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STUDY OF INDUSTRIAL ENVIRONMENT

SPECIAL PROJECT

BY

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GUIDE

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INDUSTRIAL DESIGN CENTRE
INDIAN INSTITUTE OF TECHNOLOGY
BOMBAY

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Mr. Hitendra Doshi

Amber T.V. Pvt. Ltd.

Mr. Davendra Goliya

Shanti Electric Instruments.

INTRODUCTION

The concept of industry, in India has a very short history, dating back to early 20th century. It is only in the post British period that industry has seen the light of the day. Industries, big and small, public and private have been encouraged by the Government, to develop the country. The new legislations coming into force in the very recent past is bound to give a dramatic boost to the process of Industrialization.

Old concepts and ideas will be replaced by modern, radical and fast paced ones. Newer methods of production, better quality standards will be the order of the day. Industries which lag behind may not be helped out by pumping in precious resources, but allowed to sink. Similarly the people employed in the industries will also have a very demanding period.

Is the industry prepared to meet the oncoming challenge? Are the people prepared for the onslaught? Where do they stand? What does it take to cope up? Who are responsible? What are the short comings?

These and many more questions comes to one's mind when one sees the revolution that is sweeping the Indian industrial scene. Gone are the days when one could sit back and watch the world go by. That 'Timelessness' of Indian Philosophy seems no longer valid to the Indian Industry.

If the output of the industries are to be of the high order, the input has to be thoroughly scrutinized. The various inputs to the industry can be broadly classified into 'Tangibles' and Intangibles'. Obviously tangibles are those that are apparent and measureable. It is with the intangibles that one runs into a problem. To begin with it is not apparent or measureable. Secondly their influence on the output is also very difficult to gauge. Given this situation, one naturally tends to neglect this very important area, which will only become known over a long period of time, when it may be too late to take

any corrective action. It leads one to assume that the past neglect may be one of the main reasons for the present state of affairs in the industry. Among the various intangibles, that affect the industry and the human being therein is the Environment. There is an old adage which says that the Environment can make a man or break him. Hence the importance need not be overstressed. A man spends a major chunk of his productive time in his work, either going to the place or coming back, or in the work place itself. This place, plays an important role in moulding his mental attitude. This psychological aspect in one's life is one of the main intangible inputs to the industry. It is to portray this important environmental dimension that an attempt has been made.

AIM

Study of Interaction between Man and the Environment in and around Industries.
Develop Methodology of working.

STRUCTURE

The methodology worked out for the project is as follows,

1. Identification of prominent Industrial zones in Bombay.
2. Selection of one area for study.
3. Study of 3 Industries in this area after a random selection.
4. Identification of Problem areas, Analysis and Suggestions for Improvement.
5. Conclusion.

IDENTIFICATION OF PROMINENT INDUSTRIAL ZONES IN BOMBAY

Identification involved scanning through materials like maps, layout plans etc.. These materials were collected from Municipal Corporation of Greater Bombay (MCGB), Maharashtra Industrial Development Corporation (MIDC) and related Govt. offices.

SELECTION OF ONE AREA FOR STUDY

The area under MIDC in Marol Industrial estate was selected for study.
Incidentally MIDC's main office is situated in this place.



PERI-KURLA ROAD
MAHAKALI CAVES ROAD
TO MAHAKALI CAVES

AHURA CHEMICALS

M.I.D.C. OFFICE

BEST

CENTRAL ROAD

ES.I.S.

