1.1 ORGANISATION DEVELOPMENT: CONCEPTUAL FRAMEWORK

Organisation Development is all about change. Early OD effort primarily addressed first-order change - making moderate adjustments to the organisation, to people and its processes. Today the organisations demand are so great that second-order change is required in many instances. Organisation is being reinvented, work tasks are being reengineered, the rules of the market place are being rewritten, and the fundamental nature of organisations is changing. Indeed, the new state of things will be vastly different from the old state of things. OD practitioners are involved in a variety of first-order and second-order change programs. OD helps leaders address and embrace change from the perspective that change is an opportunity, not a threat.

OD is a field of applied behavioural science related to planned change. The target of the change is the total organisation and system. By the theory and technology of applied behavioural science we mean insights from sciences dedicated to understanding people in organisations, how they functions, and how they can function better, OD applies knowledge and theory. Therefore, in addition to the behavioural sciences such as psychology, sociology, social philosophy and so on maintained earlier, applied disciplines such as adult education, psychotherapy, social work, economics and political science have contributions to make to the practice of OD. Porras and Robertson state:

"Organisation development is the practical application of the science of organisations. Drawing from several disciplines for its models, strategies, and techniques, OD focuses on the planned change of human systems and contributes to organisation science"
through the knowledge gained from its study of complex change
dynamics." 

By action research, we mean the participative model of collaborative and interactive diagnosis and action taking in which the leader, organisation members, and OD practitioner work together to define and resolve problems & opportunities. Because of the extensive applicability of this model in OD, another definition of organisation development could be organisation improvement through participant action research.

Some of classical thinking or postulates of organisation development follows:

"OD is an effort is planned, organisation-wide, and managed from the top, increase organisation effectiveness through planned interventions in the organisations "Processes", using behavioural-science knowledge". Beckhard

"OD is a response to change a complex educational strategy intended to change the beliefs, attitudes, values and structure of organisations so that they can better adopt to new technologies, markets, and challenges, and the dizzying rate of change itself". Bennis

"OD can be defined as a planned & sustained effort to apply behavioral science for system improvement, using reductive, self-analytical methods". (Schmack and Miles, 1971)

Modern definitions of organisation development are these:

"The aims of OD are ... 1) is enhancing congruence between organizational structures, processes strategy, people and cultures, 2)
developing new and creative organisational solutions and 3) developing the organisations self renewing capacity".\textsuperscript{1} \textit{Beer (1980)}.

OD is a systematic application of behavioural \textbf{science-based knowledge} to the planned development and reinforced of organisational strategies, structures, and processes for improving an organisations effectiveness". \textit{Cummings and Worley (1993)}.\textsuperscript{2}

Organisation Development is a \textbf{planned process of change} in an organisational culture through the utilisation of behavioural science technologies, research and theory\textsuperscript{3} (\textit{Burke, 1990 p.m}).

All authors agree that OD is a field of applied behavioural science related to planned change. \textbf{Schmuk} and \textbf{Miles} provide an important insight into the OD process with the words \textbf{"reflexive, self analytical method"}. Burke and \textbf{Hornstein}'s idea of \textbf{"legitimizing"} and \textbf{"examination of social processes"} speaks to the same issue of becoming more self-analytical.

Several definitions emphasize the importance of organization process (\textit{Beechard, Burke and Hornstein and Vaill}). \textbf{Vaill} depicts OD as a \textbf{"process for improving processes"} - a keen, accurate observation. Likewise, several definitions emphasize the crucial role of organisation culture (\textit{Burke and Hornstein}). Organisation culture and processes are \textbf{highly-priority targets} in most OD programs.

\textbf{1.2 FIELD OF ORGANISATION DEVELOPMENT:}

\textit{Organisation Development is a unique strategy to improve organisation segments that emerged in the late 1950's and early 1960.} Originally based on insights from group dynamics and on theory & practice related to planned change, the field has evolved into an integrated framework of theories & practice capable of solving or helping to solve most of the important problems confronting the human side of organisations.

\textsuperscript{1} Michael Beer, "Organization Change & Development", (Santa Monica, (A: Good Year Publishing, 1980). p. 10
Organisation development is about people and organisations and people in organisations and how they function. OD is also about planned change, that is, getting individuals, teams, and organisations to function better. Planned change involves common sense, hard work applied diligently over time, a systematic, a goal-oriented approach, and valid knowledge about organisational dynamics and how to change them. Valid knowledge derives from the behavioural sciences such as psychology, social philosophy, sociology, anthropology, systems theory, organisational behaviour, theory, and the practice of management. Putting all this together, OD offers a prescription for improving the "fit" between the individuals and the organisation, between the organisation and its environment, and among organisational components such as strategy, structure, and processes. The prescription is implemented through interventions and activities that address specific problematic conditions.

Leaders and OD practitioners typically conduct OD programmes together. Practitioners are consultants trained in the theory and practice of OD; they understand organisational dynamics and change. These members may be members of the organisation or may be from outside the organisation. Two goals of OD programmes are 1) to improve the functioning of individuals, teams and the total organisation, 2) to impart the necessary skills and knowledge that will enable organisation members continuously to improve their functioning on their own.

OD programs are long-term, planned, and sustained efforts. A leader confronts on undesirable situation and seeks to change it. The leader establishes contact with an OD professional, and together they explore whether organisation development is relevant to the task at hand. If the answer is yes, they enlist others in the organisation to help design and implement the change program. A central feature of OD is widespread participation and involvement: Get as many people as possible into the act. An overall game plan or strategy is then developed that includes a series of activities, each intended to achieve an outcome that moves the organisation toward the desired goals. This is the overall OD model, but in practice OD programs are not so linear and straightforward. Organisation development deals with the gamut of "People Problems" in organisations. These are: Poor Morale, Low Productivity, Poor quality, Interpersonal conflict,
Unclear Goals and Objectives, Inappropriate leadership styles, Poor team performance, Inappropriate organisation structure, Poorly designed tasks, Insufficient attention to environmental, Poor customer relations, and Working at cross-purposes. In short, where individuals, teams, and organisations are not realizing their full potential, OD can improve the situation.

1.3 ORGANIZATION DEVELOPMENT INTERVENTIONS:

OD interventions refer to various activities which consultant and client organisation perform for improving organisational functioning through enabling organisation members better manage their team and organisation cultures. French & Bell\(^1\) have defined OD interventions as "set of structured activities in which selected organisational units engage with a task or a sequence of tasks where task goals are related directly or indirectly to organisational improvements." Interventions may be required to change people. Interventions may aim changes at individual, interpersonal, group, intergroup and organisational levels.

