# SPATIAL AND STRUCTURAL ANALYSIS OF NON-CONFORMING INDUSTRIES IN DELHI (1999-2000)

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**MASTER OF PHILOSOPHY**

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## CERTIFICATE

I, Sreoshi Gupta, certify that the dissertation entitled **"SPATIAL AND STRUCTURAL ANALYSIS OF NON-CONFORMING INDUSTRIES IN DELHI (1999-2000)"** for the degree of **MASTER OF PHILOSOPHY** is my bonafide work and may be placed before the examiners for evaluation.

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# CHAPTER I

## INTRODUCTION

The process of industrialisation is considered a key factor in the development of any nation. Developmental strategies have focused on the growth of various kinds of industries. In India, development of small-scale industries started in the mid 50's for promotion of viable products and viable output scales based on intermediate or appropriate technology, which could cater to the new sophisticated demands of the urban masses. These industries had traditionally been concentrated in the rural areas, as cottage household enterprises, which formed a part of non-farm activities. However, with a shift in the market for products and services for low income groups and other urban industrial activities, an informal and largely unregistered sector has been created there. [1]

### 1.1 GROWTH AND IMPORTANCE OF THE SMALL SCALE INDUSTRIAL SECTOR IN DELHI

Delhi has witnessed phenomenal growth from its very inception. It has witnessed multifaceted development as an administrative, commercial, industrial and service centre. Alongside there has been multiplication and intensification of services during the post independence era due to its strategic and favourable location. The network of important roads and railways, passing through Delhi and connecting the entire country, proved to be beneficial for the growth of industries.

The Master Plan for Delhi was promulgated in 1962 under the Delhi Development Act, 1957 for the Metropolitan area of Delhi, which was for the first time identified and redefined by the National Planning Board in its regional plan for 2001. The Plan supported industrial development in the interest of balanced economic development. It did, however, say that it would be unwise to locate

[1]Nanjundan, S., 'Economic Reforms And Small- Scale Industry', Economic And Political Weekly, January 27, 1996, pp 191

large and heavy industries in Delhi because they would create an undesirable industrial bias in the economy of the capital and because Delhi did not have enough water and power to sustain them. Keeping in view the strain on infrastructure, the government of Delhi was allowed to set up industries in the household sector. 67 types of industries were identified which could run in residential houses with upto 1 kw load provided that the industry does not cause any pollution or congestion and can be operated in a space of 30 square mts.[2] The Master Plan proposed flatted factories, multi-storied structures near residential areas for small-scale, non-nuisance industries.

The number of industrial units has been increasing over the years in Delhi. From 1951 to 1988, there has been a ten times increase in their numbers from 8160 to 76559. In 1996 the number of industrial units increased to over 1 lakh i.e. a 1446.79% increase. Investment has also increased manifold from only 18 crores to 2524 crores which is indicated by a percentage value of almost 1400. Production has also increased to a large extent with a variety of products being manufactured to cater to the urban population and make their lives more comfortable over the years.

## 1.2 STATEMENT OF THE PROBLEM

According to the Master Plan of 1962 industrial estates were separated from residential areas by buffers. While most existing industries were permitted to shift to any industrial area, noxious ones could only shift to extensive industrial zones. In 1990, the revised Master Plan for Delhi was approved. According to this, industries already 'prohibited' in Delhi as per the 1962 Plan were again prohibited and ones that had continued or come up in spite of being prohibited were given three years to shift. The list of industries mentioned as 'prohibited' in the 1962 Master Plan was expanded and included under the title 'Hazardous and Noxious Industries' in the H-category. Existing Heavy and Large Industries were to be shifted out according to the plan and policy for the National Capital Region.

[2] Report of the Ministry of Small Scale Industry, 1989-90

In the last few years, despite provisions of the revised Master Plan of 1990, it had been seen that not only the growth of these small scale industries have taken place rapidly but simultaneously their spatial distribution have shown concentration in 'non-conforming' areas. The problems arising out of such concentrations was not only deterioration of the ambient air and water quality but also failure to expand water supplies, sanitation, housing and transportation to match the growth of population which has obviously increased because of growth of these industries within residential pockets. According to a survey by the Government of Delhi, out of a total of 1,25,000 industries, there are 98,000 industries in non-conforming areas. Non-conforming areas are located in unauthorized colonies, 'lal dora' villages, resettlement colonies, the walled city and other residential pockets.[3] Most of the small scale industries are not registered and are operating illegally.

## 1.3 AIMS AND OBJECTIVES

The objectives of the study are:

1. To identify the areas of concentration of non-conforming industrial units in Delhi.
2. To analyse the structure of these small-scale industrial units in the individual concentrations and to determine their employment and investment levels.
3. To identify the types of polluting industrial units within the non-conforming units in the residential areas as well as to assess the type of pollution problems created by them.
4. To find the share of employment and investment in the polluting units within the non-conforming units in the residential areas.
5. To analyse the extent of feasibility of the DDA's decision to regularize these industrial units.

[3] Delhi Master Plan – 2001, DDA Report -2000

## 1.4 DATABASE

The data used in this study has been obtained from two sources.

The first source of data used in this study, has been obtained from the Department of Industries, Government of India, which is based on a survey undertaken by them in 2000. The data has information on 19800 registered small scale industrial units in residential areas which is given in two sets.

The first set of data provides information:

| | | | | | |
|---|---|---|---|---|---|
| 1. Zone Registration Code | 2. Unit Name | 3. Address of the factory | 4. Address of the office of the factory | 5. Registration date | 6. Provisional registration number |
| 7. Provisional registration date | 8. Date of starting of production | 9. Month of starting of production | 10. Year of starting of production | 11. Constitution of the unit | 12. Name of the owner |
| 13. Owner's address | 14. Owner's constitution in the unit | 15. Whether owner is schedule caste or schedule tribe | 16. Whether owner is a woman, ex-serviceman or a handicapped person | 17. Investment (land) | 18. Investment (plant and machinery) |
| 19. Investment (pollution) | 20. Investment (others) | 21. Total Investment | 22. Employment (number of workers) | 23. Employment (management) | 24. Employment (total) |
| 25. Total Production in monetary terms | 26. Whether unit is polluting or not | 27. Power Load in kw from DESU | 28. Total Power Load | 29. Zone (location) | |

The second set of data provides the following information:

1. Zone Registration code
2. Registration date
3. Item code
4. Item description (name of the product or products manufactured or serviced by the industrial unit)

The second source of data used in the study is obtained from the Delhi State Industrial Development Corporation (D.S.I.D.C). This data provides information on the number of industrial units in the F-category ie. the most polluting units which had submitted application to D.S.I.D.C. for acquiring land in

Bawana for relocation as per the Supreme Court orders. According to the addresses of these industrial units, given in the applications, zones of concentration of these non-conforming industrial units were identified on the basis of postal zone codes (pin code).

## 1.5 METHODOLOGY

When the Supreme Court had ordered a relocation of F category of industries from the non-conforming areas in Delhi to Bawana, the Delhi State Industrial Development Corporation (D.S.I.D.C.) had invited applications from these units so that land could be acquired according to their requirement. The zones where these industries were located were identified with the help of their addresses. All units with the same postal code were clubbed into one zone. In this study, we have used the same method to identify the location of these non-conforming industrial units with the help of the postal code from the addresses of the units given in the data collected by the Department of Industries, Government of India. Twenty-eight major zones have been devised using this method. The zones, which have less than thirty units, were combined together to form the twenty-ninth zone.

The data for the year of starting of production was divided into ten year periods from 1910 to 1970 and five year periods from 1970 until 2002 to bring out the intensity of industrial growth. The number of industrial units starting production within each of these phases has been represented in percentage values.

The gap between year of starting of production and the registration date has been calculated and the percentage of units within the specified years of gap has been tabulated. The percentage of owners living within the industrial units and percentage of owners living elsewhere have been compiled from the data and represented in tables. The percentages of owners who are schedule castes,

schedule tribes, women, ex service men and handicapped have also been calculated from the data.

The nature of ownership of units has been identified from the first data set and organized into tables.

The variation in the number of units and levels of employment, investment and power load has been analysed by calculating the percentages of each of these parameters according to the structure of the industry.

From the item description, categories of polluting industries, A to F (as given in the Master Plan-2001) has been identified. The percentages of polluting (A to F) to total number of units have also been calculated for the whole of Delhi as well as the individual zones. These calculated values have been represented in the form of tables. The employment and investment in polluting industries have been calculated and represented as percentage values.

For the preparation of maps, the data was divided into frequency classes. Two methods were adopted for making these classes. The first is the range method to show the number of units in all zones and investment in the non-conforming zones. The second method is based on subjective judgement. This takes into account the natural breaks in the data. This method has been used to show employment in non-conforming zones and number of polluting industries within non-conforming industries in the delineated zones.

## 1.6 LIMITATIONS OF THE DATABASE

The first limitation in the study is a lack of complete information in the available data. For example, for some units the complete addresses of the industrial units, year of establishment, year of starting of production, item code, investment, constitution, owner's residential address and other parameters are not available. The data about the production is provided in Rupees as well as in amount together under the same column heading. The production per unit is not

mentioned for units where production is given in amount. This data could not be used although it could be an important parameter for analysis.

The present study is therefore incomplete; the primary reason being that it could not focus on the cost benefit analysis of relocation of some of the polluting units and regularizing of some in their current location according to the level of concentration of industries. The data on the levels of pollution and population wellbeing, required for this purpose would only be generated later, when the Government finally takes a stand regarding the regularization issue.

The response of these units to the present as well as the previous order of the Supreme Court has not been considered in this study, as it required a field study, which could not be carried out due to time constraint. Besides the court has not yet accepted the policy of regularization of these industrial units by the DDA in their original sites. If finally accepted by the court, residents of the areas considered for regularization may face problems. There voices need to be heard as it is a sustainability issue, which is a major concern in planning. But this analysis could not be undertaken as the relocation issue is still undecided.

## 1.7 LITERATURE REVIEW

The literature available for this study was scarce and limited. There are very few studies about Delhi. The available literature includes journals and reports, which were therefore grouped into four specific themes namely: urban restructuring, small-scale industries, sustainable space cities and problem of pollution in urban areas. Within each theme, they are arranged chronologically.

### 1.7.1 URBAN RESTRUCTURING

The paper published by Nature's Soule (2000)[4] attempts to rightly point out how fruitful the relocation exercise in the Delhi was. The paper first examines

[4] 'Relocation of Industries and its aftermath: An assessment and overview', Nature's Soule, 2000

the gravity of the situation, which has driven the planners to take such aggressive steps. However it also points to the flaws in the execution, which has not considered the after effects of such a relocation exercise, especially the livelihood of displaced workers. The government is critiqued on grounds of inability to take prior steps to check influx of population into the city. This could have stopped further growth of unauthorized colonies and slums and would have improved the socio economic conditions of the city. This suggests that if need be NATURE'S SOULE is always willing to extend its help to consider some solutions to these problems.

Nisha Singh (2001) [5], in her article has examined the reasons for rapid growth of population in the third world countries in general along with particular reference to large cities like Delhi, which have witnessed large-scale growth of industries. She has gone on to explaining the problem of non-conforming industrial areas and the decision of the Supreme Court in alignment with the Master Plan of Delhi 2001, to shift these industrial units to the newly developed site in Bawana. She has also mentioned about the recent decision of the DDA to retain those units, which constitute 70 percent of the land use in certain zones of the city and demarcate them as industrial zones. The author does not agree to such a massive change in land use. She rather suggests that instead of a growing manufacturing sector, a boost should be given to the service sector. This would improve the employment scenario in border towns and hence check the influx of rural population into urban areas. This could help in sustainable development of Delhi. The objective of the Master Plan 2001 is to make Delhi clean and green. For this purpose it should adopt policies, which would stop immigration and hence pressure on basic resources. Once regularised

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[5] Nisha Singh, 'Non-conforming Industries in Delhi's Residential Areas: A Retrospection' , IPTI Journal, December, 2001, Vol19, No. 1(7)

industrial zones continue operating more of such units would continue to grow. This would only increase the congestion in the city and have no positive results.

Xuemei Bai (2002) [6] in a study in China stresses upon the growing problems of urbanization, together with industrialization in developing countries, which has been the primary cause of degradation of the environment in the fast growing cities. For the purpose of arresting the process of further deterioration, urban municipalities have undertaken measures, which could help to balance growth and development on one hand and reduce environmental degradation on the other. The author describes special cases of Korea, China and Japan where large industries were concentrated in cities due to which overpopulation had taken place. As a national policy, therefore the government had undertaken relocation of industries, as an urban environmental management strategy. This strategy had been successful in Dalian (China) where industries have been shifted from highly polluted areas with low density of population, so that impact could be minimized. Shenzen is another city in china, near Hongkong where special incentives have been given to industries so that effluent treatment plants are set up. Policies encouraging the growth of high technology, low polluting industries; establishment and implementation of environmental regulations have been of much help in rapid economic development without pressure on environment. In Ansan, Korea, the relocation process however was not very successful. The high level of industrial pollution in Seoul was a primary reason for such a shift. However lack of prior information and bench work in Ansan (relocated site) proved to be disastrous for the area in terms of environmental quality. Tokorozawa has also met serious challenges in terms of pollution problems. Due to administrative ignorance and legal bottlenecks, the problem of environmental decay has been further increased. The problem has started to improve with the enactment of measures such as Construction Material Recycling Law, enacted in 2002.

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[6] Xuemei Bai, 'Relocation in South Asia', Journal of South Asia, October 2002

The article has been able to clearly point out the problems associated with large industrially growing cities. However, the author could have incorporated the changing urban structure owing to such relocation exercised as well as specific socio-economic impact.

Swapna Banerjee Guha, (2002)[7] has considered urban restructuring a necessity because of spatial crisis of all global cities. The whole purpose of urban restructuring with special reference to Mumbai and how it has helped in changing the entire setup is the basic idea of this paper. The State's involvement in the entire process of urban management has been stressed upon, through portrayal of the 'so called' urban policies which have benefited particular communities and the impact of which have not percolated to the grass root level.

In the view of urban restructuring in Mumbai, the paper ultimately views those inherent contradictions in socio-economic development and hence the need to reduce the emerging disparities. The concept of development, taking care of those who should be benefited but are most of the time ignored, should be an important area to be considered for discussion. Beautifying cities is not the priority. Reducing socio-economic disparities should be the ultimate goal, which has been expressed in this article, but a mention about the sustainable means would have been of greater help.

### 1.7.2 SMALL SCALE INDUSTRIES

Nanjundan (1994)[8] concentrates on the changing role of the small-scale industrial sector in the process of restructuring. Globalisation has had several influences on the small-scale industries, the technological revolution being the most important. This has been referred to as flexible manufacturing system, which has facilitated growth of the small sector in European countries mainly, Italy and Germany. Italy has laid the foundation for product specialization. The

[7] Swapna Banerjee Guha, ' Shifting Cities, Urban Restructuring in Mumbai' , Economic And Political Weekly, January 12, 2002

[8] Nanjundan, S., 'Changing Role of Small scale Industry, International Influences, Country Experiences and Lessons for India', Economic And Political Weekly, May 28, 1994

author suggests that application of new technology for small scale industries is possible through three ways namely choice of technology, flexible system and decentralization. In India, research and development and full utilization of telecommunication system still needs to be set in motion in order to implement the flexible system. Several countries namely U.K., U.S.A., Japan, Korea, Malaysia have developed a strong base for their small-scale sector and India has a number of lessons to learn from them. Long term planning and perspective for growth and structural change in the small-scale sector is essentially a process, which has been successful in Japan, South Korea and Malaysia. In Japan, specialised banks provide regular funds. In France, Germany and Austria, self governing institutional system assisted by the government for research and development for improvement of productivity, have proved to be advantageous. A specials status and provision has been given to those categories of entrepreneurs in China, Malaysia, Mexico and U.S who need it. If these lessons were learnt from the other developed as well as developing countries and incorporated and implemented as policies, it would benefit the Indian small-scale sector in the longrun.

Nanjundan (1996)[9] has tried to evaluate the policies for the small-scale sector. According to him, the government has been unable to enunciate a policy towards betterment of this sector because of its lofty ideals during the initiation phase of conception of this sector. Besides problems of an unrealistic reservation list, growth of a replacement market producing spurious and unsafe products, growth of an urban informal sector and raising of the definition limit for small scale industries (SSI) to three crores may be the cause of inefficiency on part of the government. The author concentrates on the idea of liberating the sector from the government to organize itself with organizations like CII, FICCI, ASSOCHAM, which could improve the financial needs of the small scale industrial sector.

[9] Nanjundan, S., 'Economic Reforms and Small Scale Industry', Economic And Political Weekly, January 27, 1996

Decentralisation of decision making for this sector has also been considered as an unreasonable policy. The programme for the SSI should be formulated in the light of economic reforms, globalization and rapid technological advances. The financial institutions like NABARD, should be able to support certain targeted clusters and units by size and type.

Ram K. Vepa (1997)[10] evaluates the recommendations of the Abid Hussain Committee on small scale industries. His article titled 'Small Can Be Beautiful' stresses upon the policy recommendations, which indicate that small scale units have gained importance in recent times and can play a formidable role in economic growth in terms of export potentials if the right course of action is undertaken. The author does not accept all aspects of the recommendation of the Abid Hussain Committee and has suggested amendments to it relating to policies considering small scale sector as small despite a rise in the level of investment, scrapping the policy of product reservation etc. However, the article has hinted on the aspects like development of small industry clusters, policies for marketing of goods of the small scale industries, accountability for financial help received from the government etc. When all these policies are considered, small scale units will become a real asset to the economy.

### 1.7.3 SUSTAINABLE CITIES

T.M. Vinod Kumar (2003)[11] has described a liveable city as one, which aims at the physical, social and economic well being for all. The problem of increasing urban population is the result of large scale rural to urban migration, which in the long run has been unable to improve the state of the urban economy. According to him, the planners have to shift their focus from spatial to spatio-economic planning. What is required is a back office concept, which should

[10] Ram K. Vepa, 'Small Can Be Beautiful, Recommendations on Small Enterprises', Economic And Political Weekly, July 5, 1997

[11] Vinod Kumar, T.M. 'Strategic Urban Planning Initiatives for Liveable Cities', IIPI Journal, June 2002, Vol 20, No. 2(181)

be translated to the industrial sector so that rural areas and medium towns could benefit in terms of employment. The source of income for migrants in urban areas is employment in the informal sector, which provides temporary jobs and low wages. Hence the migrants are forced to live in squatter settlements, which are also growing problems of urban areas.

China, during the socialist regime has been able to improve the conditions largely by virtue of the efforts or policies of the government, which is not possible in a market economy like India. To make cities liveable, stress should be laid on energy creation from renewable sources and allow for minimum wastage with a threshold limit maintained for production in any field. Besides the basic needs of the poor, population control, conservation and enhancement of local resources, will in the long run help to develop a sustainable and liveable urban settlement.

The article overlooks the various contributions made by the planners. Programme like I.D.S.M.T. was launched to decentralize the growth of large cities. But it's success is yet to be felt. The author does not touch upon the reasons behind the non-performance of such programmes. No other programmes have been mentioned which attempt at betterment of the socio-economic and physical environment of large growing cities. The comparison between India and China has not been of much relevance owing to the fact that the two countries have nothing in common except a large population base. Inspite of some of these drawbacks, the author has dared to dream of a liveable urban centre which he thinks could be developed by adopting the growth strategies of the Brundtland Report.

### 1.7.4 PROBLEM OF POLLUTION IN URBAN AREAS

Mahinder Chaudhry (1995)[12] attempts at explaining the different levels of environmental problems faced by both developed and developing nations

[12] Chaudhry Mahinder, 'Global Population Growth, Economic Development and Environmental Impact, Case Study of India, 1991-2100', Economi And Political Weekly, Dec 9, 1995

depending on their level of economic progress. The article gives an estimate of global warming and $CO_2$ emissions in a scheme (for countries) adopted by the World Bank-high income, middle and low-income countries. India has been treated as a separate group by itself. But the author has not given the data for India in any part of the article except for the population growth, which has been projected for 2100. The article also discusses the economic costs of global warming in terms of losses of land, resources and hence GDP, for the period between 1991-2025. Later the environmental scenario for India has been examined in terms of CO2 emissions and its projected levels in 2100. It has been estimated that population will stabilize by 2100 but it will be economic growth contributing largely to environmental degradation. This will hinder access to some basic resources eg. water. The urban concentrations of SO2 will rise and levels of municipal waste will double.

Monthly Commentary (1997)[13] observes the growing significance of environmental awareness that has necessitated the growth of a pollution control industry, which is expected to thrive in the future. The importance of pollution control industries emanate from the fact that in India, rapid economic and industrial growth especially after independence has led to severe environmental degradation. Now the time has come for adopting technologies, which could minimize pollution, both air and water and manage solid waste. Some pioneering work has been done by companies like Thermax, ABB, Flakt India, Andrew Yule & Co., Baltiboi & Co. TTG in the field of air pollution and Western Paques in solid waste management. These companies are expected to do well in the future as the concept of 'Polluters Must Pay' is slowly catching on in India. But currently, with problems regarding the type of waste and lack of disbursement of funds by the government for this purpose, the process is still at a snail's pace.

[13] Good Times Ahead for Pollution Control Industry, Monthly Commentary On Economic Affairs', September 1997

The Report – White Paper on pollution Delhi (1997) [14] with an action plan by Delhi Pollution Control Committee and Central Pollution Control Board has considered all aspects of environment. The chapter six of the Report has dealt with industrial pollution, which exists in Delhi that has been related to the Supreme Court directives for relocation. The types and sources of pollution have not been identified.

Chapter seven has discussed about the problem of noise pollution and identified it's sources. It has also suggested the recommendations and the directives for reducing noise pollution in Delhi. The eighth chapter discusses the areas of planning which are taken up by institutions like namely NCR Board, Municipal bodies, Delhi Development Authority, D.P.C.C., C.P.C.B. for development of better infrastructure to ease out congestion and reduce the growing numbers of squatters in the urban areas.

The Report was published in 1997 when Master Plan 2001 was being still under progress. A review of the current scenario would help to understand further how successful it has been in controlling the problem of pollution in the capital. But surely, the report gives a good briefing on the environmental conditions in the capital, which require immediate attention.

A.Srinivas (1998)[15], has dealt with the misery of thousands of workers who have been hard hit after the Supreme Court orders to close down all polluting units in Delhi or relocate them outside Delhi. He has given a brief background of the situations that have been primarily responsible for the Supreme Court to come up with such orders.

However in the wake of such a decision many employers have removed workers from jobs to extract compensation from the government. But the workers have received nothing for the services rendered so far. Most of the workers do not have a legal proof of employment, which makes it even easier for

[14] White Paper on Pollution in Delhi with an Action Plan-DPCC & CPCB, 2000
[15] Srinivas, A., 'Polluting Units And Delhi Master Plan, Testimonies of Displaced workers', Economic And Political Weekly, Feb 28, 1998

their owners to deprive them of any privilege. Individual cases have also been discussed in the article. Similarly the basti demolitions have seen only tragedy for those who have migrated from surrounding states and have squatted, near their place of work.

The article in the background of development strategy points out how the development process ultimately becomes discriminatory and biased, in favour of those who are in charge of the whole production process.

T.M. Vinod Kumar (2002)[16] has highlighted the uniqueness of the efforts of a joint partnership between local self-government, NGO's and community in trying to mitigate urban environmental problems. He has mentioned the systematic ways of environmental management and generally the role of the above bodies in these processes. The particular environmental problems of urban areas have been individually discussed and then the processes of management in terms of components of environmental intervention have been examined. In each of these stages, the role or capacity of the local self-government, NGO's and community have been clearly identified. In this regard the policy identification by the author is very ideal but has not yet been implemented as a joint course of action

### 1.8 ORGANISATION OF THE STUDY:

The dissertation is divided into five chapters. The first chapter is an introduction to the non-conforming small scale industries in Delhi and gives a background with facts and figures of past structures and events. The objectives of the study have also been stated. This chapter also includes a review of literature available on the study.

The second chapter analyses the spatial distribution of all these units in terms of their numbers in each zone, their establishment dates, gaps between

[16] Vinod Kumar, T.M., 'Urban Environment Management: Towards Partnership between Local self government, NGOs and Community', IIPI Journal, March 2002, Vol20, No.1 (180)

starting of production and date of registration and categories the industrial units in terms of nature of ownership of the unit place of residence of owners i.e. whether owner resides within the same establishment where manufacturing takes place or elsewhere.

The third chapter deals with the structure of these units i.e. what are the different types of industrial units, which dominate in each zone, and the level of investment, employment and power based on the type of industry.

The fourth chapter deals with the polluting units, their numbers in the city and in different zones and discussion of the employment and investment in these polluting industrial units.

The fifth and concluding chapter analyses the previous chapters, the policy of the DDA regarding regularization of the units in their original places along with the recommendations.

# CHAPTER II

## LOCATION OF NON CONFORMING INDUSTRIAL UNITS IN DELHI

Factors determining the location of the economic activities have been widely studied by scholars. Several theories have been propounded from time to time, which gave importance to one or more of the economic factors responsible for the growth of economic activities over space.

Industrial location can be explained in two ways: first by explaining why certain areas are attractive to an industry; and secondly by explaining why certain industries are attracted to particular areas.

The first approach places the emphasis upon the region and the various industries within it, and seeks to identify the advantages that the region offers. This regional approach operates at various levels; distribution over the world, within the country, in a region or even within a town. In each, a particular pattern exists which needs to be explained, to get a fair idea about the engines of growth, which play an important role towards growth of industries.

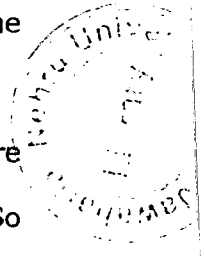
The second approach tries to explain the reasons behind the growth of industries in particular areas. This indicates that some areas provide some particular benefits for growth and development as well as some basic infrastructure that would agglomerate specific industries in specific areas.

Factors for the growth of industries are "natural" i.e. suitable site, favourable climate, presence of raw materials within close proximity, nearness to raw materials etc. The other category of factors is "derived" as infrastructural facilities commercial services, skilled labour, market organization, and development of subsidiary services. By taking into account these and some other factors different theories have

been propounded. Some of the relevant theories have been discussed in this chapter to make an understanding about location of particular industries in particular areas.

## 2.1 INDUSTRIAL LOCATION THEORIES

Models propounded by Weber, Losche, Pred and others have tried to identify the best location for the growth of industries in any particular location. They are specifically referred to as industrial location theories. However the parameters, which have been considered for the determination of the best location, vary from one theory to another.



Weber considered a location triangle where the production site was one where the cost of assembling the raw material and cost of production was the minimum. So he considered costs of labour and transport and the ratio between the weight of raw materials and finished good as important criteria to determine the best location for the growth of the unit.



Losch [1] has considered the demand for a particular commodity as the most important. According to him, firms operate within circular market areas on the basis of a demand cone, the volume of which represents the amount of demand. He suggests that with demand larger areas are served; if the circular areas are overlapped then some common areas are served while areas not overlapping would lead to unserved customers. Hence the market areas are converted to hexagonal shapes, which are easily catered to by creating different market areas for different products.

It is the satisficer-maximiser concept which is the main factor behind growth of any industry; a concept explained by the behavioural matrix by Pred[2]. An entrepreneur could operate at any point depending upon his goals. A satisficer

[1]Chorley, R.J.and Haggett P., 'Socio-Economic Models in Geography', 1968

usually operates at sub optimal levels while a maximiser operates at the optimum level.

## 2.2 RECENT THEORISATION OF INDUSTRIAL LOCATION WITH SPECIAL REFERENCE TO DELHI

The earlier concepts of production sites being located near raw material source was based on the fact that some raw materials were perishable or bulkier as compared to their finished products. In recent times, however the importance of raw materials helping to determine the location of the production site is reducing. A number of factors are responsible for this.

Firstly, as transport has developed and special handling facilities have become available, the movement of raw materials has become easier.