BOUNDARY OF M.I.D.C. AREA

A-53
A-52
A-51
A-50
A-49
A-48
A-47
A-46
A-45
A-44
A-43
A-42
A-41

E-4
E-5
E-6

TELEPHONE EXCHANGE

27.5 M RW

OPEN SPACE

M.I.D.C. OFFICE

CENTRAL ROAD

RELEASED

KONDIVITA GAOTHAN

OPEN SPACE

REHABILITATION SCHEME

RESERVED

SEEPZ BUS PARKING
F-9

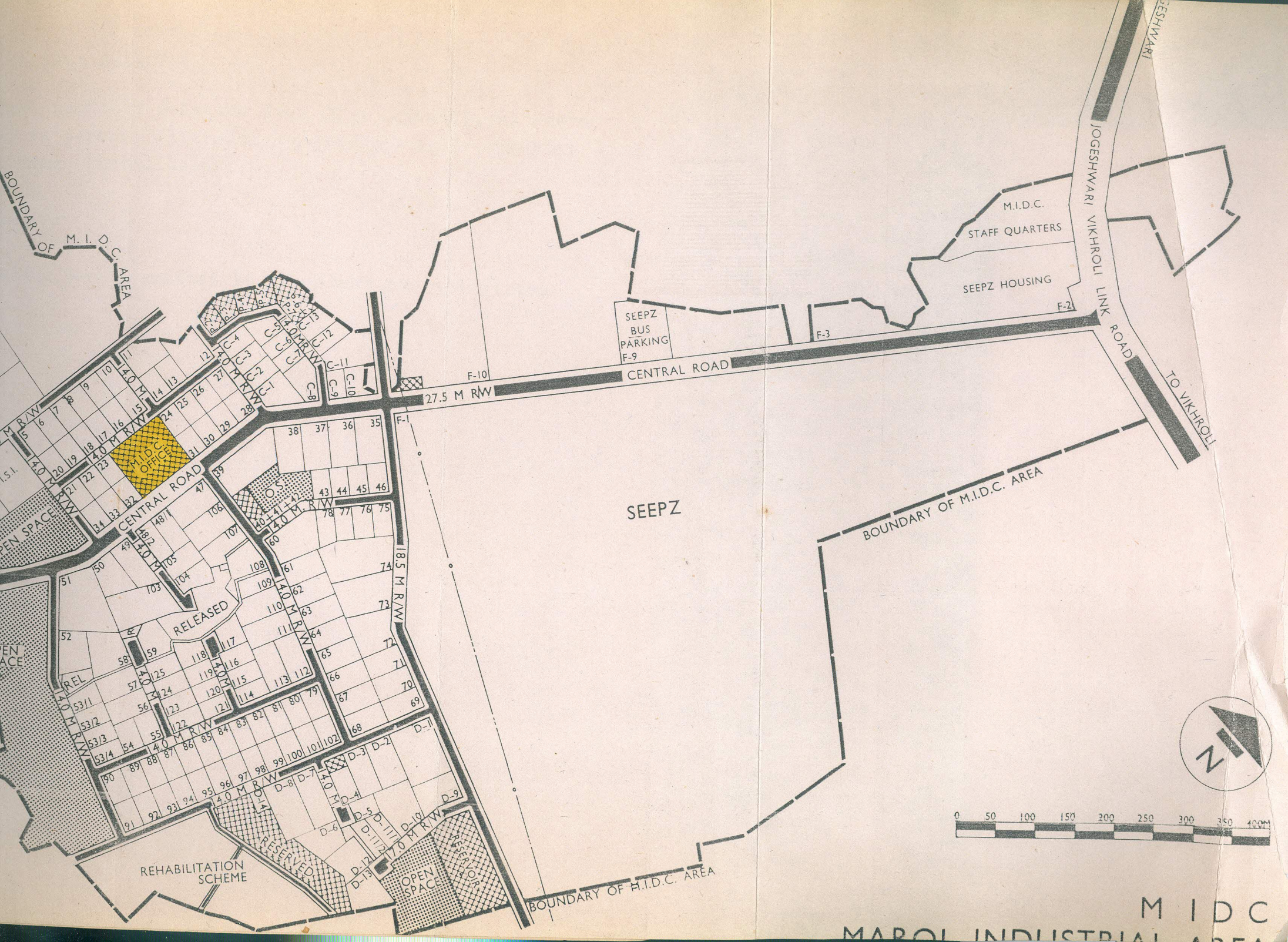
SEEPZ

27.5 M RW

CENTRAL ROAD

BOUNDARY OF

BOUNDARY OF H.I.D.C. AREA



M I D C
MAROL INDUSTRIAL AREA

STUDY OF INDUSTRIES IN THE AREA SELECTED

A number of Industries were randomly selected from MIDC layout plan. These Industries were contacted in person. Information regarding their industry was provided by three of them, listed below.

1. P.S.Plastic Industries
2. Shanti Electric Instruments
3. Amber T.V. Pvt. ltd..

Further, Visual Documentation was permitted by the first two industries only.

P.S. Plastic Industries

Plot No. A-10, MIDC, Marol

- Manufactures Injection moulded components
- No. of employees - 30
- No. of shifts - 3
- Working hours - 7 - 3 - 11 - 7 AM
- Plot size - 541 sq. mts.
- Space utilization
- Ground floor - Manufacturing
- First floor - Finishing and raw material stores
- Second floor - Finished goods stores

Amber T.V. Pvt. Ltd.

Plot No. A-53, Marol

- B-W and Colour T.V. sets assembly
- No. of employee - 50
- No. of shifts - 1
- Working hrs. - 9.30 AM - 6 PM
- Plot size - 900 sq. mts.
- Space utilization
- Basement - Stores.
- Ground floor - Offices, service department
- First floor - Assembly, testing
- Second floor - Cabinet making, fitting and finishing.