Organisation leaders and members systematically address problems and opportunities, usually guided by an OD practitioner. Over the years, practitioners have created an array of interventions to help organization members address specific problems effectively and efficiently. Interventions such as team building, survey feedback, role analysis, and intergroup conflict resolution were developed during the early years of organization development. Interventions such as quality of work life (QWL), work redesign using socio technical systems theory (STS), collateral organization and strategic planning methods were developed as the field continued to evolve. OD interventions thus address a host of specific problems and opportunities. OD is a strategy for change that encompasses theory, practice, methods and values.

OD programs are designed to achieve specific goals, and often several interventions are combined into a "package" to accomplish the goals. Following are the major types of OD interventions:

i) Diagnostic Activities: Fact-finding activities designed to ascertain the state of the system, the status of a problem, the "way things are". Available

\(^1\) French and Bell, "Organization Development". Prentice Hall of India, New Delhi, 1996-2000.
methods range from projective devices such as "build a collage that represent you and your place in the organisation" to the more traditional data collection methods of interviews, questionnaire, surveys and meetings. The study has used the diagnostic activities to analyze change and development.

ii) **Team-Building Activities:** Activities designed to enhance the effective operation of system teams. They may relate to **task issues**, such as the way things are done, the **needed skills** of accomplish tasks, the **resource allocation** necessary for task accomplishments: or they may relate to the nature and quality of the relationships between the team members or between members and the leader. **Teamwork** requires a supportive climate. In applying this principle, the relationship between the superior and subordinate is crucial. The underlying aim of team development is to **increase trust among team members** because people work better together when there is open and honest sharing about the problems and difficulties that they have with one another. The basic objectives of team development is to increase the ability among the people as to how they should interact with others and engage in constructive behaviour. In addition, considerate is given to different kinds of team they may exist in the organisation, such as: **Formal work team, Temporary task force, Newly constituted team and Cross-functional teams.** The today's cement enterprises constituted team for solving problems.

iii) **Intergroup Activities:** Activities designed to improve effectiveness of **interdependent groups**. They focus on joint activities and the output of the groups considered as a single system rather than as two subsystems: When two groups are involved, the activities are generally designated intergroup or intergroup activities; when more than two groups are involved, the activities are often called **organisational mirroring**.

iv) **Survey Feedback Activities:** These activities concentrate on actively working the data produced by a survey and designing action plans based

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1 French and Bell, "Organization Development".
on survey data. Diagnostic of a problem is the main theme of survey feedback activities related to and similar to the diagnostic activities are the large component of those activities.¹

v) Educational and Training Activities: Activities designed to improve skills, abilities and knowledge of individuals. There are several activities available and to impart education and training. The activities may be directed towards technical skills required for effective task performance or may be directed toward improving interpersonal competence. The activities may be directed toward leadership issues, responsibilities and functions of group members, decision-making, problem-solving, goal setting and planning and so forth. These are prominent in cement enterprises.

vi) Technostructural or Structural Activities: Activities designed to improve the effectiveness of the technical or structural inputs and constraints affecting individuals or groups. The activities may take the form of a) experimenting their effectiveness in terms of specific goals or b) devising new ways to bring technical resources to solve problems. These includes, job enrichment, MBO, sociotechnical systems, collateral organisations, and physical settings interventions.

vii) Process-consultation activities: Activities on the part of the consultant that² "help the client to perceive, understand, and act upon process events which occur in the clients environment." Process consultation represents a method for intervening in an ongoing process. (Schein defined It as the activities on the part of the consultant, which help the client to perceive, understand, and act upon process events which occur) the basic content of P-C is that the consultant works with the individuals and groups to help them to learn about human and social process and learn to solve problems that stem from process events. Process consultation model

emphasis on diagnosis and understanding of process events. Thus, the aim is to bring change in the various processes as an ongoing process. The role of the consultant is non-directive as he helps the group to solve their problems. Primary emphasis is on processes such as communication, leader and group member's role, problem-solving and decision-making group norms and group growth, leadership and authority, intergroup cooperation and competition.

viii) Grid Organisation Development Activities: Activities invented and propounded by Robert Blake and Jane Mouton, which constitute a six-phase change model involving the total organisation. Internal resources are developed to conduct most of the programs, which may take from three to five years to complete. The model starts with upgrading individual manager's skills and leadership abilities move to team improvement activities and then to intergroup relations activities. Later phases include corporate planning for improvement, developing implementation tactics and concluding with an evaluation phase assessing change in the organisation culture and looking toward future directions.

1.4 CURRENT TRENDS IN OD:

The dynamic business environment poses new problem and gives new insight in the field of organisational development. The changing nature of organisational development reflected in the following thrust areas:- 1) From single country to Multi-National Corporations, 2) From internal focus to Environment, 3) From Process focus to structural, 4) From focus on management to focus to all levels, 5) Shift from narrow to broader knowledge base, 6) Shift from specialists to generalists or team approach, 7) From consultant to line manager - change agent, 8) From single intervention to multiple intervention, 9) From truth & love to power & politics, 10) From participation and democracy to contingency approach and 11) From contingency to the customer oriented.

These changing orientation of organisation development enable the organisations to function better and adjust itself according to the changing environment to meet objective concretely..

1.5 THE ESSENCE OF CHANGE AND ORGANISATION DEVELOPMENT

Change is the very essence of business growth—it's inevitable and unavoidable. Stability is an illusion. The rate of change has accelerated over the last decade, external environmental pressures are driving change at an alarming rate and affecting every aspect of our lives: politically, socially, organisationally. Identifying environmental and market changes quickly and opportunistically is part of the key to survival and growth. But managing change has now also become a crucial element of competitive advantage, for it is only by guiding people through change as fast and as painlessly as possible that the organisation can hope to respond to market pressures before the world moves on. The starting point for managing change comes from helping everyone to understand why change is necessary in the first place. Historical success no longer guarantees future survival and the past can no longer predict the future. 'Move on the same' does not work anymore, we must map new futures and reinvent ourselves - businesses go through predictable stages of evolution and revolution, and need to change at each stage, or go under. Change is continuous, there is no arrival point. But at least we can anticipate and plan for the challenges of each phase of development. Change represents opportunity as well as threat it can be fun. As the only alternative is to be boiled alive, we might as well get on with it. The starting point for change managers is to work with their team in identifying the demands of the environment of the business.

Organisational Development is a newly emerging discipline directed towards using behavioural science knowledge to assist organisations in solving problems and dealing more rapidly with the problem of change. Using a system approach, OD has grown rapidly in response to a need for organisations to remain viable and to survive in a world of change. The basic purpose of OD is not only to
help organisations become more adept at self-renewal and survival, but also to ensure that the human values of organisational members are furthered.

