start as pilot projects seem to have a better chance of success. A pilot may slow down the process and use up valuable management time, but the benefits usually outweigh the costs.

A model development pattern for poverty alleviation should be based on policies that provide opportunities to the poor and make them partners in growth.

A model development pattern for poverty alleviation should be based on policies that provide opportunities to the poor and make them partners in growth. Broadly, they should be conceived on the following lines:

- Policies to be economy-wide and sectoral and encourage rural development as well as urban employment. This would require moderate taxation in agriculture and relatively undistorted product and factor markets; also public provision of infrastructure and an environment to enhance rural non-farm activities at the periphery of rural and urban economy.
- Facilitate participation of the poor in growth by increasing their access to land, credit and public infrastructure and services. Since subsidised credit programmes have failed to reach the poor, alternative approaches like group lending. Stress on extending credit facilities and imparting training in specific rural-non-agricultural activities of geographical advantage.

- Adopt a different approach for since the core potential for growth regions is limited whereas the population is on the rise. For example, policies that facilitate outmigration of labourers and availability of food grains. Additional investments, probably with government subsidies, will still be necessary to meet basic needs and maintain or increase yields.

A Balanced Strategy – Directions

Discussions of policy towards the poor usually focus on trade-off between growth and poverty. But, with appropriate policies, the poor can participate in growth and contribute to it, and when they do, rapid declines in poverty are consistent with sustained growth. Even so, such policies have not been adopted by countries. The strategic choices that government makes, draw from both economic and political considerations. Policies that help the poor but impose costs on the non-poor will encounter resistance whether or not they increase national income. The high-income strata are usually so politically powerful and vocal in their demands, that they strongly influence policy. Given this situation, granting the poor a greater say in local and national decision making would help restore balance. But since political power derives from economic power, it is important to design poverty reducing policies that will be supported, or at least not strongly resisted by high income class.

Carrying out reforms intended to reduce poverty is not simply pampering the poor at the expense of the non-poor. In Argentina, Chile and Peru, success of tax and other policy reforms to benefit poor has generally depended on the stance of white-collar workers, professionals, bureaucrats, and small and medium size business interests. Redistributive policies are more likely to succeed when these sectors shared in the transfers directed primarily to the poor. The Maharashtra EGS transfers income from urban non-poor to the rural poor, but it still enjoys wide political support, for the urban non-poor see the reduction in

Granting the poor a greater say in local and national decision making would help restore balance. But since political power derives from economic power, it is important to design poverty reducing policies that will be supported, or at least not strongly resisted by high income class.

migration to Mumbai as a benefit, while rural land owners look upon the schemes favourably because the schemes help to stabilise the rural labour force and create infrastructure in the country side. But the contrary happened in Sri Lanka's food stamp programme during 1979-80.

Thus political economy of poverty apart, transferring income from the high income class, who are the major contributors to the household savings of the country, to the poor will bring down national savings. Which will mean slower economic growth.

Thus, while rejuvenating RNA Sector, this aspect of politics of poverty cannot be ignored. The planners, therefore, should keep these aspects in view while making plans for employment generation of the rural poor and growth of the Indian economy.

References

- Mukhopadhyay P.** (1994), "Rural Poverty in India—Time Trend, States' Share & Policy Implications", *Productivity*, Vol. 35, No. 1, April-June.
- World Bank, *World Development Report*, Oxford University Press, New Delhi (Various Years). □

Seed Policy in India – An Overview

M.S. Sidhu, S.S. Grewal & J.R. Gupta

Surveying the evolution of the country's Seed Policy since the First Five-Year Plan, down to the impending GATT regime, the article places in perspective the landmark legislations and programmes which have helped develop and regulate the country's seed industry along scientific lines. It examines in particular the implications of the GATT for the Indian farmer who is rightly jealous of his rich plant variety while eager at the same time to import new seed varieties developed elsewhere. How apparent conflict of interests between the hard-headed native farmer and the no less perspicacious multi-national seed majors is being sought to be resolved through an ingenious legislation is also discussed in detail.

Amongst the inputs used by farmers, seed is a relatively cheaper one for most crops and forms only a small part of the cost of cultivation. Yet, on this vital input, depends the returns from other costly inputs like farm machinery, irrigation, chemical fertilizers, pesticides, labour. Much of the farmer's efforts and investment would become infructuous if quality seeds are not used.

The story of green revolution in India centres primarily around an exponential increase in wheat production triggered by the introduction of high yielding semi-dwarf Mexican wheat varieties. In terms of benefits to the country, the green revolution has brought prosperity, stability and confidence not only in agriculture but in the economic well-being of the country as a whole. The seed acted as a catalyst for changes in several sectors. Since the high yielding varieties (HYV) and hybrids are input-intensive, several industries like seed, fertilizer, pesticide, agricultural machinery, also have developed in a big way.

Since high yielding varieties (HYV) and hybrids are input-intensive, several industries like seed, fertilizer, pesticide, agricultural machinery, also have developed in a big way.

M.S. Sidhu is Assistant Economist (Marketing) and S.S. Grewal is Professor of Economics (Retd.), Department of Economics and Sociology, Punjab Agricultural University, Ludhiana-141004. J.R. Gupta is Professor of Economics, Department of Economics, Punjabi University, Patiala-147002.

Seed multiplication programmes thus far have been formulated and implemented with government initiative, efforts and infrastructure. For the success of these programmes, Government of India and the State governments have been undertaking various promotional measures. In this regard, research stations have been set up under the Indian Council of Agricultural Research (ICAR) and Agricultural Universities have taken up breeding programmes for all the major crops grown in their respective areas. Genotypes have been imported from abroad. The National Seeds Corporation (NSC) was set up in 1963 to

promote the development of seed industry from production, through processing, storage and marketing and onward to establishing a system of quality control. *The Seeds Act* was promulgated in 1966. In 1975-76, the National Seeds Programme (NSP) was launched and seed production was decentralised.

Government of India announced the New Policy on Seed Development (NPSD) in 1988 to help Indian seed industry grow. The policy was aimed at benefitting farmers by giving access to the best available seed and planting material available anywhere in the world. Another development was the signing of the General Agreement on *Tariffs and Trade* (GATT) by the Government of India in April 1994. But this has given rise to several doubts and apprehensions in the minds of farmers, researchers and administrators. For instance, the impact of India being a signatory to the GATT needs to be understood properly. The present study was undertaken in this context to examine the evolution of seed policy in India over the years.

Historical Backdrop

In India the need for improving the system of multiplication and distribution of seeds was first felt by the Royal Commission on Agriculture (1926). Though some policy action was initiated on the recommendations of the Commission, the activity received fillip only in the post-independence period when the government initiated a series of measures through its successive Five-Year Plans.

In India the need for improving the system of multiplication and distribution of seeds was first felt by the Royal Commission on Agriculture (1926).

First Five-Year Plan

At the start of the country's First Five-Year Plan, the seed status was not far different from what obtained in the thirties (Mehta *et al*, 1973). The mechanism of production and distribution of pure seed was generally the same in all the states. A variety was bred and nucleus seed produced on government farms (Govt. of India, 1952, p. 252). It was then multiplied in two or three stages through two or three classes of cultivators, usually termed 'A', 'B' and 'C'. The seed from government farms was handed for multiplication to 'A' class cultivators. The seed so multiplied was then made over for further multiplication to 'B' class cultivators after

which it was distributed to the farmers (seed users). In some states, however, there was a third stage of multiplication. It was noticed that larger the number of intermediate stages, the less pure the seed available for distribution. Failure to rogue properly, contamination with other grains and improper storage were some of the causes of the loss of purity and viability.

Larger the number of intermediate stages, the less pure the seed available for distribution.

Some states had legislated that making use of improved seed was obligatory. In some states, the collection and distribution of pure seed was handed over to cooperatives but the results were not entirely satisfactory. In Punjab, where pure seed was collected along with other grains in the course of monopoly procurement, there were complaints of seed deterioration. The Planning Commission then recommended that multiplication and distribution of pure seed required decentralization as far as possible so that nucleus seed could be made to reach every single village or group of villages. The Commission also recommended location of one such seed farm in each Block of a community project, i.e., one for every group of about 100 villages. These farms could supply pure seed to the surrounding villages, and the duty of multiplying that seed and making it available for local distribution was that of large farm holders. Consequently the supply of pure seed for food crops improved somewhat but the main stress was on their propagation as part of the 'Grow More Food' campaign. In spite of all this, the overall progress made during the First Plan period was poor and the seed programmes were confined primarily to seed distribution.

Multiplication and distribution of pure seed required decentralization as far as possible so that nucleus seed could be made to reach every single village.

Second Five-Year Plan

During the Second Plan, use of improved seed was made the basis for 10 per cent additional foodgrain production. That each National Extension Service Block would have a seed farm and a seed store was laid down as a policy in the Plan which envisaged setting up 4328 ten-hectare farms totalling to 43280 hectares for seed

multiplication. Seeds produced at local farms were issued to the cultivators after passing through one or more stages of further multiplication at farms belonging to registered seed growers (Govt. of India, 1956, p. 270). A seed multiplication and distribution programme was developed so as to be able to meet the full requirements of the extension area. Seed testing stations were also set up with a view to ensuring and enforcing quality standards for certain categories of seeds, especially for vegetable production programmes. Plans for setting up cooperative seed stores were also drawn up by several states.

An outlay of Rs. 18 crore towards seed programmes was provided during the Second Plan. Unlike in the First Plan, 93 per cent of the total outlay was earmarked for seed farms and the remaining 7 per cent for seed distribution. About 87 per cent of the Plan provision was utilized on the establishment of seed farms during the first four years ending 1959-60. Though this allocation appeared satisfactory, it did not translate into a corresponding or proportionate level of achievement of the physical targets. For, the provision for the cost of land, among others, was raised subsequently and only 2551 seed farms commenced functioning during the Second Plan period.

It may be mentioned that 8459 thousand quintals of improved seeds was distributed in the country during 1956-60 as against 1692 thousand quintals during the First Plan period (1951-56). The first Agricultural University in the country was up at Pant Nagar in Uttar Pradesh during the Second Plan to strengthen agricultural research.

The first Agricultural University in the country was up at Pant Nagar in Uttar Pradesh during the Second Plan to strengthen agricultural research.

Third Five-Year Plan

Establishment of seed farms in all Development Blocks to meet the requirement of foundation seed of improved varieties was one of the principal programmes undertaken during the Second Plan. About 800 seed farms were expected to be established in the early years of the Third Plan (Govt. of India, 1961, p. 312). Although, on an average, an area of 10 hectares for a seed farm was at first indicated, a fair proportion of seed farms were of larger size. At the larger farms, it was easier to provide technical personnel of the req-

At the larger farms, it was easier to provide technical personnel of the requisite qualification and to undertake production on a more economical basis.

uisite qualification and to undertake production on a more economical basis. At the end of the Second Plan, the area under food crops covered by improved seeds was estimated at 22.26 million hectares, which was expected to increase to 59.89 million hectares in the course of the Third Plan. While registered seed growers had a valuable role to play in the multiplication of improved varieties of seed, the aim behind formulating block and village agricultural plans was to ensure that every village produced its own requirements of improved seed, either on a cooperative basis or making use of the better farmers. Government of India established the National Seeds Corporation (NSC) in 1963 with the main objective to develop a sound and healthy seed industry, employing scientific tools and techniques and modern management systems. The Punjab Agricultural University was also established during the Third Plan (in 1962) to strengthen the agricultural research, teaching and extension education in the State.

The aim behind formulating block and village agricultural plans was to ensure that every village produced its own requirements of improved seed.

HYV Programme

The High Yielding Varieties programme was launched by the Government of India on a massive scale in the country during *Kharif*, 1966. This programme had an almost explosive impact on the infant seed industry and necessitated huge efforts in seed production, processing certification, testing, storage, distribution, etc. The NSC, the Agricultural Universities, state departments of agriculture and private entrepreneurs cooperated excellently and ensured that seed did not become a limiting factor in the successful implementation of HYV programme (Mehta et al., 1973).

The HYV programme had its maximum impact in the case of wheat with rice coming next. Being more energetic, the farmers of Punjab were fast in adopting the HYV programme compared to the rest of India. It

Being more energetic, the farmers of Punjab were fast in adopting the HYV programme compared to the rest of India.

may be mentioned here that the area under HYV of wheat and rice was 3.54 and 1.38 per cent respectively of the gross area under the crops in Punjab during 1966-67. The corresponding figures for India as a whole were 4.21 and 2.52 per cent. But whereas the area under HYV of wheat and rice increased sharply to 72.65 and 68.89 per cent respectively in Punjab during 1971-72, for India as a whole, the corresponding figures were only 41.07 and 19.62 per cent. Again within the next five years (1976-77) while the area under HYV of wheat and rice in Punjab rapidly rose to 90.49 and 88.24 per cent, it was 69.41 and 34.64 per cent for India as a whole. Thus, the farmers of Punjab adopted the HYVs of wheat and rice quite fast. So much so that by 1992-93, whereas almost the entire area under wheat (99.91 per cent) and rice (92.14 per cent) was covered under HYVs in Punjab, for all India, these figures were 91 and 68 per cent respectively. The progress in other crop was comparatively less.

Annual Plans

Serious efforts were made during the three Annual Plans of 1966 to 1969 towards the rapid development of seed programmes in the country. Notable policy measures taken during the period were the constitution of the 'Seed Review Team' in 1967 and enactment and enforcement of seed legislation in the country.

Seed Review Team (1968)

Government of India appointed a 'Seed Review Team' under the chairmanship of Shri I.J. Naidu (then Joint Secretary to the Government of India, Department of Agriculture) in 1967 with specific terms of reference covering all aspects of seed programmes in the country. The Team, made a thorough review of the contemporary status of seed industry in the country as well as in the USA, UK, the Netherlands, Sweden, Japan and the Philippines. The Team's Report (1968), which became one of the most comprehensive documents on the subject, contained 101 recommendations. The following were a few salient among them.

In the long run, the 'breeder's right' system would be desirable as a means of encouraging private research. NSC for its part should continue as a national

agency for the production of foundation seed of hybrids, while other specialized agencies with suitable facilities, like Agricultural Universities might also be developed for the purpose. There should be compulsory registration of varieties marketed as seeds and elimination of varieties of doubtful value. Pre-release publicity ought to be avoided. ICAR should lay down standard procedures for the production of breeder seeds. "Seed certification agency should be independent from the one producing or selling seeds, on the one hand, and the agency enforcing The Seeds Act on the other". The role of each agency in the field of seed industry might be specifically defined and purchase prices paid to the seed growers and sale prices charged from the farmers should ordinarily be regulated by market forces (Govt. of India, 1968, pp. 33-41).

"Seed certification agency should be independent from the one producing or selling seeds, on the one hand, and the agency enforcing The Seeds Act on the other".

Most of the Seed Review Teams recommendations were accepted by the government and policy actions were accordingly taken.

Seeds Act, 1966

The Government of India, having established the NSC in 1963, also felt the need to have some sort of legislation to regulate the quality of seeds, in order to see that the farmers' faith in high quality seeds was sustained. The original seed bill was introduced in the Parliament in 1964. It was decided to refer this bill to a Joint Select Committee. After extensive consideration of all issues. *The Seeds Act* was passed by both Houses of Parliament in 1966, keeping in view the recommendations of the Select Committee. *The Seeds Act, 1966* that finally emerged had some major changes as compared to the original seed bill (Rajan, 1988). It was felt that in the initial stages, there ought not to be too many restrictions on what could be done and what could not be done. It was stipulated that seed production and marketing programmes should be developed on an extensive scale to reach out to millions of farmers. Thus, *The Seeds Act*, as finally passed, did not contain provisions for licensing of seed dealers and compulsory certification of any class of seeds, especially hybrids as originally contemplated.

The Seeds Act came into effect in 1969 after the introduction of Seeds Rules in 1968. The major objec-

The Seeds Act, as finally passed, did not contain provisions for licensing of seed dealers and compulsory certification of any class of seeds, especially hybrids as originally contemplated.

tive of the Act was to regulate the quality of seeds of notified kinds of varieties¹. Different varieties could be notified for different areas of the country. *The Seeds Act* provided for a system of certification of seeds on a voluntary basis. Such certification was possible only in respect of notified varieties. *The Seeds Act* provided for compulsory truth in labelling of seeds (Rao, 1988). A number of seed testing laboratories, agencies for seed certification and seed law enforcement came into existence. A Central Seed Committee and a Central Seed Certification Board with its sub-committees were also constituted to advise the government for laying down minimum standards for seeds and also providing guidelines about certification of seeds so that uniformity could be maintained throughout the country.

In the course of enforcement of *The Seeds Act*, many lacunae were observed. For example: (a) It did not provide for licensing and registration of dealers whereby it became difficult to enforce the Act in the absence of a system of licensing and registration; (b) The provision of minimum germination standard did not really give a choice of selection to the farmers with respect to a variety which would give the maximum germination; and (c) The enforcement of *The Seeds Act* was restricted to the notified kinds or varieties and excluded others.

It may be noted that *The Seeds Act* was applicable to seeds and propagating material only of food crops (including edible oilseeds, pulses, sugar and starches, fruits and vegetables), cotton and fodders. The release of varieties of sugarcane, tobacco, arecanut and spices was governed by their respective directorates. Similarly, variety release in the case of tea, coffee, rubber and cardamom was regulated by their respective boards. Because of this multiplicity of authority, many aspects regarding seed research, production, introduction, release and registration of varieties were not governed by uniform standards.

Based on the experience gained in the application of the various provisions of *The Seeds Act* and the

1. Kind means one or more related species or sub-species of crop plants each individually or collectively known by one common name, such as wheat, paddy, maize, potato, etc.

Seeds Rules made thereunder, and responsive to the suggestions received by the government from various concerned quarters, several amendments were made in *The Seeds Act* and the Seeds Rules from time to time. First of all *The Seeds Act* was amended in 1972 to establish a Central Seed Certification Board which would coordinate the work of the State Seed Certification Agencies (Govt. of India, 1985). The Seeds Rules were amended in 1973 to bring in analysis of the seed samples in accordance with the procedures laid down in the Seeds Testing Manual published by ICAR as amended from time to time. The Seeds Rules were further amended in 1974 to entertain complaints by the farmers against seed quality and to enable appropriate action by the seed inspector on that basis.

The Seeds Act was amended in 1972 to establish a Central Seed Certification Board which would coordinate the work of the State Seed Certification Agencies.

An amendment to the Seeds Rules was introduced in 1981 to ensure that the certification agencies conformed to the standards laid down in the Manual known as "Indian Minimum Seed Certification Standards" published by the Central Seed Committee, as amended from time to time. The Government of India declared seeds as an essential commodity under *The Essential Commodities Act, 1955* and the Seeds (Control) Order was issued on 30 December, 1983. This Order envisaged that no person should carry on the business of selling, exporting or importing seeds at any place except in accordance with the terms and conditions of the licence granted to him. Every dealer had to display: (a) The opening and closing stocks, on daily basis, of different seeds held by him; and (b) A list indicating prices or rates of different seeds.

The Government of India declared seeds as an essential commodity under *The Essential Commodities Act, 1955* and the Seeds (Control) Order was issued on 30 December, 1983.

With cases of spurious seeds coming to be reported from time to time in different parts of the country, it was necessary to protect seed users against such malpractices. Any malpractice in seed quality was

made a punishable crime. It may be mentioned that seed dealers challenged the *Seeds (Control) Order, 1983* in the Supreme Court and got its implementation stayed. The Supreme Court directed in 1994 that this Order could be implemented. Its proper implementation proved useful to the seed industry in general and the seed users in particular.

The enforcement *The Seeds Act* has been entrusted to the state governments. The seed inspectors notified by the state governments would visit the premises of the distribution agencies to check the quality and draw samples for testing. If necessary, they would also issue orders for stopping the sale and to seize the stocks. Proceedings for prosecution are also initiated wherever required.