Shanti Electric Instruments

Plot No. A-54, MIDC, Marol

- Manufactures Electrical testing and measuring equipments
- No. of employees - 100
- No. of shifts - 1
- Plot size - 1000 sq. mts.

Space Utilization

Basement - Raw material and finished goods stores

Ground floor - Office, tool room

First floor - Assembly, testing, Clean room for precision work

Second floor - Assembly, Design and Development office.

VISUAL DOCUMENTATION

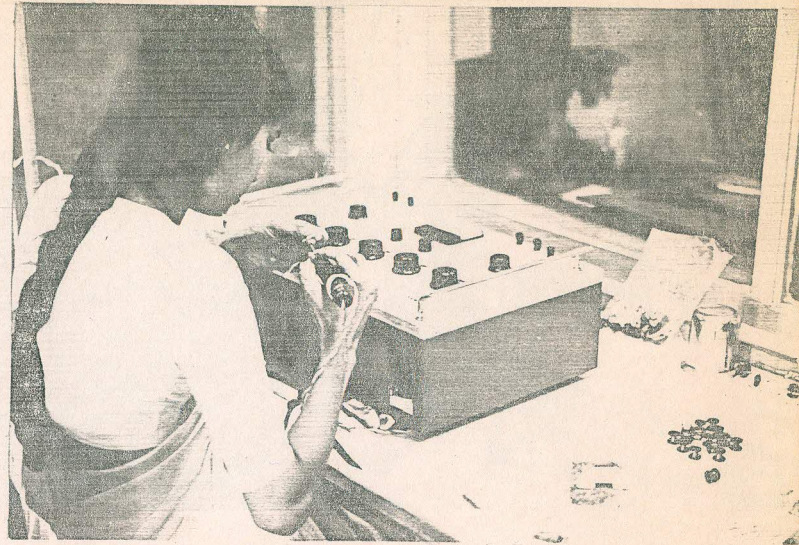
Various factors that interact with man in the environment are grouped in the following way,

- Machine, Workstation
- Industry interior
- Immediate surroundings
- Industrial zone

1. MACHINE, WORKSTATION



Bad workstation leads to fatigue
for the person working there



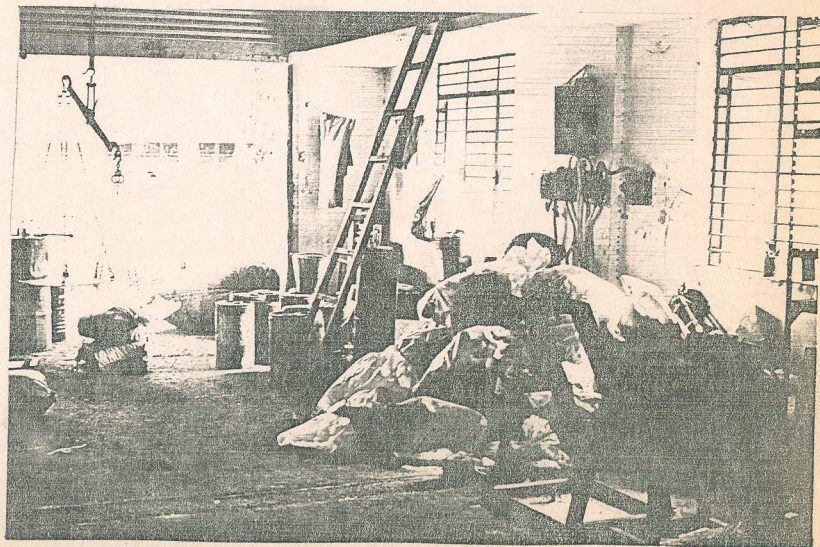
Will standard furniture meet the
complex assembly workstation
requirement ?