Secondly, as industry has become more complex, fewer firms are raw material based.

Thirdly, technological improvements have intensified the use of materials, so that there is less wastage in manufacture, and materials themselves are being improved at source to enable them to be transported.

Fourthly, as other factors such as markets and labour supplies have gained importance, raw materials have declined in importance relatively.

The small-scale industry does not depend on any specific raw material source. The raw materials required by the small-scale industries are usually ubiquitously distributed. The growth of small-scale sector is largely dependent upon the market and labour factors. Large cities are seats for development of small scale industries because the market is readily available to the entrepreneurs and basic infrastructures like power, water supply, labour are within easy access. Labour in a labour surplus economy is in plenty and is a mobile factor of production and is able

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[2] Toyne, P., 'Organisation, Location and Behaviour: Decision Making in Economic Geography', 1974

to shift easily to the urban areas for jobs in these industries even though they get very low wages and only a small proportion are permanently employed.

## 2.3 FACTORS RESPONSIBLE FOR GROWTH OF SMALL SCALE INUSTRIES IN DELHI

Before directly examining the pattern of industrial distribution in Delhi, it is necessary to first analyse the specific reasons and the factors, which have led to the growth of a large market in Delhi which in turn has attracted such industries which could serve this population.

From 1901-1991, the urban population of Delhi has increased nearly 40 times, from 214,115 to 8,471,625.[3] The population of Delhi has witnessed enormous growth since partition of the country in 1947. The process of increase in population may be attributed to several factors. They are (i) Delhi becoming the capital of India in 1912; (ii) the huge influx of displaced population from Pakistan after 1947;(iii) Intensification of services during the post independence era. In the decade 1981-91, the growth rate was 51.45%. (iv) Another important reason for the growth of Delhi has been it's strategic and favourable location. The network of important roads and railways passing through Delhi connected the entire country. This has laid a perfect ground for the growth of various professions and trades. (v) The migration pattern for Delhi shows that influx of population has been very high from surrounding states of Haryana and Uttar Pradesh contributing to more than 50% of in migrants while Bihar, Punjab and Rajasthan account for about 20% of the population moving into Delhi according to the 1991 census. Migrants have identified Delhi as a strategic growth point with a variety of opportunities.[4] The availability of skilled and unskilled workers has been an added advantage for growth of the small-scale sector.

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[3]R.C. Chandna, 'Geography of Population

[4] District Census Handbook of Delhi-1991

This influx of large numbers into the city has however contributed to population explosion, which has increased the need for better civic amenities as well as availability of a variety of goods and services for a better and comfortable living. Delhi's importance as the greatest production and distribution centre in the whole of northern India therefore cannot not be ruled out. The demand for products needed for the fast upward rising urban mass was further enhanced by the liberalization policy of the 1990's which necessitated the growth of a large number of small scale industries where specialization was considered a part and parcel of the manufacturing process. Delhi being the central point of growth was characterized by availability of skilled as well as unskilled labour, which was an essential requisite for the small-scale sector to prosper. There has been a steady growth of an informal sector within the small-scale industrial sector.

## 2.4 GROWTH OF NON-CONFORMING INDUSTRIAL UNITS IN DELHI

Non-conforming industrial units started growing in Delhi at a faster rate since the 1970's. Land use regulations were completely flouted especially within the residential areas, and the urban residences started facing the threat of pollution. During the late 1990's the problem of these non-conforming industries as they are called, attracted attention of the planners and the administration who realized that if the growth of non-conforming industries were not stopped then it would pose a serious threat to the urban physical environment. These units are known as non-conforming which means that they do not exist in conformity to the defined land use. They are located in unauthorized colonies, 'Lal Dora' villages, resettlement colonies, the walled city and other residential pockets. A detailed analysis of their location within residential pockets over the whole of Delhi, type of unit and ownership pattern will be the main topic of discussion in this chapter.

## 2.5 NON-CONFORMING INDUSTRIAL AREAS IN DELHI

The data regarding a total of 19800 non-conforming industrial units was obtained from the Department of Industries, Government Of India. From the addresses of the industrial units, they were located on the basis of postal pin codes. The addresses of 1205 units were not clearly indicated and therefore could not be included as part of any pin code zone. The remaining units were located within 29 zones. The areas, which have less than thirty industrial units, have been combined into one zone i.e. the twenty ninth zone. The twenty-eight zones account for 16688 industrial units and the twenty ninth zone accounts for 2112 units. The study of all twenty-eight zones has been taken up in greater details. The location of these zones have been shown in map no. 2.1.

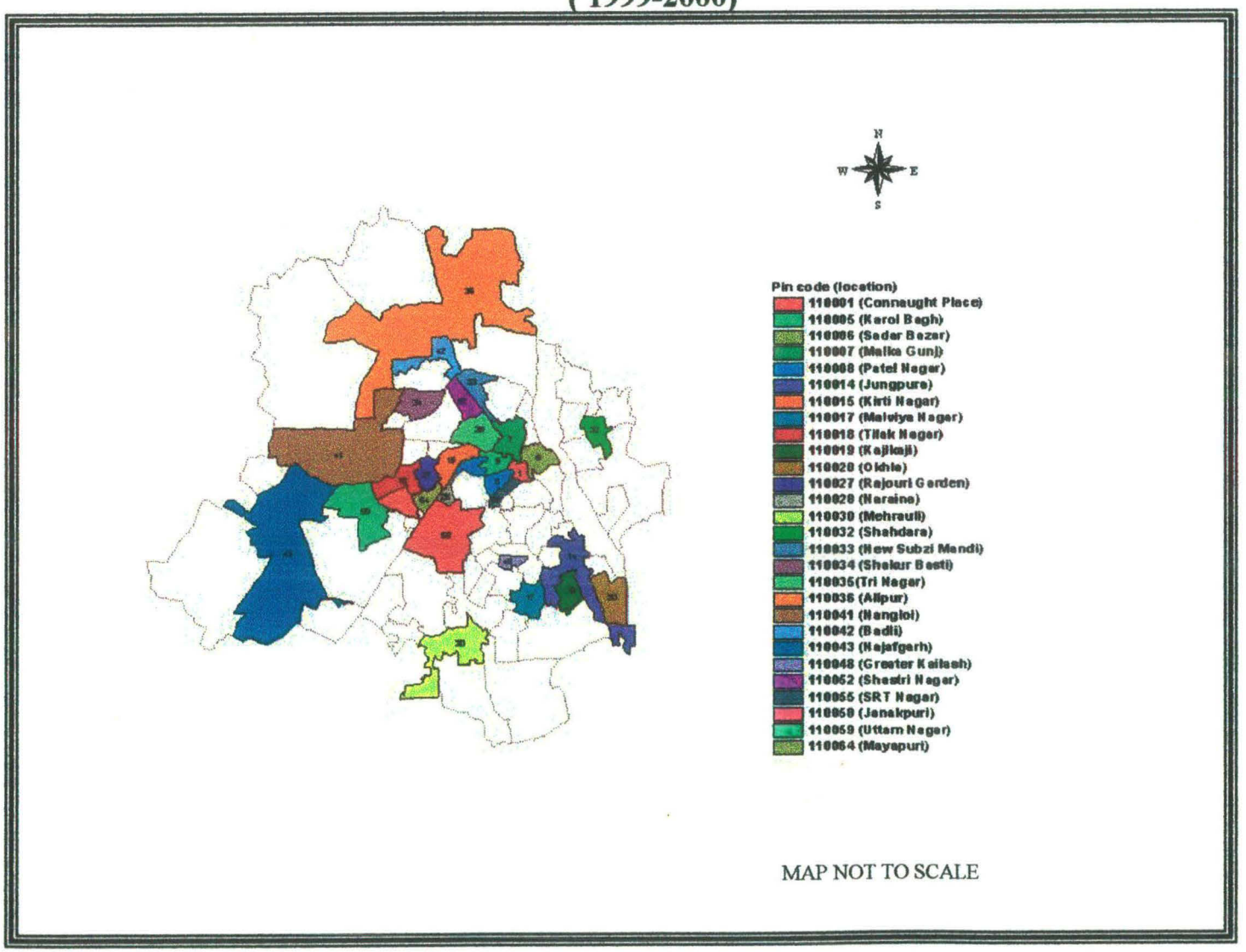
The distribution of non-conforming industrial units in the main twenty-eight zones has been shown in map 2.2. Shahdara has the maximum number of units (more than 1600) followed by Okhla, Mayapuri, Sadar Bazar. About nine areas namely Tri Nagar, Shastri Nagar, Naraina, , Najafgarh, Karol Bagh, Kirti Nagar, Nangloi, New Subzi Mandi and Badli have more than 500 industrial units. The number of units are above 100 in Shakur Basti, Connaught Place, Jangpura, Alipur and Janakpuri. Malviya Nagar has less than 50 units.

## 2.6 TYPES OF OWNERSHIP IN THE NON-CONFORMING INDUSTRIES

The non-conforming industries in Delhi have different types of ownership. The investment rates, the scale of operation and production levels automatically vary according to the ownership of the unit. The constitution of the industrial unit in terms of ownership reflects upon the varying levels of value addition taking place in these units. Figure 2.1 shows that units under proprietorship have the highest share of (51.74) in the total number of units while cooperatives occupy only 0.13% of the total number of units. Partnership type of units also occupies a substantial portion of

MAP 2.1

# LOCATION OF NON-CONFORMING INDUSTRIAL ZONES IN DELHI
# ( 1999-2000)

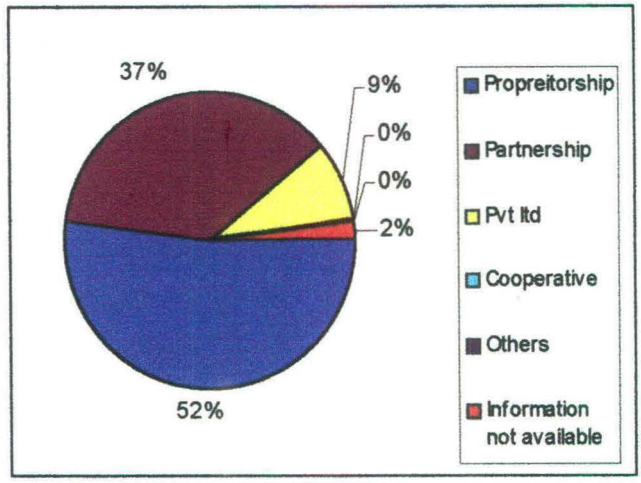



MAP NOT TO SCALE

the total number of units, which is 37.40%. About 8.53% of the units are private limited companies. About 0.37% of industrial units have been grouped into the "other category" because they have not been clearly defined. Information about the type of ownership is not available for few units (1.83%).

Figure 2.1

TYPES OF OWNERSHIP OF NON-CONFORMING INDUSTRIES IN DELHI




## 2.7 REGISTRATION AND START OF PRODUCTION IN THE NON-CONFORMING INDUSTRIES

Most of the non-conforming units are very old, though they have been registered after 80 to 90 years of starting of production. If the year of starting of production is considered then we find that only about 16% to 17% of the units had started production before the independence period. There has been a rise in their numbers during the 1960s. This must have been a consequence of the policies and the plans adopted by the Government for growth of the economy. However, their steady growth has reduced over time from mid 1990's and the larger number of units which have come into existence during the mid 1990's are mostly unregistered. This analysis has been done only for the registered units. The units which have started production from the beginning of the century are currently located in Sadar

Bazar, Shahadra, Tri Nagar, Wazirpur, Naraina, Najafgarh, Karol Bagh, Kirti Nagar, Mayapuri, Nangloi, New subzi Mandi, Badli, Mehrauli.

Table 2.1

**STARTING OF PRODUCTION OF NON-CONFORMING INDUSTRIES IN DELHI**

| Year of starting production | Percentage of Units to total units |
|---|---|
| | |
| 1910-1919 | 15.34 |
| 1920-1929 | 0.06 |
| 1930-1939 | 0.10 |
| 1940-1949 | 0.63 |
| 1950-1959 | 2.46 |
| 1960-1969 | 7.93 |
| 1970-1974 | 11.84 |
| 1975-1979 | 16.81 |
| 1980-1984 | 16.36 |
| 1985-1989 | 16.04 |
| 1990-1994 | 10.89 |
| 1995-1999 | 1.30 |
| 2000-2004 | 0.24 |

**Source :** Compiled from data provided by the Department of Industries, Govt. Of India

If the time gap between year of starting of production and year of registration is considered, then the largest number of units i.e. about 51 percent shows a time gap of 10 years. 40 to 70 years of gap is found for only about 2 percent units. However, about 10 percent units and 11 percent units show time gaps (between production and registration) of 80 to 90 and 10 to 20 years, respectively.

A zonewise analysis will show further details about the concentration of the industrial units in residential areas. It is seen that the time gap between year of starting of production and year of registration is the maximum in Sadar Bazar, Shahadra, Shastri Nagar, Naraina, Najafgarh, Karol Bagh, Kirti Nagar, Mayapuri, Nangloi and Badli because these zones are largely dominated by units which have started production from the 1910 and have been registered only in the mid 1970's.

MAP 2.2

# DISTRIBUTION OF NON-CONFORMING INDUSTRIAL UNITS IN DELHI (1999-2000, ZONEWISE)

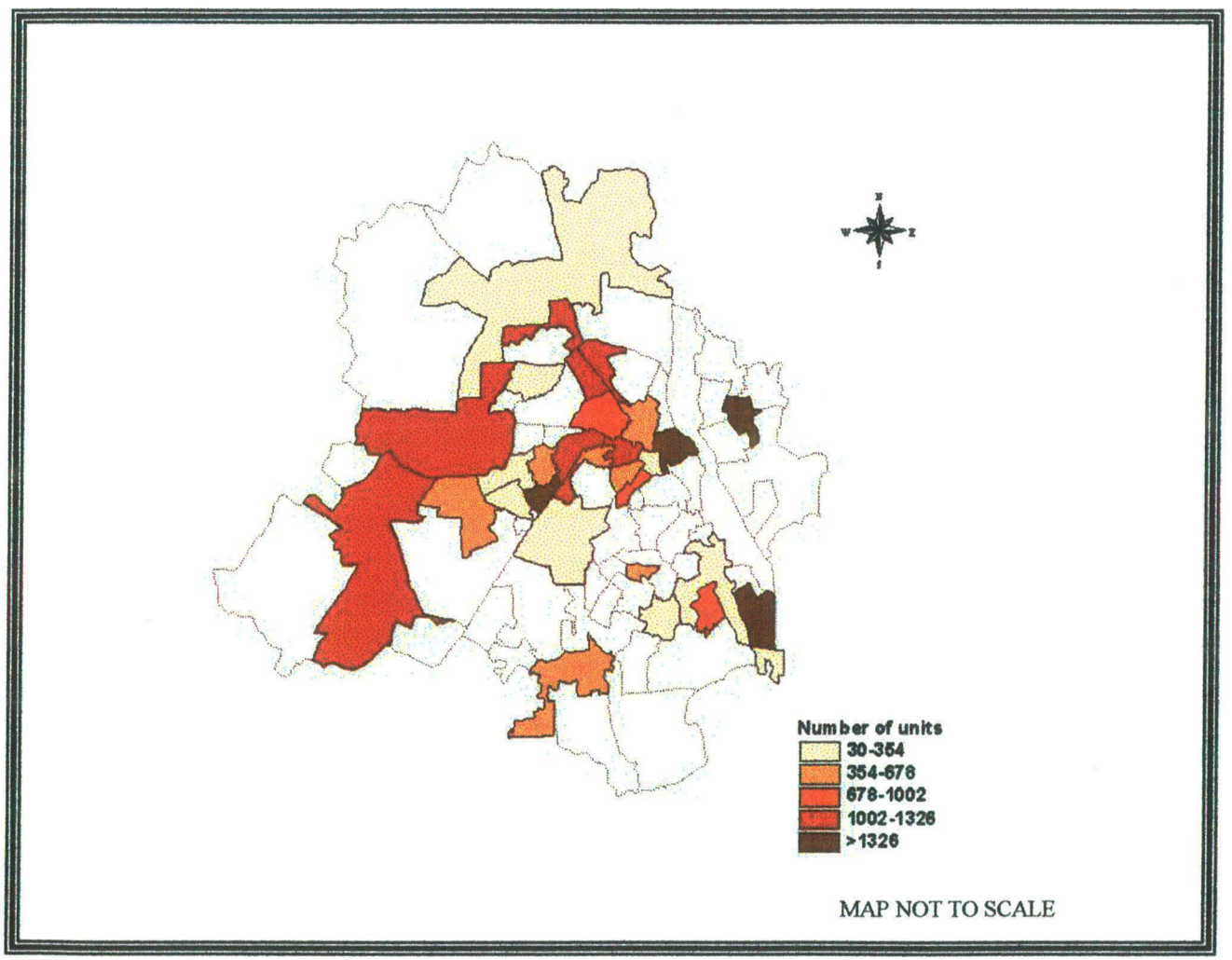


Table 2.2

TIME GAP BETWEEN YEAR OF PRODUCTION AND REGISTRATION

| Time gap (years) | Percentage of units to total units |
|---|---|
| | |
| 1 TO 9 | 51.85 |
| 10 TO 19 | 10.67 |
| 20 TO 29 | 4.36 |
| 30 TO 39 | 0.71 |
| 40 TO 49 | 0.15 |
| 50 TO 59 | 0.07 |
| 60 TO 69 | 0.26 |
| 70 TO 79 | 2.18 |
| 80 TO 89 | 11.88 |
| 90 TO 99 | 0.95 |

**Source**: Computed from the data provided by the Department of Industries, Govt. Of India

The other zones namely Shakur Basti, Rajouri Garden, Greater Kailash, Connaught Place, Patel Nagar, Tilak Nagar, Jungpura, Kalkaji, Alipur, Malviya Nagar, Janakpuri, Bawana, Civil Lines, Lajpat Nagar, Narela, Rohini etc., however are characterized by units which have started production from the 1950's and therefore the number of years of gap between the production and the registration year is not very high.

The number of years between the registration and production are not more than 40 in most of the zones but is quite high in case of the older zones, which have been listed above. The information on registration dates is not available for 142 units and hence these units could not be categorised into any group.

## 2.8 STATUS OF OWNERS OF THE NON-CONFORMING INDUSTRIES

The owners of almost all these industrial units reside in Delhi. However, all of them do not reside in the factory unit. Some live in completely different locations; while some live within the same establishment, some stay near the unit or away from it. The percentage of owners living in their units is 19.16 percent while the

percentage not living under the same roof is 80.84 percent. However some of the units have their offices in the same premise as the factory. The zonewise study shows that Rajouri Garden, Karol Bagh, Greater Kailash and some of the newer zones have offices in a different location. In the older and larger zones, offices are located in the same premise.

Table 2.3

RESIDENCE : OWNERS OF NON-CONFORMING INDUSTRIES

| | Total No. of Units | Percentage of units to total units |
|---|---|---|
| People living elsewhere | 16007 | 80.84 |
| People living in their units | 3793 | 19.16 |
| Total | 19800 | 100 |

**Source:** Computed from data provided by the Department of Industries, Govt. of India

The social status of the owners of all the industrial units can be categorized into schedule caste, schedule tribe and general, which have been shown in table 2.3. The information about the social status of owners of 4272 units is not available.

Table 2.4

SOCIAL STATUS : OWNERS OF NON-CONFORMING INDUSTRIES

| WHETHER OWNER SC/ST/GENERAL | NUMBER OF UNITS |
|---|---|
| SC | 134 |
| ST | 71 |
| GEN | 15287 |
| I.N.A. | 4272 |

**Source:** Computed from data provided by the department of Industries, Govt. Of India

The owners of 1486 units have special status like woman, ex army man and handicapped. The remaining 18276 owners do not have any special status. The number of owners enjoying special status has been shown in the table 2.5.

Table 2.5

SPECIAL STATUS : OWNERS OF NON-CONFORMING INDUSTRIES

| | |
|---|---|
| NO SPECIAL STATUS | 18276 |
| WOMAN | 1356 |
| EX ARMY | 45 |
| HANDICAPPED | 85 |

**Source** : Computed from the data provided by the Department of Industries, Govt. Of India.

Special status and particular social status of these owners helps in ascertaining the benefits the government gives in terms of finance, basic infrastructure etc. since it is the policy of the government to help this sector in all possible ways.

The entrepreneurs have very carefully selected location of all these units. The availability of economies of scale whether internal or external in Delhi has enhanced their growth and progress. The growth of these units has led to labour absorption in increased incomes. The administration has to however keep its eyes open about the land use violation and it is high time that a proper decision is taken so that pollution problems may not arise in the future and policies must be directed towards sustainable growth. The growing demands of the urban masses cannot be curbed. What is necessary is to identify and classify industries, their products, their scale of operation, their employment prospects, investment levels and other important aspects which could be helpful to the government to undertake policies for a better arrangement of these units in their respective locations as may be required. This could also help in the growth of specialized zones in particular areas that would be a more organized phenomenon than a process of haphazard growth.

## 2.9 CONCLUSION

1. The growth of the small-scale sector largely depends on the availability of a market for its products. This sector has gained much importance in recent times and is agglomerated in large cities.
2. In Delhi, these industries have been growing at a rapid pace with increase in the population of the capital.
3. Large scale in-migration of workers from surrounding areas for search of jobs has enhanced the growth of a large informal sector within this sector.
4. This has also resulted in the growth of these industries within the residential areas, thereby violating all laws and thereby increasing the pressure on basic amenities, which has not kept pace with the growing number of industries. These have been referred to as non-conforming industrial units.
5. Shahdara and Okhla have the largest number of non-conforming industrial units while the smallest number of non-conforming industrial units is present in Malviya Nagar.
6. Most of the non- conforming industrial units (above 50 percent) are run on a proprietorship basis. Private ownership accounts for above 30 percent of the total number of units and the lowest percent of less than 1 is run on a cooperative basis.
7. Many of the non-conforming industrial units had started production before independence but their numbers have increased in recent decades. 11 percent of the units have registered almost after 80 to 90 years of starting of production while about 50 percent have registered 9 to 10 years after starting of production.

8. The owners of these units mostly live outside the factory premise and account for above 80 percent of the total number of owners. Very few of them have special status such as women, ex-servicemen and handicapped. About 6 percent of the owners are women but the other categories like ex-serviceman, handicapped are smaller in numbers.

## CHAPTER III

## STRUCTURAL ANALYSIS OF NON-CONFORMING INDUSTRIES IN DELHI

The importance of the small-scale industries sector is apparent from its significant contribution to the socio economic objectives of generation of employment, output, exports and fostering entrepreneurship. Currently the sector accounts for 95% of the industrial units in the country and contributes 40 percent of the manufacturing sector output and approximately one third of the nation's exports.[1]

India leads South Asia in the Competitive Industrial Performance (CIP) index prepared by the United Nations Industrial Development Organisation (UNIDO) but its industrial structure has remained static between 1985 and 1998. The CIP index as well as industrial performance scoreboard has been included in the new UNIDO publication, the Industrial Development Report 2002-2003, released on 31 July, 2002 which provides guidelines for developing countries to use new industrial technologies efficiently. The annual growth of India's manufactured exports was 11.6, which, though healthy, was less than the region's average of 12.54 per cent. This was in turn lower than the average for all developing economies of 13.3 per cent and 14.5 per cent for East Asia. "What really distinguished India from other countries in South Asia and from Africa is the depth and complexity of its industrial structure."[2]

Early analyses of the structure of industry at independence had pointed to the domination of 'lower forms of production', or production characterized by the use of non-power-driven techniques, and the absence of hired labour in predominantly rural and semi-urban areas. However, with a shift in the market for products and services for low-income groups and industrial activities in urban areas an informal and largely

[1] SIDBI Report on Small Scale Industries sector -2001
[2] India's Industrial Structure Static: UNIDO, Hindu, 31 July, 2002

unregistered sector has been created there especially in the residential areas of cities. These industries have been referred to as non-conforming.

It is important to study the structure of these non-conforming industries in terms of their dominance in particular locations and to analyse the levels of investment and employment in them. This would help us to understand the capital labour ratio in different industries. In recent times, the policies for the development and improvement of the small-scale industries are being criticized for not tapping the areas that need to be concentrated on. This analysis would help to identify and examine the problems of those areas, which need attention in terms of better or new policy formulations.

## 3.1 ANALYSIS OF DATA

The study for the structure of small scale non-conforming industries in Delhi has been based on the data obtained from the Department of Industries, Government of India (see Appendix No. IIIA). While studying the structure of these industrial units, thirty categories of industries have been considered from the item code data provided by the Department of Industries. In this data, information on the items (item code, item description) for 19,800 registered industrial units has been provided. The other data set provides information on the investment, production, and employment figures of these 19800 units. The item code information was transferred to the other set so that according to the item code, the varying levels of investment and employment can be determined as percentage of total investment and employment. The information on structure was not available for 2170 units out of a total of 19800 units. Zones have been delineated for only 16688 units out of a total of 18595 because addresses of 1205 units were not clear and have not been included in any zone for analysis. The information on structure is not available for 800 units out of 16688 units. The number of units within each item code has been

calculated zone wise so that the dominance of certain products in certain areas can be identified.

In Delhi, the production of certain commodities is very high as compared to others perhaps because of their greater demand. The entrepreneur therefore finds it more profitable to engage himself in this kind of production. However the production levels could also vary because certain industries are dependent directly on the investment and labour which if high or iow would result in higher or lower turnout. The total production levels could not be analysed in monetary or quantitative terms because under one column heading (total production), the data provides the total production in rupees as well as in amount ie. tonnes, pieces etc. The rate of production per unit is not provided for units where the total production is given in quantitative terms. As a result the actual production in rupees is not available for many of the units and will not reveal a correct picture.

## 3.2 STRUCTURE OF THE NON-CONFORMING INDUSTRIES IN DELHI

The largest number of units manufacture electrical and electronic goods, garments, rubber, plastic and metal products. These together account for 12 percent, 11 percent, 10 percent and 7 percent of the total number of units respectively. These types of industries are followed by units manufacturing basic chemicals and chemical products, food and related products, scientific equipments, machinery and equipment accounting for 5 to 6 percent of the total number of units in each type of product. However, industries producing food products like fats and oils, beverages, cotton textiles, wool and silk, jute and mesta textiles, water geyser, water works, data processing work, cold storage equipments, storage and ware housing services, repair services etc have less than 1 percent of the total number of units.

The study of the number of units in the different item codes in different zones

helps to analyse whether there is any kind of dominance of particular industry in a given area.

## 3.3 STRUCTURAL ANALYSIS OF NON-CONFORMING INDUSTRIES IN THE DELINEATED ZONES

Shahdara has the largest number of industrial units and the dominant industries in this zone are basic metal industries, plastics and rubber, electrical goods accounting for 21 percent, 15 percent and 12 percent respectively. The other prominent industries are metal products, chemicals and chemical products. The other types of industries account for less than 10 percent. This group comprises of industries like garments, storage services, biological testing equipments, cotton textiles, wool or silk fibres, food products and photostat jobs etc.

Okhla is the next largest zone where the dominant industry is garment manufacturing which accounts for 15 percent followed by electrical goods accounting for 13 percent. There are very few units in industries producing food and beverages, cotton textiles, wool and silk, jute and mesta textiles, non metallic mineral products etc. which are less than 1 percent in numbers. In this zone however, information about the structure of 20 percent of the total number of units is not available.

Sadar Bazar, which also has a considerable number of non-conforming industrial units, is dominated by industries producing paper and paper products, printing, publishing and allied services. These industries account for about 27 percent of the total number of units in this area. Manufacture of garments, metal products, electrical goods account for above 15 percent, 10 percent and 5 percent of the total number of units respectively. This area has no units producing geysers, jewellery, and scientific equipment and providing services like water supply, storage and warehousing, data processing jobs etc.