The progress of the samples drawn and prosecutions launched under the enforcement of seed laws showed that 12.34, 13.51 and 11.65 per cent of the seed samples were of sub-standard quality during 1990-91, 1991-92 and 1992-93 respectively in the country. A warning was issued in about 2000 cases each year. On an average, the 'stop sale' orders were issued in about 2100 cases every year. The average number of cases filed in courts of law were 214 and the courts of law awarded fine/imprisonment in about 150 cases each year. The seed stock was forfeited, on an average, in 44 cases every year. The implementation process of seed laws also seems to be slow in a big country like India. Therefore, *The Seeds (Control) Order* issued in 1983 could be implemented only in 1994. A perusal of *The Seeds Act* would show that it has a limited coverage of food crops. This needs to be extended.

Fourth Five-Year Plan

It was intended to cover nearly 72 million hectares under improved seeds in this Plan. For the accomplishment of this programme, the following were regarded as the main steps: (a) continuous supply of breeder stock; (b) adequate arrangements for production of improved seeds; (c) arrangements for seed processing and storage; and (d) seed certification.

The establishment of the Tarai Development Corporation (TDC) in 1969 with assistance from World Bank was another important landmark in the Fourth Plan. The project envisaged the development of 16000 hectares for seed production including 5000 hectares of the Agricultural University farm at Pantnagar in Uttar Pradesh. The main seeds produced were wheat, paddy and maize. Sorghum followed later. The State Farms Corporation of India (SFCI) was another organisation set up by the Government of India in 1969. Thirteen

farms were under the management of SFCI in different parts of the country with an area of 36664 hectares. The principal programmes of the Corporation included production of seeds of foodgrains, fibre crops, plantation crops, oilseeds, vegetables and fruits in various parts of the country.

Fifth Five-Year Plan

In the Fifth Plan considerable attention was paid by way of research work on seed technology. The existing arrangements for production of high quality breeder seeds continued to be inadequate. In the Fifth Plan, additional facilities were provided at such institutions. One of the important lacunae in the seed programme in the country had been the absence of suitable organisations in the states charged with the responsibility for seed production and distribution (Govt. of India, 1973, Vol. 2). While the state directorates of agriculture had a number of seed multiplication farms, the quality of their operation had been rather uneven. It was contemplated that, in the Fifth Plan, states would set up seeds corporations in which the NSC also could be a shareholder.

The National Commission on Agriculture (NCA) made recommendations on multiplication and distribution of seeds in its final Report submitted to the Government of India in 1976. Some of the important recommendations were:

"The programme of seed production in the country should be developed on commercial lines. Export possibilities should be explored and, if necessary, foreign collaboration inducted. A system of national registry of varieties should be developed by ICAR and the Central Seed Committee. The network of processing and storage facilities should be made as widespread as possible so as to be compatible with the magnitude of the country's seed industry. Seed processing should be made compulsory. *The Seeds Act* should be implemented vigorously. Grow-out test should be made an integral part of seed testing. Research was imperative on various aspects of seed technology. Congenial areas of seed production for every crop will have to be determined and developed through experiments. Promotional measures, such as seed crop insurance, exemption

The National Commission on Agriculture (NCA) made recommendations on multiplication and distribution of seeds in its final Report submitted to the Government of India in 1976.

of levies, taxes and octroi on seeds and concessional freight for seed movement should be implemented" (Government of India, 1976, pp. 1-45).

It was in the light of these recommendations that the Government of India decided that a number of organised seed production agencies should be set up in the country so that seed support to the planned crop production programme might be assured.

National Seeds Programme

As a sequel to the recommendations of the NCA, the Government of India decided to encourage states to set up their own seeds corporations. A Joint Working Party (JWP) under the leadership of Dr. D.P. Singh, the then Chairman of the NSC, was constituted in February 1975 to examine the status of seed industry in the country and suggest improvements. The JWP thoroughly examined all facets of the industry viz., research, production, processing, quality control, pricing and marketing and came up with the National Seeds Programme (NSP). The NSP represented a deliberate attempt to develop a broad-based, decentralized network of seed production agencies throughout the country, capable of meeting the diverse requirements of certified seeds for the planned agricultural production programmes in the coming years. The key element of the programme was the gradual phasing out of the NSC from certified seed production of major crops and its replacement by a number of State Seeds Corporations (SSC) producing seeds in compact areas which were agro-climatically favourable for high-quality, low-cost seed production (Govt. of India, 1975).

The ultimate aim of the NSP was to create a network of SSCs, with an integrated network of cooperative and private seed producing organisations throughout the country in a phased manner. The JWP felt that the first phase should be in those states which had proved their capability for high quality seed production in the preceding few years under the NSC programme. Four criteria were employed for the selection of the states and one or more suitable locations within each state as under: (i) The state contains an area that has favourable agro-climatic conditions for high quality production, preferably in more than one season; as well as favourable conditions for seed storage (which tended to rule out those areas with very high monsoon rainfall); (ii) Given the need for maximizing seed multiplication ratios, the area must also have the proven ability to produce crops with well-above average yields (which tended to favour areas with assured irrigation or having reliable but not excessive rainfall); (iii) Given the need to keep seed prices as low as possible, the area must be

one where market prices for the crop were low relative to the rest of the country (which usually meant areas which had a surplus of the crop in question); and (iv) The areas selected should take into account NSC's producers programme with its existing seed production, infrastructure and the experience of its contract growers. The JWP laid down the following guidelines which it believed would be essential for the success of any SSC: (i) Seed production should be concentrated in a compact area; (ii) Seed producers should be shareholders of the SSC; and (iii) An Agricultural University should be associated with the Corporation.

The ultimate aim of the NSP was to create a network of SSCs, with an interrelated network of cooperative and private seed producing organisations throughout the country in a phased manner.

The National Seeds Programme-I (NSP I) was launched in 1976 covering four states, viz., Andhra Pradesh, Haryana, Maharashtra and Punjab. The total project cost of the NSP-I was Rs. 50.50 crore with a World Bank assistance component of US \$ 21.34 million. However, this project was wound up in 1984. Punjab was selected in the NSP-I because it had made rapid strides in the field of agriculture. Blessed with a highly fertile and alluvial soil and assured means of irrigation and energetic farmers, Punjab held quite a high potential for the production of quality seeds. Further, State of Punjab was one of the main sources of production of wheat and paddy seeds for NSC. It had two distinct advantages in the production of these two crops which made it a high priority choice for the establishment of a seed corporation. It had the highest yield compared with any other state for both the crops and thus had a high Seed Multiplication Ratio (SMR). Secondly, it was a surplus one in both the commodities, thus making it possible to procure seed at a lower cost than in most other states (Govt. of India, 1975, p. 25).

The National Seeds Project-II (NSP II) was launched with World Bank assistance in 1978. The participating states were Bihar, Karnataka, Orissa, Rajasthan and Uttar Pradesh. As a result of these two projects, firm foundations for a viable seed industry were laid and SSCs were set up in the participating states. The project cost of NSP-II was Rs. 38.91 crore with a World Bank assistance of US \$ 16 million. This project was completed in 1985. Infrastructural facilities were created under the two projects in the nine participating states. Most of the targets fixed under NSP-I and NSP-II were achieved. The farm development and foundation seed

achievements were short of the targets whereas the seed storage capacity built up exceeded the target. Against the target of seven vegetable seed processing units, eight were established so as to strengthen the processing of vegetable seeds in the country.

It may be mentioned that before the establishment of the NSC in 1963, vegetable seed production and processing was almost entirely in the hands of private seed traders. Owing to lack of sound practices, seed quality was low and the NSC, therefore, started its own vegetable seed production programme in order to assure quality and stabilize prices. The NSP was largely responsible in increasing the seed distribution from 6 lakh quintals in 1975-76 to 55 lakh quintals in 1985-86. Towards laying a firm foundation for a viable seed industry in the country, the infrastructural facilities for seed production, processing, storage and distribution were strengthened.

Before the establishment of the NSC in 1963, vegetable seed production and processing was almost entirely in the hands of private seed traders. Owing to lack of sound practices, seed quality was low.

The National Seeds Project-III (NSP III) was launched in March 1990 at a total cost of Rs. 236.01 crore with a World Bank assistance of US \$ 150 million. It was aimed at further developing and strengthening the seed sector in India. Based on the experience gained under NSP-I and NSP-II, its main task was to restructure the public sector seeds corporations viz., NSC, SFCI and SSCs in order to enable them to function as viable and efficient units of seed production and distribution. It also had the mandate to provide facilities for the growth of private seed industry through adequate institutional finance (Govt. of India, 1989a, pp. 1-2).

The beneficiaries of the project were NSC, SFCI and the SSCs of 11 participating states, viz., Andhra Pradesh, Assam, Bihar, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Uttar Pradesh, Orissa, Rajasthan and West Bengal, 32 institutes under the ICAR, Agricultural Universities of the participating states, State Seed Certification Agencies (SSCAs) of the participating states and private seed companies whose loan was refinanced by the National Bank for Agriculture and Rural Development (NABARD).

The project as a whole had two components, viz., the Project Component with an outlay of Rs. 87.51 crore (World Bank assistance US \$ 40 million) and the

Programme Component of an outlay of Rs. 148.50 crore (World Bank assistance US \$ 110 million). Funds under the project component were released for: (i) Investment credit to public and private seed sector through NABARD; (ii) Varietal development and breeder seed production through ICAR; (iii) Strengthening of seed certification agencies and seed testing laboratories; (iv) Providing mobile seed processing plants; and (v) Institutional strengthening and training.

Under the programme component, funds are released to various SSCs, NSC and SFCI for financial restructuring and adjustment of staff levels commensurate with the level of activities so that the Corporations become financially viable. It may be mentioned that NABARD has sanctioned 37 proposals so far with a total cost of Rs. 97.34 crore, out of which its own refinances commitment was for Rs. 51.18 crore. Out of this, Rs. 24.88 crore has already been released by NABARD. For varietal development and breeder seed production, Rs. 24.31 crore had been sanctioned to the ICAR, out of which Rs. 15.86 crore was released up to 1992-93.

Impact of National Seeds Programme

Till the introduction of the NSP, the seed trade was a seller's market in the case of certified and foundation seeds and state governments were the biggest buyers. The seed was pushed to the farmers by the extension agencies to cover the targets of HYVs. The Indian farmer is now aware of the performance of the varieties and has become quality conscious. The NSP has brought about some changes which have converted the seed trade into a buyers' market. As a result, seedsmen now have to grow and sell quality seeds well suited to agro-climatic conditions. It would be the farmer's prerogative to accept a particular brand provided it was advantageous to him. However, no seed system can be cent per cent successful and hence continuous improvements are required.

The NSP has brought about some changes which have converted the seed trade into a buyers' market. As a result, seedsmen now have to grow and sell quality seeds well suited to agro-climatic conditions.

New Policy on Seed Development

Under the earlier policy, the import of live plants, seeds or other plant materials was governed by spe-

cial licensing procedures and by the import policy for registered exporters under the Export and Import Policy. However, this protectionist policy of restructuring the import of seeds and the entry of multinationals so that the domestic private seed industry could develop and flourish met only with partial success. It could not make any headway especially in the area of seed research even though under the NSP, concessional finance had been made available to establish research and processing facilities. The private seed companies were complacent towards research and were satisfied with their business in multiplication and distribution of seeds.

The protectionist policy of restructuring the import of seeds and the entry of multinationals met only with partial success. It could not make any headway especially in the area of seed research.

On the other hand, stagnation in productivity restricted the growth in agricultural production and continuing drought conditions, especially in 1987-88, resulted in the depletion of the country's food reserves. This made the Government of India to realize the inadequacies in the existing set-up. As a consequence, Government of India announced the New Policy on Seed Development (NPSD) on 16 September, 1988 which came into effect on 1 October, 1988. This policy was directed to assure the Indian farmers access to the best seeds available anywhere in the world with a view to maximizing the yields of various crops and augmenting farm income. It laid special emphasis on: (i) Import of high quality seeds; (ii) A time bound programme to strengthen/modernize plant quarantine facilities; (iii) Effective observance of procedures for quarantine/post-entry quarantine (PEQ); and (iv) Incentives to encourage the domestic seed industry. The policy also included various incentives to the seed producing/distribution agencies to increase the availability of seeds in the country.

It may be mentioned that there had been some apprehension about the new seed policy, particularly on the grounds that indiscriminate imports of seeds could introduce new diseases and weeds into the country and could create problems relating to plant hygiene.

However, experience in the implementation of the NPSD since 1988 has removed many apprehensions of agricultural scientists and policy analysts because Government of India did not allow large scale imports of

Implementation of the NPSD since 1988 has removed many apprehensions of agricultural scientists and policy analysts because Government of India did not allow large scale imports of seeds into the country.

seeds into the country. Furthermore, the imported seeds and planting materials were thoroughly tested at the well-equipped Plant Quarantine Stations. After the introduction of the NPSD in 1988, seed imports into the country had increased from 828 quintals in 1989-90 to 1481 quintals in 1992-93. It should be pointed out that imported seeds constituted barely 0.025 per cent of the total certified/quality seeds distributed in the country during 1992-93. So far the government seems to have protected the interests of both the domestic seed industry and the farmers. Liberalization of the seed policy does not mean opening up the Indian seed market to the world.

NPSD in the Context of GATT

In the context of GATT, the NPSD would lose some of its role. Seed multinationals like Pioneer, Sandoz, Cargill have been allowed direct access to the domestic seed industry. Instead of having collaboration with Indian seed companies, they would be allowed to carry on with research, multiplication and distribution of seeds directly in India. Between them, the Indian and foreign seed companies would become competitors to acquire a maximum hold over the Indian seed industry. It may be mentioned that Indian seed industry is cereal based, whereas much of the business of these multinational seed companies is mainly in hybrid corn and sorghum, fodder crops, soyabean and vegetable seeds. In any case, seed exports of basic food crops (for instance, rice, wheat and pulses) from industrialized countries were very low, less than 2 per cent of the total seed exports to developing countries (Grooseman, 1993).

However, apprehensions still exist that the existing small sized seed companies may be wiped out in the long run. There was also the possibility of their amalgamation with the larger ones in the private sector. Under the NPSD, in the absence of Plant Breeders' Rights in India, the foreign seed companies were hesitant to supply the parent lines to Indian seed companies. However, under the GATT, these rights would be allowed by India and it is presumed that multinational seed companies would also supply parent lines to their Indian counterparts for which the former would get their patent fee.

Report of the Expert Group on Seed

Government of India decided to constitute an Expert Group on Seed in October 1987 to review the status and strategy of seed production and distribution in the country. The Group was constituted under the chairmanship of Shri K. Ramamurthy, former Chief Secretary, Government of Orissa and former Vice Chancellor, Orissa Agricultural University. It included experts from the Ministry of Agriculture, Planning Commission, NSC, ICAR, Agricultural Universities, NABARD and progressive farmers. The Group was charged with the task of recommending short-term and long-term policy measures to boost seed production and distribution, which would lead to increase crop yields.

The Expert Group submitted its final report to the Government of India in 1989 and made 84 recommendations. The main recommendations were as under:

Future seed research has to be directed in the areas of seed production, harvesting and threshing. The farmers may be trained by extension agencies in raising good quality seeds. Public sector seed companies/Agricultural Universities must also undertake aggressive promotional activities to increase the volume of seed trade. Seed should be available along with other agro inputs from a single supply point system which is popularly known as single-window system. Special attention was necessary for timely supply of seeds in the eastern and north-eastern states. Decentralization of buffer stocking of seeds must be continued. Export of certified seeds must be encouraged. Subsidies on certified seeds were necessary. Financial institutions may finance seed production by farmers. The seed testing laboratories may be strengthened. There should be linkage between certification and notification of varieties (Govt. of India, 1989b, pp. 7-22). Many recommendations of the Expert Group were accepted by the Government of India and state governments.

Buffer Stocking of Seeds

The seed industry in the country had been plagued by periodic gluts and shortages and the consequent fluctuations in seed prices, which have adversely affected seed industry's health. The periods of shortage resulted in high seed prices and sale of sub-standard quality seeds. Therefore, buffer stocking of seeds was highly essential to meet spurts of demand in times of natural calamities like floods, drought, diseases, etc, and absorb excess supply during glut situations.

Accordingly, Government of India introduced Buffer stock scheme in April 1978. This scheme was operated

by the NSC up to 31 March 1987. From 1 April, this scheme was modified to include the participation of the SSCs on a 50:50 cost sharing basis. However, in the case of north-eastern states, the NSC continued to maintain buffer stocks of seeds bearing the entire cost. The SSCs were maintaining the buffer stock of seeds of pulses, oilseeds and coarse grains, i.e., maize, jowar and bajra for their respective states.

The quantum of seeds maintained by the NSC up to 1988-89 was 10.85 lakh quintals and the expenditure incurred thereon was Rs. 3.62 crore. The amount released and the quantities maintained under the buffer stock scheme by the SSCs up to 1988-89 was Rs. 1.05 crore and 2.63 lakh quintals respectively. Under the Special Foodgrain Production Programme (SFPP), the buffer stock scheme was introduced in 1988-89 for paddy and wheat in respect of new varieties only.

Transport Subsidy on Seeds

The topography and the agro-climatic conditions of north-eastern States including Sikkim are not conducive for the production of quality seeds required by these States. Nor are all the places in these states well connected by rail/road. So these states could do with some subsidy on transport. In this background, scheme of Transport Subsidy is being implemented by the Government of India through the NSC/SFCI as these agencies are the major suppliers of seeds to the north-eastern States including Sikkim. As per this scheme, the difference in cost of the transportation of seeds by rail and road to these states is subsidized. It is 50 per cent in the case of Assam, whereas it is 100 per cent for the other States. By the end of the Seventh Five-Year Plan (1989-90), the scheme had an outlay of Rs. 106 lakh. During 1990-91 to 1992-93, a sum of Rs. 92 lakh was allocated. For the year 1993-94, there was a provision of Rs. 60 lakhs in this regard.

Seed Policy during the Eighth Plan

Many of the policies and programmes initiated in the earlier Plans for increasing the availability of quality

The private sector also has expanded its operations in seed production and marketing, particularly in the high value materials, such as hybrid seeds of several crops like vegetables and cotton oilseeds.

seeds continued in the Eighth Plan. Except for some oilseeds like groundnut and linseed and a few of the pulses, the targeted levels of seed distribution were by and large achieved (Govt. of India, 1992, Vol. 2, p. 4). The private sector also has expanded its operations in seed production and marketing, particularly in the high value materials, such as hybrid seeds of several crops like vegetables and cotton oilseeds.

The Eighth Plan target for distribution of certified seeds in the country is 70 lakh quintals by 1996-97. It could easily be achieved because the certified/quality seeds distributed in the country had reached 60.33 lakh quintals even in 1992-93. But to reach the production target of certified seeds (220.90 lakh quintals) set by the National Commission on Agriculture for 2000 AD, the production of improved varieties will have to grow at a much faster rate. This seems a difficult task. With regard to HYVs, the Eighth Plan target is to bring 78 million hectares under HYVs by 1996-97, which is a realistic one because 67.12 million hectares were already under HYVs during 1992-93.

Implications of GATT²

The eighth round of GATT was finally signed in April, 1994 by 125 countries including India and became effective with effect from 1 January, 1995. The GATT accord on Trade Related Intellectual Property Rights (TRIPS) had raised a whole range of apprehensions in our country. The patenting of seeds and genes in particular generated a lot of controversy. Farmers were told that they would have to buy their seeds every year from the multinational seed companies like Pioneer, Sendoz, Cargill, etc; they could not exchange seeds with fellow farmers and so on. But a careful perusal of the GATT (1994) reveals that some of these apprehensions may be unfounded or only partially true.