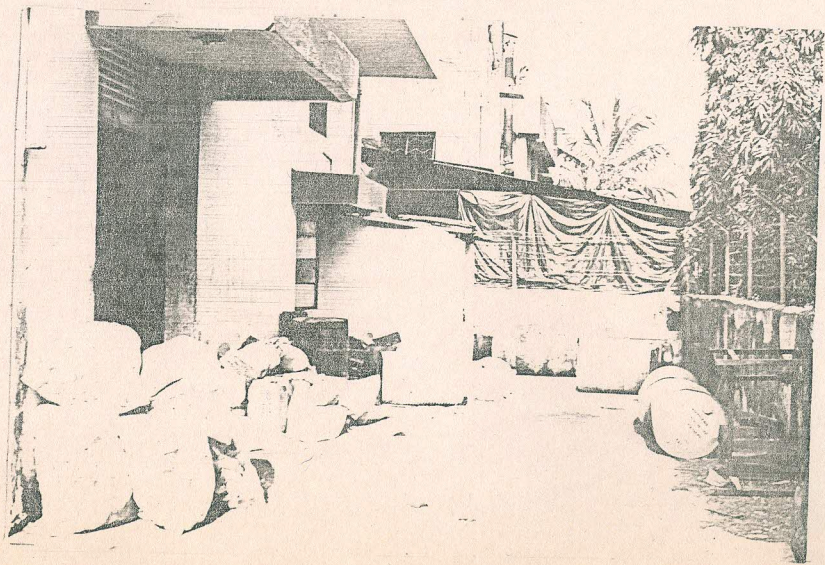
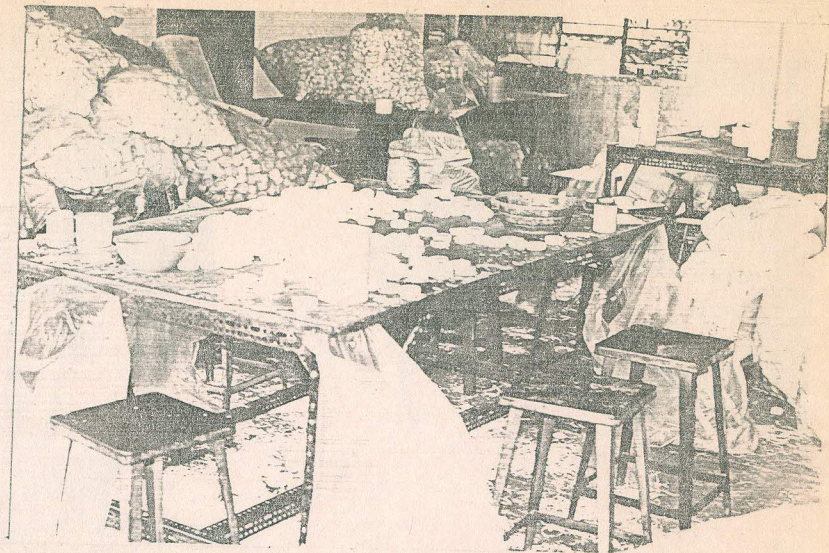


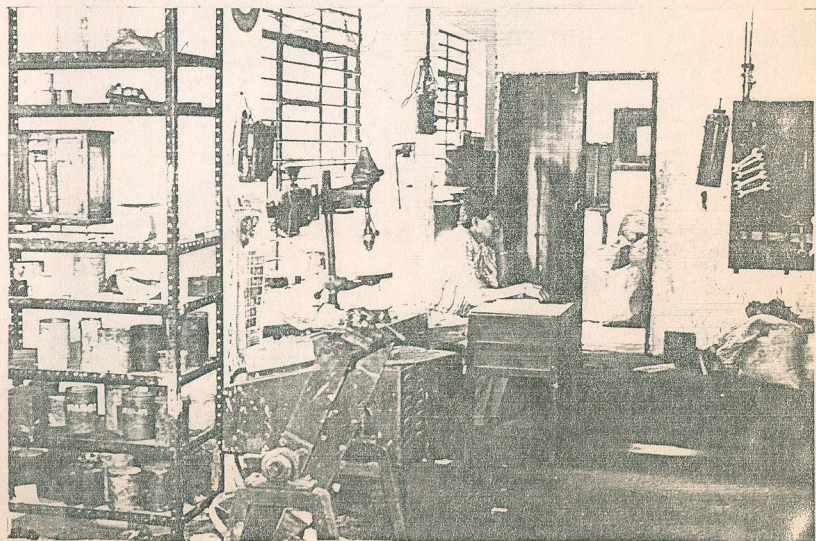
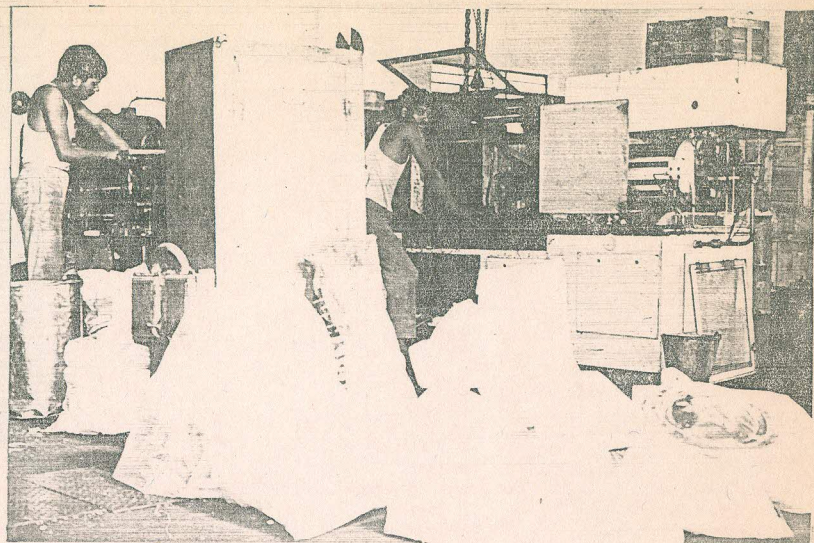
Windows alone do not provide the answer to the lighting problems. They should be complimented with artificial lighting, and care should be taken to reduce glare.