Shastri Nagar, Naraina, Shakur Basti and Malka Gunj are areas which are

Table. 3.1: SHARE OF NON-CONFORMING INDUSTRIAL UNITS IN EACH ZONE TO TOTAL NON-CONFORMING INDUSTRIES IN DELHI

PERCENTAGE OF NON-CONFORMING INDUSTRIAL UNITS IN EACH ZONE TO TOTAL NON-CONFORMING UNITS IN DELHI

| Type of Industry (code) | Alipur | Badli | Connaught Place | Greater Kailash | Janakpuri | Jungpura | Kalkaji | Kirti Nagar | Karol Bagh |
|---|---|---|---|---|---|---|---|---|---|
| Type of industry not known | 6.70 | 2.77 | 5.16 | 6.18 | 5.56 | 10.28 | 5.23 | 2.28 | 2.41 |
| Food products (20) | 21.65 | 7.91 | 13.55 | 9.12 | 0.00 | 17.76 | 11.11 | 5.58 | 5.84 |
| Food products (21) | 0.00 | 0.55 | 0.65 | 0.88 | 2.22 | 0.00 | 0.00 | 0.38 | 0.51 |
| Beverages and tobacco (22) | 0.00 | 0.00 | 0.00 | 0.29 | 0.00 | 0.00 | 0.22 | 0.00 | 0.00 |
| Cotton Textiles (23) | 0.52 | 0.28 | 0.00 | 0.59 | 6.67 | 1.87 | 0.22 | 0.25 | 0.13 |
| Wool and Silk (24) | 0.00 | 0.42 | 0.00 | 0.00 | 0.00 | 0.93 | 1.31 | 1.14 | 0.51 |
| Jute and Mesta Textiles (25) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hosiery and garments (26) | 2.58 | 5.83 | 18.06 | 27.06 | 50.00 | 13.08 | 18.95 | 7.74 | 17.51 |
| Wood products (27) | 1.03 | 0.69 | 1.29 | 0.88 | 4.44 | 1.87 | 1.31 | 7.99 | 1.65 |
| Paper and printing (28) | 4.64 | 3.33 | 8.39 | 4.41 | 2.22 | 9.35 | 6.32 | 5.46 | 8.63 |
| Leather products (29) | 0.52 | 1.11 | 1.29 | 1.47 | 0.00 | 0.00 | 1.53 | 1.40 | 5.84 |
| Rubber and plastics (30) | 8.76 | 9.02 | 12.26 | 6.18 | 0.00 | 2.80 | 9.15 | 14.72 | 7.87 |
| Chemical products (31) | 5.67 | 9.29 | 5.16 | 4.41 | 3.33 | 0.93 | 3.70 | 5.58 | 5.96 |
| Non-metallic minerals (32) | 1.03 | 1.66 | 0.00 | 2.06 | 3.33 | 1.87 | 2.83 | 1.90 | 1.78 |
| Basic metal industries (33) | 8.25 | 15.81 | 0.00 | 2.65 | 0.00 | 0.93 | 2.61 | 2.16 | 4.31 |
| Metal products (34) | 17.01 | 17.75 | 11.61 | 7.35 | 18.89 | 4.67 | 7.41 | 10.03 | 7.23 |
| Machinery and parts (35) | 6.70 | 4.02 | 0.00 | 3.82 | 0.00 | 4.67 | 5.88 | 6.22 | 6.47 |
| Electrical machinery (36) | 6.70 | 9.29 | 16.13 | 15.59 | 2.22 | 28.97 | 13.29 | 12.06 | 11.17 |
| Transport machinery (37) | 4.64 | 7.35 | 3.23 | 3.82 | 0.00 | 0.00 | 6.32 | 5.96 | 4.57 |
| Miscellaneous (38) | 1.55 | 2.08 | 3.23 | 2.65 | 0.00 | 0.00 | 1.96 | 4.44 | 2.92 |
| Manufacture of water geyser (42) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Assembly of AC and water cooler (51) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Storage and warehousing services (74) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | 0.25 |
| Jobwork of data processing on the computer (82) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.90 |
| Jewellery (88) | 0.00 | 0.00 | 0.00 | 0.00 | 1.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| Scientific and material testing equipment (92) | 0.52 | 0.00 | 0.00 | 0.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Scientific testing equipment for the human body (93) | 1.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Audio and studio works (95) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Jobwork of photostat (96) | 0.00 | 0.28 | 0.00 | 0.29 | 0.00 | 0.00 | 0.00 | 0.76 | 0.51 |
| Repair services (97) | 0.52 | 0.55 | 0.00 | 0.00 | 0.00 | 0.00 | 0.65 | 2.79 | 1.65 |
| Job work of colour film processing (99) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.02 | 0.38 |
| | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** |
| **Percentage** | **1.16** | **4.32** | **0.93** | **2.04** | **0.54** | **0.64** | **2.75** | **4.72** | **4.72** |

Source : Computed from the data provided by the Department of Industries, Govt. Of India

**Table. 3.1: SHARE OF NON-CONFORMING INDUSTRIAL UNITS IN EACH ZONE TO TOTAL NON-CONFORMING INDUSTRIES IN DELHI**

**PERCENTAGE OF NON-CONFORMING INDUSTRIAL UNITS IN EACH ZONE TO TOTAL NON-CONFORMING UNITS IN DELHI**

| Type of Industry (code) | Malka Gunj | Malviya Nagar | Mayapuri | Mehrauli | Najafgarh | Nangloi | Naraina | New Subzi Mandi | Okhla |
|---|---|---|---|---|---|---|---|---|---|
| Type of industry not known | 4.47 | 3.13 | 3.22 | 4.04 | 2.32 | 4.04 | 2.44 | 3.89 | 20.56 |
| Food products (20) | 8.19 | 0.00 | 3.82 | 13.06 | 4.20 | 6.44 | 2.95 | 7.52 | 0.39 |
| Food products (21) | 1.49 | 0.00 | 0.52 | 0.71 | 0.43 | 0.63 | 0.26 | 0.67 | 0.13 |
| Beverages and tobacco (22) | 0.00 | 0.00 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 |
| Cotton Textiles (23) | 0.74 | 0.00 | 0.45 | 0.00 | 0.43 | 0.76 | 0.51 | 0.54 | 0.20 |
| Wool and Silk (24) | 1.49 | 0.00 | 0.60 | 0.24 | 0.43 | 0.51 | 0.26 | 0.00 | 0.13 |
| Jute and Mesta Textiles (25) | 0.25 | 0.00 | 0.00 | 0.00 | 0.14 | 0.13 | 0.00 | 0.00 | 0.00 |
| Hosiery and garments (26) | 7.69 | 12.50 | 5.70 | 9.50 | 7.39 | 6.94 | 10.77 | 5.77 | 15.42 |
| Wood products (27) | 0.00 | 3.13 | 1.72 | 0.95 | 1.30 | 0.63 | 1.03 | 1.07 | 1.56 |
| Paper and printing (28) | 6.95 | 3.13 | 5.02 | 6.65 | 4.93 | 6.06 | 11.41 | 5.64 | 7.42 |
| Leather products (29) | 2.73 | 3.13 | 2.02 | 1.19 | 1.88 | 1.89 | 2.05 | 1.21 | 2.08 |
| Rubber and plastics (30) | 7.94 | 3.13 | 11.92 | 8.08 | 14.06 | 17.30 | 10.38 | 11.68 | 5.79 |
| Chemical products (31) | 7.69 | 6.25 | 8.47 | 8.55 | 7.39 | 8.96 | 4.62 | 7.79 | 6.38 |
| Non-metallic minerals (32) | 3.47 | 0.00 | 2.02 | 4.75 | 2.61 | 2.27 | 1.15 | 3.09 | 0.78 |
| Basic metal industries (33) | 5.21 | 3.13 | 7.35 | 5.46 | 6.96 | 7.45 | 6.92 | 5.50 | 4.49 |
| Metal products (34) | 8.19 | 12.50 | 11.77 | 12.11 | 10.29 | 10.35 | 10.00 | 11.14 | 8.00 |
| Machinery and parts (35) | 5.46 | 9.38 | 7.27 | 6.65 | 7.68 | 5.81 | 4.74 | 4.56 | 5.79 |
| Electrical machinery (36) | 10.17 | 25.00 | 11.92 | 11.64 | 9.57 | 8.96 | 19.74 | 12.35 | 13.34 |
| Transport machinery (37) | 5.71 | 9.38 | 9.22 | 4.04 | 13.33 | 6.44 | 5.77 | 13.15 | 4.03 |
| Miscellaneous (38) | 5.46 | 3.13 | 3.67 | 1.66 | 2.90 | 2.02 | 3.97 | 2.82 | 2.34 |
| Manufacture of water geyser (42) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Assembly of AC and water cooler (51) | 0.25 | 3.13 | 0.07 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 | 0.07 |
| Storage and warehousing services (74) | 0.25 | 0.00 | 0.07 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 | 0.07 |
| Jobwork of data processing on the computer (82) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 |
| Jewellery (88) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Scientific and material testing equipment (92) | 0.25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Scientific testing equipment for the human body (93) | 0.25 | 0.00 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 |
| Audio and studio works (95) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Jobwork of phototstat (96) | 0.99 | 0.00 | 0.82 | 0.00 | 0.87 | 0.51 | 0.26 | 0.00 | 0.20 |
| Repair services (97) | 4.22 | 0.00 | 1.57 | 0.48 | 0.72 | 1.89 | 0.26 | 1.48 | 0.39 |
| Job work of colour film processing (99) | 0.50 | 0.00 | 0.67 | 0.00 | 0.00 | 0.00 | 0.38 | 0.00 | 0.20 |
| | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** |
| **Percentage** | **2.41** | **0.19** | **7.99** | **2.52** | **4.13** | **4.75** | **4.67** | **4.46** | **9.21** |

Source : Computed from the data provided by the Department of Industries, Govt. Of India

**Table. 3.1: SHARE OF NON-CONFORMING INDUSTRIAL UNITS IN EACH ZONE TO TOTAL NON-CONFORMING INDUSTRIES IN DELHI**

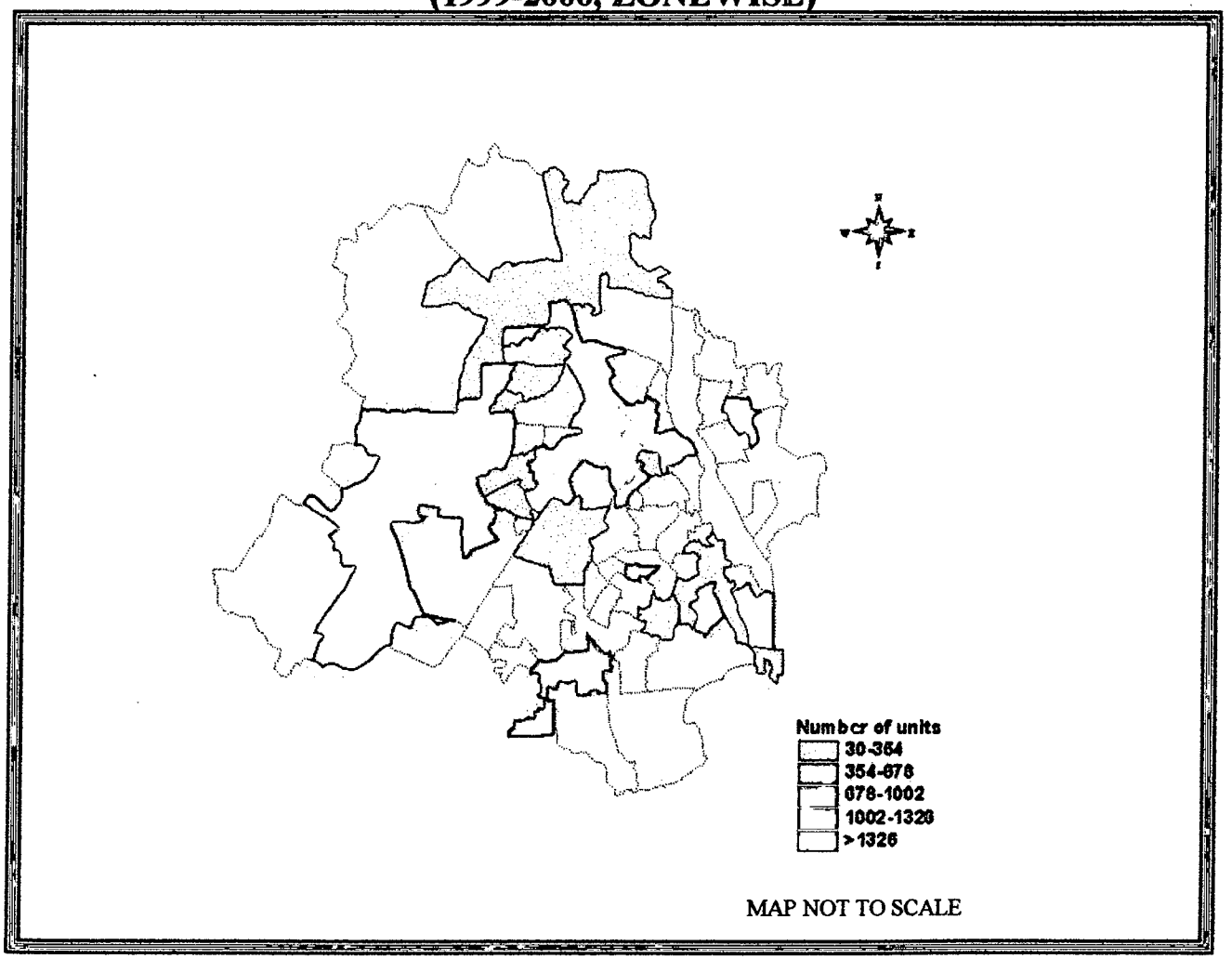
PERCENTAGE OF NON-CONFORMING INDUSTRIAL UNITS IN EACH ZONE TO TOTAL NON-CONFORMING UNITS IN DELHI

| Type of Industry (code) | Patel Nagar | Rajouri Garden | Sadar Bazar | Shahdara | Shakur Basti | SRT Nagar | Shastri Nagar | Tri Nagar | Uttam Nagar |
|---|---|---|---|---|---|---|---|---|---|
| Type of industry not known | 2.47 | 3.49 | 1.12 | 1.69 | 3.55 | 4.85 | 4.00 | 3.03 | 4.81 |
| Food products (20) | 11.54 | 9.41 | 2.08 | 1.69 | 12.06 | 13.71 | 2.98 | 7.58 | 19.55 |
| Food products (21) | 0.82 | 0.54 | 0.24 | 0.06 | 2.13 | 0.84 | 0.10 | 0.34 | 1.28 |
| Beverages and tobacco (22) | 0.00 | 0.27 | 0.08 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Cotton Textiles (23) | 0.00 | 0.27 | 0.24 | 0.12 | 0.00 | 0.42 | 0.31 | 0.34 | 0.64 |
| Wool and Silk (24) | 0.82 | 0.00 | 0.08 | 0.24 | 0.00 | 0.84 | 0.21 | 0.51 | 0.96 |
| Jute and Mesta Textiles (25) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.32 |
| Hosiery and garments (26) | 9.34 | 10.48 | 15.03 | 5.20 | 15.60 | 16.46 | 16.74 | 9.60 | 12.50 |
| Wood products (27) | 1.10 | 1.88 | 1.12 | 0.91 | 3.55 | 1.05 | 1.13 | 1.52 | 0.96 |
| Paper and printing (28) | 9.07 | 6.45 | 27.26 | 6.89 | 6.38 | 3.16 | 5.85 | 5.39 | 5.13 |
| Leather products (29) | 1.92 | 1.88 | 1.44 | 0.67 | 0.00 | 4.43 | 1.44 | 1.01 | 1.28 |
| Rubber and plastics (30) | 9.62 | 13.17 | 7.91 | 15.05 | 4.26 | 7.59 | 10.78 | 14.98 | 10.26 |
| Chemical products (31) | 7.69 | 4.30 | 3.60 | 10.16 | 3.55 | 6.54 | 4.52 | 9.26 | 3.85 |
| Non-metallic minerals (32) | 2.47 | 1.88 | 2.16 | 1.27 | 0.00 | 1.90 | 1.03 | 1.35 | 1.92 |
| Basic metal industries (33) | 3.85 | 4.03 | 4.40 | 21.89 | 2.84 | 4.22 | 8.11 | 4.21 | 2.88 |
| Metal products (34) | 8.52 | 10.48 | 10.07 | 8.65 | 11.35 | 5.06 | 11.70 | 11.28 | 7.69 |
| Machinery and parts (35) | 5.22 | 4.57 | 4.56 | 4.29 | 3.55 | 2.53 | 5.65 | 7.74 | 4.49 |
| Electrical machinery (36) | 14.84 | 11.56 | 7.27 | 12.39 | 23.40 | 12.87 | 12.11 | 9.76 | 9.94 |
| Transport machinery (37) | 6.32 | 8.60 | 3.76 | 4.59 | 3.55 | 7.59 | 8.83 | 6.40 | 5.77 |
| Miscellaneous (38) | 3.30 | 5.65 | 6.08 | 2.66 | 4.26 | 3.16 | 2.46 | 2.36 | 2.88 |
| Manufacture of water geyser (42) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 |
| Assembly of AC and water cooler (51) | 0.00 | 0.27 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Storage and warehousing services (74) | 0.00 | 0.27 | 0.00 | 0.00 | 0.00 | 0.21 | 0.00 | 0.17 | 0.00 |
| Jobwork of data processing on the computer (82) | 0.00 | 0.00 | 0.00 | 0.48 | 0.00 | 0.00 | 0.92 | 1.68 | 0.00 |
| Jewellery (88) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Scientific and material testing equipment (92) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.21 | 0.00 | 0.00 |
| Scientific testing equipment for the human body (93) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.32 |
| Audio and studio (95) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Jobwork of phototstat (96) | 0.00 | 0.00 | 0.08 | 0.18 | 0.00 | 0.84 | 0.10 | 0.34 | 0.96 |
| Repair services (97) | 1.10 | 0.00 | 1.12 | 0.67 | 0.00 | 1.69 | 0.51 | 0.67 | 1.60 |
| Job work of colour film processing (99) | 0.00 | 0.54 | 0.32 | 0.12 | 0.00 | 0.00 | 0.21 | 0.51 | 0.00 |
| | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** |
| **Percentage** | **2.18** | **2.23** | **7.50** | **9.91** | **0.84** | **2.84** | **5.84** | **3.56** | **1.87** |

Source : Computed from the data provided by the Department of Industries, Govt. Of India

MAP 3.1

# DISTRIBUTION OF NON-CONFORMING INDUSTRIAL UNITS IN DELHI (1999-2000, ZONEWISE)



largely dominated by industrial units producing electrical goods and account for more than 10 percent to 20 percent of the total number of units in the respective zones as shown in Table 3.1. Shastri Nagar and Naraina are also characterized by units producing garments, plastic and rubber products accounting for over 10 percent of the total number of units. Shakur Basti and Malka Gunj account for less than 5 percent of the total number of units in the category of industries manufacturing garments and plastic and rubber products.

Jangpura has the highest percentage of garment industries, which account for 50 percent of the total number of units in the area. Shahdara, Tri Nagar, Najafgarh, Kirti Nagar and Nangloi are characterized by a large percentage i.e., 15 percent to 20 percent of the units producing plastic, rubber and related products. Sadar Bazar, Naraina and Connaught Place have about 8 percent to 15 percent of the industries producing paper and paper products and metal and metal products. Badli has about 17 percent of the units producing metal products. Jungpura, Uttam Nagar and Alipur have 15 percent to 20 percent of the industrial units producing food products.

Some industries like production of geyser, jewellery, data processing jobs, beverages and tobacco, storage and warehousing services are present in particular areas. Production of geyser is done in Shastri Nagar, which accounts for less than 1 percent since there is only one unit manufacturing this product and located in this area. Jewellery industry is found in Janakpuri that accounts for about 1 percent. Storage and warehousing services are found in areas like Tri Nagar, Naraina, Karol Bagh, Rajouri Garden, Kirti Nagar, Mayapuri, Malka Gunj, SRT Nagar and Okhla which account for less than 1 percent in these zones. Computer data processing work is found in areas like Shahdara, Tri Nagar, Shastri Nagar, Karol Bagh and Janakpuri. These areas together account for less than 2 percent of the total number of units. Cotton textile industries are found in some areas accounting for less than 1 percent of the total number of units except Connaught Place, Shakur Basti, Patel Nagar, Tilak

Nagar, Mehrauli and Malviya Nagar. There are very few repair service industries in all the zones. Rajouri Garden, Mayapuri, Malka Gunj and Okhla have only 0.5 percent to 1 percent of the industries engaged in repair services. The remaining zones providing repair services account for less than 0.5 percent of the units.

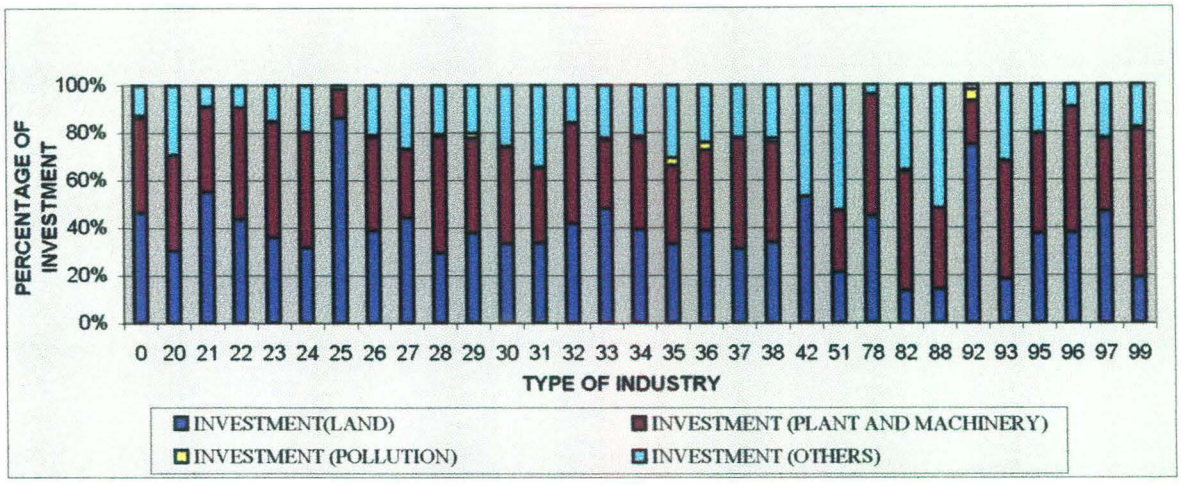
## 3.4 LEVELS OF INVESTMENT AND EMPLOYMENT ACCORDING TO THE TYPE OF PRODUCT OF THE INDUSTRIAL UNIT

The study of the structure is not complete until the variations in the levels of investment and employment are examined. This means explaination of how they vary according to the type of product of the industrial unit. This would also help to infer which industry is flourishing more and entrepreneurs are finding it more profitable to run. The percentage values of investment and employment in non-conforming industries (zone wise and type of industry) has been shown in tables 3.1 and 3.3.

The investment data for each of the unit has three components namely, investment in land (invest l), investment in plant and machinery(invest p), investment in pollution control equipments(invest poll) and investment in other categories(invest o) not specified. This data has been represented in figure 3.1 to show the varying percentages of each kind of investment. The data indicates that investment on land for most of the industrial units is less than 40% of the total investment. These include industries producing beverages, tobacco and other related products, manufacture of wood and wood products, non-metallic mineral products, basic metals and alloys industries, industries repairing capital goods, other repairing services etc. Industries producing vegetable fibre textiles, repair services, manufacturing of geyser show a level of investment on land which is more than 50% of the total investment. The industries producing food products and those assembling

**Figure 3.1**

DIFFERENT TYPES OF INVESTMENT ACCORDING TO THE TYPE OF INDUSTRY




electronic goods or manufacture scientific testing equipments have nearly 80% of the total investment on land. However, industries like those engaged in computer data processing work and manufacture of jewellery are characterized by the lowest investment of less than 20% on land.

Investment in plant and machinery for most of the units does not vary to a large extent and their percentages are within 30 to 40. The highest percentage of above 50 on investment in plant and machinery is a characteristic of industries producing paper and paper products; printing and publishing, chemical testing equipments, and some service industries like repairing, cold storage facilities etc. This may be because these industries are engaged in precision and highly technical work.

The percentage of units in Delhi investing on pollution control equipments is very low. This is because only about one-third of the total number of units are polluting in Delhi. The percentage of investment on pollution is also very low. The industries producing leather goods, electrical goods, scientific equipments, water heating equipment, jewellery, stationery and toys invest about 5 percent in pollution

control equipments. The percentage of investment in this category in the other types of industries is very insignificant and is less than 1 percent of the total investment.

Investment in the "other" category (including wages, power etc) has not been defined clearly in the data but most of the industries show an investment of 15 to 20 percent. The industries producing jewellery and engaged in repair work, data processing and manufacturing of geyser show an investment of above 45 percent in the "others" category.

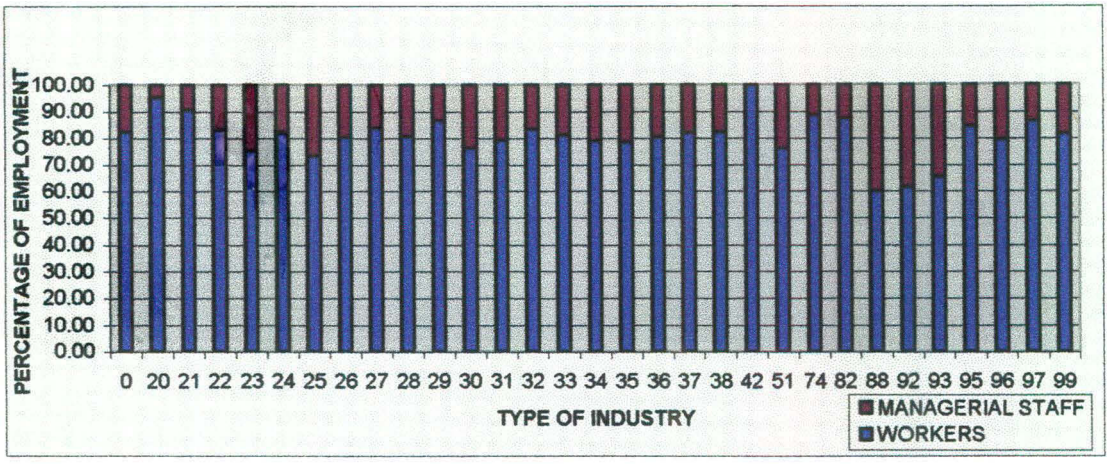
The total investment in the non-conforming industries in Delhi is over 534 crores. The investment is highest for industries like garments and electrical goods which accounts for an investment of 50 to 80 crores of investment. The industries manufacturing leather products, miscellaneous products, machinery and equipment, transport equipment, chemicals, rubber and plastic products, metals products, paper and printing have investment levels of 10 crores to above 40 crores. Investment levels of 1 crore to 9 crores are found in industries like laundry and dyeing services, storage and warehousing services, cotton and jute textiles, repair work, developing and processing of films etc. The industries with lower investment levels of 67 thousand to 42 lakhs are those manufacturing jewellery, geyser, scientific equipments and engaged in audio and studio works, water supply etc.

The type of employment varies in different types of industrial units in terms of the levels of precision that goes into the production process. The employment data comprises of managerial staff (employ o) and employment of others (employ s) which include factory workers.

Figure 3.2 represents the varying percentages of employment of factory workers and managerial staff within each type of industry. A large proportion of employment as factory workers and a lower proportion of employment as managerial staff characterize most of the types of industries. This may be because the small-scale sector does not require a high percentage of skilled labour. Since most of them

Fig.3.2

EMPLOYMENT IN DIFFERENT TYPES OF NON-CONFORMING INDUSTRIES IN DELHI




are located within households, the members of the household themselves are managers of the unit and seldom require many people to be employed to look after their industrial unit.

According to the figure 3.2, most units employ about 70 percent to 80 percent of the total workers as factory workers and 20 to 25 percent as managerial staff. This varies slightly from one type of unit to another. The industries producing jewellery and chemical testing equipments are characterized by over 35 percent employment as managerial staff while in audio and studio works, employment as managerial staff is over 15 percent. In these industries, the percentages of employment as factory workers are 65 percent and 85 percent respectively.

