

GOVERNMENT OF INDIA
NATIONAL EMPLOYMENT SERVICE

AREA SKILL SURVEY
G U R G A O N

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National Institute of Educational
Planning and Administration
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DIRECTORATE GENERAL OF EMPLOYMENT & TRAINING
MINISTRY OF LABOUR, NEW DELHI

AREA SKILL SURVEY - GURGAON

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FOREWORD

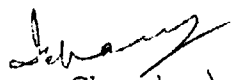
The basic aim of Area Skill Surveys is to study the quantum and quality of current and prospective employment ~~Industry-wise and Occupation-wise with a view to coordinating manpower needs and employment opportunities with the output of educational system and available technical training facilities.~~ Area Skill Surveys thus fulfil the long felt need for such data as is essential for tackling problems of unemployment at the area or grass-root level. An expert sub-group of the National Employment Service which concurrently evaluated these surveys besides suggesting improvements in the existing methodology and further refinement of techniques found that the results of the studies were of significant value in initiating measures for tackling problems of unemployment and formulating schemes for expansion of self-employment, career advice, training & apprenticeship, job development, employment market information programme etc.

Starting with the 3 districts of Bangalore, Ludhiana and Gorakhpur, the scheme was extended to cover 12 more districts in the country. This is the eighth report in the series - the reports already published being in respect of Ludhiana, Gorakhpur, Bangalore, Bilaspur, Kaira, Aurangabad and Burdwan.

I would like to express my thanks to employers and their associations, heads of training institutions & Colleges, State Directorate of Employment and district officials who extended their cooperation in the fullest measure to make the Survey a success. Thanks are also due to Shri B.L. Bhardwaj Assistant Director of Employment Exchanges, and other members of the Survey team for their hard labour in carrying out the survey operations and for their resourcefulness in achieving full response in the collection of field data.

The Survey was organised under the overall direction and charge of Shri J.C. Gupta, Deputy Director of Employment Exchanges, D.G.E & T., assisted by Shri Hari Krishan, Assistant Director of Employment Exchanges and other staff.

Action is being initiated separately to improve these Surveys in the light of experience gained and the recommendations made by the Expert Sub-Group and various Area Advisory Groups. However, comments and suggestions for further improvement from the readers would also be most welcome.


(Ishwar Chandra)
Director General & Joint Secretary
to the Government of India

Dated: 6th November, 1974

Shram Shakti Bhavan,
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SCOPE AND METHODOLOGY

An Area Skill Survey is basically a method to determine in respect of a given geographical area, current and prospective availability of skills and requirements in the foreseeable future. Of the several methods designed to estimate future manpower needs, area skill surveys have some distinct advantages. Firstly, skill surveys aim at eliciting information by a direct approach to employers and training institutions instead of attempting manpower projections on the basis of assumed growth rates and targets. Secondly, in view of the well known fact that skilled manpower, excluding perhaps high level manpower - has limited mobility area skill surveys furnish data which is more meaningful for manpower planning at the area level. Thirdly, in the National Employment Service, with its net work of Employment Exchanges with whom a fund of information about local labour market is available, a base already exists which can be easily developed to undertake the work of collecting additional data required for skill surveys with very little additional cost. Finally, because of the simplified process of data collection inherent in Area Survey Programme, analysis of labour market can be obtained at desired intervals enabling initiation of remedial measures to remove current and anticipated skill imbalances.

2. Broad objectives of the Area Skill Surveys are:-

- i) to provide information for use in vocational guidance and in initiating an effective career advisory service which depends for its success on a sound knowledge of changing job opportunities in different occupations in the area;
- ii) to furnish details for use in job development and placement activities of the Employment Service;
- iii) to provide specific information on changes that will be necessary in training and apprenticeship programme to meet future requirements;
- iv) to provide information about fields in which financial and other assistance is indicated for promotion of opportunities for employment and self-employment;
- v) to provide area-wise information concerning manpower resources needed in connection with location and expansion of industries;
- vi) to study and collate information regarding manpower contents of plan schemes and expansion programmes envisaged for the area; and
- vii) to provide information needed for manpower planning at area or 'grass-root' level.

3 To start with, fifteen districts in the country were taken up for conduct of Area Skill Surveys on pilot basis. The areas taken up for study were drawn from each of the following three types:-

- Type A - Highly industrialised urban areas with large skilled labour force and having complex employment market;
- Type B - Districts having a fairly developed urban industrial base as well as rural base characterised by advanced and mechanised agricultural operations;
- Type C - Predominantly rural areas marked by traditional agricultural activity where there is need for expansion of non-agricultural sector and avenues of self-employment.

4. This report embodies the findings of the survey conducted in Gurgaon district.

5. The approach adopted for collection of information for Area Skill Surveys is based on what is known as "Establishment Reporting" system. In order to achieve satisfactory response and accurate data, the Enquiry Schedule (Questionnaires) designed for the surveys were collected through personal interviews by trained staff. Following chart outlines the Enquiry Schedules that were canvassed for the collection of information:

Schedule & agencies from whom information was collected

Type of information collected

i) A.S.-I Employers' Schedule

All establishments in the public sector; All establishments in the private sector employing ten or more workers; 20 percent of establishments employing 5-9 workers in the private sector.

Persons employed by occupation 5 years ago and currently; Working proprietors & Partners; Seasonal employment; Expansion plans & factors hindering existing production or expansion or fuller utilisation of installed capacity; Future manpower needs by occupations 2 years hence and 5 years hence on the assumption that factors which were limiting expansion or production would be overcome; Separations & engagements; Economic activity; Year of establishment etc.

iii) A.S. II Schedule for
Emerging Establishments

All emerging establishments known to be in the blueprint stage or in different stages of completion on the date of enquiry.

Likely date of commencement of production or activity;
Nature of economic activity;
Likely number of persons to be employed by occupation during next two years and five years.

iii) A.S. III Schedule for
Institutions imparting
professional & technical education

All institutes, polytechnics, universities etc imparting professional and technical education.

Likely outturn by courses and professions during next 5 years at the certificate, diploma, graduate and post-graduate level.

iv) A.S. IV Schedule for
agricultural farms

Fifty largest agricultural farms in the area selected on the basis of size from each development block.

Employment; Manpower shortages; Farm equipment used; Financial assistance obtained etc.

v) A.S. V - Village
Schedules

Ten percent of villages taken from each development block.

Existing avenues of self-employment other than agriculture; Additional opportunities for self-employment that could be created in the light of modernisation of agriculture; Local resources and expanding need for maintenance and other services.

6. A mass of statistical data and information which was available from other sources was also studied in the presentation of area reports. Some of the important sources were (i) data available from day to day operations of employment exchanges; (ii) data collected under Employment Market Information Programme of Employment Service; (iii) decennial population census (iv) agricultural conditions; (v) socio-economic surveys; (vi) report of

employers' association; (vii) records of local bodies, government departments, licencing authorities etc.

7. The concepts, assumptions and analytical techniques adopted are given in the "Technical Notes" that follows:

TECHNICAL NOTES

The following paragraphs outline the concepts, assumptions and analytical techniques on the basis of which findings and conclusions have been drawn for presentation in this report. It is hoped that as more experience is gained, the methodology and techniques will be further refined to satisfy the users.