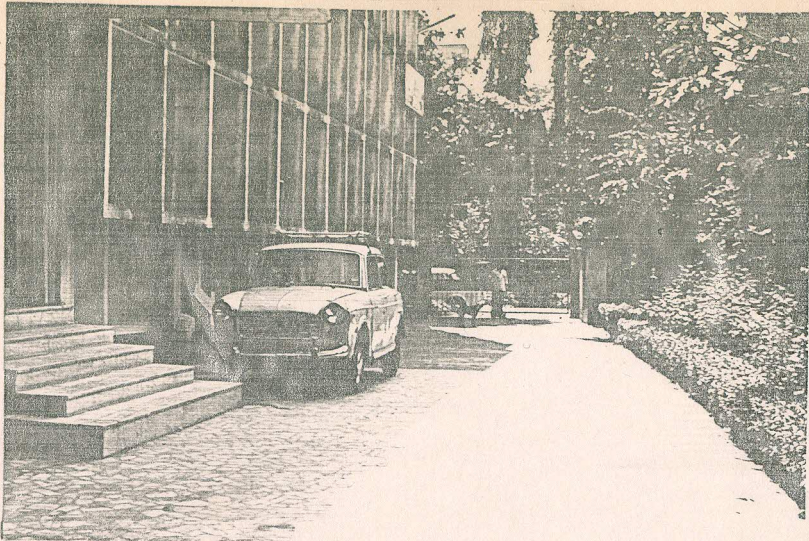


2. INDUSTRY INTERIOR







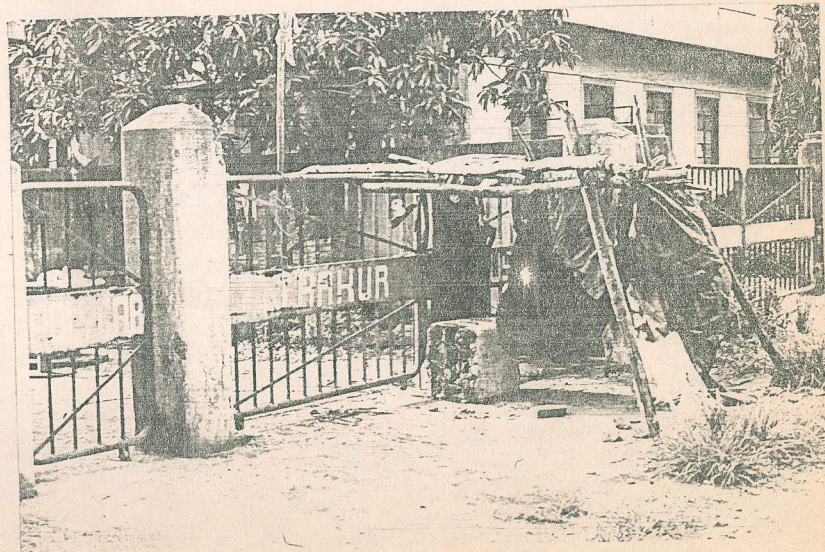


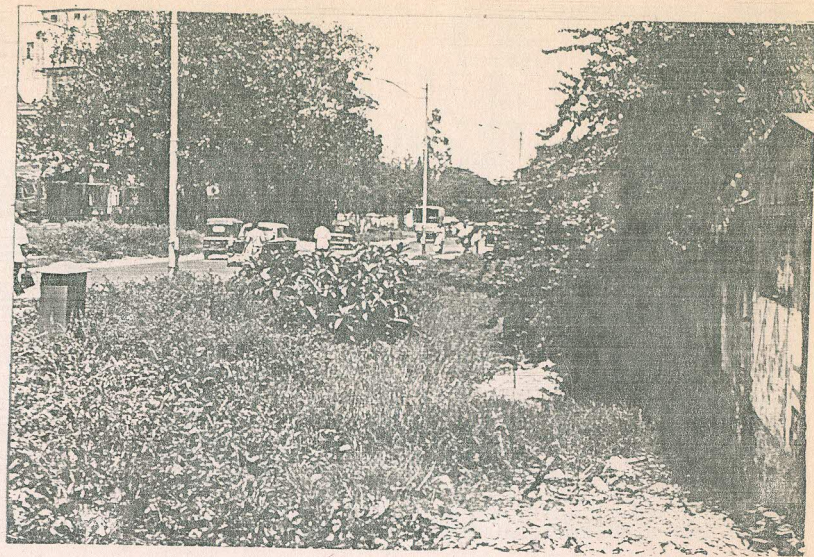
If one industry can maintain the interiors properly,...