These industries also use power from DESU on the basis of their requirements in the production process. The industries producing electrical goods, metals products utilize about 18,000 kilo watts of power. Most of the other industries use less than 8000 kilo watts of power. Industries like food and beverage, textiles, scientific equipments, jewellery etc, however use least amount of power i.e., less than 500 kilo watts.

The ratios between the capital and labour have been calculated to find out the

capital intensity or labour intensity in a particular type of industry. This analysis is based on Delhi as a whole for the different types of industries. Table 3.2 shows that the capital intensity is highest for industries manufacturing scientific testing equipments for the human body followed by those rendering storage and warehousing services. Higher ratios are also found in industries producing jute and mesta textiles and those engaged in the job work of computer data processing and manufacturing material testing equipments.

**Table 3.2** CAPITAL INTENSITY IN NON-CONFORMING INDUSTRIES IN DELHI

| Type of Industry | Capital Labour Ratio |
|---|---|
| Type of industry not known | 2593309.73 |
| Food products (20) | 9761.93 |
| Food products (21) | 1832.42 |
| Beverages and tobacco (22) | 17761.00 |
| Cotton Textiles (23) | 7133.41 |
| Wool and Silk (24) | 1030.58 |
| Jute and Mesta Textiles (25) | 79462.30 |
| Hosiery and garments (26) | 698343.33 |
| Wood products (27) | 3139.62 |
| Paper and printing (28) | 14430399.23 |
| Leather products (29) | 23448.40 |
| Rubber and plastics (30) | 33793928.62 |
| Chemical products (31) | 895843.96 |
| Non-metallic minerals (32) | 6271.90 |
| Basic metal industries (33) | 13378584.66 |
| Metal products (34) | 15699890.45 |
| Machinery and parts (35) | 4552780.18 |
| Electrical machinery (36) | 1033744.60 |
| Transport machinery (37) | 3535156.71 |
| Miscellaneous (38) | 29031702.00 |
| Manufacture of water geyser (42) | 3.27 |
| Assembly of AC and water cooler (51) | 3712.95 |
| Storage and warehousing services (74) | 5547.74 |
| Jobwork of data processing on the computer (82) | 9938.99 |
| Jewellery (88) | 606.92 |
| Scientific and material testing equipment (92) | 5476.78 |
| Scientific testing equipment for the human body (93) | 243.64 |
| Audio and studio works (95) | 100.80 |
| Jobwork of phototstat (96) | 1062.71 |
| Repair services (97) | 2995.04 |
| Job work of colour film processing (99) | 2427.50 |
| **Total** | **33823.55** |

**Source :** Computed from the data provided by the Dept. of Industries, Govt. Of India

The industries producing non-metallic mineral products, geysers, beverages and other food products are characterized by the lowest ratios since they are mostly characterized by high levels of employment. The remaining types of industries are

characterized by ratios which are moderate but more towards labour intensiveness. The ratio for the whole of Delhi is moderate but shows a tilt towards labour intensity. The industries with capital labour ratios near to this value are those manufacturing machinery and equipment, jewellery and paper and paper and paper products and printing and allied activities.

## 3.5 ANALYSIS OF THE LEVELS OF INVESTMENT AND EMPLOYMENT ACCORDING TO THE PRODUCT OF THE INDUSTRIAL UNIT IN THE DIFFERENT NON-CONFORMING ZONES

The study of the varying levels of investment and employment according to the product of the industrial units in the different zones will be analysed in this section. The total investment and total employment for the different zones has been represented in map nos. 3.2 and 3.3.

In Malviya Nagar, the investment level is the lowest at less than 1 lakh. In the other zones, investment is low to moderately high in Shakur Basti, Connaght Place, Janakpuri and Jungpura. This may be attributed to the fewer number of units in these zones as compared to the other areas. The total investment is above 40 crores in Shahdara and Okhla. Mayapuri and Sadar Bazar have a total investment of 30 crores to 40 crores. The other zones have an investment level of above 10 crores to 26 crores. The types of industries exhibiting high capital intensity like storage and warehousing services and manufacturing scientific testing equipments for the human body are found in specific areas. The areas which provide warehousing and storage facilities are Tri Nagar, Naraina, Rajouri Garden, Kirti Nagar, Mayapuri, Karol Bagh, Malka Gunj, SRT Nagar and Okhla and therefore the investment levels are also high as compared to the rest of the zones, especially for areas like Rajouri Garden, Malka Gunj and SRT Nagar where number of units are less than 500. In Okhla, Mehrauli, Uttam Nagar, Alipur and Malka Gunj, presence of industrial units producing scientific

**Table. 3.3: SHARE OF EMPLOYMENT IN NON-CONFORMING INDUSTRIAL ZONES TO TOTAL EMPLOYMENT IN NON-CONFORMING INDUSTRIES IN DELHI**

**PERCENTAGE EMPLOYMENT IN NON-CONFORMING INDUSTRIAL ZONES TO TOTAL EMPLOYMENT IN NON-CONFORMING INDUSTRIES IN DELHI**

| Type of Industry (code) | Alipur | Badli | Connaught Place | Greater Kailash | Janakpuri | Jungpura | Kalkaji | Kirti Nagar | Karol Bagh |
|---|---|---|---|---|---|---|---|---|---|
| Type of industry not known | 8.99 | 3.38 | 6.24 | 7.50 | 6.44 | 13.42 | 6.59 | 2.65 | 2.93 |
| Food products (20) | 9.19 | 3.05 | 5.39 | 3.78 | 0.00 | 7.33 | 4.43 | 2.25 | 2.32 |
| Food products (21) | 0.00 | 0.97 | 1.12 | 1.54 | 3.70 | 0.00 | 0.00 | 0.67 | 0.89 |
| Beverages and tobacco (22) | 0.00 | 0.00 | 0.00 | 0.20 | 0.00 | 0.00 | 0.15 | 0.00 | 0.00 |
| Cotton Textiles (23) | 0.62 | 0.30 | 0.00 | 0.64 | 6.92 | 2.19 | 0.25 | 0.28 | 0.14 |
| Wool and Silk (24) | 0.00 | 0.29 | 0.00 | 0.00 | 0.00 | 0.70 | 0.94 | 0.71 | 0.35 |
| Jute and Mesta Textiles (25) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hosiery and garments (26) | 2.87 | 5.90 | 19.04 | 27.61 | 48.31 | 14.21 | 19.87 | 7.85 | 18.15 |
| Wood products (27) | 1.15 | 0.70 | 1.29 | 0.89 | 4.27 | 2.02 | 1.37 | 8.09 | 1.66 |
| Paper and printing (28) | 5.23 | 3.41 | 8.91 | 4.50 | 2.16 | 10.25 | 6.69 | 5.46 | 8.92 |
| Leather products (29) | 0.49 | 0.96 | 1.11 | 1.27 | 0.00 | 0.00 | 1.37 | 1.15 | 5.05 |
| Rubber and plastics (30) | 10.32 | 9.64 | 13.32 | 6.70 | 0.00 | 3.21 | 10.13 | 15.72 | 8.50 |
| Chemical products (31) | 7.36 | 10.96 | 6.29 | 5.19 | 3.74 | 1.18 | 4.52 | 6.57 | 7.01 |
| Non-metallic minerals (32) | 1.31 | 1.92 | 0.00 | 2.37 | 3.66 | 2.31 | 3.38 | 2.19 | 2.04 |
| Basic metal industries (33) | 9.30 | 16.19 | 0.00 | 2.70 | 0.00 | 1.03 | 2.77 | 2.20 | 4.40 |
| Metal products (34) | 19.41 | 18.40 | 12.51 | 7.93 | 18.63 | 5.19 | 7.94 | 10.37 | 7.47 |
| Machinery and parts (35) | 7.82 | 4.27 | 0.00 | 4.04 | 0.00 | 5.31 | 6.46 | 6.66 | 6.84 |
| Electrical machinery (36) | 7.52 | 9.48 | 17.90 | 16.16 | 2.16 | 31.66 | 14.02 | 12.33 | 11.51 |
| Transport machinery (37) | 5.07 | 7.29 | 3.35 | 3.78 | 0.00 | 0.00 | 6.49 | 5.90 | 4.52 |
| Miscellaneous (38) | 1.75 | 2.14 | 3.51 | 2.72 | 0.00 | 0.00 | 2.09 | 4.56 | 2.99 |
| Manufacture of water geyser (42) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Assembly of AC and water cooler (51) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Storage and warehousing services (74) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.23 |
| Jobwork of data processing on the computer (82) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.75 |
| Jewellery (88) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Scientific and material testing equipment (92) | 0.38 | 0.00 | 0.00 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Scientific testing equipment for the human body (93) | 0.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Audio and studio (95) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Jobwork of phototstat (96) | 0.00 | 0.29 | 0.00 | 0.31 | 0.00 | 0.00 | 0.00 | 0.81 | 0.54 |
| Repair services (97) | 0.46 | 0.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.55 | 2.27 | 1.34 |
| Job work of colour film processing (99) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.21 | 0.45 |
| | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** |
| **Percentage** | **0.96** | **3.94** | **0.85** | **1.87** | **0.52** | **0.55** | **2.43** | **4.32** | **4.33** |

Source : Computed from the data provided by the Department of Industries, Govt. Of India

## Table. 3.3: SHARE OF EMPLOYMENT IN NON-CONFORMING INDUSTRIAL ZONES TO TOTAL EMPLOYMENT IN NON-CONFORMING INDUSTRIES IN DELHI

PERCENTAGE EMPLOYMENT IN NON-CONFORMING INDUSTRIAL ZONES TO TOTAL EMPLOYMENT IN NON-CONFORMING INDUSTRIES IN DELHI

| Type of Industry (code) | Malka Gunj | Malviya Nagar | Mayapuri | Mehrauli | Najafgarh | Nangloi | Naraina | New Subzi Mandi | Okhla |
|---|---|---|---|---|---|---|---|---|---|
| Type of industry not known | 5.48 | 3.69 | 3.76 | 5.05 | 5.05 | 4.67 | 2.96 | 4.73 | 15.72 |
| Food products (20) | 3.18 | 0.00 | 1.47 | 5.17 | 5.17 | 2.47 | 1.13 | 2.89 | 0.72 |
| Food products (21) | 2.63 | 0.00 | 0.92 | 1.28 | 1.28 | 0.92 | 0.45 | 1.17 | 0.05 |
| Beverages and tobacco (22) | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 |
| Cotton Textiles (23) | 0.82 | 0.00 | 0.44 | 0.00 | 0.00 | 0.74 | 0.56 | 0.58 | 0.21 |
| Wool and Silk (24) | 1.04 | 0.00 | 0.36 | 0.17 | 0.17 | 0.35 | 0.18 | 0.00 | 0.09 |
| Jute and Mesta Textiles (25) | 0.24 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 | 0.00 | 0.00 |
| Hosiery and garments (26) | 7.85 | 12.28 | 5.64 | 9.89 | 9.89 | 6.89 | 10.66 | 5.83 | 36.03 |
| Wood products (27) | 0.00 | 3.06 | 1.66 | 0.99 | 0.99 | 0.59 | 1.03 | 1.08 | 0.94 |
| Paper and printing (28) | 7.16 | 3.10 | 4.99 | 6.99 | 6.99 | 6.09 | 11.56 | 5.76 | 5.13 |
| Leather products (29) | 2.39 | 2.63 | 1.63 | 1.06 | 1.06 | 1.64 | 1.65 | 1.05 | 3.10 |
| Rubber and plastics (30) | 8.56 | 3.24 | 12.62 | 8.87 | 8.87 | 18.36 | 10.91 | 12.46 | 2.73 |
| Chemical products (31) | 9.14 | 7.15 | 9.72 | 10.36 | 10.36 | 10.47 | 5.23 | 9.16 | 4.04 |
| Non-metallic minerals (32) | 4.03 | 0.00 | 2.02 | 5.63 | 5.63 | 2.61 | 1.22 | 3.55 | 0.57 |
| Basic metal industries (33) | 5.38 | 3.10 | 7.34 | 5.75 | 5.75 | 7.60 | 6.90 | 5.62 | 3.06 |
| Metal products (34) | 8.55 | 12.57 | 12.11 | 12.90 | 12.90 | 10.70 | 10.24 | 11.52 | 5.30 |
| Machinery and parts (35) | 5.83 | 9.64 | 7.63 | 7.25 | 7.25 | 6.14 | 4.91 | 4.83 | 3.98 |
| Electrical machinery (36) | 10.45 | 24.72 | 12.04 | 12.19 | 12.19 | 9.11 | 19.92 | 12.56 | 12.00 |
| Transport machinery (37) | 5.70 | 9.02 | 9.05 | 4.12 | 4.12 | 6.37 | 5.53 | 13.02 | 3.59 |
| Miscellaneous (38) | 5.66 | 3.12 | 3.65 | 1.76 | 1.76 | 2.07 | 3.93 | 2.90 | 1.64 |
| Manufacture of water geyser (42) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Assembly of AC and water cooler (51) | 0.22 | 2.66 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Storage and warehousing services (74) | 0.23 | 0.00 | 0.07 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 | 0.04 |
| Jobwork of data processing on the computer (82) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.65 |
| Jewellery (88) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Scientific and material testing equipment (92) | 0.17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Scientific testing equipment for the human body (93) | 0.17 | 0.00 | 0.00 | 0.17 | 0.17 | 0.00 | 0.00 | 0.00 | 0.03 |
| Audio and studio (95) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Jobwork of phototstat (96) | 1.06 | 0.00 | 0.81 | 0.00 | 0.00 | 0.53 | 0.27 | 0.00 | 0.12 |
| Repair services (97) | 3.46 | 0.00 | 1.21 | 0.40 | 0.40 | 1.54 | 0.21 | 1.20 | 0.16 |
| Job work of colour film processing (99) | 0.60 | 0.00 | 0.73 | 0.00 | 0.00 | 0.00 | 0.46 | 0.00 | 0.08 |
| | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** |
| **Percentage** | **2.19** | **0.18** | **7.31** | **2.24** | **2.24** | **4.35** | **4.28** | **4.09** | **17.45** |

Source : Computed from the data provided by the Department of Industries, Govt. Of India

**Table. 3.3: SHARE OF EMPLOYMENT IN NON-CONFORMING INDUSTRIAL ZONES TO TOTAL EMPLOYMENT IN NON-CONFORMING INDUSTRIES IN DELHI**

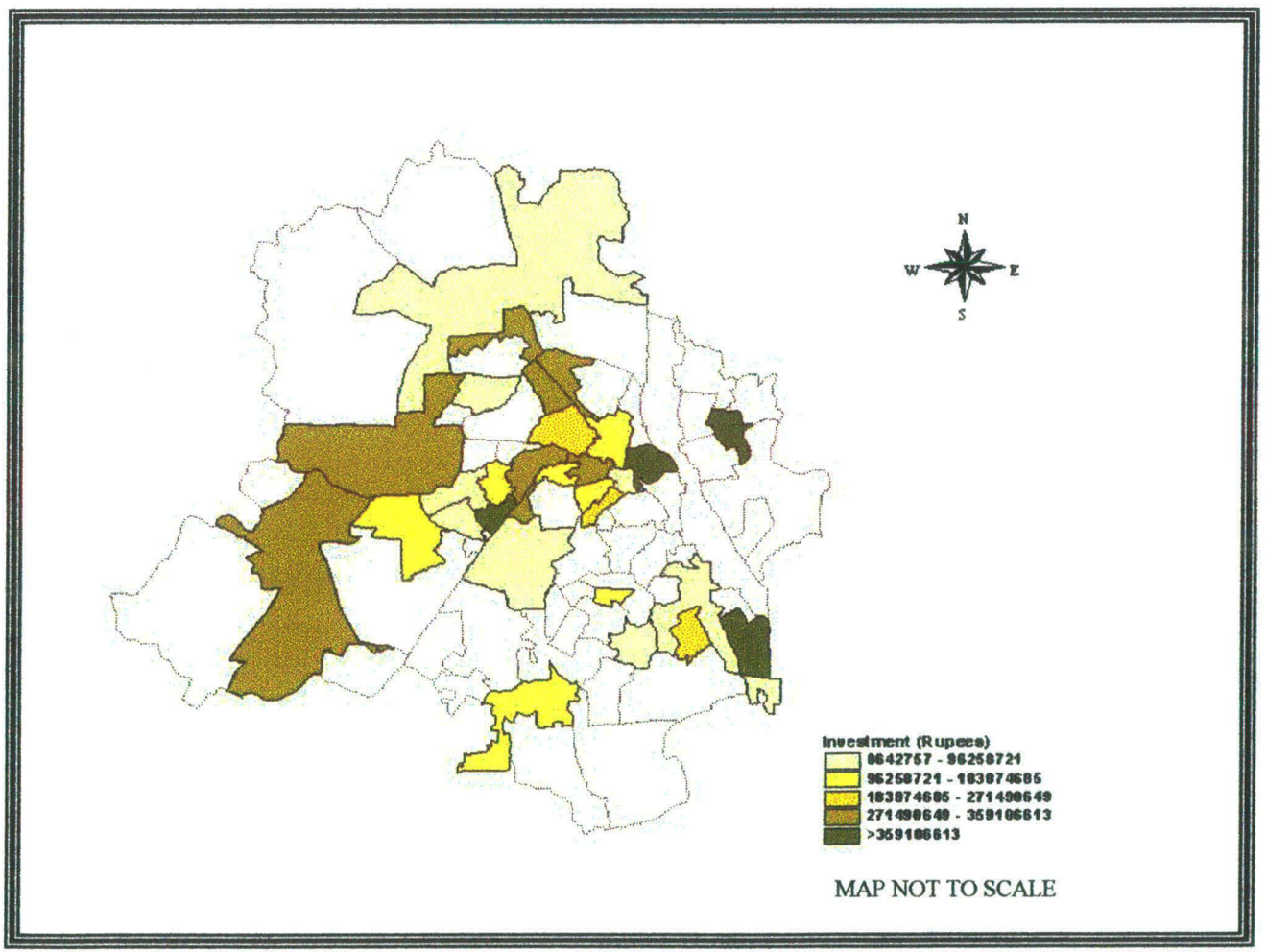
PERCENTAGE EMPLOYMENT IN NON-CONFORMING INDUSTRIAL ZONES TO TOTAL EMPLOYMENT IN NON-CONFORMING INDUSTRIES IN DELHI

| Type of Industry (code) | Patel Nagar | Rajouri Garden | Sadar Bazar | Shahdara | Shakur Basti | SRT Nagar | Shastri Nagar | Tri Nagar | Uttam Nagar |
|---|---|---|---|---|---|---|---|---|---|
| Type of industry not known | 3.10 | 4.29 | 1.26 | 1.95 | 4.30 | 5.36 | 4.77 | 3.68 | 6.36 |
| Food products (20) | 4.58 | 3.90 | 0.80 | 0.65 | 5.14 | 6.09 | 1.14 | 2.91 | 8.18 |
| Food products (21) | 1.49 | 0.95 | 0.42 | 0.11 | 3.71 | 1.58 | 0.18 | 0.59 | 2.44 |
| Beverages and tobacco (22) | 0.00 | 0.18 | 0.05 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Cotton Textiles (23) | 0.00 | 0.30 | 0.26 | 0.13 | 0.00 | 0.51 | 0.34 | 0.37 | 0.76 |
| Wool and Silk (24) | 0.59 | 0.00 | 0.06 | 0.17 | 0.00 | 0.67 | 0.14 | 0.35 | 0.72 |
| Jute and Mesta Textiles (25) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.33 |
| Hosiery and garments (26) | 9.74 | 10.99 | 15.02 | 5.19 | 16.87 | 17.08 | 16.77 | 9.87 | 13.75 |
| Wood products (27) | 1.14 | 1.91 | 1.13 | 0.92 | 3.57 | 1.10 | 1.14 | 1.52 | 1.05 |
| Paper and printing (28) | 9.55 | 6.65 | 26.94 | 7.05 | 6.51 | 3.30 | 5.85 | 5.49 | 5.70 |
| Leather products (29) | 1.72 | 1.64 | 1.25 | 0.58 | 0.00 | 4.00 | 1.24 | 0.87 | 1.21 |
| Rubber and plastics (30) | 10.58 | 14.44 | 8.18 | 15.29 | 4.53 | 8.82 | 11.38 | 15.96 | 11.91 |
| Chemical products (31) | 9.34 | 5.11 | 4.23 | 11.25 | 4.17 | 7.75 | 5.11 | 10.88 | 4.93 |
| Non-metallic minerals (32) | 2.93 | 2.18 | 2.48 | 1.38 | 0.00 | 2.39 | 1.18 | 1.55 | 2.41 |
| Basic metal industries (33) | 4.05 | 4.16 | 4.49 | 21.64 | 2.89 | 4.42 | 8.20 | 4.29 | 3.21 |
| Metal products (34) | 9.08 | 10.94 | 10.16 | 8.20 | 12.90 | 5.79 | 11.86 | 11.64 | 8.66 |
| Machinery and parts (35) | 5.70 | 4.88 | 4.72 | 4.48 | 3.75 | 2.87 | 5.87 | 8.18 | 5.17 |
| Electrical machinery (36) | 15.56 | 11.87 | 7.26 | 12.31 | 23.78 | 13.76 | 12.11 | 9.92 | 11.00 |
| Transport machinery (37) | 6.45 | 8.60 | 3.72 | 4.55 | 3.51 | 7.83 | 8.39 | 6.32 | 6.22 |
| Miscellaneous (38) | 3.49 | 5.86 | 6.18 | 2.74 | 4.37 | 3.38 | 2.53 | 2.42 | 3.23 |
| Manufacture of water geyser (42) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 |
| Assembly of AC and water cooler (51) | 0.00 | 0.24 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Storage and warehousing services (74) | 0.00 | 0.25 | 0.00 | 0.00 | 0.00 | 0.19 | 0.00 | 0.15 | 0.00 |
| Jobwork of data processing on the computer (82) | 0.00 | 0.00 | 0.00 | 0.45 | 0.00 | 0.00 | 0.85 | 1.55 | 0.00 |
| Jewellery (88) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.54 | 0.00 | 0.00 | 0.00 |
| Scientific and material testing equipment (92) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.14 | 0.00 | 0.00 |
| Scientific testing equipment for the human body (93) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.24 |
| Audio and studio (95) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Jobwork of photostat (96) | 0.00 | 0.00 | 0.08 | 0.19 | 0.00 | 0.99 | 0.11 | 0.36 | 1.11 |
| Repair services (97) | 0.92 | 0.00 | 0.91 | 0.54 | 0.00 | 1.58 | 0.42 | 0.55 | 1.42 |
| Job work of colour film processing (99) | 0.00 | 0.65 | 0.38 | 0.14 | 0.00 | 0.00 | 0.24 | 0.60 | 0.00 |
| | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** |
| **Percentage** | **1.94** | **2.02** | **6.86** | **9.06** | **0.77** | **2.60** | **5.35** | **3.26** | **1.57** |

Source : Computed from the data provided by the Department of Industries, Govt. Of India

MAP 3.2

# INVESTMENT IN THE NON-CONFORMING INDUSTRIES IN DELHI (1999-2000, ZONEWISE)



testing equipments for the human body has also lead to high investment levels although the number of units are not very high.

A zone wise analysis of investment levels according to the dominant industries in Delhi as a whole shows that Alipur has the highest investment of over 7 percent in the food processing industry. The other zones account for less than 5 percent in this sector. In Sadar Bazar, Shastri Nagar, Shakur Basti, Greater Kailash, Connaught Place and Kalkaji, investment is 20 percent to 40 percent of the total investment in the respective zones. Janakpuri has the highest percentage of garment industries amongst all the areas accounting for 62 percent of the total investment in the zone. The industrial units producing paper and paper products account for over 30 crores of investment, a large portion of which is invested in land and plant and machinery. Sadar Bazar has the largest number of units within this category and accounts for over 20 percent of the total investment in this zone. The other zones account for less than 10 percent of the total investment in this category of industry. Investment in industries manufacturing basic metals and alloys is highest in Badli, and those manufacturing metal products are highest in Janakpuri, Alipur and Badli accounting for 11 percent to 13 percent of the total investment in each of these zones. In Kirti Nagar, Nangloi and Tilak Nagar, investment in plastic and rubber products is the highest accounting for 14 percent to above 18 percent of the total investment of the zones respectively. Investment in electrical equipment is highest in Mayapuri, Jungpura and Malviya Nagar accounting for over 20 percent of the total investment in each of these zones. The total investment is very high in Okhla which is over 40 crores for all its units together.