It is in this sector (TRIPS) of the GATT that the advanced countries possess a distinct advantage and a decisive lead over the developing and the least developed countries.

The TRIPS agreement covered seven types of rights: copyright (including related rights), trade marks, trade secrets, industrial designs, geographical indications, integrated circuits and patents. Of these seven,

2. Renamed World Trade Organisation (WTO) from 1 January, 1995 which the backing of at least 85 founding members, including India.

most controversy in India surrounded only the area of patents. It is in this sector (TRIPS) of the GATT that the advanced countries possess a distinct advantage and a decisive lead over the developing and the least developed countries; and the subject of TRIPs had been brought within the ambit of GATT at the insistence of the industrial world led by USA.

Anything already existing, or known or used previously can not be given intellectual property protection. Therefore, neither *neem*, mango or *tulsi*, nor any other existing plant, tree or seed could be patented or their use restricted in any manner by an intellectual property system (Ganesan, 1994).

The TRIPs agreement did not require us to patent seeds. However, we would have to establish an effective system for the protection of 'plant varieties'—seeds and other form of propagation material—called the plant breeders' rights (PBR) system. Under which, a plant variety would qualify for protection only if it fulfilled definite criteria: 'novelty' (i.e., it must be new, not known, or sold, or used previously), 'distinctiveness' (i.e., it must be clearly distinguishable from any known existing variety), 'uniformity' (i.e., it must breed true to its essential characteristics every generation).

Accordingly, India has to establish a PBR system by the year 2000 AD. All the existing varieties of seeds and all new varieties of seeds that would come into the market till the PBR system is established, as well as all varieties of seeds for which protection is not sought or given under the new PBR system, would not be affected. In the PBR system we establish, we are free to provide clearly for what is known as 'farmer's privilege'. This means that a farmer is completely free to use the 'farm-saved seed' of a protected variety for growing subsequent crops either on his own land or on leased-in land or for traditional exchanges within the village community. As long as the farmer continues to be a grain producer and does not convert himself into a 'commercial seed seller' of the protected variety, he would be unaffected by the PBR.

'Farmer's privilege' means that a farmer is completely free to use the 'farm-saved seed' of a protected variety for growing subsequent crops either on his own land or on leased-in land or for traditional exchanges within the village community.

'New' varieties for which protection would be sought and given may be very few in number. Most of the inter-farmer sales of seeds pertain to the existing non-protected varieties. Furthermore, the question of 'farm-saved seeds' is relevant for self-pollinated crops, like wheat, paddy, etc. So far as hybrid seeds are concerned, the farmers even today buy the hybrid seeds from the seed companies because hybrid seeds lose their vigour with each crop.

It may be mentioned that at present there is a well organised government seed research and distribution system. So a new entrant has to offer reasonably priced seeds of proven quality to break into the Indian market (Aggarwal, 1994). We have excellent plant breeding capabilities in the country. It may be mentioned that 2078 high yielding varieties of different crops had been released/notified in India by the end of 1993 under Section 5 of *The Seeds Act, 1966*. The public research institutes/organisations already play an important role in this regard.

Realizing the importance of plant genetic resources in crop improvement and the urgent need for their collection, as also conservation of the genetic diversity for current use and for posterity. ICAR established the National Bureau of Plant Genetic Resources (NBPGR) in New Delhi in 1976. The real strength of the Bureau is derived from the growing linkages with crop-based institutes, National Research Centres and Agricultural Universities. A national grid comprising a base and active collection has been established through partnership and cooperative efforts. The NBPGR has 12 regional stations/base centres/research farms providing access to most collection, evaluation, conservation and distribution of plant genetic resources.

The Indian National Gene Bank has been established by NBPGR to conserve the national heritage of germplasm collections in the form of seeds, vegetative propagules, tissue/cell cultures, embryos and gametes (NBPGR, 1993, pp. 1-5). The Bureau has a strong programme on in-vitro conservation and cryopreservation of a large number of plant species. The total accessions under the long-term storage (-20°C) were about 1.17 lakhs and medium-term storage ($+4^{\circ}\text{C}$) were about 56,000 as on 31 March, 1993. The total thus works out to be about 1.73 lakh accessions. These figures reveal that India has a strong foundation of research on plants and genes.

Impact on Seed Prices

More than 85 per cent of the seed consumed in India is produced by the farmer himself (Banerjee, 1984,

p. 119). Seed is also obtained from fellow farmers and relatives. The prices of these seeds are more or less linked with the grain prices. Whatever seeds that may be released by our research institutes in future, there is no reason why the prevailing prices should go up. Even without GATT, the prices of hybrid seeds of different crops were high all over the country because the labour component of cost was very high in the case of hybrid seeds.

More than 85 per cent of the seed consumed in India is produced by the farmer himself. Seed is also obtained from fellow farmers and relatives.

It is true that the prices of those seeds which would be developed outside India may be high because the farmers would have to pay a little more by way of royalty. But these seeds may be more productive also. But Indian farmers would compare the economics of seed purchases and make correct decisions. If the seeds would not be productive, the farmers simply would not choose them. In this background the GATT would provide access to first rate seed technology to Indian farmers.

Impact on Land Ceiling

Another implication of the GATT would be for land required for seed research by the multinational seed companies. In different states, the existing land ceiling limits vary from 4.05 to 7.28 hectares for irrigated land with two crops. In Punjab and Haryana (the green revolution belt), these limits are 7.00 hectares and 7.25 hectares respectively. For irrigated land with one crop, the land ceiling is 10.93 hectares and for dry land 21.85 hectares. These limits also vary from state to state.

Since the foregoing limits are too small for multinational seed companies (MNSCs) to carry on seed research as per India's agro-climatic conditions, government would have to effect some structural changes in the existing land ceiling regulations. The MNSCs would not be able to make huge fixed investment on buildings, laboratories, processing units, stores, deep tubewells, etc, on the leased-in land. Above all, uncertainty ever surrounds leased-in land. Land is the backbone of seed research, seed production and seed multiplication. Policy makers would have to examine this aspect thoroughly before coming to any policy decision as it would have wider implications for Indian agriculture.

India has a huge reservoir of trained and talented manpower in agriculture. With some focussed efforts, we should hope to attain standards comparable to the best in the world. What we lack is a combination of incentives to performing scientists and disincentives to the non-performers and then our official procedures are time consuming and cumbersome (Deptt. of Economics & Sociology, PAU, 1994, p. 14). Once these impediments are removed and clear directions are given, our research system can produce better results (PAU, 1994, p. 14).

India has a huge reservoir of trained and talented manpower in agriculture. With some focussed efforts, we should hope to attain standards comparable to the best in the world.

Government of India has initiated steps towards enacting legislation on the controversial issues of plant variety protection for safeguarding the interests of farmers with regard to the use and availability of seeds in the wake of the new GATT.

The five important features of the proposed legislation are: (a) The farmer can choose the best seed that he likes; (b) The farmer can save seed from one crop and use it for replanting in the next crop; (c) The farmer can sell his surplus seed but not as branded seed, as in the case of protected variety; (d) The farmer can also become wholtime seed producer and sell protected seed as a commercial enterprise with the consent of the right holder; and (e) Our scientists will be free to use all seed varieties, including protected varieties, for experiment and research for developing new varieties.

Besides, there are some other features of the proposed sui-generis system:

(i) Assurance to the breeder of a new plant cultivar certain rights regarding its use by others; (ii) Sale-marketing, export and import will require the breeder's authorization (iii) new varieties developed and released in India/imported but not in utilization for more than 4/6 years in other countries will be protected; (iv) New variety must differ from other known varieties in at least one distinguishable essential character, and should be new, distinct, uniform and stable; (v) The proposed legislation will apply to self-pollinated variety, hybrid, parental line, cross-pollinated variety, composite, synthetic, multiline/components of multiline not included even though a multiline is more homeogeneous and morphologically more uniform than the composites/synthetics; (vi) Cer-

tification of seed for sale of the protected variety has been made mandatory through the official seed certification agency; (vii) Sample seeds are to be supplied to the NBPGR; (viii) Old variety released/notified under the seeds Act will be protected as extant variety for 15/18 years from the date of release/notification; and (ix) All sorts of germplasm will be protected and exchanged on certain terms and conditions through the NBPGR/Gene Bank.

The proposed legislation needs some changes particularly in respect of the rights of germplasm and use of resources generated through protection, constitution of the authority and participation of the states. Moreover, the financial health of the seed certification agencies is not sound in some states. Accordingly system may be chalked out in the proposed legislation so as to make these agencies financially independent. Furthermore, since a number of changes have overtaken the seed industry after *The Seeds Act* was enacted in 1966. The Act itself needs some changes. Keeping the above implications in view, the GATT appears to be at once a challenge and an opportunity for the country.

Conclusion

In view of the liberalisation and privatisations of the economy, private sector's participation in the seed industry may get some impetus. But the existing land ceiling limits may impede the large scale participation of private seed companies in seed production. This might warrant upward revision of land ceilings after careful analysis.

Granted that prices of seeds developed outside India could be high owing to the royalty payable on them' these seeds might be more productive also. In any case, hard headed farmers would compare the economics before seed purchase. The GATT would provide an opportunity to the Indian farmers to get first rate seen technology.

Acknowledgement

The article is based on the first author's Ph.D. thesis, "An Economic Analysis of Production and Marketing of Seeds in Punjab", Punjabi University, Patiala.

References

- Aggarwal Yogi (1994), "Is GATT Really Bad for India?" *The Tribune*, Chandigarh, Vol. 114(51).
- Banerjee S.K. (1984), "Seed in Indian Agriculture during 1980s and Beyond", *Indian Agriculturist*, Vol. 28(2).
- Ganesan A.V. (1994), "TRIPS: Fears and Facts", *The Economic Times*, New Delhi, Vol. 34(56), May 3.

Government of India (1952), "The First Five Year Plan 1951-56", Planning Commission, New Delhi.

Govt. of India (1956), "The Second Five Year Plan 1956-61", Planning Commission, New Delhi.

Govt. of India (1961), "The Third Five Year Plan 1961-66", Planning Commission, New Delhi.

Govt. of India (1968), "Seed Review Team Report", Ministry of Food, Agriculture and Community Development, New Delhi.

Govt. of India (1973), "Draft Fifth Five Year Plan 1974-79", Planning Commission, New Delhi, Vol. 2.

Govt. of India (1975), "National Seeds Project, Phase I", Department of Agriculture & Co-operation (Seed Division), Ministry of Agriculture, New Delhi.

Govt. of India (1976), "Report of the National Commission on Agriculture, Part X Inputs", Ministry of Agriculture & Irrigation, New Delhi.

Govt. of India (1989a), "National Seeds Project, Phase-III", Department of Agriculture & Cooperation (Seed Division), Ministry of Agriculture, New Delhi.

Govt. of India (1989b), "Report of the Expert Group on Seed", Deptt. of Agriculture & Cooperation, Ministry of Agriculture, New Delhi.

Govt. of India (1992), "The Eighth Five Year Plan 1992-97", Planning Commission, New Delhi, Vol. 2.

Grooseman A.J.A. (1993), "Seed Industry Development in North-South Perspective", Seed Research, Special Vol. 1.

Mehta Y.R., J.E. Douglas & Amir Singh (1973a), "Historical Development of seed Improvement in India", Seed Research, Vol. 1.

NBPGR (1993), "Annual Report 1992-93", National Bureau of Plant Genetic Resources, ICAR, New Delhi.

NSC (1985), "Legislation on Seeds", published for and on behalf of National Seeds Corporation, Ministry of Agriculture and Cooperation, Govt. of India, New Delhi.

PAU (1994), "GATT—Implications for Agriculture with Special Reference to Punjab", Status Paper, Deptt. of Economics & Sociology, PAU, Ludhiana.

Rajan K. (1988), "Seed Legislation in the Country", Seeds & Farms, Vol. 14(10).

Rao M.V. (1988), "Development of Sound Seed Industry in India", Seeds and Farms, Vol. 14(10).

□

Drip Irrigation: A Viable Option for Future Irrigation Development

A. Narayanamoorthy

Studies conducted at the Agro-economic Research Centre of Gokhale Institute of Politics and Economics, Pune have confirmed that drip method of irrigation increases yield of crops, reduces consumption of water as well as cost cultivation. It also helps to increase the vegetative growth of crop, efficiency of inputs and early maturity of crops. Convinced of the results of drip irrigation, many supportive measures have been introduced by the government since the Sixth Plan to promote this new water saving technology to a large scale. However, the area under drip irrigation is not yet appreciable owing to its low popularity among the farmers as well as many technical and practical reasons. With the help of results collected across the states in India this paper brings out the economic importance of drip irrigation as well as its potential and prospects. It also provides some policy suggestions to promote drip irrigation in the future.

A. Narayanamoorthy is a Research Associate with the Gokhale Institute of Politics and Economics, Pune-411 004.

The importance of Drip Method of Irrigation (DMI) in increasing the efficiency of water use and yield of crops has been clearly confirmed by a number of studies (Kulkarni, 1987; Magar, 1988; Patil, 1988; INCID 1994). The experience of countries which use DMI extensively for crops also indicate that this method is economically feasible, and socially and environmentally acceptable (Sivanappan, 1994a; Shrestha & Gopalakrishnan, 1993, pp. 407-18). It is also understood that DMI has many advantages over the flood method of flood irrigation¹ (FMI), which is in practice. Realising the importance of drip irrigation, many supportive measures have been introduced since the Sixth Plan to promote this new water saving technique on a large scale. In the Eighth Plan also Government of India allotted about Rs. 250 crore to promote this technique wherever possible (INCID, 1994). Despite its enormous potential and prospects, DMI is yet to pick up in the country owing to its low popularity as well as many technical and practical reasons.

It is in this context, this paper aims to demonstrate the importance of drip irrigation as well as its economic and social viability for Indian conditions. Since it is a new area of research, studies at field level are yet very limited. Hence, this paper is based on the information gathered from the farmers have adopted DMI and results collected from trial farms, research stations, government reports and some field level studies. While bringing out the importance of DMI, this paper also analyses the benefit-cost pattern of drip irrigation technology, its potential and prospects as well as its comparative advantages over the floor method of irrigation. Finally, it provides some policy directions to promote DMI in future.

1. Irrigation methods like flood, conventional, furrow and gravity are almost similar in nature. Accordingly, these terms are used interchangeably in this paper but carry the same meaning.

Economic Advantages of DMI

Since drip is a new type of irrigation, it is useful to know what drip irrigation is before finding out its various advantages. Drip method of irrigation is a kind of micro-irrigation which includes drip, sprinkler, mulching, green houses and perforated earthenware pipes. It is practised mainly to increase water use efficiency in agriculture. It was desired originally for growing vegetable crops in Israel, which is also the pioneer in this new technique. In this method, water is supplied constantly at the root zone of the crops through a pipe network with the help of emitters. Unlike the flood method of irrigation, DMI can be efficiently operated in all types of grounds—undulating terrains, rolling lands, hilly areas, shallow soils and areas which have saline water (Sivanappan R.C., 1994b; INCID, 1994).

Unlike the flood method of irrigation, DMI can be efficiently operated in all types of grounds—undulating terrains, rolling lands, hilly areas, shallow soils and areas which have saline water.

Drip irrigation has many advantages over the method of flood irrigation, water saving and yield increase being foremost among them. An idea of both these can be had from table 1 which gives the figures for 18 crops. Water use efficiency of surface or flood irrigation systems is very low—30 to 40 per cent—owing to large seepage, evaporation, distribution conveyance losses, etc. (Sivanappan, 1994a; Chaudhary, 1995). In DMI, on the other hand, conveyance and distribution losses could be minimised substantially since water is supplied at the root zone of the crops. Evaporation of water too is much less in DMI. According to an estimate of the National Committee on the Use of Plastics in Agriculture (NCPA), water saving could reach up to 100 per cent. The rate of water saving varies with the nature of crops, condition and quality of the soil, etc. For instance, as per NCPA's estimate, it is higher in narrow spaced crops like sugarcane, cotton, cabbage, radish, beet root, etc., compared with wide spaced ones like banana, coconut and grapes.

The second important advantage of drip irrigation is productivity/yield of crops. It is obvious that yield rate is always higher in assured irrigated areas than unirrigated areas.² However, the rate of yield in our

2. For more detailed analysis on impact of irrigation on productivity of lands see Vaidyanathan, *et al*, 1994.

country even in assured irrigated area is far below the potential value and the levels in agriculturally developed countries as may be seen in table 2. Studies have confirmed that the yield loss owes mainly to moisture stress and lower efficiency in inputs use. As per existing knowledge, even these two problems are far less pronounced or even totally absent in DMI. Importantly, since fertilisers are supplied along with the water³ wastage through leaching and evaporation is much less compared to conventional method of fertiliser use like basal and top dressing. As a result, efficiency of input increases significantly. Yield of crops cultivated under drip method is substantially higher—up to nearly 100 per cent—than cultivated in the same environmental conditions with flood method of irrigation (Somasundaram *et al*, 1995). NCPA has estimated that yield of banana and grapes under DMI is higher by 52 and 23 per cent respectively when compared to FMI, while the increase ranged from 75 to 98 per cent in crops like papaya, pomegranate and watermelon. Studies have also indicated that DMI is not only useful to increase yield of crops and save water, but also helpful to increase the vegetative growth of crops, early maturity and improve quality of produce.⁴ Table 3 presents a summary of the comparative advantages of drip irrigation over the flood method.

Since fertilisers are supplied along with the water, wastage through leaching and evaporation is much less compared to conventional method of fertiliser use like basal and top dressing.

Benefit-Cost Pattern of Drip Irrigation

Since drip irrigation is highly capital intensive, farmers have genuine doubts regarding the pay-back period, what the rate of water saving would be and hence if the investment could be justified. However, data relating to capital cost and benefit from drip irrigation system for different crops, presented in table 4 would show the favourable benefit-cost ratio. It is clear from the estimate that the average per-hectare cost of DMI is substantially higher for narrow spaced crops like sugarcane, vegetables and banana.

3. Termed 'fertigation' this reduces consumption of fertiliser by 30-50 per cent compared to conventional method see Sudhakar, (1994).

4. For more detailed field level analysis on productivity of crops, saving of water, cost of cultivation, etc, between DMI and FMI see Narayanamoorthy, (1996).

Table 5: State-wise groundwater estimates: potential and actual utilisation in 1990-92

	Total annual recharge	Recharge earmarked for irrigation	Recharge used for irrigation	Rate of exploitation
	Million cubic metres			%
Andhra Pradesh	43365	36861	8780	23.80
Bihar	33521	28432	5467	19.23
Gujarat	22551	19169	7170	37.40
Haryana	8523	7248	5814	80.21
Karnataka	16186	13759	3695	26.85
Kerala	7900	6586	1006	15.28
Madhya Pradesh	59718	50760	7331	14.44
Maharashtra	38835	32098	7739	24.11
Orissa	23279	19787	1411	7.13
Punjab	17832	16048	15762	98.21
Rajasthan	12707	10801	5820	53.89
Tamil Nadu	26391	22432	13557	60.44
Uttar Pradesh	83815	71248	26708	37.49
West Bengal	22050	18742	4103	21.90
All States	452791	384567	115410	30.01
All UTs.	626	532	395	74.25
All India	453417	385099	115805	30.07

Source: CGWB (1993), Groundwater Statistics

Table 6: Average investment required to create one hectare of irrigation during successive plans

(in current prices)

Plan	Investment (Rs.)	
	Major and Medium	Minor
First	1526	569
Second	1775	2207
Third	2629	2005
Annual Plans	2837	2803
Fourth	4739	2609
Fifth	6089	3714
Annual Plans	10878	3655
Sixth	22106	4307
Seventh	73556	7078

Source: Eighth Plan document, GOI (1992a)

1992. Statewise area under drip irrigation in 1992 is given in table 7. It may be seen therefrom that Maharashtra topped the list followed by Andhra Pradesh, Karnataka and Tamil Nadu. Indeed, Maharashtra alone accounted for 46 per cent of the total area (32924 out of 70859 hectares). Among the different crops cultivated under DMI, orchard crops accounted for 46 per cent of the total area as may be seen in table 8.