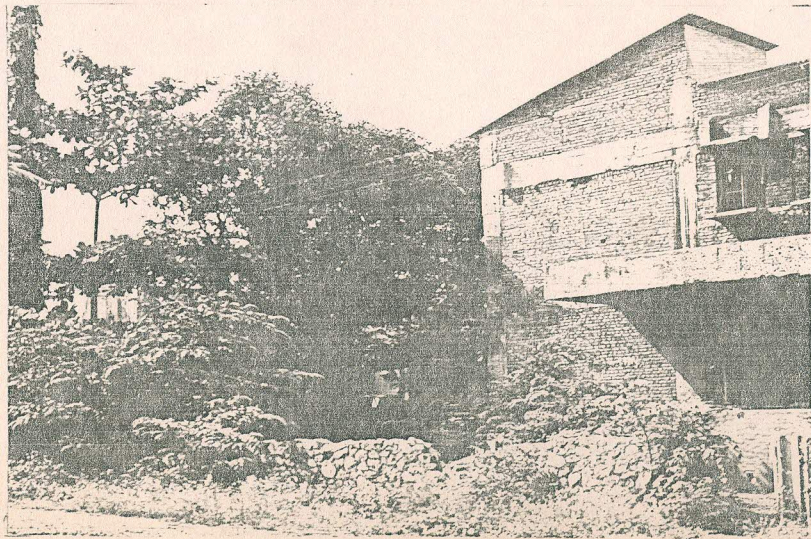
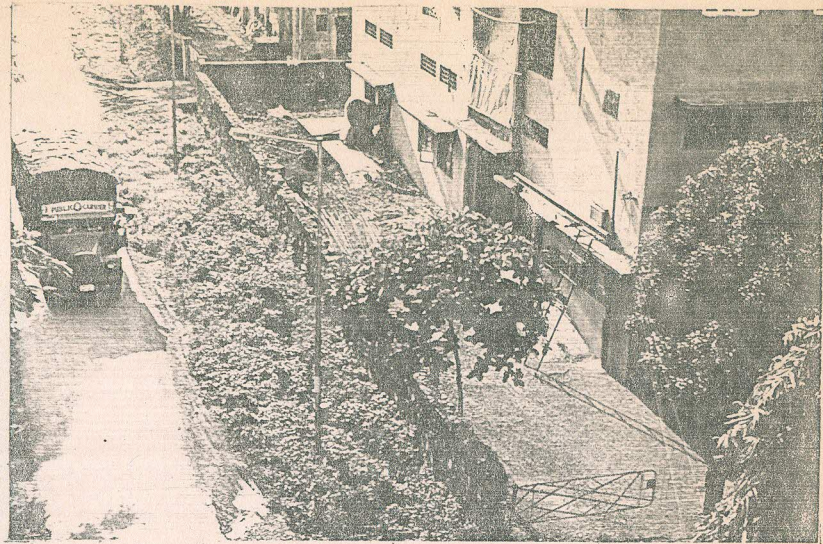
... why not the other ?