Information about the structure of 265 units is not available which account for above 20 crores of investment. In Okhla, the highest investment is found in the garment manufacturing industries ie. above 16 percent followed by electrical goods and paper and paper products together accounting for over 20 percent of the total

**Table 3.4: SHARE OF INVESTMENT IN NON-CONFORMING INDUSTRIAL ZONES TO TOTAL INVESTMENT IN NON-CONFORMING INDUSTRIES IN DELHI**

PERCENTAGE OF INVESTMENT IN NON-CONFORMING INDUSTRIAL ZONES TO TOTAL INVESTMENT IN NON-CONFORMING INDUSTRIES IN DELHI

| Type of Industry (code) | Alipur | Badli | Connaught Place | Greater Kailash | Janakpuri | Jungpura | Kalkaji | Kirti Nagar | Karol Bagh |
|---|---|---|---|---|---|---|---|---|---|
| Type of industry not known | 14.40 | 5.59 | 10.19 | 11.03 | 8.93 | 20.16 | 10.01 | 4.58 | 4.27 |
| Food products (20) | 7.44 | 2.55 | 4.28 | 2.60 | 0.00 | 5.57 | 3.40 | 1.79 | 1.65 |
| Food products (21) | 0.00 | 0.60 | 0.69 | 0.85 | 1.92 | 0.00 | 0.00 | 0.41 | 0.48 |
| Beverages and tobacco (22) | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 0.08 | 0.00 | 0.00 |
| Cotton Textiles (23) | 0.51 | 0.26 | 0.00 | 0.49 | 4.97 | 1.70 | 0.19 | 0.24 | 0.10 |
| Wool and Silk (24) | 0.00 | 0.37 | 0.00 | 0.00 | 0.00 | 0.81 | 1.11 | 1.01 | 0.40 |
| Jute and Mesta Textiles (25) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hosiery and garments (26) | 4.28 | 9.07 | 27.53 | 37.30 | 62.03 | 19.81 | 28.02 | 11.99 | 23.96 |
| Wood products (27) | 0.93 | 0.59 | 1.07 | 0.66 | 3.00 | 1.54 | 1.05 | 6.73 | 1.23 |
| Paper and printing (28) | 5.00 | 3.37 | 8.30 | 3.95 | 1.79 | 9.19 | 6.06 | 5.49 | 7.66 |
| Leather products (29) | 0.80 | 1.61 | 1.84 | 1.89 | 0.00 | 0.00 | 2.11 | 2.02 | 7.46 |
| Rubber and plastics (30) | 9.28 | 8.96 | 11.92 | 5.43 | 0.00 | 2.71 | 8.63 | 14.54 | 6.87 |
| Chemical products (31) | 6.24 | 9.60 | 5.22 | 4.04 | 2.74 | 0.94 | 3.63 | 5.74 | 5.41 |
| Non-metallic minerals (32) | 0.66 | 1.00 | 0.00 | 1.09 | 1.59 | 1.09 | 1.61 | 1.13 | 0.93 |
| Basic metal industries (33) | 11.58 | 20.83 | 0.00 | 3.09 | 0.00 | 1.20 | 3.27 | 2.83 | 4.99 |
| Metal products (34) | 13.67 | 13.39 | 8.57 | 4.91 | 11.35 | 3.43 | 5.30 | 7.52 | 4.79 |
| Machinery and parts (35) | 7.97 | 4.49 | 0.00 | 3.78 | 0.00 | 5.07 | 6.23 | 6.90 | 6.34 |
| Electrical machinery (36) | 6.79 | 8.84 | 15.01 | 13.12 | 1.68 | 26.79 | 11.99 | 11.40 | 9.33 |
| Transport machinery (37) | 4.37 | 6.49 | 2.79 | 2.99 | 0.00 | 0.00 | 5.30 | 5.24 | 3.54 |
| Miscellaneous (38) | 1.37 | 1.73 | 2.63 | 1.95 | 0.00 | 0.00 | 1.55 | 3.68 | 2.14 |
| Manufacture of water geyser (42) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Assembly of AC and water cooler (51) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Storage and warehousing services (74) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.64 | 1.14 |
| Jobwork of data processing on the computer (82) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.69 |
| Jewellery (88) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Scientific and material testing equipment (92) | 1.03 | 0.00 | 0.00 | 0.49 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Scientific testing equipment for the human body (93) | 3.29 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Audio and studio (95) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Jobwork of phototstat (96) | 0.00 | 0.26 | 0.00 | 0.24 | 0.00 | 0.00 | 0.00 | 0.71 | 0.42 |
| Repair services (97) | 0.41 | 0.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.46 | 2.06 | 1.07 |
| Job work of colour film processing (99) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3.38 | 1.12 |
| | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** |
| **Percentage** | **1.02** | **4.04** | **0.89** | **2.15** | **0.63** | **0.62** | **2.71** | **4.44** | **5.03** |

Source : Computed from the data provided by the Department of Industries, Govt. Of India

## Table 3.4: SHARE OF INVESTMENT IN NON-CONFORMING INDUSTRIAL ZONES TO TOTAL INVESTMENT IN NON-CONFORMING INDUSTRIES IN DELHI

PERCENTAGE OF INVESTMENT IN NON-CONFORMING INDUSTRIAL ZONES TO TOTAL INVESTMENT IN NON-CONFORMING INDUSTRIES IN DELHI

| Type of Industry (code) | Malka Gunj | Malviya Nagar | Mayapuri | Mehrauli | Najafgarh | Nangloi | Naraina | New Subzi Mandi | Okhla |
|---|---|---|---|---|---|---|---|---|---|
| Type of industry not known | 8.69 | 5.84 | 6.29 | 8.32 | 4.61 | 7.97 | 4.62 | 8.02 | 32.00 |
| Food products (20) | 2.55 | 0.00 | 1.19 | 4.30 | 1.34 | 2.03 | 0.89 | 2.48 | 0.10 |
| Food products (21) | 1.56 | 0.00 | 0.55 | 0.79 | 0.47 | 0.67 | 0.26 | 0.74 | 0.11 |
| Beverages and tobacco (22) | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 |
| Cotton Textiles (23) | 0.67 | 0.00 | 0.41 | 0.00 | 0.40 | 0.69 | 0.45 | 0.51 | 0.14 |
| Wool and Silk (24) | 1.28 | 0.00 | 0.52 | 0.22 | 0.38 | 0.44 | 0.22 | 0.00 | 0.09 |
| Jute and Mesta Textiles (25) | 0.60 | 0.00 | 0.00 | 0.00 | 0.36 | 0.31 | 0.00 | 0.00 | 0.00 |
| Hosiery and garments (26) | 11.56 | 18.04 | 8.59 | 15.11 | 11.34 | 10.57 | 15.78 | 9.18 | 18.53 |
| Wood products (27) | 0.00 | 2.45 | 1.41 | 0.82 | 1.09 | 0.52 | 0.82 | 0.93 | 1.02 |
| Paper and printing (28) | 6.78 | 2.93 | 4.92 | 6.87 | 4.91 | 5.99 | 10.85 | 5.82 | 5.79 |
| Leather products (29) | 3.83 | 4.21 | 2.85 | 1.76 | 2.70 | 2.69 | 2.81 | 1.79 | 2.34 |
| Rubber and plastics (30) | 7.61 | 2.88 | 11.46 | 8.19 | 13.76 | 16.80 | 9.71 | 11.84 | 4.44 |
| Chemical products (31) | 7.67 | 5.98 | 8.47 | 9.02 | 7.53 | 9.06 | 4.49 | 8.21 | 5.08 |
| Non-metallic minerals (32) | 2.00 | 0.00 | 1.17 | 2.90 | 1.54 | 1.33 | 0.65 | 1.89 | 0.36 |
| Basic metal industries (33) | 6.62 | 3.81 | 9.37 | 7.35 | 9.03 | 9.59 | 8.58 | 7.40 | 4.56 |
| Metal products (34) | 5.96 | 8.73 | 8.59 | 9.33 | 7.65 | 7.63 | 7.09 | 8.58 | 4.66 |
| Machinery and parts (35) | 5.87 | 9.69 | 7.85 | 7.58 | 8.45 | 6.33 | 4.98 | 5.20 | 4.99 |
| Electrical machinery (36) | 9.33 | 22.03 | 10.97 | 11.30 | 8.96 | 8.33 | 17.66 | 11.99 | 9.79 |
| Transport machinery (37) | 4.86 | 7.67 | 7.88 | 3.64 | 11.61 | 5.56 | 4.79 | 11.86 | 2.75 |
| Miscellaneous (38) | 4.39 | 2.41 | 2.96 | 1.41 | 2.38 | 1.64 | 3.11 | 2.40 | 1.51 |
| Manufacture of water geyser (42) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Assembly of AC and water cooler (51) | 0.27 | 3.32 | 0.08 | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 | 0.06 |
| Storage and warehousing services (74) | 1.22 | 0.00 | 0.37 | 0.00 | 0.00 | 0.00 | 0.61 | 0.00 | 0.26 |
| Jobwork of data processing on the computer (82) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.42 |
| Jewellery (88) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Scientific and material testing equipment (92) | 0.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Scientific testing equipment for the human body (93) | 0.72 | 0.00 | 0.00 | 0.73 | 0.00 | 0.00 | 0.00 | 0.00 | 0.15 |
| Audio and studio (95) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Jobwork of phototstat (96) | 0.90 | 0.00 | 0.75 | 0.00 | 0.81 | 0.46 | 0.23 | 0.00 | 0.14 |
| Repair services (97) | 3.01 | 0.00 | 1.13 | 0.36 | 0.53 | 1.37 | 0.18 | 1.12 | 0.22 |
| Job work of colour film processing (99) | 1.60 | 0.00 | 2.19 | 0.00 | 0.00 | 0.00 | 1.21 | 0.00 | 0.50 |
| | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** |
| **Percentage** | **2.34** | **0.19** | **7.73** | **2.31** | **3.93** | **4.54** | **4.65** | **4.09** | **11.17** |

Source : Computed from the data provided by the Department of Industries, Govt. Of India

## Table34.4: SHARE OF INVESTMENT IN NON-CONFORMING INDUSTRIAL ZONES TO TOTAL INVESTMENT IN NON-CONFORMING INDUSTRIES IN DELHI

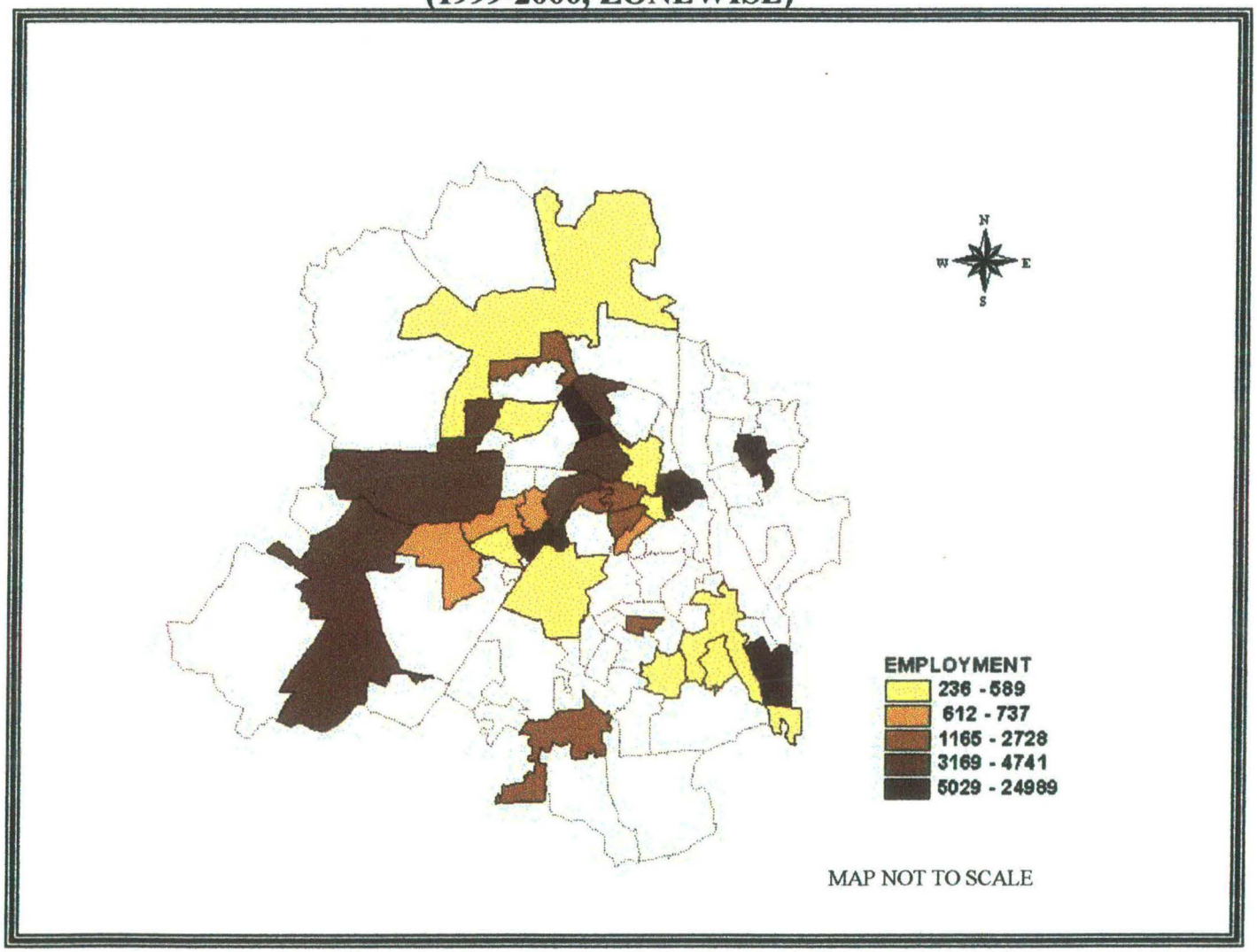
PERCENTAGE OF INVESTMENT IN NON-CONFORMING INDUSTRIAL ZONES TO TOTAL INVESTMENT IN NON-CONFORMING INDUSTRIES IN DELHI

| Type of Industry (code) | Patel Nagar | Rajouri Garden | Sadar Bazar | Shahdara | Shakur Basti | Shastri Nagar | SRT Nagar | Tri Nagar | Uttam Nagar |
|---|---|---|---|---|---|---|---|---|---|
| Type of industry not known | 5.12 | 6.91 | 2.13 | 3.16 | 7.14 | 7.21 | 9.34 | 5.78 | 10.01 |
| Food products (20) | 3.82 | 2.98 | 0.63 | 0.51 | 3.88 | 0.86 | 4.22 | 2.31 | 6.51 |
| Food products (21) | 0.92 | 0.57 | 0.25 | 0.06 | 2.31 | 0.10 | 0.87 | 0.35 | 1.44 |
| Beverages and tobacco (22) | 0.00 | 0.10 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Cotton Textiles (23) | 0.00 | 0.25 | 0.21 | 0.10 | 0.00 | 0.26 | 0.38 | 0.30 | 0.62 |
| Wool and Silk (24) | 0.76 | 0.00 | 0.07 | 0.20 | 0.00 | 0.16 | 0.72 | 0.43 | 0.89 |
| Jute and Mesta Textiles (25) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.83 |
| Hosiery and garments (26) | 14.95 | 16.02 | 22.05 | 7.49 | 24.26 | 23.27 | 24.45 | 14.13 | 20.09 |
| Wood products (27) | 0.96 | 1.56 | 0.89 | 0.71 | 3.00 | 0.85 | 0.85 | 1.21 | 0.84 |
| Paper and printing (28) | 9.42 | 6.40 | 25.97 | 6.45 | 6.44 | 5.28 | 3.05 | 5.15 | 5.35 |
| Leather products (29) | 2.88 | 2.69 | 1.97 | 0.90 | 0.00 | 1.87 | 6.15 | 1.39 | 1.93 |
| Rubber and plastics (30) | 9.82 | 12.84 | 7.41 | 13.84 | 4.22 | 9.56 | 7.20 | 14.07 | 10.52 |
| Chemical products (31) | 8.17 | 4.36 | 3.50 | 9.71 | 3.66 | 4.17 | 6.45 | 9.05 | 4.10 |
| Non-metallic minerals (32) | 1.52 | 1.10 | 1.22 | 0.70 | 0.00 | 0.55 | 1.08 | 0.76 | 1.19 |
| Basic metal industries (33) | 5.21 | 5.21 | 5.46 | 26.68 | 3.73 | 9.54 | 5.30 | 5.24 | 3.92 |
| Metal products (34) | 6.60 | 7.75 | 7.16 | 6.03 | 8.54 | 7.88 | 3.64 | 8.04 | 5.99 |
| Machinery and parts (35) | 5.98 | 5.00 | 4.79 | 4.43 | 3.95 | 5.63 | 2.69 | 8.17 | 5.17 |
| Electrical machinery (36) | 14.49 | 10.78 | 6.52 | 10.90 | 22.22 | 10.29 | 11.68 | 8.78 | 9.75 |
| Transport machinery (37) | 5.73 | 7.45 | 3.13 | 3.75 | 3.13 | 6.96 | 6.40 | 5.34 | 5.26 |
| Miscellaneous (38) | 2.82 | 4.61 | 4.77 | 2.05 | 3.54 | 1.83 | 2.51 | 1.86 | 2.48 |
| Manufacture of water geyser (42) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 |
| Assembly of AC and water cooler (51) | 0.00 | 0.30 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Storage and warehousing services (74) | 0.00 | 1.34 | 0.00 | 0.00 | 0.00 | 0.00 | 1.03 | 0.81 | 0.00 |
| Jobwork of data processing on the computer (82) | 0.00 | 0.00 | 0.00 | 1.25 | 0.00 | 2.31 | 0.00 | 4.46 | 0.00 |
| Jewellery (88) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 |
| Scientific and material testing equipment (92) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.34 | 0.00 | 0.00 | 0.00 |
| Scientific testing equipment for the human body (93) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.99 |
| Audio and studio (95) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Jobwork of phototstat (96) | 0.00 | 0.00 | 0.07 | 0.16 | 0.00 | 0.09 | 0.76 | 0.30 | 0.93 |
| Repair services (97) | 0.84 | 0.00 | 0.78 | 0.46 | 0.00 | 0.34 | 1.19 | 0.47 | 1.22 |
| Job work of colour film processing (99) | 0.00 | 1.77 | 1.01 | 0.37 | 0.00 | 0.61 | 0.00 | 1.60 | 0.00 |
| | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** | **100.00** |
| **Percentage** | **1.99** | **2.13** | **7.45** | **10.03** | **0.79** | **6.12** | **2.79** | **3.52** | **1.70** |

Source : Computed from the data provided by the Department of Industries, Govt. Of India

MAP 3.3

**EMPLOYMENT IN THE NON-CONFORMING INDUSTRIES IN DELHI (1999-2000, ZONEWISE)**



investment of the zone (as shown in map no. 3.2). An investment level of 7 percent to 10 percent for industries like metal products, manufacture of basic metals and alloys, leather goods, basic chemicals etc. are found in this zone. The percent of investment in non metallic minerals, wool and silk, storage services, cotton textiles, computer data processing job, job work of colour printing account for less than 1 percent of the total investment in this zone. Investment levels in industries manufacturing material testing equipments, other food products which include mainly fats and oils and servicing of air conditioners etc. account for the lowest percentage of less than 0.5 of the total investment in this zone.

The highest employment of about 25,000 is found in Okhla which accounts for 17 percent of employment of all the zones together. This is followed by Shahdara and Shastri Nagar accounting for 9 percent and 5 percent respectively.

Although the number of units in Shahdara is more than in Okhla, the contribution to total employment of all zones is higher in case of Okhla. This is because in Okhla, concentration of employment in particular industries like manufacturing of garments is characterized by over 36 percent of the total employment of the zone followed by electrical goods contributing to 12 percent of the employment. The other industries contribute about 5 percent in paper and printing industries and less than 4 percent of the employment in industries like food and related products, cotton, jute and wool or silk textiles, leather products, plastic and rubber products, transport and machinery equipment. This zone contributes about 2 percent employment in all the service sector industries together. However, information on the items produced by 265 units was not available in Okhla, which contribute to about 20 percent of employment. In Shahdara, only 1.95 percent employment is a part of those units for which information on type of commodity produced is not known. The important industries like garments, paper and printing, metal products and electrical goods contribute 15 percent, 26 percent, 10 percent

and 7 percent employment to total employment of the zone respectively. In this zone, service industries also contribute a very small percent in the employment.

The lowest percent of less than 0.5 percent of employment is found in Malviya Nagar followed by Alipur, Janakpuri, Tilak Nagar, Jungpura, Shakur Basti and Connaught Place which account for less than 1 percent of the total employment in each of these areas.

Tri Nagar, Naraina, Najafgarh, Karol Bagh, Rajouri Garden, Kirti Nagar, Greater Kailash, Nangloi, Patel Nagar, Malka Gunj, New Subzi mandi, Kalkaji, Mehrauli, Uttam Nagar, SRT Nagar contribute 1 percent to 5 percent of the total employment of the zones. Sadar Bazar and Shastri Nagar contribute 5 percent to 10 percent of the total employment of the zones respectively. These areas are dominated by higher percentage of employment in industries like garment manufacturing, metal products, plastic and rubber products and electrical goods. The remaining types of industries contribute less than 1 to 5 percent in most of the zones.

## 3.6 CONCLUSIONS

1. The largest number of units in Delhi manufacture electrical and electronic goods, garments, rubber and plastic and metal products accounting for 12 percent, 11 percent, 10 percent and 7 percent of the total number of units respectively.
2. In Shahdara, has the largest number of industrial units and the dominant industries in this zone are basic metal industries, plastics and rubber, electrical goods accounting for 21 percent, 15 percent and 12 percent respectively. The other prominent industries are metal products, chemicals and chemical products.
3. The service industries in most of the zones account for less than 1 percent of

the total number of units.

4. Janakpuri has the highest in garment industries (over 50 percent) and metal products (over 18 percent).
5. Sadar Bazar has over 20 percent of the industrial units producing paper and paper products, which is the highest among all the zones.
6. The investment on land for most of the industrial units is less than 40% of the total investment. Investment in plant and machinery is between 30 percent to 40 percent of the total investment. The highest percentage of above 50 in plant and machinery is a characteristic of industries producing paper and paper products; printing and publishing, chemical testing equipments, and some service industries like repairing, cold storage facilities etc.
7. Factory workers account for about 70 to 80 percent of total employment in most of the industrial units, while managerial staff accounting for 20 to 25 percent in these units.
8. Industries engaged in audio and studio works and manufacturing jewellery have about 35 percent and 15 percent of the employment as managerial staff.
9. The capital intensity (Table 3.2) is the highest in warehousing and storage services and scientific testing equipment for the human body.
10. The investment levels are highest in Okhla and Shahdara accounting for more than 40 crores in each of these zones. In Malviya Nagar, the investment is less than 1 lakh.
11. The highest total employment of about 25,000 is found in Okhla, which accounts for 17 percent of the employment of all zones.
12. The lowest percent of less than 0.5 percent of employment is found in Malviya Nagar followed by Alipur, Janakpuri, Tilak Nagar, Jungpura, Shakur Basti and Connaught Place which account for less than 1 percent of the total

employment in each of these areas.

# CHAPTER IV

## POLLUTION PROBLEMS OF THE NON-CONFORMING INDUSTRIES IN DELHI

### 4.1 ENVIRONMENTAL CONCERNS OF THE DEVELOPING WORLD

'Environment refers to the sum total of the conditions which surround man at a given point in space and time.' (C.C. Park, 1980) These conditions and their respective circumstances interact with each other and influence the lives of human beings. In a primitive society these circumstances are largely made of purely natural elements like climatic regime, terrain characteristics, vegetation cover, soils, easily available natural resources etc. However, in advanced urbanized communities based on agriculture and industry, many man modified cultural features stand up as important factors in making the environment. To the hardcore urban dweller for instance such things as housing, street layout, factories, railway lines, urban amenities, transport systems etc. are of much greater relevance and importance.[1] Because it is for these basic facilities that formulation of economic development strategies with full consideration for environmental concerns must be based on accurate and clearer understanding of the problems that may arise in the future.

The nature of environmental problems depends upon the level of economic development, the nature of industrialization, the degree of urbanization, and the effectiveness of public policies. In general, the developing countries experience immediate environmental problems related to scarcity and safety of drinking water, inadequate sanitation, air pollution in urban areas and soil depletion and degradation. In contrast, industrialized societies encounter a different set of

[1] S.P. Dasgupta (2000) 'From Determinism to Behaviouralism: Astudy in Man Environment Relation', Geographical Review Review of India, September, 2000, pp-200

problems arising out of expanding industrial production, agriculture and transportation systems, which are endangering sustainability.[2]

## 4.2 PROBLEMS OF POLLUTION AS A CONSEQUENCE OF THE PROCESS OF RAPID INDUSTRIALISATION

During the 1970's, two groups of forces combined to change the environment industry relationship. First economic growth was given priority in the developing world. In 1975, the Second General Conference of the United Nations Industrial Organisation (UNIDO) meeting at Lima, set a target that the share of the developing countries in the total world industrial production should rise from 8.6% to 25% in 2000. Industrialisation was to play a central part in this growth and by 1979, it accounted for 24% and 38% of GDP in low and middle-income countries.[3]

Human beings suffering from acute environmental crisis along with rapid pace of economic development, which was a prescription of the development paradigm, have characterized the latter half of the twentieth century. This was for the first time highlighted at a global scale in 1972 in a U.N. conference on Human Environment held at Stockholm and later again in the 1992, Earth Summit in Rio De Janeiro. This deadlock at the planetary scale had been attributed not only to green house emissions from factories and automobiles and discharge of other pollutants into the environment but also the lack of correct governance in terms of human environment especially in the developing nations.[4]

Industrialisation has been considered as one of the most significant factor, responsible for the growing urban environmental problems. The process of industrialization is a means of conversion of raw materials into finished products and

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[2] Mahinder Chaudhry(1995), 'Global Population Growth, Economic Development and Environmental Impact, Case Study of India, 1991-2100', Economic And Political Weekly, December 9, 1995, pp-3163
[3] A Report By The U.N. Environment Programme, World Environment 1972-1982 – pp 412
[4] S.P. Dasgupta (2000) 'From Determinism to Behaviouralism: A Study in Man Environment Relation', Geographical Review of India, September, 2000, pp-199

a source of foreign exchange and domestic employment. At the same time it has detrimental effects. [5]These arise from the extraction of raw materials by mining and from industrial demand for water and energy. A second group of problems arise from the products of the industry which can have unexpected and undesirable environmental impacts. A third kind of difficulty arises because gases, liquids and solids are discharged to the environment and cause damage or hazard to people, livestock, ecosystems and artifacts.

Prakash Gole has defined pollution as 'defiling of the natural environment by a pollutant. A pollutant is defined as a substance that enters the environment or becomes concentrated in it that has or may have a detrimental biological effect. [6]

## 4.3 URBAN ENVIRONMENT SCENARIO IN INDIA WITH SPECIAL REFERENCE TO DELHI

India is now the world's sixth largest and second fastest growing producer of greenhouse gases. The effects have not only been direct in the form of pollution of natural environment, but also indirect on the general health standards.[7] There are about two hundred industrial clusters in India and more than three million small scale units. Of the total units, 25 to 30 percent are of polluting nature which account for air and water pollution, which has become a menace especially in large urban areas which are the main seats of industries. Air Pollution in bigger cities is a growing hazard to health and comfort. Increasing rates of respiratory illnesses especially among children have been recorded for cities such as Delhi. Although effluent standards for twenty three industries and emission standards for twenty one have been set as part of the MINAS (Minimum National Standards) programme, enforcement has proved difficult, dilatory and litigious and relocation of non-

[5] A Report By The U.N. Environment Programme, World Environment 1972-1982 - pp 408
[6] Prakash Gole, 'Nature, Conservation &Sustainable Development in India'- (Pg 152)

compliant firms often impossible.[8] Cross-national regressions suggest an inverted 'U' shaped relationship between percapita income and dimensions of degradation that are presently the most worrisome in India.[9] Cities are choking with industrial and vehicular pollution. Six Indian cities, Ahmedabad, Bombay, Calcutta, Delhi, Kanpur and Nagpur, have an annual average of total suspended particulates (TSP) at least three times as high as the World Health Organization (WHO) standards, which means they suffer from severe air pollution. TSP and TPM 10 (particles less than 10 microns in diameter, which can penetrate more easily and are, therefore, more relevant than total particulate matter for human health) have been associated with both premature deaths (resulting from respiratory illness and cardiovascular diseases) and increased morbidity (high incidence of chronic obstructive lung diseases). Some 40,000 people die in six Indian cities every year as a result of air pollution; Delhi accounts for 7,500 of these. Clean drinking water is in most cases still a dream; premature deaths and debilitating diseases are common; land degradation is widespread; impacting on agricultural output and forest cover is getting depleted.

Delhi's pollution scenario is India's grimmest, and it is ahead of the other metros in vehicular pollution levels.[10]

Many attribute the rapid growth of population in Delhi in recent times to be one of the main causes of environmental pollution in the city. After independence, the city became a major centre of commerce, industry and education. The growth of government departments and office complexes has also contributed to the spread of the city. Unfortunately civic amenities have not kept pace with the increasing

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[7] 'Good Times Ahead For Pollution Control Industry', Monthly Commentary On Economic Affairs, September 1997, pp-12

[8] Sivaramakrishnan, K.C., 'Managing Urban Environment In India: Towards An Agenda For Action', Calcutta: The Times Research Foundation, 1993

[9] Shafik,N., Bandyopadhyay, S., 'Economic Growth And Environmental Quality: Time Series And Cross Country Evidence', World Bank, 1992

[10] Hindu press release, 29th September, 1996

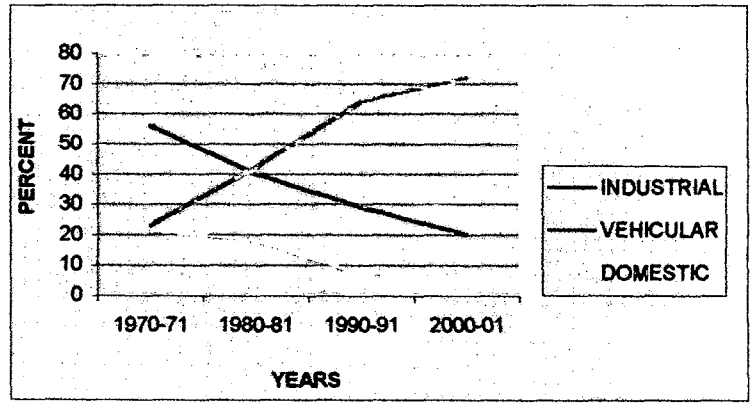
number of people. Hence land use regulations have been flouted; green cover dwindled. To add to this, are the industries that cause large-scale pollution.

The erstwhile Town Planning Organisation presented the interim general plan for Delhi in 1956 to the Government. The Master Plan Of Delhi for 1962 identified localities where hazardous industries were located. And the only remedy for these industrial units was shifting them to newly designated areas in the outskirts of Delhi. They were declared as 'non conforming'. This posed a serious threat as the administration took no heed of the issue and allowed for further growth of industries within the congested central locations like Katra, Chawri Bazar, Churi Wallan, Dariba Kalan, Khari Baoli where deadly toxins could be found.