Reference 2. Although the survey operations were spread
Dates over a period about one and a half years commencing from the month of October, 1972, the data on employment i.e. the number of regular employees on pay roll including working proprietors, and partners relates to the following reference dates:

Employment 5 years ago as on 31st March, 1967
Current employment as on 31st March, 1973
Anticipated employment five years hence By 31st March, 1977

Establish- 3. A comprehensive and up-to-date frame of
ments & establishments, being an essential pre-requisite
Employ- was constructed on the basis of Employers'
ment. Register maintained at the Employment Exchanges under Employment Market Information Programme and other available sources. This was further **supplemented with reference to special street surveys carried out by the field staff in the district.** A high degree of comprehensiveness in the construction of the frame was achieved. This would be apparent by a comparison of the establishments covered under the Area Skill Surveys vis-a-vis Employment Market Information Programmes.

(viii)

	<u>No. of establishments covered under</u>	
	Area Skill Survey	Employment Market Information Programme.
A Public Sector	460	416
B Private Sector		
(i) Employing 25 or more workers	405	285
(ii) Employing 10-24 workers	324	164
Total	729	449
(iii) Smaller establishments with 5-9 workers	450	219
Grand Total:	<u>1639</u>	<u>1084</u>

4. While the smaller private establishment in the size class 5-9 workers were studied on 20 percent sample basis; all other establishments were studied on cent percent basis.

5. The employment revealed under the Employment Market Information Programme (which does not cover private establishments employing less than 10 workers) was 45.1 thousand in 1967 and 79.3 thousand in 1972. This gives an average growth rate of 15.3 per cent per year. As against this, comparable employment figures thrown up by Area Survey (excluding employment in smaller private establishments employing 5-9 workers) were 46.7 thousand and 93.3 thousand in 1967 and 1972 respectively, giving a growth rate of 20.0 percent per year. The wide variation between the two sets of employment figures is due to lack of comprehensiveness of Employers' Register and possible errors in the estimation of employment in respect of defaulting establishments followed under Employment Market Information Programme. To some extent the 'personal interview method' of collection of data followed under the Area Skill Surveys has also yielded more reliable data. It may be recalled that the Dantwala Committee also recommended adoption of this approach for the collection of data under the Employment Market Information Programme. For the same reason the Working Group of National Employment Service held in 1973 favoured the raising of survey teams for conduct of street surveys on a continuing basis to ensure comprehensive coverage of employers.

6. Employment in the agricultural sector and in establishments having 1-4 workers being outside the purview of this survey, has not been covered.

Response 7. The personal interview method coupled with an intensive programme of public relations undertaken from the very beginning resulted in achieving cent percent response.

Employment Growth 8. Future employment growth has been worked out by taking into account the under mentioned components:-

A. Forecast furnished by existing employers:

(i) The employers were requested to estimate future employment in their respective establishments on the basis of their expansion plans and on the assumption that existing shortages and difficulties relating to raw-materials, power finance, foreign exchange etc which may be hindering production or expansion or fuller utilisation of installed capacity would be overcome in the coming years.

(ii) Forecasts were obtained at two points of time, namely, two years hence (i.e. by 1974) and five years hence (i.e. by 1977). There are several reasons to warrant forecasts at two and five years' period from the date of enquiry. Firstly projection of demands for shorter period are likely to be more realistic than long term estimates based on many unknown variable. Secondly, training of skilled personnel normally takes 2-5 years' time. Considering, however, the fact that about one and a half year's time was taken up for completion of the survey, the two years' projection has not been analysed and presented in this report.

(iii) Significant employment is expected to be generated as a result of implementation of minimum social and welfare programmes of compulsory education, adult literacy, family planning, health, sanitation, communication etc. Since public sector establishments at the district level were generally not in a position to forecast their manpower needs arising both as a result of implementation of welfare programmes as well as those arising due to expansion, contacts were established with the respective heads of departments with a view to eliciting information about plan schemes. This has resulted in arriving at fairly accurate manpower estimates in respect of such departments as medical & health, education electricity, public works, animal husbandry etc.

B. Employment likely to be generated by emerging establishments:

As far as possible, attempts have been made to identify and list out new establishments which are currently known to be in blue-print stage or are in different stages of completion but are likely to emerge in the next five years. This led to the identification of 202 new establishments. It may, however, be mentioned that comprehensive listing of new establishments is not possible because establishments and projects which may be planned subsequent to the date of enquiry cannot be brought within the ambit of the survey. Some idea of the inadequacy of listing of emerging establishments can be had by an analysis of the past trends. During the preceding five yearly period of 1967-72, as many as 976 new establishments came up as against only 202 identified for 1972-77.

C. Employment projected for segments marked by uniform growth pattern:

It has been noticed that a sizeable number of private establishments, particularly in the smaller size-class, such as trading shops, eating places, minor repairing and servicing units spring up year after year on a fairly uniform pattern in normal course to meet the needs of population growth, urbanisation and expanding economy. As no formal planning or advance action (e.g. land acquisition, licence, power connection, finance etc.) is required in raising such establishments, it is, hardly possible to construct a comprehensive frame of such emerging establishments for the purpose of estimating future employment. In order to bridge the gap and build up a more realistic forecast, detailed analysis of the employment pattern by economic activity in the private sector establishments during the last five years was undertaken to identify such segments which revealed a fairly uniform employment growth year after year and thereby afforded full justification for projection on the basis of past trends. The segments thus identified are given in the table below. Manpower projections on the basis of past trends have been worked out only in respect of them.

Number of new establishments in selected economic activities in private sector which came up during a year with employment:

Economic activity	1967		1968		1969		1970		1971		Total	
	A	B	A	B	A	B	A	B	A	B	A	B
1	2	3	4	5	6	7	8	9	10	11	12	13
Cotton weaving & printing	3	137	1	14	3	76	9	405	2	182	18	814
Wood & wooden products	-	-	10	75	-	-	10	80	15	115	35	270

1	2	3	4	5	6	7	8	9	10	11	12	13
Paper & paper products	-	-	-	-	6	55	2	99	7	128	15	232
Tyres, tubes & other rubber goods	1	14	8	165	3	47	12	168	10	149	34	543
Basic industrial chemicals	1	22	1	10	1	14	-	-	1	21	4	67
Medicines, pharmaceutical preparations, perfumes & cosmetics	3	88	-	-	8	101	2	73	8	108	21	370
Turpentine, synthetic-resin & plastic products	1	16	1	78	5	140	2	35	10	212	19	481
Structural stone goods, stone dressing & stone crushing	1	12	1	34	1	18	-	-	2	24	5	88
Chinaware & crockery	-	-	1	42	-	-	1	16	-	-	2	58
Sundry hardware	5	45	5	45	10	70	20	165	30	225	70	550
Manufacture & assembling of machinery	-	-	-	-	5	45	-	-	15	115	20	160
Basic metals & products	9	139	3	63	10	261	3	104	29	455	54	1022
Manufacture & assembling of prime movers & boilers	2	64	-	-	1	18	2	100	2	70	7	252
Machine tools	-	-	1	10	3	34	6	48	11	107	21	199
Manufacture & assembling of motor vehicles, motor vehicle engine parts, repairing & servicing of motor vehicle	1	10	5	217	8	267	7	109	25	316	46	919
Other service manufacturing units	2	213	7	134	17	215	15	296	38	365	79	1223
Trading establishments	-	-	-	-	10	70	-	-	5	45	15	115
Educational services (non-technical)	-	-	-	-	5	35	5	45	-	-	10	80
Total	29	760	44	337	96	1466	96	1743	210	2657	475	7493

A - Number of Establishment

B - Stands for Employment

Self- 9 The approach adopted in the study of self-employment
Employment is discussed below:-

A Rural Areas: (i) Data on self-employment in the non-agricultural sector in rural areas was collected from a sample of 10 percent of villages in each development block. Of the total 1174 villages in the district 118 villages representing 13.7 percent of rural population were studied. The 'Village Schedule' that was canvassed in this regard was filled in after discussions with block development and panchayat officials, surpanchs and other village elders, who possessed intimate knowledge of their well-knit village community and households. Since about 88.9% of the total villages had less than 500 households (for 2,500 population) each and also because a small proportion of rural work-force is engaged in non-agricultural activities, a count of these persons with reasonable degree of precision did not present any difficulty.