3. IMMEDIATE SURROUNDINGS









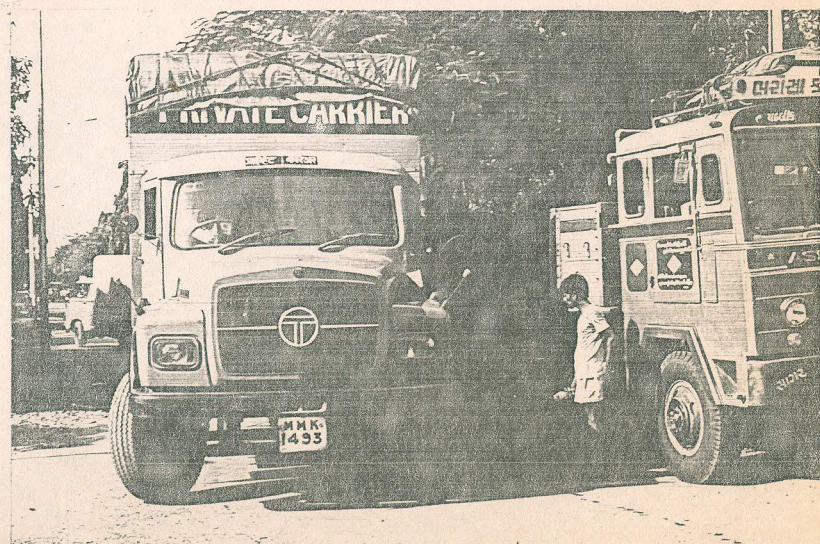
4. INDUSTRIAL AREA OR ZONE

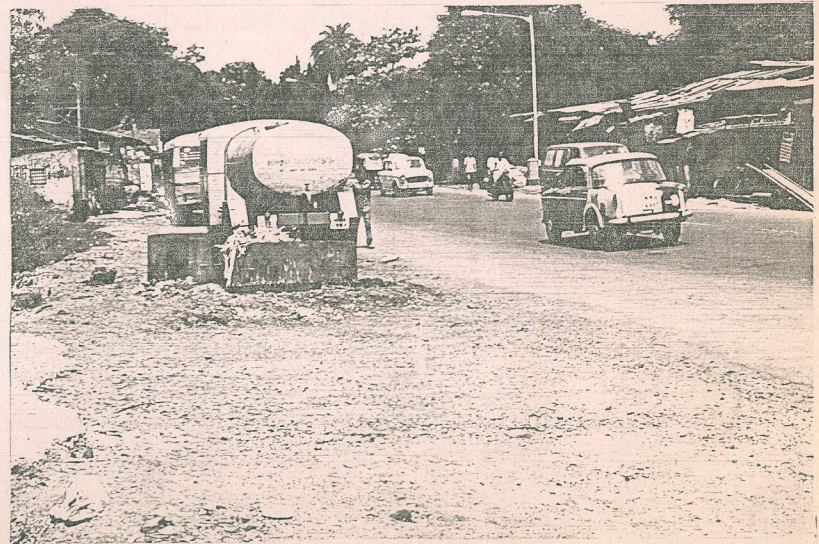




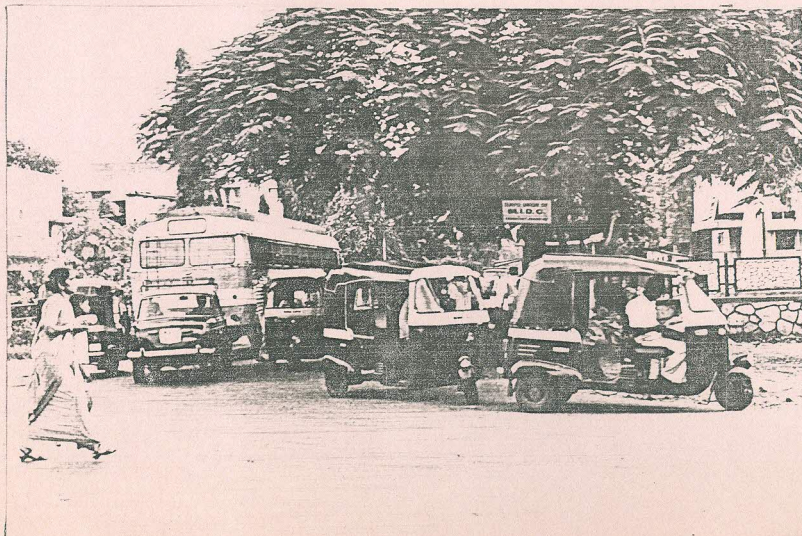
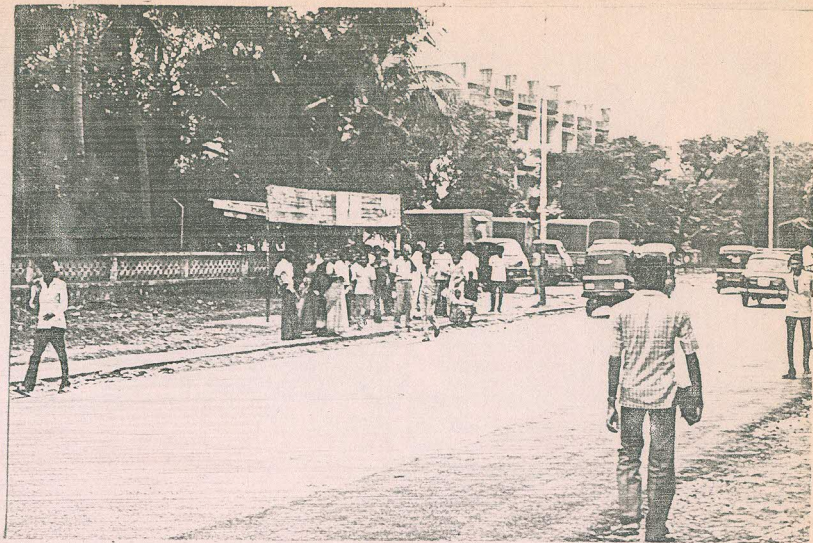
Poor road conditions