Out of 30,000 million litres of waste released into the capital's waters, 10,000 million litres are from the industries ie is about 33% as compared to 20% in the last decade.

The varying levels of industrial pollution in comparison to vehicular and domestic pollution between 1970-71 to 2000-01 is given in figure 3.1

**Fig. 4.1: CHANGING LEVELS OF INDUSTRIAL, VEHICULAR AND DOMESTIC POLLUTION (1970-71 TO 2000-2001)**




The graph shows that over the years from 1970-71 to 2000-01, it is the percentage of pollution contributed by vehicles that has been rising in comparison to

industrial and domestic sources. Domestic sources have never had a very large share and have been decreasing steadily, ultimately stabilizing during the 1990's. The industrial contribution had been quite high at about 56% but later it has declined steadily. However, these percentage values cannot reveal the real picture. In absolute terms the levels of pollution from the above mentioned sources may have increased or decreased, but when considering their case in comparison to others and their contribution to total pollution, their percentage shows a decline or rise as the case may be. Delhi has only about one-third of the total small-scale units, which are polluting. But the ones, which exist, are characterized by both water and air pollution problems that may be on a very large scale.

The level of water pollution by the industrial units is of major concern in Delhi. A significant number of units are located along the Yamuna, which discharge effluents into the river. The pollutants include D.D.T., vinyl chloride, cadmium cynide, zinc, mercury, fly ash, waste oils and chemicals. The major sources of pollution in Delhi include thermal plants, brick kilns, hot mix plants and industrial units. The thermal power plants in Delhi are at Indraprastha, Badarpur and Rajghat.[11] Out of the total industries, (including unregistered ones) 38,000 are polluting and 10,000 belong to the highest polluting category F (as per Delhi Master Plan). These had been lately relocated to areas outside Delhi to reduce the levels of pollution.

However, our major concern is with the registered units. The polluting units and their typology would be examined in this chapter. An analysis of the 28 major zones where most of these non-conforming units are located would also be taken up discussion.

## 4.4 TYPES OF POLLUTING UNITS

The DPCC had in 1999, 'colour coded' the industries in Delhi into Red, Orange and green to make the process of sanction of licenses less cumbersome. The 'Red' ones are hazardous and have already been shifted out of Delhi during 1994-97. The 'Green' are environmentally friendly and 'Orange' are polluting.

According to the Delhi Master Plan 2001 designed by the DDA, polluting industries within non-conforming industries have been categorized into A, B, C, D, E and F. A is considered the least polluting followed by B, C, D and E. F is the most polluting within the polluting category. The types of industry and their item codes are given below.

**Table 4.1 CATEGORY OF POLLUTING INDUSTRIES AND THEIR PRODUCTS**

| CATEGORY POLLUTING INDUSTRY | ITEM CODE | PRODUCTS |
|---|---|---|
| A | 244,205,232,272,276, 279,289,303,314,316, 319,331,343,358,359, 381,383,389,963,969, 978,990 | Agarbatti, biscuits, carpentry, photocopying Toys, dolls and batik work. |
| B | 215,343,355,374,376, 383 | Manufacturing cycle chain and locks and small engineering works, AC parts, ice cream, elastic products. |
| C | 321,322,323,326,332, 334,340,345,363,369, 389 | Brassfittings, lamps, polishing plastic, utensils, glasswork. |
| D | 215,293,300,303,312, 322,331,340,354 | Brief case, bags, metal containers, tyre-retreading, denting and painting, ice factories |
| E | 243,248,285,286,287, 288,289,312,331,362, 366,369,380,961 | Battery charging, dry cleaning, dyeing, metal polishing with machines, fluorescent light fittings, manufacture of thermometers, razor blades, wax polishing, printing, moulding of aluminium fittings and paper cutting machines. |
| F | 224,243,248,280,281, 301,302,303,305,310, 312,314,316,319,321, 323,328,331,332,333, 339,341,344,352,360, 361,369,389,961 | Foam industries, manufacture of P.V.C. products, electroplating, dyeing aerated water and fruit beverages, iron foundries ink making, washing soap, coal fire boilers. |

**Source**: Master Plan of Delhi – 2001

[11] White Paper on Delhi Pollution-2001 (CPCB)

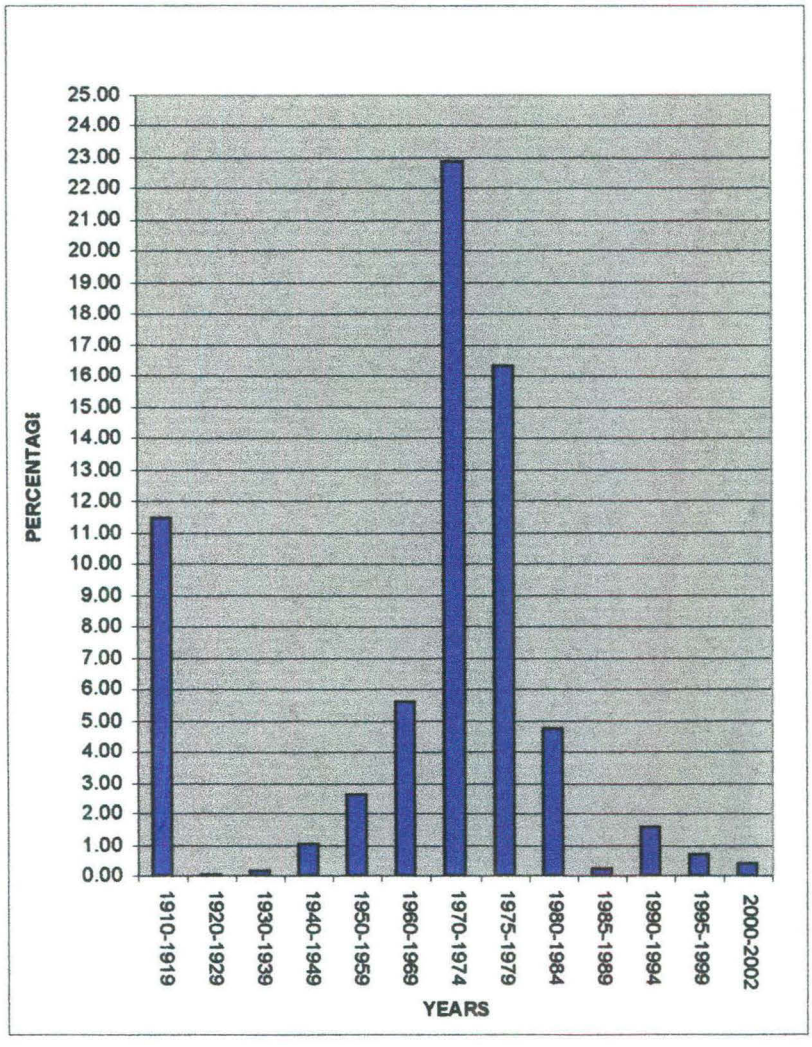
## 4.5 DATA ANALYSIS

The data on small-scale units in Delhi published by the Government of India; Department of Industries has been used for the analysis in this chapter. It has details about whether the small-scale industrial unit is polluting or not. The data also has details on the structure of the unit along with its code. As per the guidelines of the DDA regarding the type of industry in each category from A to F, the 19800 units were categorized according to their final product individually and then clubbed together in each category to find out the number of units in each category. The percentage of polluting industries to total units and non-polluting to total units have been calculated for the whole of Delhi as well as zone wise. For Delhi as a whole and for each zone, the percentages in each polluting category has also been calculated and represented in a tabular form.

## 4.6 POLLUTING INDUSTRIES IN DELHI

The polluting industries have been operating in Delhi for a long time. A large number of such units had started operating from the early part of the twentieth century especially in the older parts of the city. If 10-year periods are taken into consideration, it is revealed that, above 17% of the polluting industrial units had started operating between 1910-1919. Between 1910-1969, their numbers had fallen significantly which could be the result of the colonial rule, which perhaps did not take much interest in the growth, and development of the domestic industries or any diversification, which could benefit the masses except for their own interests. During 1970's, independent India with rapid pace of industrialization, followed by population explosion has witnessed increasing proportions of polluting units in Delhi.

Fig. 4.2 STARTING OF PRODUCTION OF POLLUTING INDUSTRIES IN DELHI

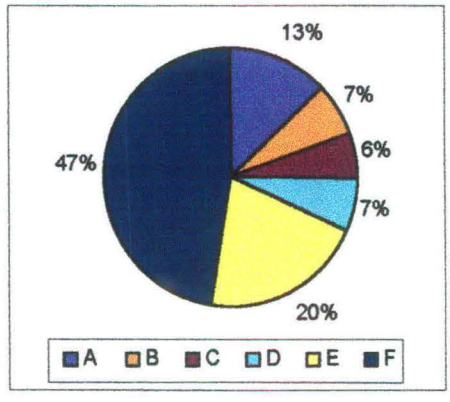



The growth of registered polluting units in Delhi from 1910 is given in figure 4.2.The growing number of polluting units in Delhi in the last ten years may be attributed to the large number of unregistered units (data for which is not available).

## 4.7 CATEGORIES OF POLLUTING INDUSTRIES

The data from the Department of Industries, Government of India, shows that the percentage of polluting units to total number of non-conforming units is above 13 percent and that of non-polluting is above 86 percent. The share of the different categories of polluting units has been represented in figure 4.3 which shows that the largest percentage lies with the F category of polluting industries accounting for above 47 percent followed by the category E accounting for 20 percent. The lowest percent of polluting industries are found in the C category that accounts for about 5 percent.

**Fig 4.3: CATEGORIES OF POLLUTING INDUSTRIES IN DELHI**




A zoning of the industries on the basis of postal pin codes have been shown in map no, 4.1. According to the map, most of the zones have a very small percentage of polluting units. The highest percentage of polluting industrial units is found in Okhla and Tri Nagar where largest percentage of units is found within the F category.

A comparative situation is clear from the table 4.2 showing divisions between polluting and non-polluting and within polluting, the six categories A to F. In general percentage of F category in is the highest accounting for over 40 percent of the total number of polluting units in the zones followed by E category, which constitutes

almost 25% of the total polluting units. The percentage of polluting industries is highest, over 58 percent in Okhla where the percentage of F category is

**Table 4.2** PERCENTAGES OF THE DIFFERENT POLLUTING CATEGORIES IN THE NON-CONFORMING ZONES

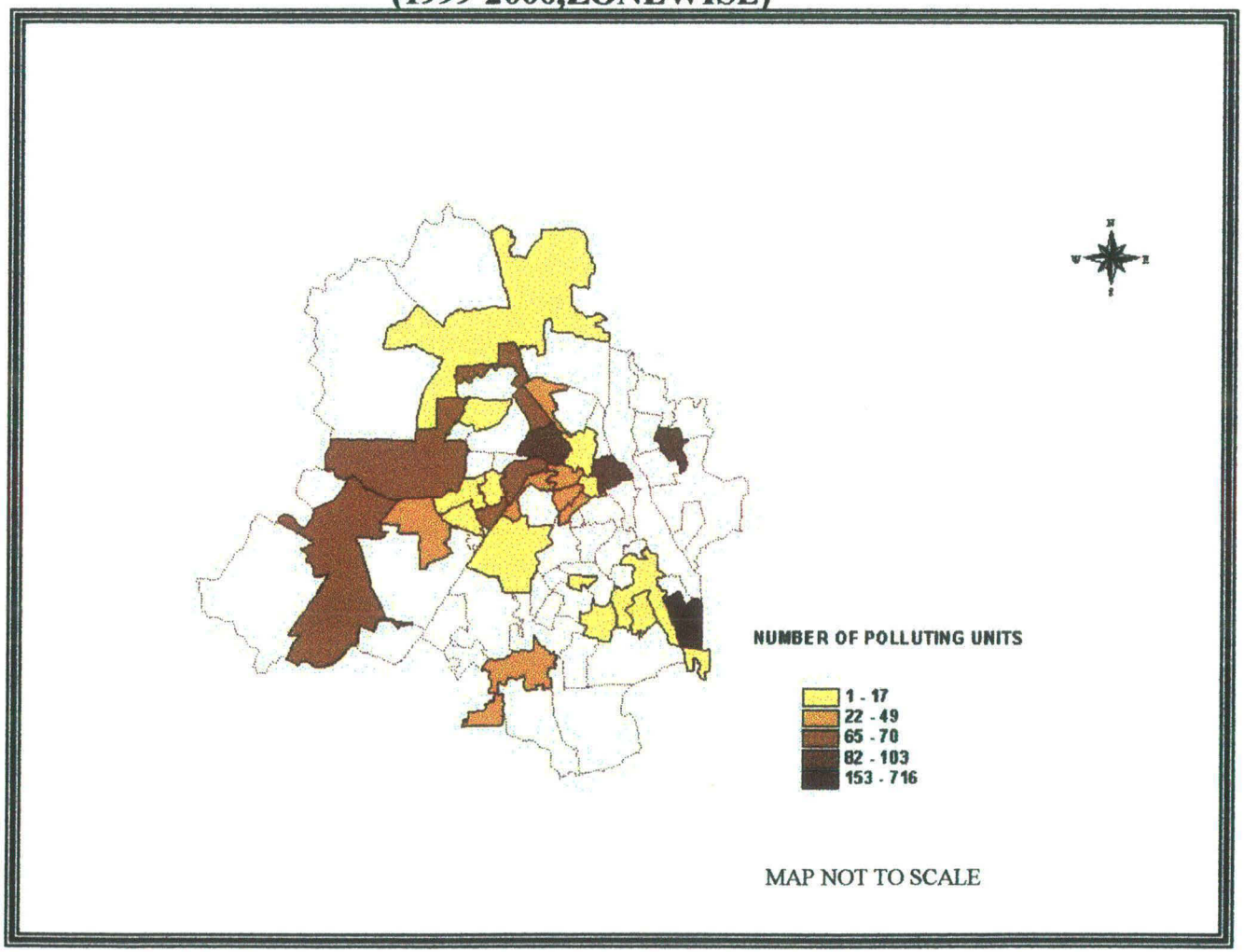
| | Zones | A | B | C | D | E | F | Polluting | Non-Polluting | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Sadar Bazar | 18.81 | 3.47 | 4.46 | 12.38 | 37.13 | 23.76 | 16.33 | 83.67 | 100 |
| 2 | Shahdara | 11.29 | 3.23 | 4.84 | 2.26 | 13.87 | 64.52 | 19.07 | 80.93 | 100 |
| 3 | Tri Nagar | 18.05 | 9.76 | 4.39 | 9.27 | 8.29 | 50.24 | 35.59 | 64.41 | 100 |
| 4 | Shastri Nagar | 4.85 | 1.94 | 11.65 | 6.80 | 13.59 | 61.17 | 11.02 | 88.98 | 100 |
| 5 | Naraina | 10.00 | 7.14 | 0.00 | 1.43 | 34.29 | 47.14 | 9.20 | 90.80 | 100 |
| 6 | Shakur Basti | 16.67 | 0.00 | 0.00 | 0.00 | 0.00 | 83.33 | 4.41 | 95.59 | 100 |
| 7 | Najafgarh | 7.23 | 4.82 | 4.82 | 2.41 | 8.43 | 72.29 | 12.31 | 87.69 | 100 |
| 8 | Karol Bagh | 6.15 | 9.23 | 0.00 | 3.08 | 50.77 | 30.77 | 8.45 | 91.55 | 100 |
| 9 | Rajouri Garden | 7.69 | 3.85 | 0.00 | 3.85 | 57.69 | 26.92 | 7.24 | 92.76 | 100 |
| 10 | Kirti Nagar | 2.44 | 1.22 | 1.22 | 9.76 | 28.05 | 57.32 | 10.65 | 89.35 | 100 |
| 11 | Mayapuri | 10.19 | 5.73 | 6.37 | 8.28 | 7.64 | 61.78 | 12.16 | 87.84 | 100 |
| 12 | Greater Kailash | 4.55 | 0.00 | 0.00 | 45.45 | 18.18 | 31.82 | 6.90 | 93.10 | 100 |
| 13 | Connaught Place | 8.70 | 0.00 | 0.00 | 13.04 | 21.74 | 56.52 | 15.65 | 84.35 | 100 |
| 14 | Nangloi | 17.65 | 2.35 | 0.00 | 2.35 | 20.00 | 57.65 | 11.18 | 88.82 | 100 |
| 15 | Patel Nagar | 25.00 | 0.00 | 0.00 | 2.78 | 44.44 | 27.78 | 10.14 | 89.86 | 100 |
| 16 | Tilak nagar | 21.43 | 0.00 | 0.00 | 0.00 | 7.14 | 71.43 | 16.47 | 83.53 | 100 |
| 17 | Jungpura | 8.33 | 0.00 | 0.00 | 0.00 | 58.33 | 33.33 | 12.50 | 87.50 | 100 |
| 18 | Malka Gunj | 41.18 | 0.00 | 0.00 | 0.00 | 58.82 | 0.00 | 4.42 | 95.58 | 100 |
| 19 | New Subzi Mandi | 10.00 | 17.14 | 4.29 | 4.29 | 35.71 | 28.57 | 9.78 | 90.22 | 100 |
| 20 | Badli | 10.10 | 0.00 | 1.01 | 9.09 | 2.02 | 77.78 | 14.12 | 85.88 | 100 |
| 21 | Kalkaji | 0.00 | 0.00 | 0.00 | 0.00 | 43.75 | 56.25 | 3.68 | 96.32 | 100 |
| 22 | Mehrauli | 10.20 | 2.04 | 0.00 | 8.16 | 24.49 | 55.10 | 12.13 | 87.87 | 100 |
| 23 | Uttam Nagar | 2.70 | 0.00 | 16.22 | 2.70 | 27.03 | 51.35 | 12.46 | 87.54 | 100 |
| 24 | Alipur | 0.00 | 0.00 | 0.00 | 25.00 | 0.00 | 75.00 | 2.21 | 97.79 | 100 |
| 25 | Malviya Nagar | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 3.23 | 96.77 | 100 |
| 26 | Janakpuri | 0.00 | 0.00 | 18.75 | 0.00 | 43.75 | 37.50 | 18.82 | 81.18 | 100 |
| 27 | SRT Nagar | 16.28 | 13.95 | 0.00 | 0.00 | 46.51 | 23.26 | 9.53 | 90.47 | 100 |
| 28 | Okhla | 14.25 | 11.87 | 10.75 | 7.68 | 14.53 | 40.92 | 58.64 | 41.36 | 100 |

**Source :** Computed from the data by the Department of Industries, Govt. of India, 1999-2000

the highest accounting for over 40 percent However in some zones like Sadar Bazar, Karol Bagh,Patel Nagar, Tilak Nagar, Jungpura, Malka Gunj, New Subzi Mandi, Janak Puri, SRT Nagar, the percentage of E category of polluting industries is the highest accounting for 40 percent to 60 percent of the total number of polluting industries in

MAP 4.1

# DISTRIBUTION OF POLLUTING UNITS IN THE NON-CONFORMING INDUSTRIES IN DELHI (1999-2000,ZONEWISE)



each of these zones. The number of units in the category B and C is the smallest ie. less than 11 percent and 10 percent of the total number of polluting industries. The zonewise distribution shows that less than 10 percent polluting units are present in Kalkaji, Malviya Nagar, Greater Kailash, Malka Gunj, Alipur and Shakur Basti .

Now considering the individual categories of polluting types, it is found that E and F dominate most of the clusters like Okhla, Sadar Bazar, Tri Nagar, Badli, Nangloi, Shahdara, Shastri Nagar,Shakur Basti, Najafgarh, Mayapuri, Kirti Nagar, Naraina and Wazirpur. Shakur Basti has the highest percentage of F category of industries accounting for above 80 percent of the total polluting industries in this zone.

## 4.8 TYPE OF POLLUTANTS WITHIN F CATEGORY OF POLLUTING INDUSTRIES

The Master Plan of Delhi-2001 is concerned with the non-conforming industries in Delhi. Out of these non-conforming industries (registered) about 13 percent are polluting. When the Supreme Court ordered for relocation of these industrial units, the administration undertook the responsibility of relocating all the polluting industries. Since infrastructural base could not be developed so soon for a large number of units, only the F category of polluting industries were considered for relocation in Bawana. For this purpose land has been acquired in Bawana to accommodate these units. The basic infrastructure has been developed by the Delhi State Industrial Development Corporation with the help of a Environmental Management Company called Tetratech. Effluent treatment plants as per the need of the unit have also been set up to mitigate the pollution problems.

If we go further into the details of the type of pollution that is taking place in these industrial units then a study of 134 units of the F category out of the total number which have submitted applications for relocation in Bawana can be taken up for analysis. These are the ones whose applications have been considered by the

D.S.I.D.C. The F categories of these industries have been further grouped into 17 categories by the D.S.I.D.C. (Delhi State Industrial Development Corporation). They are shown in the table 4.3.

**Table 4.3** TYPE OF INDUSTRIES WITHIN F CATEGORY OF POLLUTING INDUSTRIES

| CATEGORY OF INDUSTRY | F GROUP |
|---|---|
| Food Processing and allied products | 01 |
| Drugs and Pharmaceuticals | 02 |
| Electronics and Telecommunications | 03 |
| Textile and wearing apparels | 04 |
| Electrical goods and appliances | 05 |
| Auto parts, light engineering and service industries | 06 |
| Printing, paper and allied packaging | 07 |
| Plastic, polymer, etc. | 08 |
| Rubber based products | 09 |
| Leather goods | 10 |
| Coir and jute products | 11 |
| Furniture, fixtures and others | 12 |
| Petroleum based products | 13 |
| Ceramics and allied products | 14 |
| Machinery and machine tools | 15 |
| Chemical products | 16 |
| Others | 17 |

**Source**: Delhi State Industrial Development Corporation (2002)

The data for the 134 units shows that the type of pollution taking place from these units is almost a similar type. The pollutants arise from three different processes, namely raw material, process of production, and the output and cleaning process. The applications to the D.S.I.D.C. show a dominance of auto parts and light engineering industries, others category ie. not specifically categorized, machinery and machine tools, electrical goods and appliances. The other categories are very small in number. The sources of waste water is floor washing, raw material clean up, heating or cooling of water, process consumption in case of most of the units. The F-5 and F-12 category of industries (electrical goods and appliances, furniture, fixtures

and others) produce wastewater through picking and cooling. The area from which such wastewater is generated is uniform for all units. But the contents of COD (Carbon Oxygen Demand), BOD (Biological Oxygen Demand), TSS (Total Suspended Solids) and oil and grease vary from one unit to another according to the type and amount of the wastewater and the scale of production. This exercise was undertaken by the D.S.I.D.C. in collaboration with Tetratech India in order to have a prior understanding of the requirements for effluent treatment; one of the prime infrastructures required in Bawana.

## 4.9 INVESTMENT AND EMPLOYMENT IN POLLUTING INDUSTRIES

The investment and employment levels in polluting industries within the non-conforming industries in Delhi should be studied in the light of the latest decision of the DDA (Delhi Development Authority) regarding regularisation.

Table 4.4: PERCENTAGE INVESTMENT IN POLLUTING INDUSTRIES (ZONEWISE)

| ZONES | INVESTMENT IN POLLUTING INDUSTRIES |
|---|---|
| Alipur | 2.27 |
| Badli | 4.61 |
| Connaught Place | 8.22 |
| Greater Kailash | 5.05 |
| Janakpuri | 15.56 |
| Jungpura | 8.55 |
| Kalkaji | 3.31 |
| Kirti Nagar | 5.65 |
| Karol Bagh | 5.45 |
| Malka Gunj | 3.72 |
| Malviya Nagar | 2.27 |
| Mayapuri | 8.41 |
| Mehrauli | 8.19 |
| Najafgarh | 8.44 |
| Nangloi | 6.08 |
| Naraina | 4.18 |
| New Subzi Mandi | 6.52 |
| Okhla | 23.45 |
| Patel Nagar | 8.47 |
| Rajouri Garden | 6.00 |
| Sadar Bazar | 12.36 |
| Shahdara | 15.16 |
| Shakur Basti | 2.72 |
| Shastri Nagar | 8.27 |
| SRT Nagar | 6.29 |
| Tri Nagar | 27.05 |
| Uttam Nagar | 10.06 |

**Source** : Computed from the data provided by the Department of Industries, Government of India

The total investment in all non-conforming industries in Delhi is about 534 crores and the polluting units contribute for about 44 crores i.e. 10.44 percent of the total investment. This indicates that the percentage of investment in polluting industrial units is not very high. If the employment scenario is considered, it is observed that out of the total employment in non-conforming industries, the polluting units account for 13.28 percent.

The studies of the zones show that Okhla and Tri Nagar, which have the highest number of polluting units have higher investment levels (as shown in table 3.4). The highest percentage of investment in polluting industries to total investment is 23.45 percent and 27.04 percent in Tri Nagar and Okhla respectively. The lowest percentage of investment in polluting industries is found in Alipur, Malviya Nagar and Shakur Basti which account for about 2 percent in each of these zones. The remaining units (181) belonging to the twenty-ninth zone account for an investment of Rs. 27 Lakhs.

The share of employment in polluting industrial units to total employment in different zones shows that Tri Nagar has the highest share ie. 19 percent followed by Okhla which accounts for 16 percent. The lowest percentage of employment in polluting industries is found in Alipur, Malviya Nagar,Kalkaji and Shakur Basti accounting for 2 to 3 percent.

The overall study does not show significant contribution of polluting industries in terms of employment and investment. The study of the individual zones reveals their importance as far as regularisation issue is concerned. These criterion will determine which zones are likely to be retained as an industrial zone and which ones would be taken up for further relocation.

Table 4.5 PERCENTAGE EMPLOYMENT IN POLLUTING INDUSTRIES (ZONEWISE)

| ZONES | EMPLOYMENT IN POLLUTING INDUSTRIES |
|---|---|
| Alipur | 2.03 |
| Badli | 9.44 |
| Connaught Place | 7.76 |
| Greater Kailash | 3.63 |
| Janakpuri | 13.50 |
| Jungpura | 6.52 |
| Kalkaji | 2.36 |
| Kirti Nagar | 5.93 |
| Karol Bagh | 4.44 |
| Malka Gunj | 4.12 |
| Malviya Nagar | 3.13 |
| Mayapuri | 5.96 |
| Mehrauli | 11.56 |
| Najafgarh | 8.30 |
| Nangloi | 7.31 |
| Naraina | 7.22 |
| New Subzi Mandi | 5.28 |
| Okhla | 16.42 |
| Patel Nagar | 6.46 |
| Rajouri Garden | 4.01 |
| Sadar Bazar | 8.88 |
| Shahdara | 11.43 |
| Shakur Basti | 4.06 |
| Shastri Nagar | 7.33 |
| SRT Nagar | 6.25 |
| Tri Nagar | 19.02 |
| Uttam Nagar | 6.80 |

**Source**: Computed from data provided by the Department of Industries, Government of India

This shifting seems to have given a lot of relief to the urban population. But an important concern is to determine the cost benefit analysis of such a relocation exercise in the long run. It was believed that the industries had been the primary cause behind the pollution problem in Delhi. It is now necessary to identify whether at all the shift in industries has been able to considerably bring down the pollution levels of the city. Is this exercise fruitful enough? This is something which essentially needs to be discussed and will remain as one of the limitations of this study because the shifting or retention of these units would take a few years. It has only after this that it will be possible to consider the viability of this whole process. One has to ask what has happened to the pollution levels of the areas from where these units have already been shifted earlier? Is the condition stable? And after everything is said and done, if the pollution levels are still found to be high enough, which could be possible

owing to the higher contribution of vehicular pollution in recent times, then the administration has to consider it an important issue. Because creating a sustainable Delhi is the most important concern today. A city with such a rich historical past cannot afford to die such a tragic death.