Table 7: State-wise area under drip irrigation in 1992

State	Area, ha	Proportion in total %
Maharashtra	32924	46.64
Andhra Pradesh	11585	16.41
Karnataka	11412	16.17
Tamil Nadu	5357	7.59
Gujarat	3560	5.04
Kerala	3035	4.30
Madhya Pradesh	1415	2.00
Rajasthan	304	0.43
Assam	180	0.25
Haryana	120	0.17
Uttar Pradesh	111	0.16
West Bengal	100	0.14
Other States	756	1.07
Total	70589	100.00

Source: INCID (1994)

India has enormous potential for drip irrigation. In fact, with the available technology, it can be used efficiently for some 80 crops including sugarcane, fruits, fibres, nuts, oilseeds, orchards, plantation crops, spices, vegetables, cotton, etc. According to the crop pattern data of 1990-91, we have about 25 million hectares under these crops, as may be seen in table 9. Among these, sugarcane is one of the water-intensive crops which can be cultivated under DMI. Currently sugarcane is cultivated in nearly 3.7 mh in India and the area has been increasing steadily in the groundwater tract as it brings better returns. The entire area under sugarcane crop, which is currently under flood method of irrigation, can be brought under the drip method to increase productivity and also save on water as done elsewhere.⁷

7. In Hawaii where drip irrigation has been in use since 1970s as an alternative to the furrow method of irrigation for sugarcane crop, about 82 per cent of the crop is under drip irrigation. Water use efficiency here is as high as 85-95 per cent vis-à-vis 50 per cent in the furrow method of irrigation and the yield increase is about 20 per cent. (See: Shrestha & Gopalakrishnan, 1994).

India has enormous potential for drip irrigation. With the available technology, it can be used efficiently for some 80 crops including sugarcane, fruits, fibres, nuts, oilseeds, orchards, plantation crops, spices, vegetables, cotton, etc.

Table 8: Cropwise coverage of drip irrigated area in India, 1992

Crop	Area, ha
Flowers	40.0
Fibres	463.4
Nuts	2924.3
Oil seeds	149.7
Orchards	32673.4
Plantation crops	11799.6
Spices	185.0
Vegetables	1537.0
Others	21086.6
<i>Total</i>	<i>70859.0</i>

Source: INCID (1994)

Table 9: Estimate of potential areas for micro irrigation

Crop	Area in million hectares		
	Gross Cropped (in 1990-91)	Drip plus sprinkler	Drip alone
Cereals	103.17	0.00	0.00
Pulses	24.66	24.66	0.00
Oil seeds	25.65	25.65	9.82
Sugarcane	3.69	3.69	3.69
Tea	0.42	0.42	0.42
Coffee	0.25	0.25	0.25
Tobacco	0.41	0.41	0.41
Condiments and spices	1.96	1.96	1.20
Fruits and vegetables	2.39	2.39	2.39
Rubber	0.36	0.36	0.36
Fibres	8.52	7.44	7.44
Miscellaneous crops	2.40	0.00	0.00
<i>Total</i>	<i>173.88</i>	<i>67.23</i>	<i>25.98</i>

Source: Estimated from CMIE (1993)

Groundwater is the most suitable source for drip method of irrigation. It accounts as yet for about 50 per cent of the total irrigated area. If at least a half of this can be converted to drip method, it will not only extend the area under irrigation but help increase productivity of the crops too as yield is generally more in irrigated areas. Furthermore, it will overcome problems resulting from over-exploitation of groundwater, such as fall in the water table, increase in the fluoride content of water pumped out from deep aquifers and intrusion of sea water into fertile lands which has been on alarming increase.

Groundwater is the most suitable source for drip method of irrigation. It accounts as yet for about 50 per cent of the total irrigated area. If at least a half of this can be converted to drip method, it will not only extend the area under irrigation but help increase productivity of the crops too.

As per the land use data of 1990-91, about 58 million hectares of land is available in the form of fallow land, cultivable waste, barren land, etc. At least, one half of these can be brought under drip irrigation through target oriented programme and handed over to poor and landless labourers under participatory irrigation management (PIM). This will not only help to reduce the level of poverty in rural India but also augment the production of agricultural commodities with less investment.

Further, production of foodgrains and other agricultural commodities has to be increased faster to feed the ever increasing population. On the other hand, the growth of foodgrains productivity in the country is almost static for the last three to four years and even falls steeply with deficient rainfall. To overcome this problem, new areas with irrigation facility should be brought under cultivation. Creation of major and medium irrigation systems for the purpose will cost a lot to the exchequer and take long to materialise. Moreover, the potential for constructing new major and medium irrigation systems has also been declining continuously owing to many environmental reasons. Currently, we have nearly 100 million hectares of rain-fed cultivated areas (RCA) where productivity is very low owing to erratic rainfall and deficient use of yield increasing inputs. Given the groundwater potential of these areas, drip irrigation is the optimal solution as its water requirement is less than the flood method of irrigation.

Currently, we have nearly 100 million hectares of rain-fed cultivated areas (RCA) where productivity is very low owing to erratic rainfall and deficient use of yield increasing inputs. Given the groundwater potential of these areas, drip irrigation is the optimal solution as its water requirement is less than the flood method of irrigation.

Policy Directions for Extending Drip Irrigation Area

Drip irrigation has been ever increasing at faster rate in countries like Israel, USA and Australia. Vast tracts are being cultivated under this system in Israel. In USA too, most of the areas under grapes, sugarcane, cotton, fruit crops, etc, are being cultivated by this water saving method (Sivanappan, 1994a; INCID, 1994a). On the contrary, drip irrigated area in India constitutes less than one per cent of the total irrigated area (INCID, 1994). In this light, the following measures can be considered for promoting DMI in India.

- Bring down the fixed cost of drip system through R&D especially since the present government subsidy of 50 per cent of the capital is not adequate for small and medium farmers who are unable to mobilise the remaining amount.
- Step up the total allocation of funds for promotion of DMI so as to make subsidy available to all farmers opting for DMI.
- Enforce strict quality control on production of quality components like drippers, emitting pipes, filters, etc, so that farmers face no major technical problems like system clogging, which affect their motivation on drip irrigation.
- Educate farmers through extension services and publicity on the effectiveness of drip irrigation especially for narrow spaced crops like sugarcane, cotton, etc.
- The restriction of excluding sugarcane from central subsidy should be removed since it is an important and highly water intensive crop. Further, the current scheme of uniform subsidy for both highly water intensive and less water intensive crops may be replaced by a differential rate of subsidy based on the type of crops and the rate of water consumption.
- Preference be given in the matter of bank loans

for digging wells and electricity connection to those opting for DMI.

- Manufacturing companies of drip irrigation sets should be involved intensively in promoting DMI through frequent field demonstrations at the farms by demonstrating the amazing performance of drip irrigation.
- Farmers should be educated on concomitant use of liquid fertilisers through pipe network and their reservations on system clogging should be dispelled through frequent demonstrations. Further importance of liquid fertiliser in increasing input efficiency and bring down the cost of cultivation should be clearly brought home to them by extension officials.

Concluding Remark

Though the drip method of irrigation is highly capable of increasing crop yield and reducing water consumption as well as the cost of cultivation, the growth in drip irrigated area in the country has not been impressive barring a few states. Since water available for future irrigation use has been declining continuously, it is worthwhile to formulate a comprehensive and target-oriented policy to boost the drip method of irrigation. As it is imperative to develop irrigation for increasing foodgrains output as also for achieving overall rural development and to alleviate rural poverty, more funds should be allocated to promote this new technology. Side by side, extension services on drip irrigation must be strengthened too. Last, but by no means the least, drip irrigation on an extensive scale will mitigate the present over-exploitation of groundwater.

Since water available for future irrigation use has been declining continuously, it is worthwhile to formulate a comprehensive and target oriented policy to boost the drip method of irrigation.

Acknowledgement

The author is thankful to his senior colleague Dr. R.S. Deshpande for his useful comments on the earlier version of this paper.

References

- Chaudhary T.N. (1995), "India", in Asian Productivity Organisation, Agricultural Water Management Technology in Asia and the Pacific, Asian Productivity Organisation, Tokyo, pp. 162-164.

- CMIE (1993), "Basic Statistics relating to Indian Economy: India", Centre of Monitoring Indian Economy, Bombay, August.
- Dhawan B.D.** (1995), "Magnitude of Groundwater Exploitation", Economic and Political Weekly, April 8.
- GOI (1992a), "Eighth Five-Year Plan Document", Planning Commission, New Delhi.
- GOI (1992b), "Report of the Committee on Pricing of Irrigation Water", Planning Commission, New Delhi, September.
- Gulati A. et al.** (1994), "Major and Medium Irrigation Schemes: Towards Better Financial Performance", Economic and Political Weekly, Vol. 35, No. 1, June 25.
- INCID (1994), "Drip Irrigation in India", Indian National Committee on Irrigation and Drainage, New Delhi, July.
- Kulkarni S.Y.** (1987), "Sprinkler and Drip Irrigation System", Sinchan, No. 3, October.
- Magar S.S. et al.** (1988). "Importance of Drip Irrigation", Sinchan, No. 2, July.
- Menon K. Amernath** (1995), "Micro Irrigation: Profits in the Pipeline", India Today, May 15, p. 20.
- Mitra K. Ashok** (1996), "Irrigation Reforms: Issues and Approaches", Economic and Political Weekly, Vol. 31, No. 13, March 30.
- Narayanamoorthy A.** (1995a), "Electric Pumpset and Groundwater Management: Macro and Micro Evidence of India", Water Resources Journal, No. 189, June.
- Narayanamoorthy A.** (1995b), "Status of Indian Irrigation", Man & Development, Vol. 17, No. 4, December.
- Narayanamoorthy A.** (1996), "Evaluation of Drip Irrigation System in Maharashtra", Gokhale Institute Mimeograph Series No. 42, Agro-Economic Research Centre, Gokhale Institute of Politics and Economics, Pune, Maharashtra.
- Patil B.P.** (1988), "Crop Response to Sprinkler and Drip Irrigation with Special Reference to Konkan", Sinchan, No. 2, July.
- Shrestha R.B. & Gopalakrishnan C.** (1993), "Adoption and Diffusion of Drip Irrigation Technology: An Econometric Analysis", Economic Development and Cultural Change, Vol. 41 (2), January.
- Sivanappan R.K.** (1994a), "Micro Irrigation is the Answer: To bring more area under Plough", Business Line, Madras, October 18.
- Sivanappan R.K.** (1994b), "Prospects of Micro Irrigation in India", Irrigation and Drainage Systems, No. 8, pp. 49-58.
- Sivanappan R.K.** (1994c), "Micro Irrigation Macro Future", Kisan World, March Vol. 21 (3).
- Somasundaram M.V. et al.** (1995), "Present Status of Micro Irrigation in Tamil Nadu, India", Proceedings of the 5th International Congress on Micro Irrigation, Orlando, Florida, USA, April 2-6.
- Sudhakar M.S.** (1994), "New Joint Ventures in Drip Irrigation: Drip Irrigation Technology comes of age in India", in Agriculture and Industry Survey: 1993-94, Vadamalai Media Ltd., Coimbatore, Tamil Nadu.
- Vaidyanathan A.** (1994), "Impact of Irrigation on Productivity on Land", Journal of Indian School of Political Economy, October-December, pp. 601-645. □

An important difference between surface and well irrigation is that the former is a public source in terms of ownership and maintenance while the latter is largely privately owned.

Factors Influencing Well Irrigation in Tamil Nadu

T.R. Shanmugam

Well irrigation has been playing a dominant role in the agricultural economy of Tamil Nadu. Excessive exploitation of ground water had led to an irreversible fall in the water table. More importantly the water yield from an existing well tends to diminish as the water table recedes. In the face of rising cost of digging wells and reduced water availability, farm output has been affected. Thus in an excessively exploited region, additional investment in new wells might prove counter-productive in the sense that the additional area contributed by them might affect the existing area. The other major reason for falling ground water table might be the increase in area under crops like sugarcane which consume more water. Under the circumstances, collective exploitation of wells under an institutionalised framework remains the best solution. It may have to be considered a least in the tracts most seriously affected by over-exploitation and falling water table.

T.R. Shanmugam is Assistant Professor of Agricultural Economics, Tamil Nadu Agricultural University Research Centre, Sandhiyur, Salem-636203, Tamil Nadu.

Introduction

Canals, tanks and wells constitute the major source of irrigation in Tamil Nadu. Wells at present account for about 45 per cent of the net irrigated area in Tamil Nadu as may be seen in table 1. The growth in ground water development in the last three decades has been phenomenal and has come to be referred to as pumpset revolution. The number of wells has increased from 9 lakhs in 1960-61 to as high as 18 lakhs in 1989-90. Correspondingly, the area irrigated by wells has increased from about 7 lakh hectares to about 12 lakh hectares during this period. The extent of gross well-irrigated area has been steadily increasing from 1960 through 1990. These changes could also be compared with the increase in the net well-irrigated area at 2.50 per cent per annum. Well irrigation plays a dominant role in the State's agriculture for a variety of reasons, such as: (i) decreasing scope and increasing cost of surface irrigation development; (ii) Rising demand for more controllable water supply, created by HYV technology; and

An important difference between surface and well irrigation is that the former is a public source in terms of ownership and maintenance while the latter is largely privately owned.

(iii) Lower private investment needed in contrast to the huge public outlay required for surface irrigation. An important difference between surface and well irrigation is that the former is a public source in terms of ownership and maintenance while the latter is largely privately owned. Wells in Tamil Nadu irrigate on an average one hectare per well. Wells are dispersed fairly widely throughout Tamil Nadu, except the Nilgiris and Kanyakumari districts. Nine well-intensive districts, viz., Coimbatore, Periyar, South Arcot, North Arcot, Madurai,

Salem, Dharmapuri, Chengalpattu and Tiruchi account for about 76 per cent of the total number of wells and for 80 per cent of the net irrigated area under wells. In the northern and southern districts, wells used to supplement tank irrigation, particularly in the later part of the crop season. Ground water has already been over-exploited in the state, the drawal in many parts being continually more than the recharge. In this context, an attempt has been made in the present study to evaluate the performance of well irrigation in Tamil Nadu.

Ground water has already been over-exploited in the state, the drawal in many parts being continually more than the recharge.

Table 1: Net area irrigated by different sources in Tamil Nadu

Year	Area irrigated ('000 hectares)				Total
	Canal	Tank	Well	Others	
1950-59	795 (37.57)	778 (36.78)	497 (23.48)	46 (2.17)	2116 (100.00)
1960-69	883 (35.62)	912 (36.79)	645 (26.02)	39 (1.57)	2479 (100.00)
1970-79	894 (33.16)	849 (31.49)	918 (34.05)	35 (1.30)	2696 (100.00)
1980-89	848 (33.27)	673 (26.40)	1006 (39.47)	22 (0.86)	2549 (100.00)
1990-93	811 (34.13)	479 (20.16)	1071 (45.08)	15 (0.63)	2376 (100.00)

Note: Figures in brackets are percentages to total

Source: Government of Tamil Nadu, Season and Crop Reports, Various years, Directorate of Agriculture, Madras.

Methodology

Factors affecting ground water table

Factors affecting ground water recharge and extraction in Tamil Nadu have been analysed using the data on depth-to-water-table, rainfall and number of wells, for the period from 1960 to 1990. Also, monthly water tables were worked out. The depth-to-water-table below ground level ranged from 30 to 50 m with an average of 40m. The following regression model was fitted using the ordinary Least Squares method:

$$DW = \alpha_0 + \alpha_1 RF + \alpha_2 WL$$

where,

DW: depth-to-water-table below ground level in metres,

RF: mean of rainfall lagged 1 and 2 years, in mm. (e.g. for 1992, the mean of rainfall in 1990 and 1991 has been taken) and

WL: number of wells in the state in thousand lagged 1 year, and α_1 and α_2 are the parameters to be estimated.

Factors influencing well irrigated area

To identify the factors influencing the area irrigated by wells, the following form of regression equation is estimated for well intensive as well as well non-intensive districts; as also wells inside as well as those outside the surface command area. Well intensive districts where intensity of well irrigation is more than '1' are; Coimbatore, Periyar, South Arcot, North Arcot, Madurai, Salem, Chengalpattu, Tiruchi and Dharmapuri. Well non-intensive districts where intensity of well irrigation is '1' or less than '1' are Thanjavur, Kanyakumari, Tirunelveli, Pudukottai and Ramanathapuram.

$$NW = \beta_0 + \beta_1 RF + \beta_2 WD$$

where,

NW Net area irrigated per well in the districts in hectares

RF Mean rainfall in mm lagged by 1 and 2 years,

WD Density of wells defined as number of wells per square kilometre ratio of the total number of wells in the districts to the geographical area of the districts) lagged by 1 year, and β_1 and β_2 are parameters to be estimated.

Results & Discussion

Table 2 indicates the area under cultivation of major crops under well irrigation. It is seen that the share of rice

The share of rice decreased from 56 per cent in 1960-61 to 38 per cent in 1989-90. However, sugarcane and groundnut witnessed a rapid growth in the the area under wells revealing that commercial agriculture has been the important feature in this mode of irrigation.

decreased from 56 per cent in 1960-61 to 38 per cent in 1989-90. However, sugarcane and groundnut witnessed a rapid growth in the the area under wells revealing that commercial agriculture has been the important feature in this mode of irrigation. These two crops shared about 3 per cent each in 1960-61 which rose to about 10 per cent each in 1989-90 (Shanmugam, 1994).