Narrow roads



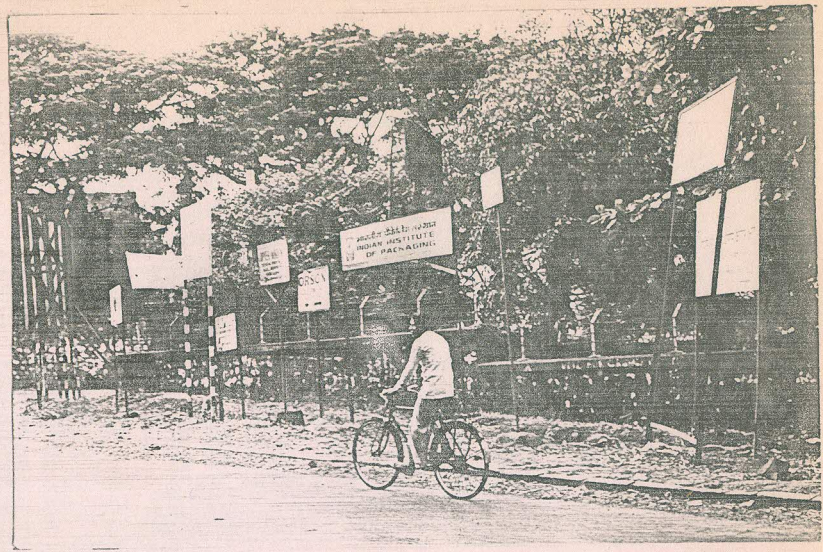


Inadequate bus-stop shelter



Haphazard parking creates traffic problems

Where do these signs lead one to ?



There are always a few exceptions
and this is one of them.



PROBLEM ANALYSIS AND SUGGESTIONS FOR IMPROVEMENT

The effect of Environment on man as mentioned earlier is manifold. The approach to solve the problems related should not be sporadic. To achieve any substantial improvement, the execution of various corrective measures should be very well co-ordinated.

Some of the problems which have become common to all places are,

- narrow and poorly maintained roads, leading to traffic congestion
- footpaths which are non-existent
- dumping of garbage on the roadside
- open spaces filled with weeds
- bad signage system, etc..

By taking suitable and timely corrective steps, these problems can be avoided. One problem identified, is the land area between the compound wall of an industry and the edge of the asphalted surface of the road. This place, which is supposed to include the footpath and the drainage system, has totally deteriorated to very bad conditions. This forces the pedestrians to use the road, thereby making it dangerous for everyone. This could be improved by MIDC by involving the industries to maintain the footpath area next to their compound wall. These industries can pave some area for pedestrian movement and maintain it regularly .

Some of the problems related to the Industries and their interiors are,

- plots have been built up to the limit, and maximum space utilized for manufacturing or allied activities, thus limiting space for facilities to the employees like dormitories, eating place etc.. Besides, canteen facilities are also not taken care of.

It may not be possible for every industry to provide canteen facilities for its employees. This is another area where MIDC can play a part in helping the

people who work here.

Each section of the industries can have a common eating house which runs on minimum profits to provide inexpensive food items to its members, who otherwise have to depend on restaurants. MIDC can provide spaces for such eating houses at the planning stage itself.

- cramped layouts, bad housekeeping, poor workstation design etc., leading to safety and quality problems, also increasing fatigue to the persons working there.

These and other technical problems have to be viewed from a different angle. Most of the industries are started and run by one individual or a few of them limiting the industry to a partnership concern. It is understandable that an entrepreneur does not possess knowledge in all fields of activities. They need timely advice in matters connected to Engineering like plant layout, quality control, design, Industrial Engineering, Management etc..

This is yet another field for MIDC to step in and assist them by having a cell in their organization which provides suitable advice or help establish contact with Organizations which can provide the required facility or expert knowledge.

CONCLUSION

This project provided a platform for exploring an altogether different arena. It enhanced the understanding of the problems in an industrial area and inside the industry.

An insight into the problems faced by the industrialist on the one hand and his employees on the other, gives a broad outlook to various aspects in an industry.

These industries have to cope up with the fast changing world. Those who can, will live to see the challenges of the future, and the Environment which they create in and around themselves will surely be one of the deciding factors.

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