(ii) Village officials and elders were also requested to estimate additional opportunities for self-employment that could be created in the light of modernisation of agriculture, availability of raw-materials and expanding needs for maintenance and other services. It is felt that these estimates would be fairly indicative of the potential for self-employment in rural areas.

B Urban Areas: A comprehensive coverage of self-employment in urban areas was outside the scope of the survey. However, a limited assessment in respect of those segments of economy for which information was readily available from existing records of Government departments, local bodies, employers and trade associations, licencing authorities etc. was made. Although, no forecasts have been attempted on the basis of this data, its utility lies in the fact that it sheds interesting light on the trend of self-employment in the urban economy.

C. Working Proprietors & Partners: The information in respect of these persons has been obtained separately on Employers' Schedule. It is believed that to a considerable extent, the small establishments are the handi-work of a single individual or a group of individuals who besides supervising the establishments or enterprise also engage paid workers. Accordingly, an analysis of working proprietors and partners by economic activity has, in the context of the economy and needs of the area, been undertaken to provide an indication of avenues for self-employment.

Future
manpower
needs

10 Following elements were taken into account to calculate future manpower needs:-

- (i) Employment growth;
- (ii) Replacement needs due to attrition in the existing work-force - In conformity with the accepted norm, these have been calculated at the rate of 2 percent per year;
- (iii) Vacancies remaining unfilled in establishments on the reference date (i.e. 31.3.1972).

Unemploy-
ment

11. The Live Register figures of Sub-Regional Employment Exchange, Faridabad and District Employment Exchange Gurgaon, have been used to estimate current level of unemployment in the urban areas of the district. As all applicants on the Live Register are not necessarily unemployed, the live register figures were adjusted by applying correction factor to eliminate those who were employed or were students. The correction factors applied were taken from the quick results of a survey launched by the Directorate General of Employment & Training in 1972.

Balancing
of Demand
& Supply

12. Considering the fact that professional and higher technical personnel such as engineers, scientists, doctors and technologists have a high degree of mobility, the balancing of demand and supply has been restricted to the category of craftsmen and other lower categories of skilled workers only. For this purpose, the future manpower needs have been balanced against the supply of manpower revealed by the current unemployeds and out-turn of training institutions and colleges during the next five years.

Agricul-
tural
Farms

13 A study of 50 largest agricultural farms was undertaken to reveal information about employment, manpower shortages, farm equipment used, financial assistance obtained etc. It is apparent that this limited study of agricultural farms should be regarded as a type study and not a comprehensive analysis of the manpower situation in the rural area.

Tabula-
tion

14. All data has been tabulated manually.

CHAPTER - I

BACKGROUND OF THE AREA

1.1 Gurgaon district, comprising five tehsils of Gurgaon, Ballabhgarh, Palwal, Nuh and Ferozpur Jhirka lies in an irregular shape bounded on the north-west by the Jhajhar Tehsil of Rohtak district, by Delhi towards the east and on the south by Mathura district of Uttar Pradesh, Bharatpur district of Rajasthan and Mahendragarh district of Haryana.

1.2 The district has twelve towns of Gurgaon, Sohna, Pataudi, Hailey Mandi, Farukh Nagar, Palwal, Ballabhgarh, Hodel, Nuh, Ferozpur Jhirka, Faridabad and Faridabad township. The number of villages is 1174 which are grouped into 11 community development blocks. All the villages have been electrified.

1.3 Of the total district area of 4.9 thousand sq. kilometres, 3.7 thousand sq. kilometres or 76 percent is under cultivation. The annual average rainfall during the last five years was 753.9 mm. The main sources of the irrigation are wells and tube-wells. Only a part of Palwal Tehsil has the facility of canal irrigation. There is no perennial river in the district. Two seasonal rivers, viz., Sabi and Indori are flooded in the rainy seasons. The principal crops of the area are wheat, gram, barley, bajra, jawar and oil seeds (mustard). In some parts of the area, sugarcane is also sown. The soil is saline, alkaline water logging and hilly.

1.4 The main minerals of the district are lime stone, kankar, stone, 'rori' and bajri. District is also rich in its cattle wealth. The number of animals is about 8.2 lakhs of which milch cattle are 2.8 lakhs.

1.5 According to 1971 census, the population of the district is 13.7 lakhs (rural 11 lakhs and urban 2.7 lakhs) which is 45.7 percent higher than 1961 population of 9.4 lakhs. The growth in rural and urban population during the decade 1961-71 is 41.0 percent and 68.7 percent respectively.

1.6 1971 census enumerated 36.3 percent of the total population as workers. In absolute terms, the number of workers was 4.5 lakhs (4.2 lakhs male and 0.3 lakhs female) of which 3.4 lakhs were cultivators and agricultural labourers. It may be of interest to note that while 76 percent of the area in the district is under cultivation, agricultural labourers and cultivators formed only 24.8 percent of the total population.

1.7 28.1 percent of the total population of the district is literate. There are 12 colleges, 131 high & higher secondary schools and 3 industrial training institutes in the district.

1.8 Before Independence this district was one of the most backward areas of the State but there has been a rapid industrialisation of the district since then. The district now affords the greatest potentiality for industrial development. Most of the industries are located at Faridabad, Gurgaon and Ballabgarh. Faridabad complex of industries can very proudly be termed as the industrial capital of Haryana and is well known for its industries throughout the country. The area has been able to develop export market for its manufactured goods such as tractors, agricultural implements, shoes, rubber products, refrigerators, electrical goods, chinaware and crockery.

CHAPTER II
EMPLOYMENT GROWTH

2.1 Wage and salaried employment (i.e. number of regular employees) recorded an increase from 47.6 thousand in 1967 to 96.7 thousand in 1972 thereby showing an annual growth rate of 20.7 percent. The employment is likely to rise at an annual rate of 9.5 percent and is expected to reach 142.7 thousand by 1977. The index of employment (1967=100) which rose to 203 in 1972 is expected to show further rise by 1977 and touch the 300 mark.

2.2 Growth Components

The elements which would contribute to the anticipated rise of 46.0 thousand persons during 1972-77 are:-

<u>Components</u>	<u>Anticipated growth (in thousands)</u>	<u>Major Industries</u>
a) Employment expected to be generated as a result of expansion of existing establishments.	30.2	Cotton weaving in powerlooms, tyres & tubes, Rubber goods for industrial purposes, medicines, pharmaceuticals preparations & cosmetics, turpentine, synthetic & plastic products brick & tiles, smelting & re-rolling of steel, sundry hardwares, agricultural implements & machinery, assembling of prime movers and boilers, machine tools, electrical motors & generators, lamps & fans, electrical machinery & apparatus, assembling of motor vehicles motor vehicles & engine parts, educational service etc.
b) Employment expected to be generated in new establishments currently in blue-print stage.	8.3	Canning & preservation of vegetables and fruits, garments, tyres & tubes, brick & tiles, cement products, smelting & re-rolling of steel, sundry hardwares, heavy electrical machinery & equipment battery, motor vehicle engine parts & accessories, etc.