Performance of well irrigation was also studied by analysing ground water recharge and evaluating the factors influencing the extent of well irrigation in the state. Factors affecting ground water recharge and extraction in Tamil Nadu has been analysed using the data on depth-to-water-table, rainfall and number of wells, for the period 1960 to 1990. The following

Table 2: Gross well irrigated area in Tamil Nadu

Year	Rice		Sugarcane		Groundnut		Cotton		All crops Area hectares
	Area hectares	Per cent	Area hectares	Per cent	Area hectares	Per cent	Area hectares	Per cent	
1960-61	679197	56.37	37012	3.07	40305	3.34	47904	3.98	1204955
1961-62	747301	59.56	44058	3.51	55315	4.41	55063	4.39	1254609
1962-63	792332	59.29	31874	2.39	55202	4.13	68378	5.12	1336265
1963-64	762016	57.79	42587	3.23	61159	4.64	68184	5.17	1318609
1964-65	713007	60.61	39956	3.40	41631	3.54	48895	4.16	1176467
1965-66	658775	55.36	59920	4.94	54568	4.59	50147	4.21	1190030
1966-67	814410	61.41	52511	3.96	72732	5.48	55563	4.19	1326079
1967-68	751549	53.88	63113	4.52	96013	6.88	52716	3.78	1394853
1968-69	695893	46.78	71634	4.82	66244	4.45	52265	3.51	1487529
1969-70	760332	55.51	80742	5.89	67941	4.96	49229	3.59	1369772
1970-71	737084	47.33	67089	4.31	95791	6.15	51940	3.34	1557375
1971-72	728219	52.50	56886	4.10	104998	7.57	74354	5.36	1387098
1972-73	770177	57.36	67457	5.02	76475	5.70	58333	4.34	1342779
1973-74	727337	45.97	87499	5.53	115376	7.29	59170	3.74	1582164
1974-75	581566	46.99	93408	7.55	81295	6.57	57345	4.63	1237692
1975-76	709172	55.75	59054	4.64	66060	5.19	35465	2.79	1272077
1976-77	578918	47.36	89813	7.35	68320	5.59	51287	4.20	1222288
1977-78	755346	54.75	78465	5.69	85024	6.16	79819	5.79	1379549
1978-79	792249	50.85	103828	6.66	116480	7.48	89529	5.75	1558120
1979-80	797849	50.70	85131	5.41	142850	9.08	84236	5.35	1573525
1980-81	689543	48.51	106880	7.52	136813	9.63	64898	4.57	1421427
1981-82	701013	50.21	121935	8.73	119879	8.59	58637	4.20	1396279
1982-83	595828	49.59	110838	9.23	101755	8.47	44662	3.72	1201464
1983-84	654571	53.32	72182	5.88	97346	7.93	41641	3.39	1227646
1984-85	683388	48.67	83016	5.91	149766	10.67	78926	5.62	1404058
1985-86	670432	47.83	112630	8.03	139104	9.92	77404	5.52	1401796
1986-87	596385	45.28	117818	8.94	127142	9.65	45858	3.48	1317212
1987-88	588847	42.52	170198	12.29	116701	8.43	66276	4.79	1384806
1988-89	572465	43.78	130200	9.96	132201	10.11	66123	5.06	1307605
1989-90	486542	38.27	129710	10.20	129938	10.22	65456	5.15	1271420

Source: Government of Tamil Nadu, Season and Crop Reports, Various years, Directorate of Agriculture, Madras.

regression model was fitted using the Ordinary Least Squares method:

$$DW = 6.9254 - 0.0216^{**} RF + 0.0843^{**} WL$$

(4.7323) (3.9207)

$$R^2 = 0.6942; N = 30; F = 31.2625^{**}$$

Figures in parentheses are 't' ratios

** indicates significant at 1 per cent level

An increase in the lagged mean rainfall by one mm, could bring up the water table by 0.02 metre (i.e., decreases the depth-to-water-table 0.02 metre) and an increase in the number of wells by one thousand above the mean could increase the depth-to-water-table (i.e., pushes down the water table) by about 0.08 metre. The increase in depth-to-water-table due to increase in the number of wells is an indirect consequence of a limited supply of water of the aquifers having to be shared among the larger number of wells. Some of the immediate consequences of over-extraction of ground water are:

- * fall in water table forcing the farmers either to deepen the well or to abandon it depending upon their access to financial resources;
- * change in cropping pattern; and
- * reduced net area under well irrigation.

The increase in depth-to-water-table due to increase in the number of wells is an indirect consequence of a limited supply of water of the aquifers having to be shared among the larger number of wells.

A rise in the number of wells (9 lakhs in 1960-61 to 18 lakhs in 1989-90) with concomitant lowering of the water table has resulted in decrease of the net irrigated area per well. The net area irrigated per well has decreased sharply over the years from 0.8 hectare in 1960-61 to 0.6 hectare in 1989-90.

To identify the factors influencing the area irrigated per well, the following form of regression equation was estimated for well-intensive as well as well-non-intensive districts; and wells inside as well as those outside the surface command area.

Well-intensive districts where the intensity of well irrigation is more than '1' are: Coimbatore, Periyar,

A comparison of the results for well-intensive and well-non-intensive districts revealed that the influence of both rainfall and density of wells on the irrigated per well was higher in well-intensive districts than in non-well-intensive districts.

South Arcot, North Arcot, Madurai, Salem, Chengalpattu, Tiruchi and Dharmapuri. Well-non-intensive districts where the intensity of well irrigation is '1' or less are: Thanjavur, Kanyakumari, Tirunelveli, Pudukottai and Ramanathapuram. The results of the regression analysis are presented in table 3. A comparison of the results for well-intensive and well-non-intensive districts reveal that the influence of both rainfall and density of wells on the irrigated per well was higher in well-intensive districts than in non-well-intensive districts. In the former every one mm increase in rainfall could increase the net irrigated area per well by 0.0079 ha, whereas in the latter it was only 0.0052 ha. Similarly, the impact of density of wells on area irrigated per well was much higher in well-intensive districts than in non-well-intensive districts. While every additional well per square kilometre in the former caused a decrease in the net irrigated area per well by 0.08 ha, the corresponding reduction in the latter was only about 0.03 ha.

With respect to wells inside command area, every 1 mm increase in rainfall could increase the net irrigated area per well by 0.0064 ha. In the case of wells outside the command area, every 1 mm increase in rainfall would increase the net irrigated area per well by 0.0089 ha. The higher increase in net irrigated area under the wells outside the command has been because these wells depend exclusively on rainfall for recharge. While every additional well per square kilometre inside the command had caused a decrease in the net irrigated area by 0.0012 ha, it was about 0.09 ha for wells outside the command. In the case of wells inside the command area, tanks and canals had contributed to raise the ground water table, while rainfall alone contributed to raise the ground water table in the wells outside the command area.

Similarly, the impact of density of wells on area irrigated per well was much higher in well-intensive districts than in non-well-intensive districts.

Table 3: Regression analysis on factors influencing area irrigated by wells

Category	Factors	Regression coefficient	t'-value	R ²	N
Well-intensive districts	Constant	0.4189	1237	0.6932	30
	Lagged mean rain mm	0.0079	4.236		
	Lagged well density no./sq km	-0.0854	-7.592		
Well-non-intensive districts	Constant	0.3457	1.312	0.5741	30
	Lagged mean rain mm	0.0052	3.645		
	Lagged well density no./sq km	-0.0317	-8.249		
Wells inside surface command	Constant	0.2946	0.816	0.7652	30
	Lagged mean rain mm	0.0064	5.317		
	Lagged well density no./sq km	-0.0012	-4.705		
Wells outside surface command	Constant	0.2583	0.917	0.8143	30
	Lagged mean rain mm	0.0089	6.971		
	Lagged well density no./sq km	-0.0937	-3.826		

In an excessively exploited region, additional investment in new wells might prove counter-productive in the sense that additional area contributed by them might affect output from the existing area.

The negative coefficient for intensity of wells indicated a clear case of externality caused by digging additional wells, even though the externality was much higher in the well-intensive districts. Private exploitation of underground water by numerous individual farmers has resulted in an indiscriminate and unregulated proliferation of wells. Excessive exploitation of ground water has

led to an irreversible fall in the water table. More importantly the water yield from an existing well tends to decline as the water table recedes. In the face of rising cost of digging wells and reduced water availability, the farm output has been affected. Thus in an excessively exploited region, additional investment in new wells might prove counter-productive in the sense that additional area contributed by them might affect output from the existing area.

References

- Government of Tamil Nadu, "Season and Crop Reports", Directorate of Agriculture, Madras (various years).
- Shanmugam T.R. (1994), "Performance Analysis of Irrigation Sources and Major Irrigated Crops in Tamil Nadu", Unpublished Ph.D. Dissertation, Department of Agricultural Economics, Tamil Nadu Agricultural University, Coimbatore-3. □

Economics of Tractor Use in Agriculture

Balishter & N.P. Singh

Tractors have entered Indian farming pervasively owing to their functional versatility and vastly superior outturn of work. But quite often, they are found to be underutilized which affects their overall economics adversely. In this light, the article presents a detailed study encompassing all aspects of tractor use in two Community Development Blocks in the Agra District of UP. Employing benefit-cost analysis techniques, it attempts to develop a basis for sound investment decision on tractor and the tractor power to choose. Farm size, cropping area, pattern and intensity, cultivation technology, captive versus custom use mode, etc., are shown to influence the return on investment in tractor.

Balishter & N.P. Singh are Readers in the Department of Agricultural Economics, R.B.S. College, Bichpuri, Agra (UP).

The new agricultural technology introduced in India during mid-sixties, in terms of high yielding variety (HYV) seeds along with intensive use of fertilizers and irrigation, has transformed traditional agriculture leading to increased intensity of cropping and growing of input-intensive crops. This in turn, has increased the demand for labour—both human and bullock—particularly during the peak season so as to ensure timeliness of various farm operations. This results in acute labour shortage during the peak season, which has motivated farmers to tractorize their farms. The availability of institutional credit in the post bank nationalisation period for financing purchase of machinery has hastened the pace of tractorization. Consequently, there has been a tremendous increase in the number of tractors in the country since then.

Tractor seems to have now become an integral part of the farm structure. Recent studies, however, show that the investment in tractor on many farms is not justified where the tractor capacity remains grossly under-utilized because of the cropping pattern or the small holding size. This results in high cost farming as the fixed cost accounts form a substantial part of the total operating cost. There are indications that growing use of tractors and the availability of excess tractor power in certain pockets in agriculturally advanced states/regions, pushing up the cost of production per unit, has created an imbalance in the economic structure of agriculture. Therefore, there was need for more micro level studies on the use of tractor in different regions of the country. With this end in view, an attempt has been made in this study to examine the economics of tractor use in agriculture.

The investment in tractor on many farms is not justified where the tractor capacity remains grossly under-utilized because of the cropping pattern or the small holding size.

The objectives of the study are:

- To examine the pattern of tractor use on different farm size groups.
- To study the extent of utilization of tractor capacity on different farm size groups.
- To work out the cost of tractor power used.
- To work out the break-even point of operation of tractor.
- To study the return on investment in tractor.

Methodology

The present study is confined to the Agra district of Uttar Pradesh. Out of the total 15 Community Development (CD) Blocks in the district two were selected on the basis of availability of tractor power per hectare (HP available per hectare) – Bichpuri Block with the highest availability (1.53 HP per hectare) and Pinahat Block with the lowest availability (0.14 HP per hectare). The villages in each block were arranged in the ascending order of availability of tractor power per hectare. Then 10 villages with the highest availability of tractor power were selected from each block. Then lists of farmers with their owned holdings in the sample villages of each selected block were prepared. These farmers were classified into three categories on the basis of owned holdings viz, small (up to 2 ha.), medium (2-4 ha) and large (above 4 ha). In all, 120 farmers (60 farmers from each block) were selected, of whom only 48 farmers – 27 in Bichpuri Block and 21 in Pinahat Block – were tractor owners. This study covers only those owning tractors. The necessary data for the reference year 1992-93 were obtained from the sample farmers by survey method through personal interviews with the help of schedules and questionnaires specially designed for the purpose.

Results & Discussion

Profile of respondents

The distribution of sample tractor farms by farm size groups in the two blocks is given in table 1.

It may be seen that the largest number of tractor farms are of medium size in Bichpuri block and of large size in Pinahat block.

Table 2 shows the distribution of tractor farms by tractor size in the two blocks. The values could show 35 HP to be the preferred size for the district under study.

Table 1: Distribution of sample tractor farms by farm size groups

Farm size group	Bichpuri	Pinahat	Total
Small	8 (29.6)	4 (19.0)	12 (25.0)
Medium	11 (40.8)	7 (33.3)	18 (37.5)
Large	8 (29.6)	10 (47.7)	18 (37.5)
Total	27 (100.0)	21 (100.0)	48 (100.0)

Note: Figures in brackets are percentages.

Table 2: Distribution of tractor farms by tractor size

Tractor size	Bichpuri	Pinahat	Total
25 HP	4 (15.0)	4 (19.0)	8 (16.7)
35 HP	19 (70.0)	13 (62.0)	32 (66.6)
Above 35 HP	4 (15.0)	4 (19.0)	8 (16.7)
Total	27 (100.0)	21 (100.0)	48 (100.0)

Note: Figures in brackets are percentages.

Table 3 gives the distribution of tractor farms by farm size and tractor size. But no direct relationship seems to exist between farm size and tractor size. It would appear that tractors are purchased not exclusively for own farm work but to be rented out too.

Table 3: Distribution of tractor farms by farm size and tractor size

Farm size	Tractor Size			Total
	25 HP	35 HP	Above 35 HP	
Small	2 (25.0)	8 (25.0)	2 (25.0)	12 (25.0)
Medium	3 (37.5)	12 (37.5)	3 (37.5)	18 (37.5)
Large	3 (37.5)	12 (37.5)	3 (37.5)	18 (37.5)
Total	8 (100.0)	32 (100.0)	8 (100.0)	48 (100.0)

Note: Figures in brackets are percentages.

The average size of sample tractor farms in the two blocks is given in table 4. Which shows that the overall average size of tractor farms comes to 3.21 hectares in Bichpuri Block and 3.19 hectares in Pinahat Block.

Irrigated area and source of irrigation

The entire cultivated area of the tractor farms in Bichpuri Block and about 80 per cent of the cultivated

Table 4: Average size of tractor farms

Farm size group	Bichpuri			Pinahat		
	No. of tractor farms	Total cultivated area ha	Average farm size ha	No. of tractor farms	Total cultivated area ha	Average farm size ha
Small	8 (29.63)	13 (15.51)	1.68	4 (19.04)	5.08 (7.59)	1.27
Medium	11 (40.74)	34.76 (40.10)	3.16	7 (33.33)	19.18 (28.64)	2.74
Large	8 (29.63)	38.48 (44.39)	4.81	10 (47.62)	42.70 (63.77)	4.27
Total	27 (100)	86.68 (100)	3.21	21 (100)	66.96 (100)	3.19

Note: Figures in brackets give percentages.

area of the tractor farms in Pinahat block are irrigated. By farm size group the percentage irrigated area in Pinahat Block comes to about 88 in small, about 82 in medium and about 78 in large size groups. The proportion of area irrigated by different sources under different size groups in the two blocks is shown in table 5. It may be seen therefrom the tractor farms in Bichpuri block are irrigated variously by canal, private tubewells and both whereas in Pinahat Block the entire area is irrigated by private tubewells.

Total 5: Area irrigated by different sources

Farm size group	Irrigated area in hectares Bichpuri				Pinahat Only private tubewell
	Canal	Canal + private tubewell	Private tubewell	Total	
Small	0.16 (9.52)	0.89 (52.98)	0.63 (37.50)	1.68 (100.00)	1.12 (100.00)
Medium	0.34 (10.76)	1.49 (47.15)	1.33 (42.09)	3.16 (100.00)	2.26 (100.00)
Large	0.68 (14.14)	1.25 (25.98)	2.88 (59.88)	4.81 (100.00)	3.32 (100.00)
All	0.39 (12.15)	1.24 (38.63)	1.58 (49.22)	3.21 (100.00)	2.55 (100.00)

Note: Figures in brackets give percentages.

Intensity of cropping

Table 6 gives the intensity of cropping in different farm size groups in the two blocks. It is noticed therefrom that the overall intensity of cropping is about 196 per cent on tractor farms in Bichpuri Block and about 153 per cent in Pinahat Block. The intensity is seen to decrease progressively with farm size in both blocks. Between the blocks, the intensity is higher in all farm size groups in Bichpuri Block than in Pinahat Block.

Table 6: Intensity of cropping in different farm size groups

Farm size group	Bichpuri			Pinahat		
	Cultivated area ha	Cropped area ha	Intensity of cropping	Cultivated area ha	Cropped area ha	Intensity of cropping
Small	1.68	3.67	218.45	1.27	2.12	166.93
Medium	3.16	6.41	202.85	2.74	4.33	158.03
Large	4.81	8.79	182.74	4.27	6.36	148.95
All	3.21	6.30	196.26	3.19	4.87	152.66

Cropping pattern

The distribution of the cropped area under different crops grown on sample farms in the two blocks is given in table 7. It brings out that of the total cropped area in Bichpuri Block about 31 per cent is under *kharif* crops, about 52 per cent under *rabi* crops and about 17 per cent in *zaid* crops. Bajra (14 per cent) and jowar (12 per cent) are important among the *kharif* crops, while wheat (24 per cent) and mustard (16 per cent) are important among the *rabi* crops and moong (10 per cent) is the important among the *zaid* crops. In Pinahat Block, about 33 per cent of the total cropped area is under *kharif* crops, about 61 per cent under *rabi* crops, and about 6 per cent under *zaid* crops crop-wise.

Bajra (17 per cent) is the most important among the *kharif* crops, while mustard (22 per cent) and wheat (15 per cent) in that order are the important *rabi* crops. Among *zaid* crops moong (3 per cent) is the important crop. Area under vegetable crops is more in Bichpuri Block than in Pinahat Block.

Tractor power utilization—own farm vs custom work

The total utilization of tractor power per tractor is given in table 8. In Bichpuri Block each tractor works for an average of 737 hours per year, of which about 69 per cent is utilized for farm work—almost equally divided between the owner's farm and custom work—and about 31 per cent for non-farm work—about 9 per cent for the owner's works and about 22 per cent for custom work. Thus out of the total tractor power utilization 43 per cent is utilized on owner's account and 57 per cent on custom work. In Pinahat Block a tractor works for an average of 681 hours per year of which about 69 per cent is utilized for farm work—27 per cent on the owner's farm and 42 per cent on custom work—and 31 per cent for non-farm work—about 3 per cent on owner's account and 28 per cent on custom work. Thus out of the total tractor power utilisation about 30 per cent is on owner's account and about 70 per cent on custom work. Between the

Table 7: Per cent area under different crops by farm size groups

Crop	Per cent area							
	Bichpuri				Pinahat			
	Small	Medium	Large	All	Small	Medium	Large	All
<i>A. Kharif</i>								
Jowar	11.72	11.39	11.60	11.59	8.02	6.93	7.86	7.60
Bajra	14.99	15.13	14.33	14.76	15.57	18.48	16.51	17.25
Arhar	4.09	4.21	3.19	3.81	7.08	7.63	4.40	5.54
Other kharif crops	1.63	0.94	0.92	0.95	2.82	2.54	2.68	2.46
<i>Kharif total</i>	32.43	31.67	30.04	31.11	33.49	35.58	31.45	32.85
<i>B. Rabi</i>								
Wheat	23.72	24.34	23.89	23.81	16.51	14.55	15.41	15.20
Mustard	14.44	15.76	17.63	16.35	17.45	18.94	24.52	22.38
Gram	0.54	0.31	0.23	0.332	6.13	6.47	6.45	6.37
Barley	2.99	3.12	3.64	2.06	9.91	9.70	12.74	11.70
Potato	2.18	1.87	1.93	3.33	0.94	1.15	0.79	0.82
Other rabi crops	5.99	5.93	6.26	6.04	7.55	7.85	3.14	4.93
<i>Rabi total</i>	49.86	51.33	53.58	51.91	58.49	58.66	63.05	61.40
<i>C. Zaid</i>								
moong	9.54	10.60	9.33	9.84	4.25	3.45	3.77	3.49
Vegetables	5.72	3.28	4.89	4.44	2.83	2.08	2.36	1.85
Other zaid crops	2.45	3.12	2.16	2.70	1.06	0.23	0.47	0.41
<i>Zaid total</i>	17.71	17.00	16.38	16.98	8.02	5.76	5.50	5.75
Grand total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

two blocks utilization of tractor power on owner's account is higher (43 per cent) in Bichpur Block than in Pinahat Block (about 30 per cent). Yet, utilization of tractor for custom work is more important than on owner's farm, in both blocks.

Tillage, threshing and transportation of farm produce are the major activities for which tractor is utilized.

Utilization of tractor for custom work is more important than on owner's farm, in both blocks.

Tractor capacity utilization

Tractor capacity may be defined as the maximum possible use of tractor in a crop season, particularly for tillage and threshing operations. A knowledge of tractor capacity available for utilization is helpful in deciding the cropping schedule and the optimum area which can be covered one tractor. While calculating this the number of rainy days and breakdown days also are taken into account to arrive at the critical number of days to operate the tractor. Effective rainfall days are those when the rainfall exceeds 10 mm which affects the operation of tractor. It is observed that after this rainfall the soil normally takes about 4 days to return to a state suitable for operation of tractor.