Before defining OD, let us explain and judge why OD has so vastly expanded and accelerated in the past 30 yrs. This growth has come about primarily as a response to tremendously accelerated changes in the western culture. As Lundbert pointed out, the present has been characterised as a truly revolutionary period, with multiple revolutions occurring in the technological, communications, political, scientific and institutional dimensions of our society. Because change is occurring so rapidly, new and improved methods need to be developed to deal with such changes. In human history, change is generally irreversible. While the era of slavery and serfdom is not far removed and the thrust toward increased personal freedom may be temporarily slowed or amount of technological change in the last 20 yr. has exceeded that of 2,00,000 years before. Toffler argues convincingly that next few decades will bring about an avalanche of change, and that most people and organisations are not prepared for the variety accelerated pace of change. OD appears to be one of the primary methods for helping organisations adjust to accelerated change. As a result, OD is an important emerging discipline, Bennis notes that OD rests on three basic propositions. The first hypothesis is that each age adopts an organisational form which is the most appropriate to that particular age and that changes taking place in that age make it necessary to revivatblish and rebuild our organisation. The second proposition lies in changing the "climate" of the organisation - the "way of life", a system of beliefs and values, an accepted form of interaction and relating. The third proposition is that "a new social awareness is required by the people in the organisation" - since social awareness is essential in our world. There are two major factors, which caused the use of OD as a technique for planned change:

1. **Training for change** does not work properly only through reward structure on the job, unless there is a proper change in the environment of organisation in which people work. The old moves and structures of the organisation do not support training adequately, and trained people even fail to bring the desired change. This requires a change in the organisation environment so that it supports training. This is the basic objective of OD.¹

2. In the dynamic environment, the change is extremely rapid. This requires a highly receptive and effective organisation so that changes are implemented and absorbed to keep organisations survive and proper. OD thus to make organisation receptive and effective. As Keith Davis² has observed, *it tries to free up communication tightness by increasing the amount of trust, and candor of communication*. It seeks to build problem-solving capacity by improving group-dynamics and problem confrontation. In short, it reaches into all aspects of organisation culture in order to make it more humanly responsive. More importance of organisation development are: **emphasis on rationality and objectivity, focus on the shared authority, creation of social organisation, emphasis on long-range planning and strategy, taking advantage of organisational conflicts, and more widely dispersed improvement.**³

1.6 **ORGANISATION DEVELOPMENT IN INDIA:**

Organisation Development has been gaining importance day to day in India. Enough work has been done to implement and learn it for further effectiveness. OD work has been done in different types of industries and organisations, such as public and private sectors and non-industrials organisation, etc. Such organisations have applied OD techniques with varying degrees of success. Some organisation implemented it as a challenge. There are some shortcomings in implementation of OD programme in India. There are some persons, specially complacent ones who are not prepared to apply diligence of effort for improvement and the methods of work involved in OD and sometimes not of sufficient strength to challenge the motivation of highly

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¹ Lundberg, "OD: Current perspective future issues". American Institute for Decision Sciences.
² Keith Davis, "Human Behaviour at Work".
Many of the organisations have not published their results of OD efforts. This is because most of the work has been taken on consultancy basis and it was thought properly not to disclose the identity of the organisations involved. Some detailed reports of organisation development are available in published annual and interim reports. Some of these reports in India are as:

- **G. Chattopadhayay**: The use of Groups dynamics Laboratory in process consultation - A case study set in the bank of Calcutta.
- **K.Das**: Reorganisation in Nationalised Banks. Lok Udyog.
- **O.P. Bhatia**: Organisational Development in BCCI. Lok Udyog.
- **M.S.S.Vardhan**: Organisational Development - HMT way. Lok Udyog.
- **V. Krishnamurthy**: Management of Organisational Change - The BHEL Experience. Vikalp.

Such efforts are in the context of Hindustan Machine Tools a public sector organisation, mining banks, and other organisations. Though the results which have been reported have been encouraging, there are various problems in the way of OD implementation in Indian Organisations.

The general environment socio cultural as well as economic - in which most of the Indian organisations are working, is not very conducive to adopt modern management techniques, such as, OD or similar area. For, the adoption of such techniques essentially requires sharing of authority, participative management, free-flow or two-way communication, change in the attitudes of managers and owners of the organisations, towards latest management techniques, and availability of external consultants who can devote considerable time to the organisations undergoing through OD programmes. Some of these problems have been identified in the case of adoption of MBO by Indian organisations. What is more relevant in the case of OD is the relationship between management and external consultants, Indian organisations, by and

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1 Keith Davis: Human Behaviour at Work. Ibid.
large, do not want to share their problems with the external consultants simply because they do not have trust and confidence in consultants either because of their fear of confrontation with such consultants or because of the decline of their power. Such fears are, however, not based on any concrete proof. In fact, the OD programmes have shown that the power enhancement and is shared widely among participants and a self-imposed discipline emerges in healthy work setting. This difficulty is further enhanced by the role of external consultants who have a traditional view of looking at consultant's role. They believe that the consultant's role is to diagnose all problems, suggest solutions, and put these in voluminous reports and over these to what management wants.¹ Though this approach may be quite relevant in the case of technical problems, this is unlikely to work in the case of OD or similar techniques where behavioural change is much more important. In fact, the role of external consultants should be extended to the implementation aspect of a particular technique. This is more closely related with management's expectation from a consultant. Management wants concrete results, and not the reports on a particular problem. Moreover, the application of any technique may be facilitated when managers as well as external consultants put efforts together. This is because the theoretical background which a consultant has and is backed by the working experience in a particular environment which a manager has. OD programme particularly requires such long association between managers and consultants. These are some of the problems which Indian organisations are currently facing in applying OD. Since OD technique is being followed by several organisations, there is a possibility that with the experience gained therein, it may be fruitfully applied in other organisations. From this point of view, the future of OD in India is bright. Udai Pareek² observed that 'OD work is currently going on in several industries and non-industrial organisations, and as these experiences are recorded and shared, we shall have a better understanding of the effective use of OD in traditional organisations, public sector industries, industries employing various technology and a variety of non-industrial organisations. There have also been experiences of failure, and these are also being recorded and collected to learn from them. In general, OD shows a promising future, since there are no rigid set

¹ Dayal : Some Approaches to organisational change - India and Abroad Economic & Political Weekly, Nov. 29, 1969.
procedures in OD work, and different strategies have to be evolved for different types of organisations.¹

1.7 ORGANISATIONAL CHANGE: APPROACHES TO LEADING ORGANISATIONAL CHANGES

'Change' means the new state of things is different from the old state of things. Change is omnipresent; change will be one of the main challenges for the next century. Most demands for change come from outside the organisation - from government agencies, competitions, new technologies, customers, market forces, and the larger from society. Sometimes demands from change come from within the organisation - a new chief executive, absolute products or services, a new strategic direction, declining profitability, or an increasingly work force. So, it is necessary to understand change and planned change to understand organisation development.