- c) Employment projected for segments marked by uniform growth pattern 7.5 Cotton weaving & printing, tyres, tubes & other rubber goods, turpentine, synthetic resin & plastic products, sundry hardware, basic metals & products, manufacture & assembling of motor vehicles engine parts including repairing & servicing etc.

Sectoral Growth

2.3 Public Sector employment which constituted 27.5 percent of the total employment in 1972 recorded an annual growth rate of 14.9 percent between 1967-72. For the next five years, however, public employers anticipate a meagre yearly growth of 4.3 percent likewise private sector employment which showed an increase at an annual rate of 23.4 percent (higher than that of the public sector) between 1967-72, is expected to grow at an annual rate of 11.5 percent during the next five years.

Table 1
Employment Growth

Sector	Employment			Annual growth percentage		
	1967	1972	1977	1967-72	1972-77	1967-77
Public	15,242	26,629	32,370	14.9	4.3	11.2
Private	32,314	70,096	110,367	23.4	11.5	24.1
Total	47,556	96,725	142,737	20.7	9.5	20.1
Index of employment (1967=100)	100	203	300	-	-	-

Employment by Economic Activity

2.4 The change in the level of employment recorded between 1967-72 and that anticipated during the next five years according to broad industrial divisions is presented in the following table.

Table 2
Employment by Industrial Divisions

Industrial Division	Employment			Increase			
	1967	1972	1977	1967-72		1972-77	
				Number	Percent	Number	Percent
				per year		per year	
Agriculture Live Stock & Forestry	199	512	564	313	31.4	52	2.0
Manufacturing	32094	69179	108689	37085	23.1	39510	11.4
Construction	860	2288	3387	1428	33.2	1099	9.6
Electricity Gas, Water & Sanitary Services	1545	3359	3690	1814	23.5	331	2.0
Trade & Commerce	526	1267	1544	741	28.2	277	4.4
Transport, Storage & Communication	1060	1702	1809	642	12.1	107	1.3
Services	11272	18418	23054	7146	12.7	4636	5.0
Total	47556	96725	142737	49169	20.7	46012	9.5

(Refer Appendix I- Employment Growth by Economic Activity.)

2.5 Of the total employment in 1972, about three fourths (71.5 percent) was engaged in manufacturing industries followed by services (19.0 percent), electricity, gas, water & sanitary services (3.5 percent) and construction (2.4 percent). The balance of employment was shared by workers engaged in transport, storage & communication (1.8 percent), trade & commerce (1.3 percent), and agriculture, livestock, forestry (0.5 percent). The small proportion in agriculture live stock etc. is due to the fact that employment in this sector is not covered under the survey. The employment of 512 persons in 1972 relates mainly to such government establishments which are dealing with the development of agriculture, animal husbandry, forestry etc. in the area.

2.6 Substantial growth in employment during the last 5 years was reported in manufacturing (37,085) followed by services (7,146), electricity, gas, water and sanitary services (1,814), and construction (1,428). Further increases by 1977 have been forecast in the manufacturing sector (39,510), services (4,636), and construction (1099).

...

In the case of electricity gas, water and sanitary services, employment by 1977 is expected to rise by only 331 as against an actual rise of 1814 persons recorded in the preceding five yearly period. Difficulties of coverage have come in the way of projecting employment for trade & commerce which is expected to rise by only 277 persons as against an actual rise of 741 persons between 1967-72.

Industries of the Area

2.7 As has been stated earlier nearly three fourths of the total employed labour force in 1972 was engaged in manufacturing industries in the district. Motor vehicle engine parts, cotton textiles, sundry hardwares, machine tools, electrical machinery, diesel engines, road rollers & tractors, agricultural implements, smelting & re-rolling of iron & steel, printing & publishing and rubber & plastic products occupy a place of distinction in the economy of the area besides employing bulk of the labour force.

Table 3
Employment growth in important industries

Industry	Employment			Increase	
	1967	1972	1977	1967-72	1972-77
1	2	3	4	5	6
Textile Cotton	4580	6727	8362	2147	1552
Textile Silk	-	637	810	637	173
Textile wool	46	366	574	320	208
Textile Others	408	743	1313	335	653
Paper and paper products	461	869	1581	408	712
Printing & publishing	1369	2008	2208	639	200
Tyres & tubes	1114	1947	2785	833	838
Rubber foot wear	1192	1502	1737	310	235
Synthetic rubber goods & rubber goods used for industrial purposes	629	1368	2470	739	1102
Turpentine, synthetic & plastic products	815	1282	2854	467	1572
Bricks & tiles	569	861	1728	292	867
Cement products	168	280	777	112	497
Stonewares such as R.C.C. pipes	339	722	967	383	245
Medicines, pharmaceutical preparations & cosmetics.	203	897	1614	694	712

1	2	3	4	5	6
Asbestos products	947	1271	1355	324	84
Chinaware and crockery	892	1136	1554	244	418
Glass and glass products	466	750	832	284	82
Smelting and rerolling of iron & steel	567	3056	5146	2489	2090
Aluminium products	521	618	819	97	201
Metal products such as tin cane	734	1170	1528	436	358
Sundry hardwares	1137	6544	14261	5407	7717
Agricultural implements and other machinery	1505	3198	4584	1693	1386
Assembling of diesel engines, road rollers tractors	956	3913	5406	2957	1473
Machine tools	1195	4351	5566	3156	1215
Heavy electrical machinery such as motor, generators etc	1330	1894	3840	564	1946
Electric lamps & fans	138	735	1536	590	801
Insulated wires and cables	450	1218	1374	768	156
Electronic equipment, radios, microphones	514	1465	1862	951	397
Electric machinery & apparatus, air-conditioning	1128	3995	5738	2867	1743
Motor vehicles, engine parts & servicing	4718	8195	14701	3477	6506
Bicycles and accessories such as saddle, seat frame, gear etc.	567	845	958	278	113
Scientific, medical instruments	374	738	891	364	153

(Refer Appendix I: Employment Growth by Economic Activity)

2.8 Significant increases in employment between 1957-72 as well as in the next five years by 1977 has been reported in cotton textile, smelting & rerolling of iron & steel, sundry hardwares, agricultural implements and other machinery diesel engines, road rollers & tractors, machine tools, electric machinery & apparatus (air conditioning) and motor vehicle engine parts & servicing. Paper and paper products turpentine, synthetic & plastic products, structural clay bricks & tiles, chinaware & crockery, heavy electrical machinery and electric lamps & fans which showed marginal increases in employment in the preceding five years have forecast substantial employment opportunities in the next five years by 1977. Industries such as silk textile, printing & publishing, glass & glass products, insulated wires & cables, electronic equipments, bicycles & accessories and scientific & medical instruments, which showed significant increases in the employment during the preceding five years have forecast only marginal increases in the coming five years. Woolen textile, tyre & tubes, rubber footwear, synthetic rubber goods, medicines, pharmaceutical preparations and steel & other metal products have recorded almost the same increases in the employment for the two five yearly periods.

Services

2.9 Nearly 1/5th of the total employed labour force in Gurgaon district is engaged in services. Within the services, educational services (non-technical) occupied prominent position (8.6 thousand in 1972) and have reported marked employment gain during both the 5 yearly periods. This was followed by administrative services in government, quasi-government & local bodies whose share in total employment of 1972 was 6.7 thousand. As against a significant rise of 2.2 thousand during 1967-72, employment in them is expected to be almost stationary during the next five years. Medical & health services have also shown gains over a period of last five years (1967-72), but indicate almost stationary trend during the next five years (1972-77).