## 4.10 CONCLUSION

The following conclusion can be drawn from the discussions in this chapter:

1. In India, rapid economic and industrial growth especially after independence has led to severe environmental degradation. Delhi's environmental condition is the grimmest among all other metropolitan cities.
2. The major sources of pollution in Delhi include thermal plants, brick kilns, hot mix plants and industrial units. These have received attention in recent times especially small industrial units located in the residential areas.
3. The data analysis shows that in the whole of Delhi, about 13 percent of the total units are polluting and most of them have already been shifted out of Delhi. The remaining have been considered for regularization in their original locations except for F category industries, many of which have submitted applications for relocation to Bawana.
4. The polluting industries, which exist in the residential areas, have largely prospered since the 1970's but their numbers have declined since the early 1980's.
5. Okhla has over 55 percent of polluting units followed by Shahdara, which accounts for about 19 percent polluting industries as part of the total number of units in the zone. The lowest numbers of polluting industries are found in Alipur accounting for about 2 percent of the total units in the zone.

6. According to the polluting categories devised by the Master Plan from A to F, above 50 percent of the polluting industries are in the F category followed by E category which accounts for more than 25 percent.

7. Shakur Basti has the highest percent of over 80 in the F category while Malka Gunj has above 58 percent of the polluting industries in the E category.

8. The categories B and C have the lowest number of units in most of the zones.

9. The polluting units contribute about 44 crores i.e. 10.44 percent of the total investment non-conforming industrial units and employ about 13 percent of workers.

10. The highest percentage of investment in polluting industries to total investment is 27.04 percent and 23.45 percent in Tri Nagar and Okhla respectively. The lowest percentage of investment in polluting industries is found in Alipur, Malviya Nagar and Shakur Basti accounting for about 2 percent in each of these zones.

11. The total employment in different zones show that Tri Nagar has the highest share i.e. 19 percent followed by Okhla, which accounts for 16 percent. The lowest share of employment in polluting industries is found in Alipur, Malviya Nagar, Kalkaji and Shakur Basti accounting for 2 to 3 percent.

12. The relocation exercise has been of much relief to the urban masses in Delhi and the administration should curb further growth of polluting industries so that the sustainable growth of this city is maintained.

# CHAPTER V

# CONCLUSIONS

The presence of non-conforming industrial units in Delhi has attracted the attention of planners. These industrial units are large in numbers and located in all parts of the capital. A large section of these industries being unregistered make the task of the planners all the more tedious in terms of identifying them. The planners had originally suggested relocation of the polluting industries in the F category to Bawana. The D.S.I.D.C. undertook the task of developing all infrastructural facilities for the industries, which had submitted applications for acquiring land in Bawana. The other industrial units located within residential areas, whether polluting or not, could not be relocated because of enormous bench work that could not be undertaken simultaneously. The Master Plan 2001, therefore suggested an amendment whereby A category of polluting industries, within households with a maximum of five workers and using 1 kw of power were to continue in residential areas. The B, C, D and E categories which are mostly non- conforming light and service industries with more than twenty workers were to be shifted to the industrial zone. Those within this group which had 10-19 workers were to continue operating at the present location but were to be reviewed after five years. Those with upto 9 workers were to operate but were to be reviewed after ten years. As far as F category was concerned, no new units were to come up.

This study of the industrial units within residential areas has been undertaken to identify and locate these units and their importance in the whole economy of Delhi in terms of their products, employment generation and investment. The types of polluting units and their categories and numbers have also been analysed in the study to find out the types of industries that are likely to be regularized because of

their levels of pollution. The conclusions that have been gleaned out of the study are as follows :

1. The growth of the small-scale sector largely depends on the availability of a market for its products. This sector has gained much importance in recent times and is agglomerated in large cities.
2. In Delhi, these industries have been growing at a rapid pace with increase in the population of the capital.
3. Large scale in-migration from surrounding areas for search of jobs has enhanced the growth of a large informal sector within the industrial sector.
4. This has also resulted in the growth of industries within the residential areas, thereby violating laws and increasing the pressure on basic amenities which has not kept pace with the growing number of industries. These have been referred to as non-conforming industrial units as per the Master Plan of Delhi-2001.
5. Twenty eight zones have been delineated on the basis of pin codes given in the addresses of the industrial units. Shahdara and Okhla have the largest number of units. The smallest number of units are in Malviya Nagar.
6. Above 50 percent of the total number of units are run on proprietorship basis followed by private ownership (about 30 percent). The lowest percent (less than 1 percent) are run on cooperative and "others" basis.
7. Many of the industrial units had started production before independence but 11 percent of the units registered almost after 80 to 90 years of starting of production while about 50 percent registered after 9 to 10 years after starting of production.
8. The owners of these units mostly live outside the factory premises and account for above 80 percent of the total number of owners. A small number

of them have special status (6 percent of the owners are women though other categories like ex-serviceman, handicapped are smaller in numbers).

9. To maintain this setup and help it to grow, it is necessary to find out the type of ownerships or special category owners who need infrastructural and financial help from the government. Regular registration for the units should also be undertaken by the government to avoid further growth of illegal units.

10. The largest number of units in Delhi manufactures electrical and electronic goods, garments, rubber and plastic and metal products accounting for 12 percent, 11 percent, 10 percent and 7 percent of the total number of units respectively.

11. In Shahdara, has the largest number of industrial units and the dominant industries in this zone are basic metal industries, plastics and rubber, electrical goods account for 21 percent, 15 percent and 12 percent respectively. The other prominent industries are metal products, chemicals and chemical products.

12. The service industries in most of the zones account for less than 1 percent of the total number of units.

13. Janakpuri has the highest share of garment and metal products industries i.e.over 50 percent and 18 percent respectively.

**14.** Sadar Bazaar has over 20 percent of the industrial units producing paper and paper products, which is the highest share in all the zones.

15. The investment on land for most of the industrial units is less than 40% of the total investment. Investment in plant and machinery is between 30 to 40 percent of the total investment. The highest percentage (above 50) in plant and machinery is a characteristic of industries producing paper and paper products; printing and publishing, chemical testing equipments, and some service industries like repairing, cold storage facilities etc.

16. Most industrial units of all types employ between 70 percent to 80 percent of the factory workers and between 20 to 25 percent managerial staff out of the total employment of the unit.

17. Industries engaged in audio and studio works and manufacturing jewellery have about 35 percent and 15 percent of the employment as managerial staff respectively.

18. The capital intensity is the highest in warehousing and storage services and scientific testing equipment for the human body.

19. The investment levels are highest in Okhla and Shahdara accounting for more than 40 crores in each of these zones. In Malviya Nagar, the investment is less than 1 lakh.

20. The highest total employment is found in Okhla, which accounts for 17 percent of employment to total employment of all the zones together.

21. The lowest percent of less than 0.5 percent of employment is found in Malviya Nagar followed by Alipur, Janakpuri, Tilak Nagar, Jungpura, Shakur Basti and Connaught Place which account for less than 1 percent of the total employment in each of these areas.

22. The major sources of pollution in Delhi include thermal plants, brick kilns, hot mixed plants and industrial units. These have received attention in recent times especially those small industrial units located in the residential areas.

23. The analysis shows that in the whole of Delhi, about 13 percent of the total units are polluting and most of them have already been shifted out of the metropolis. The remaining have been considered for regularization in their original locations except for F category industries, many of which have submitted applications for relocation to Bawana.

24. The polluting industries, which exist in the residential areas, have largely prospered since the 1970's but their numbers have declined since the early 1980's.

25. Okhla has over 55 percent of polluting units followed by Shahdara, which accounts for about 19 percent polluting industries to total number of units in the zone. The lowest number of polluting industries are found in Alipur accounting for about 2 percent of the total units in the zone.

26. More than 50 percent of the polluting industries are in the F category followed by E category, which accounts for more than 25 percent. These categories are devised by the Master Plan and range from A to F.

27. Shakur Basti has the highest share (over 80 percent) in the F category while Malka Gunj has above 58 percent of the polluting industries in the E category.

28. The categories B and C have the lowest number of units in most of the zones.

29. The investment in polluting industries is 10.44 percent of the total investment. Tri Nagar and Okhla has the highest percentage of investment accounting for 27 percent and 23 percent respectively. Malviya Nagar and Alipur have the lowest percentage of investment accounting for 2 percent.

30. The employment in polluting industries is about 13 percent of the total employment in all non-conforming industries. Okhla has 16 percent and Tri Nagar has about 19 percent of the total employment. The lowest percentage of 2 to 3 in employment is found in Malviya Nagar, Alipur and Malka Gunj.

31. The relocation exercise has been considered a great relief by the urban masses in Delhi.

**Recommendations:**

1. If regularization is approved by the Supreme Court, the planners have to keep in mind the long-term consequences of growth of industries in other

areas too. This cannot be a continuing process and would bring about a definite change in the urban land use in the near future.

2. The relocation of the F category of polluting industries to Bawana has been a solution, beneficial to the people of Delhi. Henceforth, Bawana should be developed as a regular industrial area for future growth of industrial units.

3. The polluting industries in zones like Tri Nagar and Okhla contribute the maximum in terms of investment (above 27 and 23 percent respectively) and employment (above 33 and 28 percent respectively). Zones like Malviya Nagar, Malka Gunj and Alipur contribute the minimum (about 2 to 3 percent respectively) in terms of investment and employment.

4. It would be a feasible solution to gradually shift the polluting industries of the former zones to Bawana and let the polluting industries in smaller zones remain in their original locations to reduce the pollution problems to the maximum.

5. In Delhi, priority should be given to the service sector, which still occupies a very small percentage of the total number of units. Infact, the policies for the small-scale sector should be directed towards expansion of the service sector. This would facilitate the availability of jobs for large numbers with least problems of pollution and pressure on basic amenities.

6. The relocation and closure of large number of industrial units following the Supreme Court orders has resulted in mass loss of jobs. The planners along with the administration have to look into ways and means of creating jobs for these people in their places of residence.

7. The units, which have shifted to Bawana, have not provided living space for the workers, which make it necessary to commute from long distances. The arrangement of low cost residences for the workers would be necessary

otherwise problems of squatters will arise in the future. This also involves improvement of basic facilities like power, water, sanitation etc.

As per the latest decision of the DDA in 2003, regularization of some of the industrial zones in Delhi has been suggested. These industrial units include:

1. Conforming zones, which account for 25000 units
2. Industrial units in 15 non-conforming areas accounting for 12000 units.
3. Industrial units in 40 other selected areas, not specifically mentioned.
4. Local commercial areas
5. Industrial units working as single hand like cottage industry.
6. Industrial units relocated in Bawana.

These units would be regularized only if they are located on a plot of 10 hectares or more, if 70 percent of the land use is dominated by industrial units and they directly register themselves with the Department of Industries and take a clearance from the Delhi Pollution Control Committee (DPCC) if they are polluting. The DDA however still awaits the decision of the court regarding the regularization issue.

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# *APPENDICES*

APPENDIX II (A)

YEAR OF STARTING OF PRODUCTION OF NON-CONFORMING UNITS IN DELHI

| Year of starting production | No. of Units |
|---|---|
| Information not available on year of starting of production | 8 |
| 1900-1909 | 3030 |
| 1910-1919 | 10 |
| 1920-1929 | 11 |
| 1930-1939 | 19 |
| 1940-1949 | 125 |
| 1950-1959 | 487 |
| 1960-1969 | 1570 |
| 1970-1974 | 2343 |
| 1975-1979 | 3327 |
| 1980-1984 | 3237 |
| 1985-1989 | 3174 |
| 1990-1994 | 2154 |
| 1995-1999 | 257 |
| 2000-2004 | 48 |
| **Total** | **19800** |

APPENDIX II (B)

TIME GAP BETWEEN STARTING OF PRODUCTION AND REGISTRATION

| No. of years gap | No. Of Units |
|---|---|
| Information not available about year of registration | 285 |
| No gap | 3304 |
| 1 TO 9 | 10119 |
| 10 TO 19 | 2083 |
| 20 TO 29 | 850 |
| 30 TO 39 | 138 |
| 40 TO 49 | 29 |
| 50 TO 59 | 13 |
| 60 TO 69 | 50 |
| 70 TO 79 | 425 |
| 80 TO 89 | 2318 |
| 90 TO 99 | 186 |
| **Total** | **19800** |

APPENDIX II ( C )

TIME GAP BETWEEN STARTING OF PRODUCTION AND REGISTRATION

| Type of ownership | Number of Units |
|---|---|
| Propreitorship | 10260 |
| Partnership | 7417 |
| Pvt ltd | 1695 |
| Cooperative | 29 |
| Others | 33 |
| Information not available | 366 |
| **Total** | **19800** |

## APPENDIX III (A)

NUMBER OF UNITS IN NON-CONFORMING INDUSTRIAL ZONES

| Type of Industry (code) | Alipur | Badli | Connaught Place | Greater Kailash | Janakpuri | Jungpura | Kalkaji | Kirti Nagar | Karol Bagh |
|---|---|---|---|---|---|---|---|---|---|
| Type of industry not known | 13 | 20 | 8 | 21 | 5 | 11 | 24 | 18 | 19 |
| Food products (20) | 42 | 57 | 21 | 31 | 0 | 19 | 51 | 44 | 46 |
| Food products (21) | 0 | 4 | 1 | 3 | 2 | 0 | 0 | 3 | 4 |
| Beverages and tobacco (22) | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Cotton Textiles (23) | 1 | 2 | 0 | 2 | 6 | 2 | 1 | 2 | 1 |
| Wool and Silk (24) | 0 | 3 | 0 | 0 | 0 | 1 | 6 | 9 | 4 |
| Jute and Mesta Textiles (25) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hosiery and garments (26) | 5 | 42 | 28 | 92 | 45 | 14 | 87 | 61 | 138 |
| Wood products (27) | 2 | 5 | 2 | 3 | 4 | 2 | 6 | 63 | 13 |
| Paper and printing (28) | 9 | 24 | 13 | 15 | 2 | 10 | 29 | 43 | 68 |
| Leather products (29) | 1 | 8 | 2 | 5 | 0 | 0 | 7 | 11 | 46 |
| Rubber and plastics (30) | 17 | 65 | 19 | 21 | 0 | 3 | 42 | 116 | 62 |
| Chemical products (31) | 11 | 67 | 8 | 15 | 3 | 1 | 17 | 44 | 47 |
| Non-metallic minerals (32) | 2 | 12 | 0 | 7 | 3 | 2 | 13 | 15 | 14 |
| Basic metal industries (33) | 16 | 114 | 0 | 9 | 0 | 1 | 12 | 17 | 34 |
| Metal products (34) | 33 | 128 | 18 | 25 | 17 | 5 | 34 | 79 | 57 |
| Machinery and parts (35) | 13 | 29 | 0 | 13 | 0 | 5 | 27 | 49 | 51 |
| Electrical machinery (36) | 13 | 67 | 25 | 53 | 2 | 31 | 61 | 95 | 88 |
| Transport machinery (37) | 9 | 53 | 5 | 13 | 0 | 0 | 29 | 47 | 36 |
| Miscellaneous (38) | 3 | 15 | 5 | 9 | 0 | 0 | 9 | 35 | 23 |
| Manufacture of water geyser (42) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Assembly of AC and water cooler (51) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage and warehousing services (74) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| Jobwork of data processing on the computer (82) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| Jewellery (88) | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Scientific and material testing equipment (92) | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Scientific testing equipment for the human body (93) | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Audio and studio (95) | | | | | 0 | | | | |
| Jobwork of phototstat (96) | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 6 | 4 |
| Repair services (97) | 1 | 4 | 0 | 0 | 0 | 0 | 3 | 22 | 13 |
| Job work of colour film processing (99) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 3 |
| **Total Number of Units (zonewise)** | 194 | 721 | 155 | 340 | 90 | 107 | 459 | 788 | 788 |

**APPENDIX III (A)**

**NUMBER OF UNITS IN NON-CONFORMING INDUSTRIAL ZONES**

| Type of Industry (code) | Malka Gunj | Malviya Nagar | Mayapuri | Mehrauli | Najafgarh | Nangloi | Naraina | New Subzi Mandi | Okhla |
|---|---|---|---|---|---|---|---|---|---|
| Type of industry not known | 18 | 1 | 43 | 17 | 16 | 32 | 19 | 29 | 316 |
| Food products (20) | 33 | 0 | 51 | 55 | 29 | 51 | 23 | 56 | 6 |
| Food products (21) | 6 | 0 | 7 | 3 | 3 | 5 | 2 | 5 | 2 |
| Beverages and tobacco (22) | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| Cotton Textiles (23) | 3 | 0 | 6 | 0 | 3 | 6 | 4 | 4 | 3 |
| Wool and Silk (24) | 6 | 0 | 8 | 1 | 3 | 4 | 2 | 0 | 2 |
| Jute and Mesta Textiles (25) | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| Hosiery and garments (26) | 31 | 4 | 76 | 40 | 51 | 55 | 84 | 43 | 237 |
| Wood products (27) | 0 | 1 | 23 | 4 | 9 | 5 | 8 | 8 | 24 |
| Paper and printing (28) | 28 | 1 | 67 | 28 | 34 | 48 | 89 | 42 | 114 |
| Leather products (29) | 11 | 1 | 27 | 5 | 13 | 15 | 16 | 9 | 32 |
| Rubber and plastics (30) | 32 | 1 | 159 | 34 | 97 | 137 | 81 | 87 | 89 |
| Chemical products (31) | 31 | 2 | 113 | 36 | 51 | 71 | 36 | 58 | 98 |
| Non-metallic minerals (32) | 14 | 0 | 27 | 20 | 18 | 18 | 9 | 23 | 12 |
| Basic metal industries (33) | 21 | 1 | 98 | 23 | 48 | 59 | 54 | 41 | 69 |
| Metal products (34) | 33 | 4 | 157 | 51 | 71 | 82 | 78 | 83 | 123 |
| Machinery and parts (35) | 22 | 3 | 97 | 28 | 53 | 46 | 37 | 34 | 89 |
| Electrical machinery (36) | 41 | 8 | 159 | 49 | 66 | 71 | 154 | 92 | 205 |
| Transport machinery (37) | 23 | 3 | 123 | 17 | 92 | 51 | 45 | 98 | 62 |
| Miscellaneous (38) | 22 | 1 | 49 | 7 | 20 | 16 | 31 | 21 | 36 |
| Manufacture of water geyser (42) | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Assembly of AC and water cooler (51) | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| Storage and warehousing services (74) | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| Jobwork of data processing on the computer (82) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Jewellery (88) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scientific and material testing equipment (92) | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scientific testing equipment for the human body (93) | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Audio and studio (95) | | | | | | | | | 0 |
| Jobwork of phototstat (96) | 4 | 0 | 11 | 0 | 6 | 4 | 2 | 0 | 3 |
| Repair services (97) | 17 | 0 | 21 | 2 | 5 | 15 | 2 | 11 | 6 |
| Job work of colour film processing (99) | 2 | 0 | 9 | 0 | 0 | 0 | 3 | 0 | 3 |
| **Total Number of Units (zonewise)** | 403 | 32 | 1334 | 421 | 690 | 792 | 780 | 745 | 1537 |

**APPENDIX III (A)**

NUMBER OF UNITS IN NON-CONFORMING INDUSTRIAL ZONES

| Type of Industry (code) | Patel Nagar | Rajouri Garden | Sadar Bazar | Shahdara | Shakur Basti | Shastri Nagar | SRT Nagar | Tri Nagar | Uttam Nagar |
|---|---|---|---|---|---|---|---|---|---|
| Type of industry not known | 9 | 13 | 14 | 28 | 5 | 39 | 23 | 18 | 15 |
| Food products (20) | 42 | 35 | 26 | 28 | 17 | 29 | 65 | 45 | 61 |
| Food products (21) | 3 | 2 | 3 | 1 | 3 | 1 | 4 | 2 | 4 |
| Beverages and tobacco (22) | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| Cotton Textiles (23) | 0 | 1 | 3 | 2 | 0 | 3 | 2 | 2 | 2 |
| Wool and Silk (24) | 3 | 0 | 1 | 4 | 0 | 2 | 4 | 3 | 3 |
| Jute and Mesta Textiles (25) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Hosiery and garments (26) | 34 | 39 | 188 | 86 | 22 | 163 | 78 | 57 | 39 |
| Wood products (27) | 4 | 7 | 14 | 15 | 5 | 11 | 5 | 9 | 3 |
| Paper and printing (28) | 33 | 24 | 341 | 114 | 9 | 57 | 15 | 32 | 16 |
| Leather products (29) | 7 | 7 | 18 | 11 | 0 | 14 | 21 | 6 | 4 |
| Rubber and plastics (30) | 35 | 49 | 99 | 249 | 6 | 105 | 36 | 89 | 32 |
| Chemical products (31) | 28 | 16 | 45 | 168 | 5 | 44 | 31 | 55 | 12 |
| Non-metallic minerals (32) | 9 | 7 | 27 | 21 | 0 | 10 | 9 | 8 | 6 |
| Basic metal industries (33) | 14 | 15 | 55 | 362 | 4 | 79 | 20 | 25 | 9 |
| Metal products (34) | 31 | 39 | 126 | 143 | 16 | 114 | 24 | 67 | 24 |
| Machinery and parts (35) | 19 | 17 | 57 | 71 | 5 | 55 | 12 | 46 | 14 |
| Electrical machinery (36) | 54 | 43 | 91 | 205 | 33 | 118 | 61 | 58 | 31 |
| Transport machinery (37) | 23 | 32 | 47 | 76 | 5 | 86 | 36 | 38 | 18 |
| Miscellaneous (38) | 12 | 21 | 76 | 44 | 6 | 24 | 15 | 14 | 9 |
| Manufacture of water geyser (42) | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Assembly of AC and water cooler (51) | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Storage and warehousing services (74) | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| Jobwork of data processing on the computer (82) | 0 | 0 | 0 | 8 | 0 | 9 | 0 | 10 | 0 |
| Jewellery (88) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scientific and material testing equipment (92) | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| Scientific testing equipment for the human body (93) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Audio and studio (95) | | | | | 0 | | 0 | | |
| Jobwork of phototstat (96) | 0 | 0 | 1 | 3 | 0 | 1 | 4 | 2 | 3 |
| Repair services (97) | 4 | 0 | 14 | 11 | 0 | 5 | 8 | 4 | 5 |
| Job work of colour film processing (99) | 0 | 2 | 4 | 2 | 0 | 2 | 0 | 3 | 0 |
| **Total Employment (zonewise)** | 364 | 372 | 1251 | 1654 | 141 | 974 | 474 | 594 | 312 |

**APPENDIX III (B)**

INVESTMENT IN NON-CONFORMING INDUSTRIAL ZONES

| Type of Industry (code) | Alipur | Badli | Connaught Place | Greater Kailash | Janakpuri | Jungpura | Kalkaji | Kirti Nagar | Karol Bagh |
|---|---|---|---|---|---|---|---|---|---|
| Type of industry not known | 6260991 | 9632293 | 3852917 | 10113908 | 2408073 | 5297761 | 11558752 | 8669064 | 9150679 |
| Food products (20) | 3235181 | 4390603 | 1617590 | 2387872 | 0 | 1463534 | 3928434 | 3389237 | 3543293 |
| Food products (21) | 0 | 1036637 | 259159 | 777478 | 518319 | 0 | 0 | 777478 | 1036637 |
| Beverages and tobacco (22) | 0 | 0 | 0 | 94133 | 0 | 0 | 94133 | 0 | 0 |
| Cotton Textiles (23) | 223514 | 447027 | 0 | 447027 | 1341082 | 447027 | 223514 | 447027 | 223514 |
| Wool and Silk (24) | 0 | 639742 | 0 | 0 | 0 | 213247 | 1279484 | 1919226 | 852989 |
| Jute and Mesta Textiles (25) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hosiery and garments (26) | 1859205 | 15617325 | 10411550 | 34209378 | 16732848 | 5205775 | 32350172 | 22682305 | 51314067 |
| Wood products (27) | 404047 | 1010118 | 404047 | 606071 | 808095 | 404047 | 1212142 | 12727489 | 2626307 |
| Paper and printing (28) | 2172917 | 5794446 | 3138658 | 3621529 | 482871 | 2414353 | 7001622 | 10381716 | 16417597 |
| Leather products (29) | 347449 | 2779594 | 694898 | 1737246 | 0 | 0 | 2432144 | 3821941 | 15982664 |
| Rubber and plastics (30) | 4032645 | 15418936 | 4507074 | 4981502 | 0 | 711643 | 9963005 | 27516871 | 14707293 |
| Chemical products (31) | 2714207 | 16531989 | 1973969 | 3701192 | 740238 | 246746 | 4194684 | 10856829 | 11597067 |
| Non-metallic minerals (32) | 285655 | 1713930 | 0 | 999793 | 428483 | 285655 | 1856758 | 2142413 | 1999586 |
| Basic metal industries (33) | 5032943 | 35859718 | 0 | 2831030 | 0 | 314559 | 3774707 | 5347502 | 10695004 |
| Metal products (34) | 5941472 | 23045711 | 3240803 | 4501115 | 3060758 | 900223 | 6121517 | 14223525 | 10262543 |
| Machinery and parts (35) | 3463019 | 7725196 | 0 | 3463019 | 0 | 1331930 | 7192424 | 13052918 | 13585690 |
| Electrical machinery (36) | 2951570 | 15211939 | 5676097 | 12033325 | 454088 | 7038360 | 13849675 | 21569167 | 19979860 |
| Transport machinery (37) | 1897913 | 11176601 | 1054396 | 2741431 | 0 | 0 | 6115499 | 9911326 | 7591654 |
| Miscellaneous (38) | 596542 | 2982709 | 994236 | 1789625 | 0 | 0 | 1789625 | 6959655 | 4573487 |
| Manufacture of water geyser (42) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Assembly of AC and water cooler (51) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage and warehousing services (74) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1216065 | 2432129 |
| Jobwork of data processing on the computer (82) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10040545 |
| Jewellery (88) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scientific and material testing equipment (92) | 446905 | 0 | 0 | 446905 | 0 | 0 | 0 | 0 | 0 |
| Scientific testing equipment for the human body (93) | 1430108 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Audio and studio (95) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Jobwork of phototstat (96) | 0 | 448895 | 0 | 224448 | 0 | 0 | 0 | 1346685 | 897790 |
| Repair services (97) | 176788 | 707153 | 0 | 0 | 0 | 0 | 530364 | 3889339 | 2298246 |
| Job work of colour film processing (99) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6396394 | 2398648 |
| **Total Investment (zonewise)** | 43473073 | 172170563 | 37825396 | 91708027 | 26974854 | 26274861 | 115468657 | 189244169 | 214207287 |