Tractor power utilization—Activity-wise

Table 9 gives the break-up of tractor power utilization for different farm activities. It is seen therefrom that tillage, threshing and transportation of farm produce are the major activities for which tractor is utilized, which, together account for 89 per cent of tractor line in Bichpuri Block and 95 per cent in Pinahat Block.

Table 8: Utilization of tractor power per tractor

Farm size group	Hours per tractor								
	Farm work			Non-farm work			Grand total		
	Own farm	Custom work	Total	Own farm	Custom work	Total	Own farm	Custom work	Total
<i>Bichpuri</i>									
Small	187.38 (27.63)	258.88 (38.18)	446.26 (65.81)	64.50 (9.51)	167.38 (24.68)	231.88 (34.19)	251.88 (37.14)	426.26 (62.86)	678.14 (100.00)
Medium	269.36 (36.66)	251.27 (34.19)	520.63 (70.85)	60.64 (8.25)	153.55 (20.90)	214.19 (29.15)	330.00 (44.91)	404.82 (55.09)	734.82 (100.00)
Large	304.75 (38.15)	252.25 (31.57)	557.00 (69.72)	64.25 (8.04)	177.63 (22.23)	241.88 (30.28)	369.00 (46.19)	429.88 (53.81)	798.88 (100.00)
All	255.56 (34.67)	253.81 (34.44)	509.37 (69.11)	62.85 (8.53)	164.78 (22.36)	227.63 (30.89)	318.41 (43.20)	418.59 (56.80)	737.00 (100.00)
<i>Pinahat</i>									
Small	112.75 (18.73)	305.00 (50.66)	417.75 (69.39)	9.50 (1.58)	174.75 (29.03)	184.25 (30.61)	122.25 (20.31)	479.75 (79.69)	602.00 (100.00)
Medium	188.85 (28.65)	255.71 (38.80)	444.56 (67.45)	13.71 (2.08)	200.86 (30.47)	214.57 (32.55)	202.56 (30.73)	456.57 (67.20)	659.13 (100.00)
Large	214.70 (29.51)	299.30 (41.14)	514.00 (70.65)	23.90 (3.29)	189.60 (26.06)	213.50 (29.35)	238.60 (32.80)	488.90 (67.20)	727.50 (100.00)
All	186.67 (27.42)	285.86 (41.99)	472.53 (69.41)	17.76 (2.61)	190.52 (27.98)	208.28 (30.59)	204.43 (30.03)	476.38 (69.97)	680.81 (100.00)

Note: Figures in brackets give percentages

A knowledge of tractor capacity available for utilization is helpful in deciding the cropping schedule and the optimum area which can be covered one tractor.

To calculate the seasonal tractor capacity, the period for preparation of soil for sowing and the period within which the sowing should be completed have been laid out as follows:

Kharif crops: From June 15 to August 15 plus 10 days for threshing and transportation

Rabi crops: From September 15 to November 15 plus 30 days for threshing, etc

Zaid crops: 15 days for tillage and sowing plus 5 days for other operations

Breakdown days represent the period during which the tractor cannot be operated owing to repair work and for normal maintenance operations. About 25 per cent of total critical days is taken as the breakdown days. The operational time efficiency was

considered as 90 per cent.

Tractor capacity (actual time available for operation of a tractor in hours) has been worked out as follows:

$$T_a = N \times H \times n_t \times n_a \times n$$

where,

T_a Actual available time of power source in hours during critical period of seed bed preparation, seeding and threshing operations

N Number of shifts of operation per day

H Hours per shift per day

n Number of critical days in the season during which the operations are to be carried out for a crop

n_t Time efficiency of power sources

n_a Availability of power sources and equipment during the critical period.

The available number of critical days and the available operational capacity in different crop seasons is shown in table 10.

Table 9: Utilization of tractor for different farm activities*

Activity	Utilization, hours per tractor							
	Bichpuri				Pinahat			
	Small	Medium	Large	All	Small	Medium	Large	All
Tillage	153.13 (34.31)	200.23 (38.46)	198.88 (35.70)	185.89 (36.49)	158.25 (37.88)	163.28 (36.73)	184.40 (35.88)	172.38 (36.48)
Irrigation	12.01 (2.69)	20.18 (3.88)	19.88 (3.57)	17.66 (3.47)	5.25 (1.26)	12.87 (2.89)	9.40 (1.83)	9.76 (2.07)
Threshing	113.12 (25.35)	126.55 (24.31)	135.63 (24.35)	125.26 (24.59)	126.00 (30.16)	126.58 (28.47)	152.00 (29.57)	138.57 (29.33)
Transportation of farm produce	140.88 (31.57)	131.63 (25.28)	164.50 (29.53)	144.11 (28.29)	118.55 (28.38)	126.28 (28.40)	157.60 (30.66)	139.72 (29.57)
Interculture, plant protection and others	27.12 (6.08)	42.04 (8.07)	38.11 (6.84)	36.45 (7.16)	9.70 (2.32)	15.56 (3.50)	10.60 (2.06)	12.10 (2.56)
Total	446.26 (100.00)	520.63 (100.00)	557.00 (100.00)	509.37 (100.00)	417.75 (100.00)	444.57 (100.00)	514.00 (100.00)	472.53 (100.00)

* Includes both own and custom farm activities

Note: Figures in brackets give percentages

Table 10: Number of critical days for tractor and available operational capacity in different crop seasons

Crop season	No. of days available for tillage and sowing	Days available for threshing and transportation	Effective rainfall days	Non-operational days due to rainfall	Critical days for all operations (Col. 2 + 3) - (Col. 5)	Available utilization capacity hours
Kharif	60	10	6	24	46	308.20
Rabi	60	30	1.50	6	84	562.80
Zaid	15	5	-	-	20	134.00
Total	135	45	7.50	30	150	1005.00

Note: A day is equal to 10 working hours

Table 11: Utilization of available operational tractor capacity by different farm size groups

Farm size group	Bichpuri Block			Pinahat Block		
	Available capacity hours	Utilized capacity hours	Per cent utilization	Available capacity hours	Utilized capacity hours	Per cent utilization
Small	1005.00	446.25	44.40	1005.00	417.75	41.57
Medium	1005.00	520.64	51.80	1005.00	444.57	44.23
Large	1005.00	557.00	55.42	1005.00	514.00	51.14
All	1005.00	509.37	50.68	1005.00	472.52	47.02

Seasonal capacity was calculated as per the amount of work in a particular crop season. Since the available the maximum work has to be performed utilization capacity peaks in the rabi season then and consequently, the tractor must be capable of fulfilling the peak operational activities in this season.

Table 11 gives the farm-size-wise utilization of tractor capacity. It shows that overall utilization of available operational tractor capacity is 51 per cent in Bichpuri

Block and 47 per cent in Pinahat Block which is rather poor. The capacity utilization is seen to increase with farm size.

Table 12 gives the season-wise utilization of tractor capacity. It may be seen that the utilization of available tractor capacity is slightly more in Bichpuri Block than in Pinahat Block in all farm size groups. Furthermore, the utilization is very poor (about 20 per cent) in zaid season in Pinahat Block. Over 40 per cent of available

Table 12: Season-wise utilization of tractor capacity

Farm size group	Tractor capacity, hours/tractor											
	Bichpuri Block						Pinahat Block					
	Kharif		Rabi		Zaid		Kharif		Rabi		Zaid	
	Avail-able	Used	Avail-able	Used	Avail-able	Used	Avail-able	Used	Avail-able	Used	Avail-able	Used
Small	308.20	109.75 (35.61)	562.80	284.63 (50.57)	134.00	51.88 (38.72)	308.20	109.50 (35.53)	562.80	283.50 (50.37)	134.00	24.75 (18.47)
Medium	308.20	123.20 (39.91)	562.80	338.27 (60.10)	134.00	59.36 (44.30)	308.20	119.29 (38.71)	562.80	299.29 (53.18)	134.00	26.00 (19.40)
Large	308.20	126.88 (41.17)	562.80	336.00 (59.70)	134.00	64.13 (47.86)	308.20	125.00 (40.56)	562.80	361.50 (64.23)	134.00	27.50 (20.52)
Overall	308.20	120.22 (39.01)	562.80	330.59 (58.74)	134.00	58.56 (43.70)	308.20	120.14 (38.98)	562.80	325.90 (57.91)	134.00	26.48 (19.76)

Note: Figures in brackets give percentage

Table 13: Per-hour cost of tractor by size

Farm size group	Cost (Rs.)									All		
	25 HP			35 HP			Above 35 HP			Fixed	Variable	Total
	Fixed	Variable	Total	Fixed	Variable	Total	Fixed	Variable	Total			
<i>Bichpuri Block</i>												
Small	31.84 (57.04)	23.98 (42.96)	55.82 (100.00)	39.28 (54.71)	32.52 (45.29)	71.80 (100.00)	53.50 (56.54)	41.14 (53.47)	94.63 (100.00)	39.80 (55.22)	32.28 (44.78)	72.08 (100.00)
Medium	30.07 (58.43)	21.39 (41.57)	51.46 (100.00)	36.85 (55.26)	29.83 (45.74)	66.68 (100.00)	49.93 (55.91)	39.37 (44.09)	89.30 (100.00)	37.62 (55.87)	29.70 (44.12)	67.33 (100.00)
Large	28.15 (47.14)	18.97 (31.77)	47.12 (100.00)	34.43 (55.75)	27.33 (44.25)	61.76 (100.00)	48.28 (56.20)	37.62 (43.80)	85.90 (100.00)	35.19 (56.24)	27.38 (43.76)	62.56 (100.00)
All	30.03 (58.45)	21.35 (41.56)	51.37 (100.00)	36.72 (55.23)	29.76 (44.77)	66.48 (100.00)	50.28 (56.13)	39.29 (43.87)	89.57 (100.00)	37.44 (55.81)	29.65 (44.19)	67.09 (100.00)
<i>Pinahat Block</i>												
Small	33.94 (56.15)	26.54 (43.85)	60.45 (100.00)	43.77 (55.90)	34.52 (44.10)	78.30 (100.00)	57.30 (57.47)	42.41 (42.53)	99.70 (100.00)	43.92 (56.39)	33.92 (43.61)	77.89 (100.00)
Medium	32.00 (57.33)	23.82 (42.67)	55.82 (100.00)	40.55 (55.78)	32.15 (44.22)	72.69 (100.00)	54.12 (57.12)	40.63 (42.88)	94.75 (100.00)	40.94 (56.18)	31.93 (43.82)	72.87 (100.00)
Large	30.05 (58.52)	21.31 (41.50)	51.35 (100.00)	37.24 (55.67)	29.65 (44.33)	66.89 (100.00)	50.15 (55.86)	39.62 (44.14)	89.77 (100.00)	38.03 (56.19)	29.65 (43.81)	67.68 (100.00)
All	31.41 (57.61)	23.11 (42.39)	54.52 (100.00)	39.36 (55.76)	31.24 (44.26)	70.59 (100.00)	52.64 (56.54)	40.46 (43.46)	93.10 (100.00)	39.96 (56.22)	31.11 (43.78)	71.08 (100.00)

Note: Figures in brackets indicate percentage

Overall utilization of available operational tractor capacity is 51 per cent in Bichpuri Block and 47 per cent in Pinahat Block which is rather poor. The capacity utilization is seen to increase with farm size.

tractor capacity remains unutilized even in *rabi* season when, in fact, the tractor has maximum workload because of the large area cultivated in that season.

Tractor operation cost by size of tractor

The total cost of tractor operation comprises two elements: the fixed cost and the variable cost. The per-hour cost of a tractor according to its size in different

Table 14: Comparative fixed cost per annum, variable cost per hour and rent per hour for different sizes of tractor

Cost/Hiring charge	Bichpuri Block			Pinahat Block		
	Size of tractor			Size of tractor		
	25 HP	35 HP	Above 35 HP	25 HP	35 HP	Above 35 HP
Fixed cost per year, Rs.	24238.76	27044.81	33159.81	23369.77	26910.28	32006.08
Variable cost per hour, Rs.	21.35	29.76	9.29	23.11	31.24	40.46
Hiring charges per hour, Rs.	70.00	80.00	100.00	75.00	84.00	102.00

farm size groups is given in table 13. It is estimated by dividing the total annual cost of a tractor by the total number of hours a tractor is used. Table 13 shows that the overall per-hour total cost of tractor operation works out to Rs. 67 in Bichpuri Block and Rs. 71 in Pinahat Block. The per-hour cost of tractor increases with size in both the blocks.

Break-even analysis of tractor operation

The break-even point of operation of a tractor is the point at which it would neither entail a loss nor produce a profit. Accordingly, a break-even analysis of all three capacities of tractors was done. The prevailing commercial hiring rate in both the blocks was taken as the basis for the purpose. For Bichpuri Block, Rs. 70, Rs. 80 and Rs. 100 per hour respectively for 25 HP, 35 HP and above 35 HP. The rates were Rs. 75, Rs. 84 and Rs. 102 per hour respectively in Pinahat block.

The break-even point of operation of a tractor is the point at which it would neither entail a loss nor produce a profit.

Table 14 gives comparative overall fixed cost per annum, variable cost per hour and hiring charges per hour, for three sizes of tractor. It reveals that both costs and rental values increase with the size of tractor.

Table 15 gives the comparative values of minimum cropped area with the corresponding break-even hours, available tractor capacity in hours in the operational season and the tractor hours needed per hectare, the area controlling capacity in hectares and the tractor power requirement (bhp/hectare) for different sizes of tractor. The break-even point is seen to increase with the size of tractor in both the blocks. The trend in respect of the minimum area (break-even) per tractor indicates that

at least this much area should be available to operate a tractor on no-profit and no-loss. If the area is less than the break-even value it is not advisable to purchase a tractor.

Return on Investment in Tractor

Comparative data on annual gross income, total cost excluding tractor cost proper and investment in tractor (including annual repairs, depreciation and interest on capital), rate of return per rupee of investment in tractor across farm size groups in both blocks are given in Table 16. It shows that the return per rupee of investment in tractor comes to Rs. 1.43 in Bichpuri Block and Rs. 1.15 in Pinahat Block.

Findings

The main findings from this study are:

- Of the total tractor farm, 16.7 per cent or about one-sixth have 25 HP tractors, 66.6 per cent or two-thirds 35 HP ones and 16.7 per cent or one-sixth have those above 35 HP. The respective percentages for Bichpuri Block and 15, 70 and 15 per cent, and for Pinahat Block 19, 62 and 19 per cent. The suitable tractor size for the district appears to be 35 HP.

The suitable tractor size for the district appears to be 35 HP. No specific relationship seems to exist between farm size and tractor size.

- No specific relationship seems to exist between farm size and tractor size. Tractors are purchased not only for own farm work but to cater to custom work too.

Table 15: Comparative values of break-even point, minimum area, area controlling capacity and tractor power requirement by size of tractors

Item	Bichpuri Block			Pinahat Block		
	Size of tractor			Size of tractor		
	25 HP	35 HP	Above 35 HP	25 HP	35 HP	Above 35 HP
Break-even, hours	498.23	538.31	546.20	450.37	510.05	520.08
Overall operational duration needed per cropped hectare, hours	40.89	36.75	32.00	37.90	34.57	30.35
Minimum cropped area, Break-even	12.18	14.65	17.07	11.88	14.75	17.13
Tractor capacity available, hours	562.80	562.80	562.80	562.80	562.80	562.80
Tractor operation needed per cropped hectare in peak season, hours	46.13	40.26	37.50	40.17	37.12	31.83
Area controlling capacity, cropped hectare	12.20	13.98	15.01	14.01	15.16	17.68
Annual available duration of tractor operation for full utilization of tractor capacity, hours	1005	1005	1005	1005	1005	1005
Tractor power requirement, bhp cropped hectare	0.98	0.78	0.69	1.06	0.83	0.74

Table 16: Annual return on investment in tractor by farm size groups

Item	Bichpuri Block				Pinahat Block			
	Small	Medium	Large	All	Small	Medium	Large	All
Annual gross income, Rs.	41804.84	70970.00	85113.25	66519.06	26228.92	42351.83	54565.75	45096.96
Total farm cost excluding tractor, Rs.	14243.19	29746.36	36821.35	27249.12	5946.20	12413.18	17895.35	13791.93
Investment in tractor, Rs.	26993.84	27509.79	28110.90	27535.02	26440.38	26986.86	27666.75	27206.53
Annual return per rupee of investment	1.02	1.50	1.72	1.43	0.77	1.11	1.32	1.15

- The overall intensity of cropping is about 196 per cent on tractor farms in Bichpuri Block and about 153 per cent on tractor farms in Pinahat Block. Cropping intensity shows an inverse relationship with farm size in both blocks. It is higher in all farm size groups in Bichpuri Block as compared to Pinahat Block. This is because

Cropping intensity shows an inverse relationship with farm size in both blocks.

the entire cultivated area in Bichpuri Block is irrigated while only about 80 per cent is irrigated in Pinahat Block.

- In Pinahat Block the area under low water requirement crops (mustard, gram, barley) is higher than in Bichpuri Block. The availability of irrigation facilities to the entire cultivated area, and also tractor power which facilitated timely completion of farm operations, enabled greater commercialisation of agriculture in Bichpuri Block as compared to Pinahat Block.
- In Bichpuri Block a tractor works for an average of 737 hours per year, divided between farm and non-farm work (69 per cent to 31 per cent)

The availability of irrigation facilities to the entire cultivated area, and also tractor power which facilitated timely completion of farm operations timely, enabled greater commercialisation of agriculture in Bichpuri Block as compared to Pinahat Block.

and between owner's work and custom work – 43 per cent to 57 per cent. In Pinahat block on the other hand, a tractor works for an average of 681 hours per year, but divided between farm work and non-farm work in the same ratio of 69 per cent to 31 per cent; and between owner's work and custom work (30 per cent to 70 per cent). Custom work claimed a higher share of tractor time in both blocks.

- Tillage, threshing and transportation of farm produce constitute the major farm activities for which tractor is utilized. Together these activities account for 89 per cent tractor time in Bichpuri Block and 95 per cent in Pinahat Block.
- The overall utilization of available operational tractor capacity is rather poor, at 51 per cent in Bichpuri Block and 47 per cent in Pinahat Block. Utilization of tractor capacity varies directly with farm size. Utilization of available tractor capacity is slightly more for all farm size groups in Bichpuri Block as compared to Pinahat Block. However, over 40 per cent of available tractor capacity remains unutilized

even in *rabi* season when the tractor has maximum work load because of the large area under cultivation in *rabi* season. Thus there is need to make a fuller use of the available tractor capacity, tractor cost brings down such as by adopting greater multiple cropping and more intensive production technologies.

Utilization of tractor capacity varies directly with farm size. There is need to make a fuller use of the available tractor capacity, tractor cost brings down such as by adopting greater multiple cropping and more intensive production technologies.

- The break-even point of tractor operation varies directly as tractor size in both the blocks. To operate a tractor on no-profit and no-loss basis, a minimum area should be available which varies with the size of the tractor. Below this break-even value it is not advisable to purchase a tractor. Fulfilment of peak seasonal capacity again requires certain minimum cropped hectares. This calls for critical review of the investment policy and the loan policies to check over-investment on tractors. There is a higher return on investment in tractor in Bichpuri Block than in Pinahat Block which probably owes to higher crop productivity, in turn, a result of extensive use of crucial inputs like good quality seeds, fertilizers and irrigation. □

Book Reviews

Quality Handbook for the Architectural, Engineering & Construction Community by Roger D. Hart, Tata McGraw Hill, pp. 530, Rs. 395.

This reference book is a welcome addition to the existing literature on Quality in general and that dedicated to construction activity in particular, covering the entire gamut from design to completion including aspects like cost, motivation and management of human resource.