Table 4
Employment Growth in Services

	Employment			Increase	
	1967	1972	1977	1967-72	1972-77
1	2	3	4	5	6
Administrative services in the govt. and quasi-government offices & local bodies.	4459	6657	6833	2198	176

	1	2	3	4	5	6
Educational Services (Technical)		218	376	403	158	27
Educational services (non-technical)		4639	8570	12837	3931	4267
Public health, medical and veterinary		1150	1752	1827	602	75
Others		806	1063	1154	257	91
Total		11272	18418	23054	7146	4636

Occupational Pattern

2.10 The following table shows by broad occupational divisions the changes in employment between 1967-72 and 1972-77.

Table 5

Employment by occupational divisions

Occupational divisions	Employment			Increase	
	1967	1972	1977	1967-72	1972-77
1	2	3	4	5	6
Professional, Tech- nical & Related workers	<u>7087</u>	<u>13753</u>	<u>20407</u>	<u>6666</u>	<u>6654</u>
i) Scientists, engineers & technologists	1388	3853	5822	2465	1969
ii) Doctors and medical & health technicians	832	1262	1461	430	199
ii) Teachers	4147	7154	11168	3007	4014
iv) Accountants, social scientists and other professionals	720	1484	1956	764	472
II Administrative, Executive & mana- gerial workers	<u>2060</u>	<u>4571</u>	<u>6311</u>	<u>2511</u>	<u>1740</u>
II Clerical & related workers	<u>5205</u>	<u>10268</u>	<u>12753</u>	<u>5063</u>	<u>2485</u>
IV Sales Workers	107	331	472	224	141
IV Service Workers	<u>1696</u>	<u>2074</u>	<u>2192</u>	<u>378</u>	<u>118</u>
VI Farmers, loggers & related workers	<u>324</u>	<u>613</u>	<u>692</u>	<u>289</u>	<u>79</u>

	1	2	3	4	5	6
VII Production & Related Workers and Transport Equipment Operators		<u>21695</u>	<u>44144</u>	<u>70193</u>	<u>22449</u>	<u>26049</u>
(i) Production and related workers		21180	43139	68965	21959	25826
(ii) Transport equipment operators		515	1005	1228	490	223
VIII Unskilled		<u>9382</u>	<u>20971</u>	<u>29717</u>	<u>11589</u>	<u>8746</u>
Total		47556	96725	142737	49169	46012

(Refer Appendix II: Employment Growth by Occupations)

2.11 Due to large number of manufacturing industries in the area, more than half of the total number of employed persons in 1972 were under the two key occupational categories viz; 'production and related workers and transport equipment operators' and 'professional' technical and related workers'. Clerical and related workers (10268) were also significant followed by administrative, executive and managerial workers (4571) and service workers (2074). The other important features that emerge from the above table are:-

(i) Production & related workers and transport equipment Operators:

a) Production and related workers:- The number of production and related workers, which rose significantly by 22.0 thousand between 1967-72 is expected to rise further by 25.8 thousand in the next 5 years. This is primarily due to the rising trend of manufacturing industries discussed earlier in this report. Occupations with a marked upward trend in future in this category are machine tool operators; turners; fitters; machinists; welders; weavers powerloom; power press operators; moulders; fitting, assembling & machine erecting operatives; rolling mill operatives, spinning & winding operatives; wire drawers; grinders; furnace operators and tool setters.

b) Transport equipment operators: In this category a rise of 0.2 thousand is expected during the next five years. Occupations with a marked upward trend are car drivers, truck drivers and cart drivers.

ii) Professional, technical and related workers

a) Scientists, engineers & technologists These workers increased by 2465 during last five years and are likely to rise by 1969 between 1972-77. Marked upward trend is noticeable amongst electronic engineers, mechanical engineers and works inspector engineering.

b) Doctors and medical & Health technicians The number of such workers is expected to rise by 199 between 1972-77 as against an actual rise of 430 recorded between 1967-72.

c) Teachers- Their number which rose by 3007 during the last five years is expected to rise by 4014 between 1972-77. Marked upward trend is noticeable amongst teacher secondary schools and teacher primary and pre-primary schools.

d) Accountants, social scientists and other professionals
The number of such workers is likely to rise by 472 only during 1972-77 as against an actual rise of 764 recorded during 1967-72.

iii) Clerical & related workers:

As against a rise by 5.1 thousand in them between 1967-72, an increase of 2.5 thousand has been estimated for the next five years (1972-77).

iv) Administrative, executive and managerial workers

As against a rise of 2.5 thousand recorded during the past 5 years (1967-72) their number will increase by 1.7 thousand in the next five years (1972-77). The lower estimate for the future is, however, attributable to the fact that it is not feasible to forecast the number of working proprietors and partners who constitute the bulk in this category.

v) Service Workers.

The number of such workers which recorded a nominal increase of 0.4 thousand during 1967-72 is expected to rise by 0.1 thousand in the next five years. The rise is expected mainly in cooks and cook bearers.

vi) Farmers, loggers and related workers

The number of such workers which recorded an increase of 0.3 thousand during 1967-72 is expected to remain almost stationary during the next five years.

vii) Sales workers

A rise of 0.1 thousand is expected in their case between 1972-77 against an actual rise of 0.2 thousand recorded in the past five years.

2.12 Employment in establishments located in rural areas

Out of a total of 1639 establishments that were identified in the District of Gurgaon in 1972 only 159 (9.7%) were located in area which were classified as rural in 1971 census. These accounted for an employment of 3.1 thousand persons in 1972 as against 1.2 thousand in 1967. Of the total employment of 3.1 thousand persons in 1972, educational institutional engaged 2.4 thousand employees, followed by manufacture of chinaware & crockery (0.1 thousand). Only a small rise of 0.6 thousand persons during the next five years was forecast in the rural establishments and the employment will be 3.7 thousand by 1977.

2.13 Factors hindering existing production and/or expansions

Manufacturing industries in the private sector reported a number of difficulties which were hindering current production or fuller utilization of installed capacity and/or expansion. The problems of employers were, however discussed in a general way without quantifying them. A brief resume of this aspect is presented below.

i) Shortage of power

All industries using power: Most of the manufacturing industries reported shortage of power, frequent break-down and power-cuts.

ii) Shortages of raw-materials

Rubber, plastic & resins, bicycles, sundry hardwares diesel engines, tractor parts and machine tools

Rubber, steam coal, titanium-pig iron, mild steel alloy steel, high speed steel, silicon sheets, black sheets galvanised sheets, wire, copper, brass, zinc, oxygen gas cylinders, furnace oil, nickle, hard coke, steam-coke and ball bearing.

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Textile-woolen, cotton
and silk

Woolen, synthetic and staple
silk yarn & steam coke.

iii) Import

Medicines & pharmaceuti-
cals, rubber and plastic
industries.

Licences for import of
chemicals.

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C H A P T E R III

SELF - EMPLOYMENT

A Rural Areas

3.1 Information about self-employment in the non-agricultural sector in rural areas was collected from a sample of 10 percent of villages in the district. This involved a study of 118 villages representing 13.7 percent of total rural population.* The village schedules that were canvassed in this regard were completed after discussions with village elders and officials who possessed intimate knowledge of their respective village community and households.