Change has different facets to it. Change can be deliberate or accidental. The magnitude of change can be large or small. In terms of scope, can affect many elements of the organisation or only a few elements. It can be fast (abrupt) or slow. The new state of things can have an entirely different nature from the old state of things. New state of things can have the same nature with new features. Each of these acts is important because they call for different actions from leaders and practitioners. The term 'change' refers to any alteration which occurs in the overall work environment of an organisation.²

Organisational change portrays how managers maintain viable organisation. One consequence of the need to maintain organisational viability is that the system must be prepared to accommodate itself to changes, since viability requires that the organisation adjust itself to alternatives in internal and external factors. Furthermore, organisational growth that appears to be a major value of our organisational society creates the necessity for change. Therefore, our description is based on the manager's role as the decision-maker who has to plan, direct and evaluate performance to achieve a viable organisation. Most managers to day recognize the necessity for anticipating and preparing for change in order for their organization to survive. They are aware of the dynamic nature of their environment with its continual shifts in technical, educational, and cultural bases. This dynamic environment is constantly requiring their

¹ Udai Pareek, Ibid.
organisations to adjust and adopt their methods of operation. Six major problem areas exist in any organisation, all of which must be resolved if the organisation is to develop into a successful and enduring entity. The problems chronicled are Integration, Social Influence, Collaboration, Adaptation, Identity and Revitalization.

Leavitt\(^1\) describes a model of the major targets of changes, which will lead to the resolution of there problems. Changes in these variables cause alteration in organisational behaviour, which is crucial to survival. He identified the major areas as: technology, structure and people.

The Levitt\(^2\) model indicates that there are interdependent variables and it is likely that a change in any one will create a change in one or all of the others. Thus when a manager desires to bring about a change he must be cognizant of the possibility of unanticipated alterations in the others. In change programmes we speak of those that were anticipated as manifest functions and those which were unintended as latest functions. One of the more difficult problems in instituting changes is the recognition of what latest consequences may develop.

These may be positive in that they support the objectives of the organization, or they may be dysfunctional, acting contrary to the organisation's interest. The important point is to be aware of both the intended and unintended impact of change. Furthermore, the choice of an approach is dependent upon the nature of the problem and the desired objectives. It is the manager's task to determine which approach is appropriate. These represent efforts to modify organisation behaviour by changing structure, technology, and humanistic elements:

A. Structural Approach:

Change efforts of this nature are directed at the administrative structure of the organisation. Variables such as line staff relations, authority & responsibility assignments, communication practices, decentralisation-centralisation, and departmentalisation are all targets of structural change. The

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\(^2\) Levitt, Ibid.
theory underlying such programs is that behavioural change and organisation improvement can be accomplished through changes in the components of the formal organisation. Effective change will mean harnessing the informal as well formal structure. Reorganisation can be a powerful lever for change in putting the resource where you need it; for example, restructuring into "business centers" which are closely aligned with particular customer's group. Reorganisation also gives strong signals to both customers & employees that things are changing. A reorganisation of the structure was adopted to increase agency flexibility; to improve control, cooperation, and communication; and to allow the organisation to respond more effectively to the dynamic business. The flavour of the new structures is seen in the move towards: Flat organisation, Customer centered organisation, Network Organisation and Cellular Organisation

B. Technological Approach

The impact of technology on organisation performance has often been noted and its is a logical variable to alter to change organisation behaviour. Scientific management, mass-production assembly lines, computer technology, and operations research are all forms of technological change. In general, the introduction of new technology in the form of new equipment or new methods for using existing resources leads to changes in any or all of the following: Tasks & Job contents, Social Interactions, Job Environment, Supervisory Practices, Status Factors. The main content to measure technological change in terms of operational techniques used in the workflow activities, characteristics of materials used in work flow, the degree of continuous or fixed sequence operations, the extent of automation, the degree of interdependence between the work system and impact of modernization on other aspect of organization.

C. Humanistic Approach

The approach is directed at effecting change in individual behaviour, and the entry points to the reorganisation process are the people themselves. This is in contrast to the structural and technical approaches, which indirectly lead to change in individual behaviour. The belief is that through alterations in individual attitudes, perceptions, and heightened personal sensitivity more individual motivation, creativity, and cooperation will be attained. The consequence will be
improved organisation performance. Understanding people, both as a source of inertia and a source of leverage for change; means understanding what your organisation has and needs in the way of skills-mix, whether management attitudes and styles are appropriate for the future you are trying to create. It includes to analyze changes in terms of manpower forecasting and planning, recruitment, selection, performance appraisal, maintenance, integration, control mechanism, motivational practices, organization development programs, training, retention policies and decision-making approaches.

1.8 DOES OD WORK?

A review of Reviews:

Literature reviews gives a broad overview of the state of the field. In addition, we examine several studies using a statistical technique that measures the effects of OD interventions on dependent variables such as performance and satisfaction. Several excellent literature reviews attest to the efficacy of organisation development to bring about desired and intended changes. These surveys of OD research and practice cover a broad range of programs conducted over several decades.

Porras and Berg\(^1\) screened 160 studies and reduced the total to a set of 35 studies exhibiting clear organisation development interventions that were evaluated by rigorous research standards. They found that 308 different variables were measured in the 35 studies; these variables were classified into "outcome" variables and "process" variables. And overall 46% of the process variables showed positive changes. It was also found; the managerial grid had the greatest impact outcome variables followed by task oriented laboratory training & survey feedback.

Margulies, Wright, and Scholl\(^2\) analysed 30 studies and found positive results in over 70 percent of them. Dunn and Swierezele\(^3\) examined 67 cases and

found positive gains almost 70% of the time. John Nicholas\(^1\) assessed the impact of a variety of OD interventions on hard criteria such as costs, profits, and quantity and quality of production in 65 studies. Positive outcomes were found in about half of these cases.

Katzell and Guzzo\(^2\) reviewed 207, field experiments using 11 psychological approaches to improving employee productivity and found gains were reported in 87 percent of the studies. The time frame was from 1971 to 1981 and the interventions included such activities as socio-technical systems redesign, goal setting, training and instruction appraisal and feedback, and the like.

Golembiewski, Prochil, and Sink Report\(^3\) on an extensive review of the OD literature. They found 574 cases of OD applications occurring from 1945 to mid-1980, with 47% of these cases being public sector applications and 53% being business or private sector programs. The results were favourable, over 80% of the cases showed either highly positive or a definite balance of positive outcomes. On the other hand, only 8% of the applications showed negative effects. Additional analyses showed that improvements were found at the individual, leader, group and total organisation levels.

Finally, a massive review of some 800 work improvement efforts by Barry Macy\(^4\) (Cited in Sashkin and Burke) shows, "generally positive conclusions with respect to both performance and worker satisfaction. Taken together, these literature reviews strongly support the conclusion that OD programs produce positive changes at the organisational and individual levels.