It explodes the myth that quality techniques and allied procedures are confined to conventional industrial sector. It rightly lays emphasis on continuous improvement in service of the society with its roots in the principles enunciated by Total Quality Management Concepts enshrined in ISO: 9000 family of standards. Based on rich experience, it provides supporting guide lines on what to do, where and how to start, and what to document for review for choosing the correct course of action in future for optimal use of resources for customers delight. The communication throughout the text is simple, effective and user-friendly.

The text is divided into 19 Chapters followed by 9 Appendices besides excellent and useful Bibliography and Index.

The opening Chapter is titled – 'How to use this text' and the next one 'Fundamental Quality Ideas in this Industrial Process'. Chapter 3, 4 and 5 respectively treat: Quality Policies and Innovation in the Architectural Engineering and Construction Community; Quality Criteria in Relation to Cost and Schedule; and Quality in Relation to Industry Codes and Standards.

Following a logical sequence, the next six chapters, i.e. 6 to 11, deal in detail with Quality System Elements consisting of:

- Leadership, Organisation and Responsibility;
- Programs, Procedures and Strategic plans;
- Assuring External Quality Requirements,

Customer Focus and Satisfaction;

- Managing Process Quality;
- Motivation and Human Resource Management; and
- Quality Results and Statistical Methods; with specific emphasis on applicability to construction activity.

The next six chapters, i.e. 12 to 17, are devoted to the following specific construction associated business and industry:

- Quality Supporting Strongly Regulated Industries;
- Supporting the Petroleum and Petrochemical Industry;
- Supporting other Industrial and Process Business;
- Supporting the Transportation Industry;
- Supporting Medium-Sized Construction Projects;
- Supporting Light and Residential Construction Projects.

To complete the coverage, the last two chapters are dedicated to Quality Systems on Hard-Money or Fixed Price Contracts and Cost-Plus Contracts not touched hitherto.

The valuable Appendices thoughtfully added include:

- Standard Quality-Related Definitions for the Architectural, Engineering, and Construction Community;
- Non conformance and Corrective Action Procedures;
- Management Audit of a Main Architectural/Engineering Office;

- An example of a Regulated Research and Development Quality Technology Architectural, Engineering and Construction Project;

Followed by Selective Standard Procedures on:

- Project Organisation for Medium and Light Construction;
- Quality of Earth Work and other Geotechnical Activities for Medium and Light Construction;
- Quality of Bituminous and Portland-cement concrete Pavements;
- Quality of Structural, Architectural and Finish construction;
- Concluding with Sample contracts controlling Quality for Light and Residential Construction projects.

The text, though essentially a reference book for use by professional in the field, should also prove very useful for teaching and research in related institutions.

Prof. A.N. Nankana (Retd.)
Quality Improvement Vision
B-109, Malviya Nagar
New Delhi-110 017

Family Business in India, by Sudip Dutta, Response Books, ISBN 0-8039-9326-9 (US-hb) 81-7036-561-9 (India-hb), pp. 267, Rs. 425 (cloth-bound), Rs. 225 (Paper).

This is a book which has been extensively reviewed, e.g. in *Fortune International* by John Eliot and in *Business India* by A.T. Raman. Family business in India was generally covered in terms of biographies of Birlas, Tatas, Shrirams, Kirloskars and others. Most of these readings are anecdotal, people primarily reading them more to know about a person or his professional life. On the other hand, Dutta takes an academic route to research family business in India, after a diligent work spread over seven years. The book aims to explore if there is an Indian way of doing business. Accordingly, the author, at every stage, has made an attempt to compare the Indian way with the Asian/Western way. Indian business has not wooed the world like Japanese business. Nor has it adequate literature to clearly spell out what it actually is. Therefore, the present one is a significant work.

Chapter I offers a perspective of family business in India vis-à-vis the national economy. Chapter II is a rapid historical tour of Indian family business as to how

they changed from trade to industry. Modern family business developed largely in the last 50 years of British rule. Chapter III examines the business family in terms of relations between its members and in its relations with other families in the caste group. Chapter IV tries to identify the patterns in the values and attitudes towards personal expenditure, ostentation, investment, asset-building, contractual relationship, perceived by the group. Chapter V maps how the Indian family business sources funds, how it uses them and how the profit is disbursed. Chapter VI looks at the role of consultants, auditors and directors in family business. Chapter VII examines stereotypes of family business employees. Chapter VIII analyses the way Indian business have been managing the political and social environment. The issue relating to collaborating with foreigners is the subject of Chapter IX, while Chapter X examines the suitability of Indian way of doing business in a global village.

Some of the conclusions which the author draws through his work are:

- Indian traders filled up the vacuum left by the British, who did not try to develop a national market. Indian traders started factories using western technology, as an adjunct to their trading business.
- In family business, community-caste-linguistic groups of businessmen compete with each other. But within the group the members are saved from ruin by community loans and advances. The interdependence is also strong socially and politically. The community thinks poorly of families that question the prevalent norms of asset acquisition or distribution. A blemished reputation means higher cost; and lower competitive advantage. This gives a unique sense of competition rather than conflict in the family business.

Community-caste-linguistic approach is Indian way of administration and management. Even in government, public sector and educational institution, there are enough stories/anecdotes to lend credibility to these beliefs. The chief of a unit would try to influence the processes right from recruitment till succession. His/her community-caste-linguistic persons will be positioned in a manner that results in the overall benefit of members. Sectoral differences exist only in terms of sense of competition and an on-going tug of war among different communities to the detriment of the organisation.

- Families and communities serve as support system. Joint family system continues to be the

cornerstone of business families in India. The business patriarch is only the steward of family wealth even though he may have built it up all himself. He has to be extremely cautious in exercising powers vested in him, any excess may lead to rebellion within the family.

- The penetration of the family business in FMCG compared to consumer durables is lower than that of multinationals. They are virtually absent in the public sector dominated petroleum and energy sector.
- Family businesses are among the best rated companies in 17 product and industrial categories as per a Business Week-MARG poll (*Business Week*, 1 June 1994).
- Indian family businesses are more export-driven. Quality certification is more export-oriented. Indian family businesses have largely retained their values in the international markets, although they have acculturated to the host society in many outward symbols and functions.
- All scions of business families acquire fairly wide-on-the-job exposure. The capabilities of the family member is tested by giving him an autonomous area, where family supervision is lowest. Besides handling hands-on line responsibilities, the son begins to attend strategy sessions. An early apprenticeship is considered important. Initial losses in ventures are tolerated and taken as long term investment in the development of the family member. Simplicity, frugality and self-denial are regarded as the imperatives to success by the traditional business communities. Vegetarianism, faith in God, a relatively simple lifestyle, a very formal style of hospitality, and the complete submergence of the individual to the needs of the family and business are some of the values encountered among the Marwaris, be it in India or abroad.
- At the base of every family enterprise is money as capital investment, as working capital, in revenues and finally in profit. All family businesses retain management control, though financial institutions, foreign collaborators and general shareholders often have sizeable holdings. Family businesses have complicated cross-holdings that become even more complex with time and are impossible to unravel.
- In spite of restrictions imposed by government, the community network guarantees businessmen of calibre, almost unlimited finance for growth and expansion.
- Violence in any form goes against the ethos of almost all business communities in India. Taking disputes to courts and outside the community is disfavoured. The price to be paid for a hostile takeover is so high in terms of goodwill and money that no serious bid is ever made.
- The businessman has an MIS that reflects reality which is then balanced with the statutory accounts.
- Professional managers do well if they are able to acculturate themselves to the value system of Indian family business and are often compensated for the apparently lower salaries through a parallel set of financial and social incentives. The caste and social systems of India have been transposed on its factory and industrial system. The virtue of loyalty and politeness is important even at the cost of efficiency. A senior employee is given autonomous control and he reports directly to the family management. Within the business community no stigma attaches to the manager who creates his own little siphon in the family business.
- Indian family businesses have largely tried to avoid usurping the power of the elites in society. They have struggled over the years to influence them with money and have remained focussed on family and business.
- Family businesses have lower wage bills and better tax planning, which translates into better profitability.
- Family companies are more investor-friendly and have managed to work out returns for their shareholders more adeptly than have multinationals. The low rate of dividends has been compensated by issue of bonus shares.
- Indian boards, although fairly broad-based, are largely irrelevant in the light of family management control. The outsider as adviser, consultant, and auditor is largely unwelcome in family business.

The author, in his elaboration looks at the changing variables in the related arena and projects the likely future trends. In spite of his elaborate compilation, he hopes that the reader will not build a stereotype of Indian family business. The Indian family business is constantly evolving and is very diverse. He forecasts that the Indian family business in this era of globalisation will return to their strongest suit: trading, while manufacturing and product development will be left to specialist firms that may not be from the community. The conclusions from different sources have been compiled to

give a picture of completeness, yet the final output does not result into a vivid and clear enunciation of Indian family business.

As per the author, the book may be useful to owners and members of family business, professional executives working with family business, academics, students and foreigners. In my view, for the first two groups the book is just a compilation, falling short of detailed and intricate framework with which they are intimately familiar. Academics and students may draw some advantage in terms of some familiarisation about the overall culture of these organisations. This group primarily wants to draw advantage in terms of acculturising for employment. Not many family business companies recruit through campus which is for firms in technical collaboration with family business. Each of these firms has hybrid culture, which is widely different. The book does not throw any light on this aspect. Foreigners seeking collaboration with family business may find some interest in the book to equip themselves in cross-culture interactions with their future partners. The book is useful for administrators and researchers.

S.R. Singhvi
Professor
Management Development Institute
P.B.No.60, Mehrauli Road
Gurgaon-122 001

Inflation Theory and Policy by Amitabha De and Santanu Bandopadhyay, Macmillan India Ltd. New Delhi, 1996, 280p, Rs.188.

A serious student of economics or a concerned economy observer might often come across in the newspapers that '.....the annual rate of inflation has fallen/risen by ... per cent for the month ending...'. Yet, inflation is a complex issue both economically and politically, influenced by numerous factors. Its importance increases as it directly affects the living standard of all, mostly the commonman. The book under review 'Inflation theory and policy' is an outstanding attempt to map out the broad theories of inflation with some practical applicabilities. The authors have completed an earnest task, which in a real sense has filled the long felt need for an advanced text book in this crucial field of economic theory. Their successful effort includes bringing together of many aspects of inflation theory (from conventional to up-to-date), practical policy prescriptions and discussion on related topics viz. unemployment, interest rate, growth and development, etc.

The chapter scheme is devised in a commendable way, explaining initially the fundamental theories con-

touring works of well known inflation theoreticians, viz. Keynes, Patinkin Phillips, Friedman, Fisher, Harrod, Solow and Kalecki on the subject. Each chapter starts with a brief literature survey intertwined with most popular topical debates and ends in brief concluding notes. The theories are well explained and substantiated with both mathematical models and pictorial illustrations throughout the text. Chapter V on phillips curve is exhaustive and thought provoking. It elucidates the various intricacies in dealing with real wage, money wage, wage inflation and other path breaking theoretical developments which have changed the course of economic thinking itself.

The chapter on monetarist controversy is interesting. It elaborates Friedman's constructive criticism on Keynes model. Monetarism so far prevails, with all its empirical drawbacks, as a novel macroeconomic system and an alternative structure. It's impact is far reaching, although its empirical foundation is questionable. But seldom in the history of economic theory have we come across a model which can explain successfully all the empirical findings. Chapter VII on rate of interest and inflation is highly relevant for almost all the nations in the wake of liberalization and globalization. Here we come across the interesting aspect of bridging theory with applications.

Fisher's innovation of distinguishing the real rate of interest from the nominal rate of interest provided a tool to analyze the effect of anticipated inflation on the rate of investment. In simple terms, the celebrated Fisher's equation can be put as, 'a rise in the anticipated rate of inflation will act as a stimulus to real investment, provided investors and savers behave rationally'. According to him, real interest rate is constant and the behaviour of the nominal rate of interest is fully explained by the behaviour of the expected rate of inflation. A rise in the rate of inflation leads to a higher nominal rate of interest is fully explained by the behaviour of the expected rate of inflation. A rise in the rate of inflation leads to a higher nominal rate of interest, obviously due to the higher growth rate of money supply.

The subsequent chapters on effects and costs of inflation deal explicitly with the relationship between macro economic control variables and their impact. They end with the concluding remarks, such as "thus social welfare takes a beating where the rate of inflation is in the neighbourhood of zero" and "there exists a ceiling on credit financial growth", etc. In the chapter on growth and inflation, an attempt has been made to explain the relationship between inflation and economic growth in the context of two fundamental 'real' growth models, viz. the Harrod and the Slow models. In the concluding chapter the focus is on inflation and

economic development, the themes of inflation which are not adequately represented by mainstream macro economic problems of inflation in the context of the developing countries with special reference to India. The authors clearly juxtapose the views of the modern radical economists, like Karl Marx, Kalecki etc. They also put forward the Structuralist school's case that inflation is due to many inherent bottlenecks and warns that their anti-inflation policy involving reallocation of investment, thorough reform of institutions, land reform, tax changes and state of intervention may be essential but quite radical. In the section on other country experiences, a closer view of the inflation related reform policies in Latin America, China, etc., are explained.

An important case study on India shows that owing to significant food-price inflation in the period 1989-90 to 1990-91, the poorest 30 per cent of the rural and the urban population faced an inflation rate of 17.1 per cent and 16.3 per cent respectively. The figures point towards a grave concern when compared with the official figures of inflation. The choice is to identify a balanced policy mix, anti-inflationary and growth oriented so that it can take care of efficient resource utilization and also put an end to economic stagnation. This in real sense will neutralise the fear of inflation for the common man.

In short, fullest effort has been made in the book to deal with inflation theory in its totality. It gives an exhaustive summary of the existing literature by treating inflation in a wide time-scale from neo-classical to the new classicals by bravely touching even the delicate areas of research in inflation theory. In this respect it whets the appetite of academic fraternity as a well-knit handy reference book.

The authors' claim that the aim of the book is to serve as a systematic introduction to inflation at a fundamental level stands vindicated. The book provides a panoramic view of the diverse explanations of inflation touching briefly at the frontiers of topical theories. In that sense the book is well suited to an advanced undergraduate and postgraduate with a minimum acquaintance with mathematical macroeconomics and statistics. The moderately priced book is sure to be received well.

V. Anil Kumar
Deputy Director (Research)
National Productivity Council
New Delhi-110 003

Integrated Pest Management in Asia and the Pacific—Asian Productivity Organisation, Tokyo, Japan, 1996, p. 170.

This publication is the report of the Asian Produc-

tivity Organisation (APO) study meeting held in Jakarta (Bandung) of Indonesia during 17-22 July 1995.

The interesting report has four parts. Part I deals with the summary of the major findings drawn from the country reports, resource papers and observations made during field visits. It also includes the recommendations of the Study Meeting. Part II covers the five resource papers presented in the study meeting by four resource speakers.

Part III gives a detailed account of the 11 country papers regarding the status of Integrated Pest Management in the respective countries, viz. Republic of China, Cook Islands, Hong Kong, Indonesia, Islamic Republic of Iran, Republic of Korea, Mongolia, Nepal, Philippines, Sri Lanka and Thailand.

The appendices, covering the list of participants, resource speakers, observers and the programme of activities of the Study Meeting are given in Part IV of the report.

Notable omission—According to the summary of the findings (page 1) and programme of activities (page 168), the first presentation in the Study Meeting was "The overview of Pest Control in Asia and Pacific" by Dr. Peter Kenmore. However, the full text of that overview is not found anywhere in the publication though the highlights of this presentation do occupy one page of the published report comprising 190 pages. What made the editor (Dr. Horacio M. Carandang of the Philippines) exclude the full text of such an important presentation is not clear. But, even the one-page of the summary of the overview gives a wealth of information about Asian IPM (Integrated Pest Management).

Facts worth pondering—The various facts given by Peter Kenmore regarding IPM in various countries like, '4 per cent increased yield in Vietnam due to IPM', 'banning of 57 pesticides by Indonesia', 'Impact of farmers' field schools not only on farmers, but also on the President of the Philippines' are all worth pondering.

Dr. Ida Nyoman Oka's (Senior Technical Adviser, FAO), resource paper entitled 'Status of integrated pest management, progress and problems' points out that there are research results to show that indiscriminate use of pesticides leads to risks of environmental pollution, development of resistance to pesticides in pests, pest resurgence, destruction of natural enemies, beneficial and non-target organisms, and hazards to human beings in the form of chronic or acute poisoning and death. The remedy for these evils in the author's view is Integrated Pest Management approach, of which he has

given many aspects. The particulars on IPM as one for developing human resources, the major control tactics of IPM used by participating countries, the production factors leading towards increased pest problems, the organisation of IPM and about IPM school' will be of interest to all concerned with pest management.

The paper reports the progress of IPM in the participating countries with facts and figures. His suggestions like 'farmers- driven research design', 'mass media publicity for IPM', the need for consistent government prowar on IPM, 'the call for pesticide companies to accept IPM' give enough food for thought to governments, scientists, extension workers and pesticide companies. His concluding remarks, 'Everybody should act more eccentrically rather than egocentrically for the sake of the survival of the human race' is a golden sentence to be remembered by all concerned.

The relation between 'integrated pest management and sustainable farming system' has been lucidly explained by Dr. Untung in his paper entitled 'Integrated Pest Management and Development of Sustainable farming System'. Dr. Untung has quoted two definitions of sustainable agriculture. One is of Consultative Group on International Agricultural Research (CGIAR), the other being FAO's. These definitions emphasize that resource management must meet human needs without spoiling the environment but improving its quality. One should think of the consequences of agriculture, instead of always emphasizing on the 'outputs', according to the definitions. The principles, objectives, prospects, advantages and challenges of sustainable agriculture given by Untung are worth remembering.

Data regarding the poisonous effect of pesticides on environment, water, soil, pollinators, bees, frogs, earthworms, ducks, chicken, fish, birds and animals and parts of human body affected by pesticide use given by Ida Nyoman Oka, in his resource paper, 'The Environmental and Social Dimensions of Pesticide Use' are not only thought provoking, but equally alarming, as well.

The two ecological principles: Temporal and Spatial scales, and action research laboratory and Dr. Settle's argument that in developing countries, in most crops—especially tropical rice—it is the pesticides, not the pests proper, which are the problems, in his resource paper give enough food not only for thought but for fermentation of ecology based research projects on IPM to field entomologists.

The resource paper 'Research Issues and Training Needs in Integrated Pest Management' of Dr. Sudar

Wohadi, gives an account of the objectives of IPM research, the strategy of IPM, the research needs, research constraints, strategy of IPM training, etc. But, the topic could have been dealt with in a more practical way, like indicating what the research needs are in IPM, as per the beneficiaries of IPM, i.e. the farmers and extension workers. For this, there should have been an empirical study. Similarly, the constraints faced by scientists while conducting IPM studies, could have been gathered by collecting data from entomologists engaged in IPM related research projects. In the same way, the data on training needs of IPM farmers, extension workers engaged in dissemination of IPM, and researchers conducting IPM studies, could have been gathered by conducting pilot studies. As such, a very practical subject, has been treated in a theoretical way defeating the very purpose of the paper.

In each of the 11 country papers presented in the report, there is something to learn. The IPM paper from the Republic of China (ROC) reports that its main emphasis of IPM is on biological control of pests with focus on predators, parasitoids, microbial control and sex pheromone. The role of green lacewing predator (*Mallada basalis*) in suppressing strawberry and papaya pest mentioned in the paper is a point to learn by IPM advocates of the world.

The 'Bandung Farmer's Field School' model is worth adoption by all other Asian countries.

The 19 recommendations made by APO study meeting on Integrated Pest Management are to be taken seriously and implemented by all the participating countries.

The volume contains a lot of grammatical and spelling mistakes which may put off the readers. Such mistakes are not expected in publications from an international organisation of APO's stature.