3.2 The survey revealed that 36 thousand persons were self-employed in 1972 in various non-agricultural activities. While additional opportunities for self employment of the order of 14 thousand persons could be created in the light of modernization of agriculture, local produce, other resources, expanding needs for maintenance and other services. The type of assistance needed for development of self-employment among rural folk was mainly finance. The fields in which persons are currently self-employed and fresh employment opportunities that could be developed in the near future are indicated in the following table:

Table 6

Existing and future avenues of self-employment in rural areas

<u>Field</u>	<u>Existing number of persons who are self-employed</u>	<u>Scope for future self- employment</u>
<u>1</u>	<u>2</u>	<u>3</u>
	(1972)	
Retail trading	8370	3910
Milk selling	1350	2370
Soap making	10	1830
Coir weaving	750	1530
Brick laying	470	1120
Handloom weaving	370	530
Carpentary and wood work	3210	370
Diesel and tractor repairing	50	310
Electric wiring and repairing	150	290
Shoe making	3740	220
Blacksmithy	1600	220
Driving (animal-driven rehras)	1390	220

* Bloating of data was done on the basis of population covered in the sample.

1	2	3
Atta Chakki (Flour grinding)	490	210
Sheep rearing	70	180
Plumbing	540	130
Cycle repairing	240	120
Eating places	400	50
Pottery	2230	40
Medical practice	370	30
Cleaning and sweeping.	5580	--
Hair cutting	1880	--
Tailoring	1090	--
Goldsmithy	580	--
Laundry	340	--
Others	520	60
Total:	35790	13740

3.3 ✓ Considerable scope for self-employment exists in retail trading, milkselling, soap making and coir weaving. The scope in handloom weaving and carpentry and wood work have been reported to be a special feature of some of the villages of the district. Because of electrification of rural areas and increasing use of agricultural & other machinery, scope in such fields as electrical wiring & repairing and tractor & diesel engine repairing is expected to generate increasing employment opportunities to unemployed craftsmen who wish to settle in rural areas. Some other fields which can be developed from the point of view of self-employment are shoe making, black smithy and flour grinding. In addition to this, the scope for self-employment is also likely to be developed in brick laying due to increased activities of construction. ✓

3.4 A number of measures have been suggested for promoting self-employment in rural areas. The following chart summarises the type of assistance that would be needed in various fields.

Shoe making, coir weaving, flour grinding, cycle repairing and milk se@ling	Financial assistance
Hand-loom weaving	Provision of electric connections and finance for purchase of machinery for installation of power looms.
Blacksmithy, carpentry and tractor repairing.	Training.

3.5 Short-term training programmes have, also, been indicated to improve avenues of self-employment in rural areas in respect of the following:

- Soap making
- Coir weaving
- Handloom weaving
- Diesel & tractor repairing
- Electric wiring & repairing
- Shoe making
- Blacksmithy
- Plumbing
- Cycle repairing

3.6 Fully trained and experienced craftsmen would be needed as carpenters, diesel engine mechanics, electricians and blacksmiths. Efforts will, however, have to be made to attract willing persons to the rural areas by providing such inducements as financial assistance, provision of electric connections, etc.

B. URBAN SECTOR

3.7 A comprehensive account of self-employment in urban areas was outside the scope of the present survey. However, a limited assessment in respect of those segments of economy for which information was readily available from existing records of government departments; local bodies, employers & trade associations, licensing authorities, etc., was attempted. The statistics presented below is in respect of sectors for which information was available. The data gives an indication of the likely changes in the size of self-employment which may also in certain cases, have an element of direct employment. While translating the number of licences, registrations, etc, into manpower terms, consideration will have to be given to the fact that these numbers do not necessarily represent an equal number of self-employed. For instance, each public carrier may provide employment to 4-8 persons, whereas in the case of cycle-rikshaw 2-3 persons might be engaged in plying it on shift basis.

Table - 7

A. Number of licences issued:

	1967	1972	Increase (+) Decrease (-)
(1) <u>Railway authorities</u>			
a) Vendors on railway stations	22	38	(+) 16
b) Cycle contractors on railway stations	4	4	-
(2) <u>Municipal Committees</u>			
a) Vendors selling eatable on rehris	557	726	(+)169
(3) <u>Excise department</u>			
a) Liqueur shops	35	60	(+) 25

B Number registered

(1) <u>Municipal Committee</u>			
a) Sweetmeat makers and eating places	2108	3147	(+)1039
b) Cycle rickshaws	1068	2196	(+)1128
c) Meat sellers	54	71	(+) 17
d) Tongas	133	375	(*) 242
e) Animal driven carts	203	235	(+) 32
f) Hand-driven carts	26	45	(+) 19
(2) <u>Transport Authorities</u>			
a) Tempos/scooters	4	28	(+) 24
b) Public carriers	270	451	(+) 181
c) Taxis	-	16	(+) 16
(3) <u>Advocates enrolled</u>	172	226	(+) 54

C No. of registered shops & commercial establishments (1-4 persons) N.A. 11831 --

D Registered Ayurvedic & Unani practitioners 650 1500 (+) 850

3.8 It would be observed that during the period 1967-72, expansion in employment opportunities occurred in such fields as retail trading of eatables, plying of rickshaws, tongas, public carriers, tempos/scooters & taxis, medical and legal practice.

3.9 Working Proprietors & Partners: As many as 1057 private establishments (out of 1179 in the district) reported existence of one or more proprietors and partners who were actively engaged in day-to-day operation of their concerns. The number of such persons was 1387 as on March, 1972. Almost all (91 percent) smaller private establishments (5-9 workers) reported existence of working proprietors and partners. Of the total employment of 2.3 thousand in them, about 0.6 thousand or about 1/4 were classified as working proprietors and partners. Similar analysis in respect of bigger establishments showed that the proportion of working proprietors and partners to total employment was 1:19

3.10 The principal industries which were built up by individual entrepreneurship are given below: The data indicates the industries and fields which, in the light of economic characteristics of area, provided scope for self-employment besides generating substantial paid employment.

Industries	No. of Estab- lish- ments	Emplay- ment	No. of working proprietors & partners
1	2	3	4
Rice, atta and flour milling	15	148	30
Cotton weaving-power looms	20	603	22
Sawing and planing of wood	20	115	40
Manufacture of wooden goods such as door and windows	14	226	19
Manufacture of rubber goods for industrial purposes	44	443	67
Manufacture of medicines, pharmaceutical preparation and other toilet preparations, except soap	20	392	25
Manufacture of turpentine, synthetic & plastic products	23	422	31
Manufacture of bricks & tiles	10	829	17
Dressing and cutting of stones	24	232	48
Smelting & rerolling of Iron & steel	39	757	46
Manufacture of iron & steel furniture	23	293	34
Sundry hardwares	205	2072	234

	1	2	3	4
Machine assembling		64	532	98
Manufacture and assembling of diesel engines & tractors		15	230	15
Machine tools		38	230	45
Electrical equipment machinery and appliances		25	696	29
Manufacture of electric lamps and fans		14	222	17
Motor vehicle engine parts & accessories		76	2638	89

3.11 A study of occupational profile of working proprietors and partners revealed that majority of them had taken up managerial, clerical and sales functions.

<u>Occupations</u>	<u>No. of working proprietors and partners</u>
Professional & technical	43
Administrative and managerial	1235
Clerical and sales	75
Others	34
Total	<u>1387</u>

3.12 An analysis of educational attainment of the working proprietors and partners revealed that no relationship existed between the level of educational and type of work performed by them. Data below shows the educational profile of working proprietors and partners.