One of the most exciting innovations in the research field is meta-analysis, a set of statistical methods developed by Glass, Mc Gaw, and Smith and by

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\(^3\) Golembiewski, Prochil and Sink, "Estimating the Success of OD Application, Group Dynamics
Huarier, Schmidt, and Jackson, to assess treatment effects over a set of studies.

Guzzo, Jette, and Katzell conducted a meta-analysis in the 207 studies included in the literature review by Kaizell and Guzzo mentioned earlier. The analysis revealed that the interventions, on average, raise Worker productivity by one-half standard deviation, a very substantial gain indeed.

An analysis by Neuman, Edwards, and Raju, examined 126 empirical studies using a variety of OD interventions for their effects on satisfaction and other attitudes, such as attitudes towards job, others and the organisation. The results are complex, but they show that OD interventions have positive and significant effect on attitudes.

A meta-analysis by Robertson, Roberts and Porras based on 52 research studies confirmed the efficacy of OD interventions to produce positive change. This study examined the effects of OD interventions to produce positive change and also tested the model. Interventions were classified into five kinds relating to organising arrangements, social factors, technology, physical setting, and multifaceted.

Paul Spector examined the effects of interventions that increase autonomy and participation on performance and attitudes. Increased autonomy and participation should lead to a sense of greater "perceived control" by employees.

Sociotechnical Systems (STS) Interventions are a very important point of the OD field. These efforts aim to optimize the technical and social systems of organisations in order to increase both productivity and quality of life. A thorough

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review of STS research studies by *Pasmore, Francis, Haldeman, and Shani* showed that STS interventions increase productivity in 87 percent of the cases, very positive finding. *Rafik Beckun* conducted a meta-analysis of 17 sociotechnical studies to estimate their effects on productivity and "escape behaviour". The results show that STS interventions significantly increase productivity and decrease escape behaviour as expected.

A meta-analysis of gain sharing case studies by *Bullock and Tubbs* gathered data from 33 case studies of gain-sharing programs spanning 50 yrs., coded the data to make them amenable to meta-analysis, and dented hypothesis derived from a model predicting gain sharing success.

Some advances in the area of research on OD have already been cited, namely increasing use of experimental and quasi-experimental research designs that socially permit us to know what the incitement effects are and increasing attention to the formulation of theory and testable hypothesis. In a review article by *Pate, Nielsen, and Bacon*, 18 of the 37 studies examined are longitudinal research efforts. The *Institute for Survey Research* has been engaged for many years in gathering data on a variety of organisations. Another program on Quality of work, under the direction of Professor Edward, E. Lawler III, at the university of southern California is monitoring and evaluating a number of quality of work life (QWL) projects initiated is the mid-late 1970's.

In a critique of the OD research literature, *Nancy Roberts and Jerry Porras* find reasons for cautious optimism. They note that substantial progress is being made in four major areas: Progress in operationalizing the concept of change, progress in improving measurement processes and also measurement procedures, and progress in developing appropriate statistical and analytical

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4 Pate Nicolson and Bacon, "Advances in the organisation Development" pp 390-391.
5 Michigan Organizational Assessment Program Report II. (Aun Arbor, MI, Surey Research Centre, Aug. 1975). National Centre for Productivity & Quality of Working Life".
6 Nancy Roberts & Jerry Porras, Ibid. Groups & Organizational Studies.
models. Furthermore, Friedlander and Brown, Alderfer, Faucheux, Amado and Laurent, Beer a Walton, and Porras and Silvers have written careful comprehensive reviews and critiques of OD research for the 1974, 1977, 1982, 1987, and 1997 editions, respectively of the annual review of psychology. Michael Beer, George Strauss, and Jerry Porras and Peter Robertsen have told the broad story of OD in on three handbooks. White and Mitchell, Pate, Nielsen, and Bacon, Porras & Beg, and Golembiewski, Prochl and Sink reviewed the research on OD and offered helpful suggestion for improving it. All these contributions have played a role in emphasizing the need for competent research on OD and have additionally raised the level of sophistication regarding research.

Marshall Sashking and Warner Burke reviewed the state of OD research in 1987 and discovered positive trends. Sashking and Burke draw these conclusions: by the mid-1980s. Porras and Silvers reviewed OD research from 1985 through 1989 and report advances in research methods. Positive developments are better theories, improved study designs, measurement, statistical methods and good use of meta-analytical techniques in a comprehensive review, Porras and Robertson examine the effects of different OD & human resource interventions on individual and organisational performance. In addition they test a theory of planned change. This work merits a closer look. Porras & his associates shows the four categories of variables included in the work setting: organising arrangement, (OA), Social Factors (SF), Physical Setting (PS), and

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1 Friedlander and Brown, "Organizational Development".  
8 Marshall Sashking and Warner Burke, "Ibid".  
9 Porras and Silvers, "Ibid".  
10 Porras and Robertson, "Ibid".  
11 Ibid.
Related or "mapped" various OD interventions to organization variables; for example, team building should impact social factors, Parallel learning structures and quality circles should impact organizing managements.

1.9 ASSESSING THE EFFECTS OF OD AND CHANGE: SOME ISSUES AND PROBLEMS:

Organisation Development is a prescription for a process of planned change in organisations that includes concepts, techniques, and interventions. The desired outcomes of organisation development and particular change make the organisation and its members and work groups more effective while also making the organisation a better place to satisfy human needs. Does OD in fact bring about or cause these desired effects? Unambiguous answer to this question can come only from careful, controlled and empirical research. In research terminology, the OD program could be called the independent variable, or the enactment or "cause". It is presumed to cause variation in the dependent variable or "effect". It is not really known in most cases what "causes" the effects of an OD intervention; it is only that something within the overall activities caused some changes. In the strictest sense, the cause in the independent variable, and since that is usually not identified in OD research, we will loosely refer to the OD interventions or program as a "treatment", that contains some independent variables having an impact on dependent variables of interest.

a) Problems with definitions and concepts:

There are endless variations of "OD" A program can consist of many activities or only one or two activities, yet it would be reformed to as OD. A program can be a one-shot intervention or a multi year intervention and be called OD. A program can include a particular intervention say; intergroup or team building - or not include it and be called OD. And some programs we would not label OD are called OD. Thus there is no unitary treatment known as OD and research on OD is therefore not on OD per se but rather on a specific set of treatment activities.