**APPENDIX III (B)**

INVESTMENT IN NON-CONFORMING INDUSTRIAL ZONES

| Type of Industry (code) | Okhla Gurj | Malviya Nagar | Mayapuri | Mehrauli | Najafgarh | Nangloi | Naraina | New Subzi Mandi | Okhla |
|---|---|---|---|---|---|---|---|---|---|
| Type of industry not known | 8669064 | 481615 | 20709431 | 8187449 | 7705835 | 15411669 | 9150679 | 13966825 | 152190234 |
| Food products (20) | 2541928 | 0 | 3928434 | 4236546 | 2233815 | 3928434 | 1771647 | 4313574 | 462169 |
| Food products (21) | 1554956 | 0 | 1814115 | 777478 | 777478 | 1295797 | 518319 | 1295797 | 518319 |
| Beverages and tobacco (22) | 0 | 0 | 94133 | 0 | 0 | 0 | 0 | 94133 | 0 |
| Cotton Textiles (23) | 670541 | 0 | 1341082 | 0 | 670541 | 1341082 | 894054 | 894054 | 670541 |
| Wool and Silk (24) | 1279484 | 0 | 1705978 | 213247 | 639742 | 852989 | 426495 | 0 | 426495 |
| Jute and Mesta Textiles (25) | 595967 | 0 | 0 | 0 | 595967 | 595967 | 0 | 0 | 0 |
| Hosiery and garments (26) | 11527073 | 1487364 | 28259921 | 14873642 | 18963894 | 20451258 | 31234649 | 15989166 | 88126332 |
| Wood products (27) | 0 | 202024 | 4646543 | 808095 | 1818213 | 1010118 | 1616189 | 1616189 | 4848567 |
| Paper and printing (28) | 6760187 | 241435 | 16176162 | 6760187 | 8208799 | 11588892 | 21487737 | 10140281 | 27523619 |
| Leather products (29) | 3821941 | 347449 | 9381129 | 1737246 | 4516840 | 5211738 | 5559187 | 3127043 | 11118375 |
| Rubber and plastics (30) | 7590861 | 237214 | 37717090 | 8065290 | 23009797 | 32498373 | 19214367 | 20637653 | 21112082 |
| Chemical products (31) | 7649129 | 493492 | 27882310 | 8882860 | 12584051 | 17518973 | 8882860 | 14311274 | 24181118 |
| Non-metallic minerals (32) | 1999586 | 0 | 3856344 | 2856551 | 2570896 | 2570896 | 1285448 | 3285033 | 1713930 |
| Basic metal industries (33) | 6605738 | 314559 | 30826776 | 7234855 | 15098829 | 18558977 | 16986182 | 12896916 | 21704566 |
| Metal products (34) | 5941472 | 720178 | 28267005 | 9182275 | 12783168 | 14763658 | 14043480 | 14943703 | 22145488 |
| Machinery and parts (35) | 5860494 | 799158 | 25839449 | 7458810 | 14118462 | 12253759 | 9856285 | 9057127 | 23708361 |
| Electrical machinery (36) | 9308798 | 1816351 | 36099974 | 11125149 | 14984895 | 16120114 | 34964755 | 20888035 | 46543991 |
| Transport machinery (37) | 4850223 | 632638 | 25938151 | 3584948 | 19400893 | 10754843 | 9489567 | 20666169 | 13074515 |
| Miscellaneous (38) | 4374640 | 198847 | 9743516 | 1391931 | 3976945 | 3181556 | 6164265 | 4175793 | 7158502 |
| Manufacture of water geyser (42) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Assembly of AC and water cooler (51) | 273830 | 273830 | 273830 | 0 | 273830 | 0 | 0 | 0 | 273830 |
| Storage and warehousing services (74) | 1216065 | 0 | 1216065 | 0 | 0 | 0 | 1216065 | 0 | 1216065 |
| Jobwork of data processing on the computer (82) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2008109 |
| Jewellery (88) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scientific and material testing equipment (92) | 446905 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scientific testing equipment for the human body (93) | 715054 | 0 | 0 | 715054 | 0 | 0 | 0 | 0 | 715054 |
| Audio and studio (95) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Jobwork of phototstat (96) | 897790 | 0 | 2468923 | 0 | 1346685 | 897790 | 448895 | 0 | 673343 |
| Repair services (97) | 3005399 | 0 | 3712551 | 353576 | 883941 | 2651822 | 353576 | 1944670 | 10607291 |
| Job work of colour film processing (99) | 1599099 | 0 | 7195943 | 0 | 0 | 0 | 2398648 | 0 | 23986485 |
| **Total Investment (zonewise)** | 99756223 | 8246155 | 329094853 | 98445190 | 167163515 | 193458708 | 197963348 | 174243435 | 475572979 |

**APPENDIX III (B)**

INVESTMENT IN NON-CONFORMING INDUSTRIAL ZONES

| Type of Industry (code) | Patel Nagar | Rajouri Garden | Sadar Bazar | Shahdara | Shakur Basti | Shastri Nagar | SRT Nagar | Tri Nagar | Uttam Nagar |
|---|---|---|---|---|---|---|---|---|---|
| Type of industry not known | 4334532 | 6260991 | 6742605 | 13485211 | 2408073 | 18782972 | 11077137 | 8669064 | 7224220 |
| Food products (20) | 3235181 | 2695984 | 2002731 | 2156787 | 1309478 | 2233815 | 5006827 | 3466265 | 4698715 |
| Food products (21) | 777478 | 518319 | 777478 | 259159 | 777478 | 259159 | 1036637 | 518319 | 1036637 |
| Beverages and tobacco (22) | 0 | 94133 | 94133 | 94133 | 0 | 0 | 0 | 0 | 0 |
| Cotton Textiles (23) | 0 | 223514 | 670541 | 447027 | 0 | 670541 | 447027 | 447027 | 447027 |
| Wool and Silk (24) | 639742 | 0 | 213247 | 852989 | 0 | 426495 | 852989 | 639742 | 639742 |
| Jute and Mesta Textiles (25) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 595967 |
| Hosiery and garments (26) | 12642596 | 14501801 | 69906120 | 31978331 | 8180503 | 60610093 | 29003603 | 21194941 | 14501801 |
| Wood products (27) | 808095 | 1414165 | 2828331 | 3030354 | 1010118 | 2222260 | 1010118 | 1818213 | 606071 |
| Paper and printing (28) | 7967363 | 5794446 | 82329421 | 27523619 | 2172917 | 13761809 | 3621529 | 7725928 | 3862964 |
| Leather products (29) | 2432144 | 2432144 | 6254086 | 3821941 | 0 | 4864289 | 7296433 | 2084695 | 1389797 |
| Rubber and plastics (30) | 8302504 | 11623506 | 23484226 | 59066386 | 1423286 | 24907512 | 8539718 | 21112082 | 7590861 |
| Chemical products (31) | 6908891 | 3947938 | 11103575 | 41453345 | 1233731 | 10856829 | 7649129 | 13571036 | 2960953 |
| Non-metallic minerals (32) | 1285448 | 999793 | 3856344 | 2999378 | 0 | 1428275 | 1285448 | 1142620 | 856965 |
| Basic metal industries (33) | 4403825 | 4718384 | 17300741 | 113870334 | 1258236 | 24850156 | 6291179 | 7863973 | 2831030 |
| Metal products (34) | 5581383 | 7021740 | 22685622 | 25746380 | 2880714 | 20525086 | 4321071 | 12062989 | 4321071 |
| Machinery and parts (35) | 5061335 | 4528563 | 15184006 | 18913411 | 1331930 | 14651234 | 3196633 | 12253759 | 3729405 |
| Electrical machinery (36) | 12260368 | 9762886 | 20660991 | 46543991 | 7492447 | 26791176 | 13849675 | 13168544 | 7038360 |
| Transport machinery (37) | 4850223 | 6748137 | 9911326 | 16026825 | 1054396 | 18135618 | 7591654 | 8013412 | 3795827 |
| Miscellaneous (38) | 2386167 | 4175793 | 15112393 | 8749280 | 1193084 | 4772335 | 2982709 | 2783862 | 1789625 |
| Manufacture of water geyser (42) | 0 | 0 | 0 | 0 | 0 | 67800 | 0 | 0 | 0 |
| Assembly of AC and water cooler (51) | 0 | 273830 | 0 | 273830 | 0 | 0 | 0 | 0 | 0 |
| Storage and warehousing services (74) | 0 | 1216065 | 0 | 0 | 0 | 0 | 1216065 | 1216065 | 0 |
| Jobwork of data processing on the computer (82) | 0 | 0 | 0 | 5354957 | 0 | 6024327 | 0 | 6693697 | 0 |
| Jewellery (88) | 0 | 0 | 0 | 0 | 0 | 0 | 32895 | 0 | 0 |
| Scientific and material testing equipment (92) | 0 | 0 | 0 | 0 | 0 | 893811 | 0 | 0 | 0 |
| Scientific testing equipment for the human body (93) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 715054 |
| Audio and studio (95) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Jobwork of phototstat (96) | 0 | 0 | 224448 | 673343 | 0 | 224448 | 897790 | 448895 | 673343 |
| Repair services (97) | 707153 | 0 | 2475034 | 1944670 | 0 | 883941 | 1414305 | 707153 | 883941 |
| Job work of colour film processing (99) | 0 | 1599099 | 3198197 | 1599099 | 0 | 1599099 | 0 | 2398648 | 0 |
| **Total Investment (zonewise)** | 84584429 | 90551229 | 317015594 | 426864782 | 33726392 | 260443078 | 118620573 | 150000928 | 72189377 |

## APPENDIX III (B.i)

**INVESTMENT ACCORDING TO TYPE OF INDUSTRY**

| Type of Industry (code) | INVESTMENT(LAND) | INVESTMENT (PLANT AND MACHINERY) | INVESTMENT (POLLUTION) | INVESTMENT (OTHERS) | TOTAL |
|---|---|---|---|---|---|
| Type of industry not known | 485234070 | 416914745 | 7889349 | 135065656 | 1045103820 |
| Food products (20) | 27778008 | 36943251 | 44394 | 26820775 | 91586428 |
| Food products (21) | 11297704 | 7316103 | 21760 | 1838021 | 20473588 |
| Beverages and tobacco (22) | 413009 | 441032 | 0 | 87292 | 941333 |
| Cotton Textiles (23) | 5526006 | 7478757 | 76000 | 2341676 | 15422439 |
| Wool and Silk (24) | 5062909 | 7771265 | 0 | 3159374 | 15993548 |
| Jute and Mesta Textiles (25) | 2055621 | 284926 | 0 | 43322 | 2383869 |
| Hosiery and garments (26) | 318853441 | 325336499 | 6211954 | 174341582 | 824743476 |
| Wood products (27) | 24782894 | 15856371 | 218423 | 15102857 | 55960545 |
| Paper and printing (28) | 110797671 | 182427330 | 3504210 | 78461169 | 375190380 |
| Leather products (29) | 41800515 | 44239216 | 1870584 | 22578533 | 110488848 |
| Rubber and plastics (30) | 146141804 | 177012561 | 3067789 | 113098918 | 439321072 |
| Chemical products (31) | 100199028 | 94325902 | 701900 | 103089209 | 298316039 |
| Non-metallic minerals (32) | 20415138 | 20577844 | 191822 | 7805042 | 48989846 |
| Basic metal industries (33) | 205649909 | 123747432 | 2123473 | 96593895 | 428114709 |
| Metal products (34) | 123322932 | 120413375 | 2114025 | 68147477 | 313997809 |
| Machinery and parts (35) | 83663338 | 82289264 | 7578647 | 76871661 | 250402910 |
| Electrical machinery (36) | 195404418 | 171599089 | 17119423 | 122411923 | 506534853 |
| Transport machinery (37) | 79060456 | 117612297 | 1286957 | 56571573 | 254531283 |
| Miscellaneous (38) | 39476302 | 48821370 | 1700971 | 26128165 | 116126808 |
| Manufacture of water geyser (42) | 36000 | 0 | 0 | 31800 | 67800 |
| Assembly of AC and water cooler (51) | 465500 | 564244 | 6380 | 1154515 | 2190639 |
| Storage and warehousing services (74) | 5466551 | 6169463 | 0 | 524631 | 12160645 |
| Jobwork of data processing on the computer (82) | 4187351 | 15404664 | 100000 | 11098989 | 30791004 |
| Jewellery (88) | 92666 | 222623 | 0 | 342608 | 657897 |
| Scientific and material testing equipment (92) | 1667500 | 415027 | 100000 | 52000 | 2234527 |
| Scientific testing equipment for the human body (93) | 782767 | 2129718 | 0 | 1377840 | 4290325 |
| Audio and studio (95) | 135708 | 150000 | 0 | 74757 | 360465 |
| Jobwork of phototstat (96) | 5009695 | 6925549 | 28800 | 1278363 | 13242407 |
| Repair services (97) | 15276924 | 9977691 | 21450 | 7429743 | 32705808 |
| Job work of colour film processing (99) | 6568721 | 21352816 | 165945 | 6293136 | 34380618 |

## APPENDIX III ( C )

EMPLOYMENT IN NON-CONFORMING INDUSTRIAL ZONES

| Type of Industry (code) | Alipur | Badli | Connaught Place | Greater Kailash | Janakpuri | Jungpura | Kalkaji | Kirti Nagar | Karol Bagh |
|---|---|---|---|---|---|---|---|---|---|
| Type of industry not known | 124 | 191 | 76 | 200 | 48 | 105 | 229 | 164 | 181 |
| Food products (20) | 127 | 172 | 66 | 101 | 0 | 57 | 154 | 139 | 144 |
| Food products (21) | 0 | 55 | 14 | 41 | 27 | 0 | 0 | 41 | 55 |
| Beverages and tobacco (22) | 0 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 |
| Cotton Textiles (23) | 9 | 17 | 0 | 17 | 51 | 17 | 9 | 17 | 9 |
| Wool and Silk (24) | 0 | 16 | 0 | 0 | 0 | 5 | 33 | 44 | 22 |
| Jute and Mest Textiles (25) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hosiery and garments (26) | 40 | 333 | 233 | 738 | 358 | 111 | 691 | 486 | 1125 |
| Wood products (27) | 16 | 40 | 16 | 24 | 32 | 16 | 47 | 501 | 103 |
| Paper and printing (28) | 72 | 192 | 109 | 120 | 16 | 80 | 233 | 338 | 553 |
| Leather products (29) | 7 | 54 | 14 | 34 | 0 | 0 | 48 | 71 | 313 |
| Rubber and plastics (30) | 142 | 545 | 163 | 179 | 0 | 25 | 352 | 973 | 527 |
| Chemical products (31) | 102 | 619 | 77 | 139 | 28 | 9 | 157 | 407 | 434 |
| Non-metallic minerals (32) | 18 | 108 | 0 | 63 | 27 | 18 | 117 | 135 | 126 |
| Basic metal industries (33) | 128 | 915 | 0 | 72 | 0 | 8 | 96 | 136 | 273 |
| Metal products (34) | 268 | 1039 | 153 | 212 | 138 | 41 | 276 | 642 | 463 |
| Machinery and parts (35) | 108 | 241 | 0 | 108 | 0 | 42 | 224 | 412 | 424 |
| Electrical machinery (36) | 104 | 535 | 219 | 432 | 16 | 248 | 487 | 763 | 713 |
| Transport machinery (37) | 70 | 412 | 41 | 101 | 0 | 0 | 225 | 365 | 280 |
| Miscellaneous (38) | 24 | 121 | 43 | 73 | 0 | 0 | 73 | 282 | 186 |
| Manufacture of water geyser (42) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Assembly of AC and water cooler (51) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage and warehousing services (74) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 14 |
| Jobwork of data processing on the computer (82) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 109 |
| Jewellery (88) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scientific and material testing equipment (92) | 5 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 |
| Scientific testing equipment for the human body (93) | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Audio and studio (95) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Jobwork of phototstat (96) | 0 | 17 | 0 | 8 | 0 | 0 | 0 | 50 | 33 |
| Repair services (97) | 6 | 26 | 0 | 0 | 0 | 0 | 19 | 140 | 83 |
| Job work of colour film processing (99) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 75 | 28 |
| **Total Employment (zonewise)** | 1381 | 5649 | 1223 | 2673 | 741 | 782 | 3476 | 6190 | 6197 |

**APPENDIX III ( C )**

EMPLOYMENT IN NON-CONFORMING INDUSTRIAL ZONES

| Type of Industry (code) | Malka Gunj | Malviya Nagar | Mayapuri | Mehrauli | Najafgarh | Nangloi | Naraina | New Subzi Mandi | Okhla |
|---|---|---|---|---|---|---|---|---|---|
| Type of industry not known | 172 | 10 | 394 | 162 | 147 | 291 | 181 | 277 | 3929 |
| Food products (20) | 100 | 0 | 154 | 166 | 88 | 154 | 69 | 169 | 180 |
| Food products (21) | 82 | 0 | 96 | 41 | 41 | 57 | 27 | 69 | 13 |
| Beverages and tobacco (22) | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 5 | 0 |
| Cotton Textiles (23) | 26 | 0 | 46 | 0 | 26 | 46 | 34 | 34 | 53 |
| Wool and Silk (24) | 33 | 0 | 38 | 5 | 16 | 22 | 11 | 0 | 22 |
| Jute and Mest Textiles (25) | 8 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 |
| Hosiery and garments (26) | 246 | 32 | 591 | 318 | 405 | 429 | 654 | 341 | 9003 |
| Wood products (27) | 0 | 8 | 174 | 32 | 66 | 37 | 63 | 63 | 234 |
| Paper and printing (28) | 225 | 8 | 523 | 225 | 264 | 379 | 709 | 337 | 1281 |
| Leather products (29) | 75 | 7 | 171 | 34 | 79 | 102 | 101 | 61 | 775 |
| Rubber and plastics (30) | 268 | 8 | 1322 | 285 | 804 | 1143 | 669 | 729 | 683 |
| Chemical products (31) | 286 | 18 | 1018 | 333 | 462 | 652 | 321 | 536 | 1009 |
| Non-metallic minerals (32) | 126 | 0 | 212 | 181 | 157 | 163 | 75 | 208 | 142 |
| Basic metal industries (33) | 168 | 8 | 769 | 185 | 378 | 473 | 423 | 329 | 764 |
| Metal products (34) | 268 | 32 | 1268 | 414 | 569 | 666 | 628 | 674 | 1324 |
| Machinery and parts (35) | 183 | 25 | 799 | 233 | 435 | 382 | 301 | 283 | 995 |
| Electrical machinery (36) | 328 | 64 | 1261 | 391 | 521 | 567 | 1222 | 735 | 2998 |
| Transport machinery (37) | 179 | 23 | 948 | 132 | 709 | 396 | 339 | 762 | 898 |
| Miscellaneous (38) | 178 | 8 | 382 | 56 | 156 | 129 | 241 | 169 | 410 |
| Manufacture of water geyser (42) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Assembly of AC and water cooler (51) | 7 | 7 | 7 | 0 | 7 | 0 | 0 | 0 | 6 |
| Storage and warehousing services (74) | 7 | 0 | 7 | 0 | 0 | 0 | 7 | 0 | 10 |
| Jobwork of data processing on the computer (82) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 163 |
| Jewellery (88) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scientific and material testing equipment (92) | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scientific testing equipment for the human body (93) | 5 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 8 |
| Audio and studio (95) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Jobwork of phototstat (96) | 33 | 0 | 85 | 0 | 42 | 33 | 17 | 0 | 29 |
| Repair services (97) | 109 | 0 | 127 | 13 | 32 | 96 | 13 | 70 | 40 |
| Job work of colour film processing (99) | 19 | 0 | 76 | 0 | 0 | 0 | 28 | 0 | 20 |
| **Total Employment (zonewise)** | 3134 | 259 | 10473 | 3210 | 5411 | 6225 | 6134 | 5851 | 24989 |

## APPENDIX III ( C )

EMPLOYMENT IN NON- CONFORMING INDUSTRIAL ZONES

| Type of Industry (code) | Patel Nagar | Rajouri Garden | Sadar Bazar | Shahdara | Shakur Basti | Shastri Nagar | SRT Nagar | Tri Nagar | Uttam Nagar |
|---|---|---|---|---|---|---|---|---|---|
| Type of industry not known | 86 | 124 | 124 | 253 | 48 | 365 | 200 | 172 | 143 |
| Food products (20) | 127 | 113 | 79 | 85 | 57 | 88 | 227 | 136 | 184 |
| Food products (21) | 41 | 27 | 41 | 14 | 41 | 14 | 59 | 27 | 55 |
| Beverages and tobacco (22) | 0 | 5 | 5 | 5 | 0 | 0 | 0 | 0 | 0 |
| Cotton Textiles (23) | 0 | 9 | 26 | 17 | 0 | 26 | 19 | 17 | 17 |
| Wool and Silk (24) | 16 | 0 | 5 | 22 | 0 | 11 | 25 | 16 | 16 |
| Jute and Mesta Textiles (25) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Hosiery and garments (26) | 270 | 318 | 1476 | 673 | 187 | 1284 | 637 | 461 | 310 |
| Wood products (27) | 32 | 55 | 111 | 119 | 40 | 87 | 41 | 71 | 24 |
| Paper and printing (28) | 265 | 192 | 2647 | 914 | 72 | 448 | 123 | 257 | 128 |
| Leather products (29) | 48 | 48 | 122 | 75 | 0 | 95 | 149 | 41 | 27 |
| Rubber and plastics (30) | 293 | 418 | 804 | 1983 | 50 | 871 | 329 | 746 | 268 |
| Chemical products (31) | 259 | 148 | 416 | 1459 | 46 | 391 | 289 | 508 | 111 |
| Non-metallic minerals (32) | 81 | 63 | 244 | 179 | 0 | 90 | 89 | 72 | 54 |
| Basic metal industries (33) | 112 | 120 | 441 | 2806 | 32 | 628 | 165 | 201 | 72 |
| Metal products (34) | 252 | 317 | 998 | 1064 | 143 | 908 | 216 | 544 | 195 |
| Machinery and parts (35) | 158 | 141 | 464 | 581 | 42 | 449 | 107 | 382 | 116 |
| Electrical machinery (36) | 431 | 344 | 713 | 1597 | 264 | 927 | 513 | 463 | 248 |
| Transport machinery (37) | 179 | 249 | 365 | 591 | 39 | 642 | 292 | 295 | 140 |
| Miscellaneous (38) | 97 | 169 | 607 | 355 | 48 | 194 | 126 | 113 | 73 |
| Manufacture of water geyser (42) | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| Assembly of AC and water cooler (51) | 0 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 0 |
| Storage and warehousing services (74) | 0 | 7 | 0 | 0 | 0 | 0 | 7 | 7 | 0 |
| Jobwork of data processing on the computer (82) | 0 | 0 | 0 | 58 | 0 | 65 | 0 | 72 | 0 |
| Jewellery (88) | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 |
| Scientific and material testing equipment (92) | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 |
| Scientific testing equipment for the human body (93) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Audio and studio (95) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Jobwork of phototstat (96) | 0 | 0 | 8 | 25 | 0 | 8 | 37 | 17 | 25 |
| Repair services (97) | 26 | 0 | 89 | 70 | 0 | 32 | 59 | 26 | 32 |
| Job work of colour film processing (99) | 0 | 19 | 37 | 19 | 0 | 19 | 0 | 28 | 0 |
| **Total Employment (zonewise)** | 2772 | 2894 | 9824 | 12969 | 1109 | 7656 | 3729 | 4673 | 2251 |

## APPENDIX IV (A)

## STARTING OF PRODUCTION OF POLLUTING UNITS

| Years | Percentage of polluting units |
|---|---|
| 1910-1919 | 11.52 |
| 1920-1929 | 0.07 |
| 1930-1939 | 0.15 |
| 1940-1949 | 1.02 |
| 1950-1959 | 2.63 |
| 1960-1969 | 5.63 |
| 1970-1974 | 22.88 |
| 1975-1979 | 16.34 |
| 1980-1984 | 4.75 |
| 1985-1989 | 0.22 |
| 1990-1994 | 1.61 |
| 1995-1999 | 0.69 |
| 2000-2002 | 0.40 |

APPENDIX IV (B)

## Polluting Units

| Zones | A | B | C | D | E | F | Polluting | Non-Polluting | Total |
|---|---|---|---|---|---|---|---|---|---|
| Alipur | 0 | 0 | 0 | 1 | 0 | 3 | 4 | 177 | 181 |
| Badli | 10 | 0 | 1 | 9 | 2 | 77 | 99 | 602 | 701 |
| Connaught Place | 2 | 0 | 0 | 3 | 5 | 13 | 23 | 124 | 147 |
| Greater Kailash | 1 | 0 | 0 | 10 | 4 | 7 | 22 | 297 | 319 |
| Janakpuri | 0 | 0 | 3 | 0 | 7 | 6 | 16 | 69 | 85 |
| Jungpura | 1 | 0 | 0 | 0 | 7 | 4 | 12 | 84 | 96 |
| Kalkaji | 0 | 0 | 0 | 0 | 7 | 9 | 16 | 419 | 435 |
| Kirti Nagar | 2 | 1 | 1 | 8 | 23 | 47 | 82 | 688 | 770 |
| Karol Bagh | 4 | 6 | 0 | 2 | 33 | 20 | 65 | 704 | 769 |
| Malka Gunj | 7 | 0 | 0 | 0 | 10 | 0 | 17 | 368 | 385 |
| Malviya Nagar | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 30 | 31 |
| Mayapuri | 16 | 9 | 10 | 13 | 12 | 97 | 157 | 1134 | 1291 |
| Mehrauli | 5 | 1 | 0 | 4 | 12 | 27 | 49 | 355 | 404 |
| Najafgarh | 6 | 4 | 4 | 2 | 7 | 60 | 83 | 591 | 674 |
| Nangloi | 15 | 2 | 0 | 2 | 17 | 49 | 85 | 675 | 760 |
| Naraina | 7 | 5 |  | 1 | 24 | 33 | 70 | 691 | 761 |
| New Subzi Mandi | 7 | 12 | 3 | 3 | 25 | 20 | 70 | 646 | 716 |
| Okhla | 102 | 85 | 77 | 55 | 104 | 293 | 716 | 505 | 1221 |
| Patel Nagar | 9 | 0 | 0 | 1 | 16 | 10 | 36 | 319 | 355 |
| Rajouri Garden | 2 | 1 | 0 | 1 | 15 | 7 | 26 | 333 | 359 |
| Sadar Bazar | 38 | 7 | 9 | 25 | 75 | 48 | 202 | 1035 | 1237 |
| Shahdara | 35 | 10 | 15 | 7 | 43 | 200 | 310 | 1316 | 1626 |
| Shakur Basti | 1 | 0 | 0 | 0 | 0 | 5 | 6 | 130 | 136 |
| Shastri Nagar | 5 | 2 | 12 | 7 | 14 | 63 | 103 | 832 | 935 |
| SRT Nagar | 7 | 6 | 0 | 0 | 20 | 10 | 43 | 408 | 451 |
| Tri Nagar | 37 | 20 | 9 | 19 | 17 | 103 | 205 | 371 | 576 |
| Uttam Nagar | 1 | 0 | 6 | 1 | 10 | 19 | 37 | 260 | 297 |

APPENDIX IV ( C )

INVESTMENT IN POLLUTING INDUSTRIES (ZONE WISE)

| ZONES | INVESTMENT IN POLLUTING INDUSTRIES |
|---|---|
| Alipur | 988995 |
| Badli | 7939018 |
| Connaught Place | 3109506 |
| Greater Kailash | 4633509 |
| Janakpuri | 4196129 |
| Jungpura | 2245412 |
| Kalkaji | 3818309 |
| Kirti Nagar | 10700318 |
| Karol Bagh | 11672101 |
| Malka Gunj | 3709713 |
| Malviya Nagar | 187005 |
| Mayapuri | 27668645 |
| Mehrauli | 8059020 |
| Najafgarh | 14109771 |
| Nangloi | 11758119 |
| Naraina | 8277109 |
| New Subzi Mandi | 11361459 |
| Okhla | 111521894 |
| Patel Nagar | 7165400 |
| Rajouri Garden | 5429531 |
| Sadar Bazar | 39198018 |
| Shahdara | 64694460 |
| Shakur Basti | 916744 |
| Shastri Nagar | 21528833 |
| SRT Nagar | 7458886 |
| Tri Nagar | 40580320 |
| Uttam Nagar | 7261660 |
| Total | 440189885 |

APPENDIX IV ( D )

EMPLOYMENT IN POLLUTING INDUSTRIES

| ZONES | EMPLOYMENT IN POLLUTING INDUSTRIES |
|---|---|
| Alipur | 28 |
| Badli | 533 |
| Connaught Place | 95 |
| Greater Kailash | 97 |
| Janakpuri | 100 |
| Jungpura | 51 |
| Kalkaji | 82 |
| Kirti Nagar | 367 |
| Karol Bagh | 275 |
| Malka Gunj | 129 |
| Malviya Nagar | 8 |
| Mayapuri | 624 |
| Mehrauli | 371 |
| Najafgarh | 449 |
| Nangloi | 455 |
| Naraina | 443 |
| New Subzi Mandi | 309 |
| Okhla | 4103 |
| Patel Nagar | 179 |
| Rajouri Garden | 116 |
| Sadar Bazar | 872 |
| Shahdara | 1482 |
| Shakur Basti | 45 |
| Shastri Nagar | 561 |
| SRT Nagar | 233 |
| Tri Nagar | 889 |
| Uttam Nagar | 153 |
| TOTAL | 13049 |