<u>Level of Education</u>	<u>Number</u>	<u>Percentage</u>
Below matriculation (including illiterates)	301	21.7
Matric & above but below graduates	471	34.0
Graduates & above but below post-graduates	404	29.1
Post-graduates	29	2.1
Professional & technical	182	13.1
Total	<u>1387</u>	<u>100.0</u>

C H A P T E R - I V

MANPOWER REQUIREMENTS

4.1 Manpower needs of the area for the next five years (i.e. by 1977) presented in this chapter have been built upon the following components:-

- i) Employment growth-ibid chapter II.
- ii) Replacement needs due to attrition in the employed work force-ibid Technical Notes para 10.
- iii) Vacancies remaining unfilled in establishments on the reference date (i.e., 31.3.1972). - ibid Technical Notes para 10.

Manpower needs by occupational Categories.-

4.2 Additional requirements for skilled manpower during the period 1972-77 will be of the order of 45.3 thousand. This excludes requirements of unskilled workers which is likely to be 10.8 thousand. Following table gives requirements by broad occupational categories.

Table 8
Manpower needs by occupational categories

Occupation	Number
I Professional, technical & related workers	8200
i) Scientists, engineers & technologists	2361
ii) Doctors, and medical & health technicians	406
iii) Teachers	4786
iv) Accountants, social scientists & other professionals	647
II Administrative, executive and managerial workers	2233
III Clerical and related workers	3560
IV Sales workers	172
V Service workers	336
VI Farmers, loggers and related workers	142
VII Production & related workers and transport equipment operators	30668
i) Production and related workers	30271
ii) Transport equipment operators	397
Total	45311

(Refer Appendix III - Manpower needs by 1977).

4.3 The requirements for production & related workers and transport equipment operators will be of the highest order (30.7 thousand) followed by professional & technical workers, (8.2 thousand), Clerical workers (3.6 thousand) and administrative, executive & managerial workers (2.2 thousand)%. The manpower needs of the area will be comparatively smaller for service workers and sales workers.

Professional and Technical Workers.-

4.4 The more important and crucial manpower needs among professional and technical persons are:-

Scientists, engineers and technologists.

Architects, civil engineers (including overseers)	260
Mechanical engineers	860
Electrical & electronic engineers	370
Chemical engineers	50
Works inspector engineering	260
Draughtsmen, mechanical	150
Laboratory assistants	80

Doctors and medical & health technicians

Physicians and surgeons	50
Chemists, pharmaceutical and pharmacists	90
Veterinary and pharmaceutical assistants	80
Nurses, Midwives and health visitors	40
Nursing, sanitary and other medical health technicians	120

Teachers

Colleges	160
Secondary	1550
Middle, Primary and pre-primary	3040
Art and crafts teachers	40

Accountants, social scientists and
other professionals

Accountants and auditors	390
Librarians	100
Athelets, sportsmen and related workers	50

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Survey ~~was~~ result was of significant value in in-
measures of lacking problems of unemployment, career advice
training and apprenticeship, job development, employ-
ment market, information program etc.

Rudhans,
Rosakihpur
Angolore,
Laspuer,
Kairua,
Mongabad,
Sudwan.

4.5 Out of a total of 2361 jobs likely to come up for engineers and technologists, 1272 will pertain to three principal branches of engineering viz. civil, mechanical and electrical. The demand for doctors and medical & health technicians during the next 5 years is likely to be of the order of 406. The demand for teachers (4786) is also expected to be sizeable.

Production & related workers and transport equipment operators.

4.6 The estimated requirement for production & related workers and transport equipment operators may be seen at Appendix-III. Demand for some important categories are as follows:-

i) Production & related workers

Furnace Operators (open hearth)	410
Operators, hot rolling mill (non-ferrous metal)	670
Moulders	691
Moulding and core making operatives	317
Wire drawers	497
Chemical & related workers	683
Spinning & winding operatives	815
Weavers, power loom	859
Carpenters	285
Diemakers & pattern makers, metal	329
Tool makers, other (including helpers)	596
Tool setters, general	436
Mechinists, general	1762
Turners	2933
Machine tool operators, other (including helpers)	2625
Metal polishers and tool sharpners	510
Power press operatives, metal	853
Fitters	2348
Fitting, assembling and machine erecting operatives	728
Electricians	320
Welders, gas and electric	1074
Plastic product moulders and operatives	381
Painters	390
Packers, labellers	464

ii) Transport equipment operators

Car drivers	165
Drivers, truck	107
Cart drivers	67

4.7 Anticipated expansion in existing industries such as sundry hardwares, motor vehicles engine parts & accessories, heavy electrical machinery, smelting & rerolling of iron and steel, diesel engines & tractors, bricks & tiles, synthetic & plastic goods, cotton spinning & weaving, wool spinning & weaving, tyres & tubes, rubber footwear, medicines etc., and opening of new industries in the field of sundry hardwares motor vehicle engine parts & accessories, synthetic & plastic products, smelting & rerolling of iron & steel, bricks & tiles, tyres & tubes etc., would create employment opportunities for a large number of production and related workers.

Manpower requirements by educational level.

4.8 Employers were asked to furnish information about educational and technical qualifications of workers likely to be in demand during the next five years. Of the total number of 45.3 thousand persons excluding unskilled workers likely to be required during the next five years by 1977, the educational profile could be obtained in respect of 33.3 - thousand persons. The table below shows man-power needs in terms of level of educational and technical qualifications.

Table 9.

Manpower requirements by educational level

<u>Level of Education</u>	<u>Percentage</u>
Below matric (including illiterates)	7.4
Matric & above but below graduate	31.0
Graduates & post-graduates in science Commerce, arts and law, etc.	13.0
<u>Professional & technical</u>	
Engineering	2.1
Medical & agriculture	0.2

...

Diploma holders in engineering & technology	3.9
Recognised certificates (such as those issued by I.T.I.s & teachers & training institutes)	22.7
Production process workers with experience irrespective of qualifications or I.T.I. training	19.7
	<hr/>
Total	100.0
	<hr/>

4.9 No formal institutional training or possession of a recognised certificate or diploma has been considered as an essential criterion for recruitment of a sizeable number of production and related workers. The manpower needs in these categories is normally being met through informal inplant apprenticeship or training run by establishments. In so far as craftsmen in the engineering trades are concerned a further probe might be necessary to assess employers' needs by degree of skill so that current training programmes could be reoriented to meet employers' specifications.

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C H A P T E R V

TRAINING AND EDUCATIONAL FACILITIES

5.1 In order to make an assessment of the availability of trained manpower during next 5 years, information about out-turn in respect of professional & technical persons and craftsmen etc., was collected from all the recognized colleges and institutions in the area separately at the certificate, diploma, graduate and post-graduate level (including doctorates). In working out the future out-turn the present intake capacity, admission targets set for the future as well as wastage at different level of education were taken into consideration. Table below indicates the likely out-turn during the next five years (1972-77) at various levels of education.

Table 10.