1 Ibid.
b) Problems with Internal Validity:

Do in fact the experimental treatments make a difference in this specific experimental instance? This is the problem in all field research and evaluation research; there is simply so much difficult to pinpoint what is causing the changes that occur. The problem of internal validity lies in the research design - the structure of the research effort from start to finish. Campbell and Stanley have suggested a number of designs that overcome threats to internal validity.

c) Problems with External Validity:

A third problem in research on OD is that of external validity. It means generalizability. To what populations, settings, treatment variables, and measurement variables can this effect be generalized?" Organisation Development is being applied in an ever increasing number of "settings", and what "works" in art setting may not work in another. It is likely that some techniques or treatments will be found to be situation specific, while others will be more universally applicable.

d) Problem with Lack of Theory:

There is essentially no comprehensive theory to explain the process of planned change in organisations. In fact, OD research is not theory-guided research. Without a theory of organisation Development, the relations among variables and the variables themselves are unknown. OD researchers are forced to fall back on a strategy of measuring the effects of global treatment on a potpourri of dependent variables - things that should probably be affected by the intervention.

e) Problems with measuring attitude change:

Organisation Development involves administering pre intervention and post intervention attitude questionnaires and observing pre-and post intervention differences on the attitude scores. OD that involves measuring attitude changes: - is one of the important factors in the research of OD. The most of the result of
attitudinal changes are not real. Attitudinal changes may be positive or negative; and its importance to identify validity in measuring attitude change.

f) Problems with "Normal Science":

Theorists and researchers are rejecting "normal science" with its requirements of replication, control groups, random assignments to treatment conditions, specifying single cause- and effect linkages, and so forth in favour of less rigorous but richer "action research". Earlier Argysis's\(^2\) call for "action research" as a more effective means for studying complex social change than normal science. Beer and Walton\(^3\) conclude: "What we are recommending is a return to the action research but with much longer time frames and the inclusion of rich descriptions of context and system dynamics". So, there is still a controversy within the organisation development regarding the best ways to conduct research on action programs.

The study have discussed six major problems confronting research on OD imprecision definitions problems with external and internal validity, the pack of supporting theory to guide research, problems with measuring attitude change, and problems with using normal science methods to study OD programs. These do not appear to be insurmountable problems at this time, although they continue to plague research efforts. OD research efforts have confronted with these limitations: Absence of theoretical and practical base, operationalization of independent and dependent variables, depending on specific research strategies, evaluation by insiders, and lastly lack of cooperation and acceptance problems.

Basic Problem of Cement Industries:

Cement industry constitutes an important segment of the modern industrial economy of India. It plays a vital role in the economic life of the economy. In view of its crucial position, it's imperative to have a comprehensive study of the industry. The cement industry faces various types of problems in Indian context:

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2 Chris Argyrs, "Human Side of the Enterprises".
3 Beer and Walton.
1. Old and stereotyped organizational structure;
2. Continuous negligence of Modernization or lack of sophisticated technology;
3. Negligence of Human factor or under-develop human skills;
4. Inadequacy of infrastructure facilities;
5. Shortage of raw materials and localized gross material;
6. Regional imbalance of the industry; and
7. Lack of government promotion schemes.

1.10 RESISTANCE TO CHANGE – REACTION TO CHANGE:

One of the most persistent phenomena in organisations is the tendency of members at all levels to react rigorously to change. Unfortunately in many instances the reaction is negative, the desired effects of changes are not achieved, and considerable personal and organisation effort is wasted. Work slowdowns, absenteeism, turnover, output restriction and the wild cat strikes are often the outcome of well-intentioned changes. Why this should be true is a major area of investigation of social theorists and a continual problem that managers must solve. Furthermore, change itself does not seem to be sufficient to cause these problems, since changes of varying magnitude are continually in process. For instance, a secretary may start a new filing system, members of a crew may alter work routines, personnel may be fired, hired, reassigned, or promoted, and new physical facilities may be installed. These are all commonplace events in an organisation's history and they frequently pass without notice. The question is, "Why, on some occasions, do these same events promote intense reaction and distance?" To respond to this, it's useful to conceive of change as involving a technical and a human component. The technical component pertains to the physical work routine involved in the change, whereas the human component pertains to the real and imaginative impact of the change on the people involved. The latter is commonly the cause of negative reactions to change. There is a close relationship between change and human attitudes. If the individual feels that the change will
affect him unfavourably, he resists it. Resistance to change becomes more forceful when the person concerned has a feeling that through resistance he may eliminate the change.1

Although, people tend to resist change, this tendency is offset by their desire for new experience and for the rewards that come with change. Thus, all changes are not resisted. In fact, people want changes that are favourable to them. Moreover, resistance to change is not necessarily an undesirable human response, nor is change always a positive good. "Resistance to change forces change agents to take a realistic view of change and they can more precisely define its objectives, expected results and negative aspects."2 It also gives opportunities to focus attention on change accepted. "Organization have personal compacts with their employees. Change efforts will fail unless those compacts are revised".3

Managers and employees view change differently. Top-level managers see change as an opportunity to strengthen the business by aligning operations with strategy, to take on new professional challenges and risks, and to advance their careers. For many employees, change is neither sought and nor welcomed. It is disruptive and intrusive. It upsets the balance. Senior managers consistently misjudge the effect of this gap on their relationships with subordinates and the effort required winning acceptance of change. To close the gap, manager at all levels must learn to set things differently. They must put themselves in their employee's shoes to understand how change looks from that perspective and to examine the terms of "Personal compacts" between employees and the company. Degree and forces of resistance depends upon how employees feel about the change. Employee generally resist to change because of: 1) The problem of adjustment at new equilibrium, 2) The effect of change on individual's level of need satisfaction, 3) The group to which they belong resist it. Researchers show that resistance to change tends to focus on human relations problems. Rather than the technical aspects of change, people resist the way change affects

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them, rather than resisting technical requirement of change.* Thus, the force of resistance to change will be determined by the effect of change on people's need satisfaction, and how change agents bring the change.

**Overcoming Resistance to Change:**

The basic problem in organisational change is the resistance of people to change, whether reasonable or otherwise.\(^1\) While implementing the change, the manager has to overcome this resistance to change. Problem of resistance to change can be handled at two levels:\(^2\) **At the individual level and at the group level that is through group dynamics.**

Though both these attempts are complementary, sometimes these efforts may be overlapping because every individual is a member of some or of a group, both at the formal and informal level.\(^3\) The revision of personal compacts occurs in three phases.\(^4\) **First, leaders draw attention to the need to change and establish the context for revising compacts.**, Second, **they initiate a process in which employees are able to revise and buy into new compact terms**, Finally, **they lock in commitments with new informal and informal rules.** By approaching these phases systematically and creating explicit links between employee's commitments and the company's change outcomes; managers dramatically improve the probability of hitting demanding targets.