Yet on the whole, the published report gives a comprehensive account of the current status of IPM in Asia and Pacific which should be an eye opener to all concerned with crop pests. This report of APO Study Meeting will be very useful reference material for policy makers, administrators, extension officials, farmers, research scientists and students.

VE. Sabarathnam
Faculty Member (Technology Management)
National Academy of Agricultural
Research Management
Rajendra Nagar
Hyderabad-500 030

Breakthrough Quality Improvement for Leaders Who Want results by Robert F. Wickman and Robert S. Doyle, Tata McGraw Hill Edition, 1996, Published in agreement with ASQC/Quality Press, USA, p. 228 in addition to (xv) pages of introduction.

The book comprising two parts (I Chapter 1 to 3, II Chapters 4 to 10) presents continuous improvement as a fun and exciting necessity for the future growth and prosperity of any organisation. It tells how to produce immediate, measurable results from any quality program by showing how to implement a quality plan. The authors present their rich practical experience through this book in a simple, jargon-free, yet lucid and effective style which immediately appeals to intuitive commonsense.

The Introduction preceding Chapter 1 presents three plateaus of quality—Studied indifference, Externalized appreciation and Internalized understanding, and presents some common statements of companies in each of the three plateaus. This is very insightful.

Chapter 1 covers the meaning of quality proposing a new definition, multiple role of each employee and a quality definition for everyone. The style is simple, anecdotal and links the reader to the theme of quality.

Chapter 2 outlines the quality and non-quality environments and explains the concept of quality costs in prevention, appraisal and failure modes. Chapter 3 details the elements of superior quality, including the QC tools, particularly emphasizing the need for effective training for adult learners, using 10 steps. It cautions against quickfix solutions.

Part II of the book, starting from Chapter 4, focuses on Quality Awareness and Management interlinking the concepts of business cycle and customer cycle. Alternative scenarios of these cycles are explained. The need for quality management systems and the role of quality councils are explained. Chapter 5 is routine description of tools/teachings for data gathering and interpretation, using the 7 QC tools, while Chapter 6 explains work process analysis. Chapter 7 explains steps in good problem solving, highlighting the role of process for problem solving. Chapter 8 is a simple/brief description of decision making while Chapter 9 is a brief on project management. Chapter 10 focusses on team building and leadership and elaborates style modification techniques, do's and don't's. A brief summary concludes the book.

Throughout the book, there are a number of well chosen superb words of wisdom through quotations. The book uses TQM, quality and quality management interchangeably, and focusses on relationship manage-

ment as a motto.

This is a very useful addition to the literature on quality management and should be welcomed by professionals, managers, practising engineers and consultants, as much as for an elementary exposure to quality for students and academics. Small as it is, the volume is not very thorough on tools/techniques or analytical aspects and hence may not possibly serve as a text book. It is worth reading all the same.

Premvrat

Professor of Industrial Engineering
Mechanical Engineering Department and
Dean PGS&R, IIT Delhi

Customer and Market—Driven Quality Management, by Johnson A. Edsomwan, Tata McGraw-Hill, Co. Ltd., New Delhi, 1996, p. 268, Rs. 295.

During the last five years, Indian policy-makers, Industry Associations and business organisations have realised the importance of quality in the context of increasing competition. Many American and European publications are being brought out as Indian editions. The book under review is one more addition in this genre.

Johnson Edsomwan is Chief Executive Officer of an international consulting firm in U.S.A. According to him, production and service enterprises today are facing four major challenges: acute competition, unpredictable slowdown in overall market growth, requirement of continuous process improvement and necessity for developing a customer-oriented culture. The author claims that this is the first book that focusses on how to integrate market-driven concepts, marketing aspects of quality, statistics, productivity, human resource and change management, and customer focus in one package.

In the first chapter, he has discussed how to become a customer—and market-driven enterprise. Throughout the book he has made extensive use of fishbone diagrams to drive home his points. In the process, the presentations have often become repetitive and an element of superficiality has crept in at some places. Table 1.1 mentioned on p. 18 is missing. In the second chapter, he has introduced the concepts of total quality management (TQM) and continuous improvement of work processes. He holds that TQM involves the quantitative, non-quantitative, behavioural management, statistics, economics, and systems engineering tools and methods to control all production and service processes of an enterprise to satisfy customer needs and requirements. However, he has not dealt with most of these tools while developing his themes. He has suggested

training profile for continuous improvement in enterprises. This profile could have been developed further. His lists covering total quality benchmarking and about quantitative and non-quantitative standards in service are interesting.

While dealing with total customer satisfaction management, in the third chapter, Edosomwan has introduced the concept of self-unit customer, in addition to internal and external customers. "All individuals are self-unit customers of themselves. Self-inspection, a disciplined attitude, and a desire for excellence should be the way of life for everyone".

This point again has not been developed further. The author has also offered a PEAD model for capturing the requirements and needs of the customer and the supplier. PEAD is an acronym for pay attention to the voice of the customer, evaluate effectiveness of mechanisms for doing that, analyse and synthesise data, and develop product and service characteristics. He has further suggested a customer satisfaction matrix and another matrix called the "house of quality".

In the next three chapters, Edosomwan has dealt with many tools and techniques for problem solving, error prevention and for understanding and controlling variations. Well-known tools, such as histogram, Pareto analysis flowcharting and force field analysis, have been discussed briefly. These could have been dealt with suitable examples. Chapter 7 elucidates the use of control charts for reducing fluctuations in a process until it is in a state of statistical process control. The author says, "The six sigma approach to total quality improvement complements and error-prevention philosophy... Achieving six sigma work processes requires effort and investment in ongoing training, process capability analysis, and improvement and long-term partnership between suppliers, process owners, and customers". Is anybody trying to achieve six sigma quality in this country? At least, this reviewer is not aware!

In Chapters 8 and 9, the author has discussed teamwork, participative management and overcoming common problems. He has suggested a four-stage career development process for developing market-driven professionals and managers. The participating management skills are just touched upon. The 9C principles recommended for managing customer-driven quality and productivity projects are: customer awareness, controls, coordination, cooperation, contribution analysis, communication, cost avoidance, commitment, and competence/congruence. Treatments of some topics, such as Gantt chart, PERT chart, change implementation matrix are insufficient. A change implementation checklist incorporating 20 questions is

also suggested. Two case studies from a bank and a hospital are included.

Edosomwan has tried to include all aspects of customer and market-driven quality management in a book of around 190 pages and another 50 pages of appendices. After reading the book, the reader would be much interested to search for more materials on the topics covered briefly at many places. This book will however serve as base material for seminar leaders and trainers.

It is difficult to say whether such books are at all influencing our management culture in the manufacturing and the service organisations. The very recent case of Maruti recalling 50000 cars for checking defective steering wheels casts a shadow of doubt.

Siladitya Ghosh
Senior Fellow

Shri Ram Centre for Industrial
Relations and Human Resources
4E/16, Jhandewalan Extension
New Delhi-110 055

HRD for Workers, Ed. I.S. Singh, Oxford IBH Publishing Co. Pvt. Ltd., New Delhi, p. 241.

People management has always been a critical area in management of organisations. Academics and others who are concerned about this aspect of management have been constantly engaged in examining people management systems and processes with a view to evolving better ways to manage people, which in turn would be beneficial to both organisations and the individuals working therein. As a consequence of these continuous efforts, we now have substantial literature on the topic, which have made for a better understanding of the discipline of people management. As the environment is dynamic, we will have to continuously look for newer solutions to old as well as new problems. The search, therefore, is unending and must go on.

While the area of people management is very critical to organisational effectiveness, the entire spectrum of the sub-systems which constitute this field of management, when put together, makes a very complex picture. The search for newer ways of handling people within organisations essentially, therefore, is directed at minimising this complexity in management and at the same time enhance employee satisfaction and organisational effectiveness.

One of the recently emerged terminologies in the area of people management which has been in constant circulation in the academic as well as industrial circles is human resource development (HRD). For the past couple

of decades the concepts underlying HRD and its contents have been widely discussed in various national and international conferences while several organisations around the world have also been experimenting with HRD. These discussions and experimentations, in turn, have resulted in generating more literature on the topic.

Despite all these experimentations and academic interactions, it appears that some degree of confusion still exists in the minds of the practitioners as well as the academics regarding the concept and contents of HRD. This will be quite evident if one looks at some of the advertisements which appear in newspapers for HRD positions. Often it is seen that the job of HRD person involves negotiating with unions, administering personnel matters, employee welfare and sometimes including general administration. Even in the academic circles this state of confusion seems to exist. As a result of all these confusions, one wonders that by introducing HRD, we seem to have only changed the nomenclature leaving the orientation and contents largely unaltered. As HRD became popular, several organisations merely rechristened their personnel departments to HRD departments and continued with the same old practices.

Some serious work in this area, however, has been carried out by a few in the shape of attempts to place HRD in a proper perspective. These efforts have clearly shown that HRD is a subsystem of the total HR management (HRM). Pareek and Rao (1981) highlighted four major sub-systems of the total HR systems, viz Planning and Administration, Human Resource Development, Job and Salary, and Worker Affairs. According to them, the sum total of all these four sub-systems would constitute the full HRM. They have also shown the interlinkages between the various elements within the sub-systems presenting a comprehensive view of HRM. While 'development' is the underlying principle in all the sub-systems of HRM, HRD as a set of activities remains a distinct sub-system of HRM. This trend is also visible at the international level. Tom Kochan (1990), one of the pioneers in this endeavour, has placed HRD within the context of a broader comprehensive HRM. A conceptual clarity on these lines will assuredly enable organisations to place HRD in the proper perspective so that it will not be considered merely as 'old wine in new bottle' and at the same time HRD efforts will not degenerate into rituals.

To some extent even the book under review suffers from the above referred lack of conceptual clarity. The volume is an outcome of a conference on HRD and the various papers presented there are put together by the editor. A proper placement of HRD within the context of a comprehensive HRM would have enhanced the value of the book. In the theme chapter the editor quoting T.V. Rao has given a working definition of HRD (pp. 11-12)

which rightly emphasises the developmental aspects like 'sharpen capabilities', 'exploit inner potential; 'develop culture', etc. However, subsequent chapters of the book have gone into diverse aspects of HRM from labour movement and women's participation in work to strategy for union involvement in business development and employee involvement for business development, etc.

It is not suggested here that the contents of the book have less relevance. In fact, some of the chapters in the book are well written and make important observations. Since the title of the book is HRD, the reader gets a feeling of 'stretching to make connections' between HRD and the contents of the various papers included in the book. As HRD is the focus of the book, certain fundamental aspects of development, such as performance appraisal, training and development, OD interventions including team building, etc., at workers' level could have been included.

Despite these limitations, the editor has done a good job of compiling a set of papers which can be considered as yet another addition to the growing literature in the area of people management. The case studies included in the volume are interesting and would certainly add to the understanding of the complexities involved in managing human resource.

References

- Udai Pareek & T.V. Rao (1981), "Designing and Managing Human Resource Systems", Oxford & IBH Publishing Co. New Delhi, pp. 11-12.
- Thomas A. Kochan et al (1986), "The Transformation of American Industrial Relations", Basic Books, New York.

Reviewed by:
Dr. Jacob Mankidy
Professor of HRM
National Institute of Bank Management
Pune-411 -48

Towards An Asian Economic Area, by V.R. Panchamukhi & Rehman Sobhan, Macmillan India Ltd., New Delhi, 1995, p. 416, Rs. 530.

The volume is a compilation of the proceedings and the papers presented at the International Conference on Challenges to the South in the Nineties with Special reference to the Asian Region, held in New Delhi in March 1993, under the auspices of the RIS, New Delhi and the South Centre, Geneva. The basic objective of the conference was to take a fresh look at the various perceptions and policy recommendations of the South Commission's report entitled Challenge to the South

Management & Change

Edited by **Debi S. Saini**, Institute for Integrated Learning in Management, New Delhi.

"This issue reflects the future quality of content and production. I must say the journal has a great future."
Dr. Dharni P. Sinha, Ex-Director, Administrative Staff College of India, Hyderabad, on the inaugural issue of *Management & Change*.

Management & Change publishes management literature to further intellectual development of academics and business leaders. This inter-disciplinary journal publishes research papers, review articles, communications, management cases and book reviews on topics of current relevance in all functional areas of management and related social sciences.

Articles in No. 1 and 2, among others, include:

- *Some Reflections on Management & Change* by N.R. Sheth (Ex-Director, IIM, Ahmedabad)
- *Relocation, Business Choices and Conflict* by C.K. Johri (Ex-Senior Professor, SRC for HR & IR, New Delhi)
- *Marketing in India: Need for Bridging Gap between Theory and Practice* by late Roger C. Bennett (Faculty Member, McGill University, Canada) and J.D. Singh (Professor, IMI, New Delhi)
- *Labour-Management Relations in an Era of Globalization* by C.S. Venkata Ratnam (Professor, IMI, New Delhi)
- *Globalization Syndrome, Human Resource Management and Trade Unions* by Debi S. Saini (Professor, IILM, New Delhi)
- *Structural Adjustment and Industrial Relations* by K.R. Shyamsundar (Bombay University)
- *Working Capital Management Practices in Select Corporate Firms of India and South-East Asia: A Comparative Study* by P.K. Jain (Professor, IIT, Delhi) and Manoj Kumar (SRCC)
- *Financial Liberalization and Regulation of Banks: A Bird's Eye View* by Sumon K. Bhoumik (Senior Economist, ICRA, Calcutta)
- *Promoting Asianization of Indian Economy: An Evaluation of Export-Import Policy-1997-2002* by Pradeep Kumar Mehta (Associate Director-ASEAN Project, ISI, New Delhi)
- *Incidence and Implications of Phasing out of Multi-Fibre Arrangement (MFA): An Attitudinal Analysis with Special Reference to India's Garment Exports* by Sanjay Kumar Jain (Reader, DSE, New Delhi)

Published twice a year (No. 1: January-June; No. 2: July-December)

Annual subscription rates are as follows:

For India-Institutional: Rs. 300.00; Personal	: Rs. 200.00
For Abroad- (All Non-Asian countries)	: US\$40
(Asian countries only)	: US\$30

Please direct your subscription orders/inquiries to:

The Editorial Coordinator

Institute for Integrated Learning in Management

3, Lodhi Institutional Area, Lodhi Road, New Delhi-110 003, India.

Telephones: 4647820-21, 4631033, Fax: 91-11-4647796

E-Mail: zafaranjum@hotmail.com

**Towards Greater Effectiveness of Industrial
Research Institutions**

SOME TOOLS AND TRENDS

Dr. Amitav Rath

This book emerged out of a research project that included seven case studies of selected Latin American Industrial Technological Research Institutions (ITRIs). The major objective of the project on the research institutions was to determine "how to make technological research institutions more *effective* than they have been earlier in terms of providing relevant services and technological inputs to industry".

To devise any plan to reform an institution or system for greater effectiveness, we must first be able to clearly define what we mean by "effectiveness". What are its characteristics, and how can it be measured? Are the measures of effectiveness the same for different types of research and institutions and their Programs? Are some types of research and institutions more productive? If we can answer the above, another set of questions looms: What inputs, organizational structures, processes, and management methods contribute to effectiveness? And, what are the lessons from different evaluations and organisational reforms around the world? This book provides a review of the literature and experience on these questions from various countries. These answers from different countries and different institutions, and the guide to the literature, can help policy-makers, research managers, and the researchers in R&D institutions modify the factors that reduce effectiveness and add or supplement those that strengthen it.

81-224-1123-1

1998

HB

106pp

Rs.275

\$28

**Professional Management
A Standard for Management Excellence**

Dr. P. S. Sarma

This book is a guide for managerial success in every field, and Dr Sarma has prepared this capsule for 'success' after his extensive and varied practical experience in the field of Corporate Management.

Dividing this book in six chapters, Dr Sarma has brought in it all aspects of successful management covering areas like "Managerial Psychology vis-a-vis Emotional entanglement, Managerial Development, A new approach to the Functions and Process Management, TQM, Listener's Psychology etc., which will enable the reader to effectively market his own ideas to satisfy his listener or customer.

To foster team spirit among people who can collectively focus on achieving the desired goal, the author has also suggested a new structure for professional management called "**Trapezeum Organisational Structure**" as against the traditional Pyramid Structure.

Thus, this book will provide additional shots in the armour of a reader who is all set to manage his business/profession successfully with prudent skills.

1998

PB

116pp

Rs.195

\$ 20

INDIAN JOURNAL OF INDUSTRIAL RELATIONS

CONTENTS

VOLUME 33

NUMBER 2

OCTOBER, 1997

ARTICLES

Human Resources in Work Cultures

Jai B.P. Sinha

Determinants and Consequences of Role Innovation

G.S. Das

Organisational Commitment and Its Determinants

Madan Pal Sharma

Wage Differentials in SSI Sector in Gujarat

Hina Sidhu

Factors Influencing Attitudes of Bank Employees

Toward Computers

Deepti Bhatnagar

COMMUNICATIONS

Are Unions Losing Influence

Ishwar Dayal

Personality, Motives and Entrepreneurial Success

Satvir Singh

BOOK REVIEWS

Historical Dictionary of Organised Labour

(James C. Docherty)

Kuriakose Mamkoottam

Slums as Urban Villages

(Rajesh Gill)

Rabindra K. Mohanty

The Industrial Worker: Psychological Studies

(H.C. Ganguli)

M.P. Sharma

Managing More Effectively

(Madhurendra K. Verma)

Manju Bhagat

INDEX OR ARTICLES

(Based on SRC Library)

A quarterly devoted to dissemination of knowledge in the fields of Industrial Relations and Human Resources, including relevant aspects of labour relations, personnel management and rural labour. Besides, communications from Managers and Union Leaders reflecting their views and Book Reviews are also incorporated.

EDITOR: RAMA J. JOSHI

Subscription Rates (effective from July, 1997): for India - Rs. 300.00 for one year; Rs. 750.00 for three years; Rs. 1200.00 for five years; and Rs. 90.00 for a single copy. For foreign countries (Air Mail) - \$65 for one year; \$195 for three years and \$325 for five years. For foreign countries - (Sea mail) - \$40 for one year; \$120 for three years; and \$200 for five years.

Cheques payable to

SHRI RAM CENTRE

FOR INDUSTRIAL RELATIONS AND HUMAN RESOURCES

4-E/16, Jhandewalan Extension, New Delhi-110 055.

Phone: 7519064 Fax: 011-7526036 Telex: 031-62310



NATIONAL PRODUCTIVITY COUNCIL

Announces

A NEW PUBLICATION

Waste Minimisation in Textile Dyeing and Printing Industries

Waste minimisation, a potentially attractive environmental management approach, not only reduces environmental problems and health hazards but offers attractive economic benefits also. The manual **Waste Minimisation in Textile Dyeing and Printing Industry** lists 55 practical, successfully implemented waste minimisation measures along with anticipated benefits, technical requirements, economic viability and impact on environment. The manual illustrates a step by step approach for a waste minimisation programme and develops a series of worksheets to facilitate data collection and analysis. The manual also includes two case studies. The four colour publication with tables, charts and illustrations is addressed to pesticides formulation industries, technical professionals, academia and other environmental specialists.

Price : Rs. 200.00 (In India)

US \$ 50.00 (Abroad)

For Orders, Contact

**Director
Public Information and Publication Division
National Productivity Council
Lodi Road, New Delhi - 110 003**

Productivity

Announces

A

Special Issue
(January–March, 1998)

on

'Women & Development'



Book Your Copies with

JOURNALS DIVISION

NEW AGE INTERNATIONAL (P) LTD., PUBLISHERS

4835/24, Ansari Road, Daryaganj, New Delhi 110 002.

Phones : 3276802, 3261487, 3278348, 3267996 • Cable : WILEYEAST