**1.11 NEED OF THE STUDY:**

The brief survey of the existing literature on different aspects of industry indicates that there is **not a single comprehensive and intensive** study touching upon various aspects on development profile as yet. In regards to other industries in India, different researchers and institutions have undertaken a lot of advanced, highly scientific and comprehensive studies. Unfortunately unlike other industries, **the cement Industries has not been able to draw attention of researchers to any noticeable extent.** Of course, there exists a good deal of analytical study on some of the aspects like **productivity, location, finance, etc.,** of the industry. **But the**

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4 Paul Stubel : Ibid.
study on change and development aspects, though very useful is now outdated, and the analysis related to structure, technology and human resource are inadequated and less penetrating. Most of the analyses are not seriously concerned about the subject. They are not successful to reduce the prevailing maladies of the industry for which these were basically intended. Most of studies use the data pertaining to the period prior to seventies. Paucity of data has refrained the researcher to undertake any up-to-date in-depth study. And it is quite likely that the current problems and constraints are quite different from those with which the industry was confronted prior to early seventies. Many writers in their analysis have not resorted to even simple econometrical or statistical devices, as a result of which the conclusions thus derived lacks exactness and clarity.

Above all it may be mentioned here that so far not a single study has been undertaken on the organisation change and development in the cement industry. The problem of technology, structure and above all human resource has been neglected. This study needs to emphasize very minutely on three aspect, which are also important element of organizational change and development. Organization change Portray how managers maintain viability in respect of these three aspects. It is also analysed in the present study to assess the managerial structure and assessment of human resource. The study analytically studied development profile of the cement industry. The most important aspect that has been grossly ignored by researchers, but it now become most important in this era, i.e., human resource. It is equally required to study this aspect, as the undeveloped skills and lackness of interest of management to develop the human skills. It is, therefore, fruitful to work out the best organisation structure to control and organize. It is essential to study how governmental policies have helped or hindered the growth process of the industry. Without having an adequate view regarding these three aspect, structure, technology, and people; the study become useless and meaningless. All these aspects are inter-related. Hence there is necessity of a comprehensive study incorporating discussions on various problems of the industry. This study also make an humble attempt to provide a complete up-to-date picture while highlighting some of the here to fore neglected but important
aspects like, concentration, location, finance and distribution of the industry, to some extent.

1.12 OBJECTIVE OF THE STUDY:

Organization change portrays how managers maintain viable organizations. One consequence of the need to maintain organizational viability is that the system must be prepared to accommodate itself to changes, since viability requires that the organization adjust itself to alterations in internal and external factors. Furthermore, organizational growth, which appears to be a major value of our organizational society, creates the necessity for change. Therefore, the description and research is based upon the "changes occurred in the Cement Industry", and evaluation of the changes in the cement industry. Orientation of this study is towards primarily that of describing overall change in three major components of the industry: Technology, structure and people. The study has the following important objectives to pursue:

1. To review very succinctly the historical background and development profile of the cement industries in India.

2. To trace out the effective structure of the cement industries and changes take place in organizational structure during the period of study.

3. To analyze the technological advancement and changes take place in technology during the period of study;

4. To assess the importance of human resource development and to trace out changes in human resource in Indian Cement Industry.

5. To draw useful conclusions and broad guidelines in the light of the above study which serve the highlight of the applicability of the above factors.

1.13 RESEARCH METHODOLOGY, APPROACHES AND DATA SOURCE:

The growing importance of organizational studies has attracted the attention of various disciplines, consequently leading to various approaches to organization theory. However, the most significant impact came from behavioral
science not only in terms of **neoclassical theory**, but also in terms of **systems and contingency approaches**. The reason is very simple. Organizations, being composed of human beings, always deal with **behavioural problems**. These problems can be adequately solved by **behavioural science application in management**. Berelson¹ defined behavioural science as the study of human behaviour establishes **generalizations** by empirical evidence collected in an interpersonal and objective way.² Thus behavioural science study human **behaviour in a scientific way**. The two key elements are scientific study and human behaviour. Both criteria must be met for a discipline to qualify as behavioural science. Use of scientific method to gather facts about behaviour avoids speculation *what is* are a normative disclosure about *what ought to be* using the method means being systematic in gathering facts to be ordered and analysed so that the results may be reported and accumulated. A behavioural science depends upon rigorous scientific methodology in the collection of original data on human behaviour.

The study cover the Cement Industries in India, for which data are available from authentic **external** as well as **internal sources**. The approach intent to study the structural changes and development in the Industry and its implications. **Growth and performance** at the Industry have been analysed and studied keeping in view the objectives of the cement enterprises, problems and the economy as a whole. The study is based upon the **primary** as well as **secondary data**. The primary source is based upon the **questionnaire, interview, observations, tests and various unobtrusive measures**. The important **source for secondary data for studying analytical species are the publications of cement controller, Stock Exchange Directorate, Cement Manufacturer’s Association and Annual Reports of Cement Industries, and reports of various journals and magazines, and Reports of Directorate General of Employment and Labour, Reports of Cement Research Institute, Documents of Planning Commission, Labour Survey’s, etc.

² Bernard Berelson. "Ibid".
The study uses appropriate devices to assess the change and performance of the Industry from different points of view. In order to highlight the changes in the operational performance of the Industry, the techniques of ratio analysis and trend analysis have been resorted too. The statistical devices like ranges, index numbers, percentages, averages, standard deviations and correlation's have been applied. So far as the behavioural aspect is concerned the study have been resorted use the following measure to depict change and development in Cement Industry: 1. Questionnaire, 2. Interview Techniques, 3. Observation Technique, 4. Tests and 5. Unobtrusive measures.

Sampling:

Sampling is simply the process of learning about the population and the basis of a sample drawn from it. Thus, in the sampling technique, instead of every unit of the universe only a part of the universe is studied and the conclusions are drawn on that basis for the entire universe. In this study, major Cement Industries in India constitute the universe and data are obtained from each and every unit of Cement Industries (including public sector, private sector, Mini-plant). An important decision that has to be taken in adopting a sampling technique is about the size of sample. Size of sample means the number of sampling units selecting from the population for investigation. Size of the sample should be optimum, is one that fulfils the requirements of efficiency, representativeness, reliability and flexibility. Size of sample selected in the study on the basis of production. The study covered those units, which cover the 69.57% of total production in Indian Cement Industries. The various methods of sampling can be grouped and used to study design. Sampling is a tool, which helps to know the characteristics of the universe or population by examining only a small part of it. The following sampling methods have been used generally to study the research topic.

A convenience sample is obtained by selecting 'convenience' population unit. It refers to that fraction of the population being investigation, which is selected neither by probability nor by judgment, but by convenience. Convenience sampling is the most appropriate in OD research work. Questions may be tested
and the chunk may obtain preliminary information before the final sampling design is decided upon. It is a non-probability sampling methods.

**Random sampling** refers to that sampling technique in which each and every unit of the population has an equal opportunity of being selected in the sample. In Random sampling which views get selected in the sample is just a matter of chance-personal bias of the investigator does not influence the selection. As compared to the other sampling methods it represents the universe in a better way. As the size of the sample increases, it becomes increasingly representative of the population.

In this study, it has been kept in mind at the time of research to use sampling in such a way that it represent the universe. As per se, it is being decided to take those sampling cement unit, which have a major production proportionate in the total production of cement in India". The research identifies these sampling cement units; which manufactured and contributed Eighty percent of cement production in India. .

1.14 REVIEW OF LITERATURE: CEMENT INDUSTRY'S

Cement Industry is one of the major and oldest established manufacturing industries in the modern sector of the Indian economy. It is an indigenous industry in which country is well endowed with all the necessary raw materials, skilled manpower, machinery, equipment's, technology and know-how. It is one of the key, capital-intensive energy and transport-intensive industries in India. It is both a basic and consumer industries. Till yet, there is no systematic, detailed and comprehensive study of the complicated problems that the industry has been confronting perpetually. This notwithstanding the fact that there is a sizeable literature on Cement Industry in conformity with it longs history and economic importance. A good deal of analytical literature exits at broad levels like problems associated with productivity, financial performance, size and technology, manpower and human resource and management, but not on the overall perspective of the Cement Industry. An humble attempt is made to review briefly some of the relevant existing studies in the pages to follow:
Poddar wrote the most important pioneering book in two volumes in 1962 and 1966 respectively. The author has made a very sincere attempt to enumerate all the historical facts relating to various aspects of the industry. The general problems is historical perspective have been studied by various institutions like, Eastern Economist, CMA, Association of Trade and Industry, Tariff Commission, Commerce Research, Bureau, State Bank of India, Tata Economic Consultancy Services and Economic Times. In Ghosh’s article, an attempt has been made perhaps for the first time to examine the relationship between employment, earning and productivity of labour in the Industry. In important article, published in 1967 and 1999 by Sawhney measures productivity trends in the Cement Industry. The period of his study covers 1950 to 1961 and 1990-2000. Devising the methods logical framework, he has attempted to show how productivity gains have been shared by the different factors of production. Ramanathan's paper in 1970 is a very significant contribution to this specific field. Later he presented a comprehensive study in 1973, which deals with technology, production, HRD etc. Ramanathan examined the trends in wage, productivity and capital-intensive in the industry, by taking the help of data published by CMI and ASI. Another interesting and very scientific study had been undertaken by Dr.Gupta in 1993. His reports attempts to hypothesis estimate and analyse the production function in order to compute each factors relative contribution to output, growth, marginal productivity average and total productivity. In 1977, 1980, 1990 and 2000 the Institute of Applied Manpower Research published a book on Manpower in the industry. The main objectives of book were analyzing various aspect of manpower in Indian Cement Industry. Goel and Nair have made an important contribution on productivity trends of the industry. Their study covers aspects like origin and growth of the industry extent of under-utilization of capacity and its causes, efficiency of major inputs like

5 Ramanathan, "Ibid".
7 Institute of Applied Manpower Research”. Manpower in the Cement Industry" 1977, Delhi.
labour, capital and raw materials. Dr. Hazara's work\(^1\) in 1980 is a noteworthy study. He has discussed the scale economics with respect to cost of production, capital and employment. As regards the locational pattern of the Cement Industry in India, Mehta made the first attempt\(^2\) in 1955. He has measured the location quotient and coefficient of localization. Another study in 1965, Dr. Ghosh\(^3\) made a very sophisticated analysis*. According to him, growth of the industry inter-regional exchange becomes much more prominent and raises many problems for which long-term and short-term analysis becomes very useful to avoid wastes and bottlenecks. He studied the problem from two angles-static and dynamic. In a notable study NCAER\(^4\) observed that selection of even a single cement plant is evolved differently on the basis of some points. According to the study location of a new plant depend on factors such as nearness of limestone's deposits, proximity to supply points of coal, and gypsum, availability of uninterrupted power at lower cots, railway facility and nearness of cement consuming centers. Dr. Parikh\(^5\) made a very significant study in 1965. His econometric study makes and attempt to analyse the quantitative significance of various economic factors influencing the investment in plants and machinery. In 1973, and important article was written by Reddy and Chakarvarty.\(^6\) Their study presents the inter-firm comparison of financial performance. Ratio analysis is the main tool used on a comparative basis. They have used as many as 22 ratios pertaining to profitability, proprietary liquidity and turnover groups. Then Dr. Ghosh, made an attempt to study the financial position during 1971-72 to 1975-76 and 1980-90. NCAER\(^7\) in 1990 attempted to assess the financial structure of the industry with a view to evaluating its capabilities to generate funds needed for undertaking the desired expansion during the next decade. The study contends that the poor profitability and consequent low rate of dividend declaration, which has been the feature of the industry during the last decade, places a serious limitation of its capacity to raise funds. Next in 1979, Kaura and Subramaniam\(^8\) published

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3 Ghose, A. (1965); Ibid: "Inter-regional Exchanges".
4 NACER, "Basis of Cement Industry".
5 Dr. Parikh, (1965), "Quantities Significance of Economic Factors in Production of Cement".
6 Chakravarty & Reddy (1973): Inter-firm Comparison of Financial Performance, EPW.
7 NCAER, Ibid.
an article, covers only 10 units (4 large and 6 medium sized units) during the period 1972-1977. Their observation run on four points: liquidity profitability, financial structure and overall performance. The study of Rao and Chander1 attempts to make an assessment of the financial efficiency of Cement Companies. Finally Singhana and Balkrishna2 made an enquiry, which seeks to analyse the relative performance of public and private sectors units primarily with the aid of published financial statements of a broad sample of units. The study of NCAER3 in 2000 holds the view that advance planning of cement production is crucial as the gestation period for setting up a cement plant is relatively long. Ramanathan4 in this connection has concluded what size-wise analysis indicates that the big sized units are in a position to reap high profits. The small size companies are having low system of profitability ratio. In one of his articles, Arya5 used for concepts of size-No of workers (l), installed capacity (z), Physical productions (x) and net adjusted capital (k). However, Hazra6 study was a bold attempt on size-analysis. He is of the view what in addition to the plant size, some other factor is in reducing the cost of production. For the rapid growth of the industry especially large units of one million tones or higher capacity should be given due importance. They are able to help sustain such a growth process. He argues that the optimum growth of the industry in a given investment and time frame, therefore, would require large sized plants of 3000 tpd capacity or higher.

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2 Singhana and Balkrishna, "Relative Performance of Public and Private Sectors."
3 NCAER, Ibid.
4 Ramanathan, Ibid.
5 Arya: "Cross Sectional Analysis". Ibid.
6 Hazar, "Ibid".