Out-turn from Institutions

<u>Field of study</u>	<u>Total out-turn in next 5 years</u>
A) <u>Post Graduate Level</u>	<u>226</u>
Political Science	157
Music	69
b) <u>Graduate Level</u>	<u>1620</u>
B.Sc. Non-Medical	599
B.Sc. Medical	567
B.Com.	454
c) <u>Diploma Level</u>	<u>535</u>
Auxiliary Nursing Midwifery	235
Electrical Engineering	150
Mechanical Engineering	150
d) <u>Certificate Level</u>	<u>5224</u>
<u>Engineering Trades</u>	<u>3734</u>
Draughtsmen Civil	76
Draughtsmen Mechanical	67
Machinists	278
Turners	327
Grinders	120
Instrument Mechanics	125
Fitters	502
Electricians	351
Radio Mechanics	73
Wiremen	68
Carpentary	227
Blacksmithy	50
Diesel Mech.	226

Tractor Mech.	273
Motor Mechanics	326
Refrigerator Mechanics	125
General Mechanics	52
Plumbers	50
Moulders	56
Welding	321
Sheet Metal	41
<u>Vocational Trades</u>	<u>1490</u>
Education (J.B.T.)	245
Stenography	529
Soap making	58
Weaving	47
Tailoring	364
Embroidery	186
Painting	61
 Grand Total	 <u>7605</u>

5.2 In addition to the out-turn from training institutions/colleges shown above, persons are also being trained through Apprenticeship Training Programme under the Apprentices Act, 1961 and under employers' own inplant training programme. The following table shows the number trained during the last three years (1969-72).

Table 11

Number trained during 3 years 1969-72

<u>Occupation</u>	<u>Number Trained</u>
Draughtsmen	11
Moulder	1
Reeling Machine Operators	5
Spinners & Winders	43
Weavers	1
Pattern makers	3
Blacksmiths	1
Tool-makers	27
Machinists	21
Turners	57
Grinders	6
Millers	8
Machine Tool Operators (Driller)	4
Fitters	57
Fitter (Automobiles)	19
Diesel Engine Mechanics	3
Tractor Mechanics	21
Mech. Maintenance (Chemical Plants)	3
Electricians	17

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Wiremen (light & power)	1
Electrician (Automobile)	1
Welders	9
Gas Cutters	3
Injection Moulding Machine Operators (plastic)	15
Compositors (hand)	6
Lino Operator	1
Machinemen (Automatic Printing)	3
Camermen (Photomechanical)	1
Book Binders	4

5.3 It would be observed from the above table that quite a good number of persons have been trained under the Apprentices Act 1961/Employers' own training programme and were responsible for providing training in such trades as spinners & winders (43) tool makers (27), machinists (21), turners (57), fitters (76), tractor mechanics (21) etc.

5.4 It would, however, not be realistic to add this number to the estimated supply of trained manpower (discussed in para 5.1) on the basis of above figures as majority of those who completed their apprenticeship were ITI Certificate holders who have already been taken into account.

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C H A P T E R VI

UNEMPLOYMENT TRENDS

6.1 The unemployment trends in the area have been analysed on the basis of employment seekers registered with the Employment Exchanges located in Gurgaon. The Live Register figures that have been taken into account in this regard relate to:

- i) District Employment Exchange, Gurgaon.
- ii) Sub-Regional Employment Exchange, Faridabad.

6.2 While studying unemployment trends through Live Register figures, it has to be borne in mind that as Employment Exchanges are located in urban areas, all rural employment seekers may not be registered. Similarly, even among urban persons, all who may be unemployed may not seek registration with the Employment Exchange. On the other hand, employed persons may also seek registration with the Employment Exchanges in the hope of getting better jobs.

Persons registered for Employment.

6.3 The total number of employment seekers, who were residents of Gurgaon district and were on the Register of the two Employment Exchanges mentioned above increased from 11.2 thousand in 1968 to 20.9 thousand in 1973. The women employment seekers who constituted 13 percent of the total in 1968 increased to 16 percent in 1970 and again came down to 13 percent in 1973.

Table 12

Number of employment seekers on the Live Register

<u>Year ending (June)</u>	<u>Men</u>	<u>Women</u>	<u>Total</u>
1968	9,730	1,447	11,177
1969	10,849	1,742	12,591
1970	12,691	2,358	15,049
1971	14,761	2,486	17,247
1972	17,937	2,503	20,440
1973	18,204	2,700	20,904

Educational attainments of job seekers

6.4 Analysing the employment seekers according to their educational attainments, about fifty four percent of those on the Live Register at the end of June, 1973 were non-matriculates and illiterates. As against this, the proportion of such persons was forty eight percent at the end of June, 1968, as would be clear from the table that follows:-

Table 13

Numbers of job seekers by educational attainments

Category	June 1968			June 1973		
	Men	Women	Total	Men	Women	Total
<u>Educated persons</u>						
a) Matriculates	3714	610	4324	4687	1188	5875
b) Hr. Secondary	626	171	797	1512	317	1829
c) Graduates	391	145	536	1112	441	1553
Arts	79	33	112	434	111	545
Science	38	8	46	263	31	294
Commerce	11	-	11	27	-	27
Engineering	25	-	25	29	1	30
Medical	9	-	9	11	4	15
Agriculture	23	-	23	37	1	38
Law	-	-	-	4	1	5
Education	206	104	310	300	292	592
d) Post-graduate	73	31	104	173	110	283
Arts	31	9	40	77	50	127
Science	10	1	11	45	7	52
Commerce	1	-	1	1	-	1
Engineering	-	-	-	1	-	1
Agriculture	9	-	9	1	-	1
Education	20	18	38	46	53	99
Others	2	3	5	2	-	2
<u>Total educated</u>	<u>4804</u>	<u>957</u>	<u>5761</u>	<u>7484</u>	<u>2056</u>	<u>9540</u>
<u>Non-Matriculates (including/</u>	<u>4926</u>	<u>490</u>	<u>5416</u>	<u>10720</u>	<u>644</u>	<u>11364</u>
<u>illiterates</u>	<u>9730</u>	<u>1447</u>	<u>11177</u>	<u>18204</u>	<u>2700</u>	<u>20904</u>
<u>Grand total</u>	<u>9730</u>	<u>1447</u>	<u>11177</u>	<u>18204</u>	<u>2700</u>	<u>20904</u>

6.5 The above table shows that the number of educated persons (i.e., matriculates and above) which was 5,761 at the end of June 1968 increased sharply to 9,540 at the end of June, 1973. Seventy five percent among the educated persons during 1968 and sixty two percent during 1973 were those who had passed matriculation examination. The number of graduate applicants registered with the Employment Exchanges in Gurgaon, which was 536 at the end of 1968 rose to more than three times during the following five years and was 1553 at the end of 1973. Only a small number of post graduate applicants are, however, registered with the Employment Exchanges.

6.6 The number of educated women on the Live Register was 957 in 1968. This number doubled itself and stood at 2056 in 1973. The number of graduates and post graduates among women applicants has also risen spectacularly in arts and science faculties during last five years. Increased number of women degree holders have now become available and seeking work through Employment Exchanges. This also implies that more women are now taking to higher education in the area.

Type of work sought by employment seekers

6.7 Following table shows the type of work sought by job seekers on the Live Register of the two Employment Exchanges functioning in Gurgaon District:

Table - 14
Type of work sought by employment seekers

Type of work sought	June 1969			June 1973		
	Men	Women	Total	Men	Women	Total
1	2	3	4	5	6	7
Professional & Technical	1407	1325	2732 (21.7)	1840	1606	3446 (16.5)
Administrative, Executive & managerial	35	-	35 (0.3)	20	-	20 (0.1)
Clerical & related work	573	36	609 (4.8)	797	52	849 (4.1)
Sales	-	-	-	1	1	2
Farming, Fishing & related work	450	112	562 (4.5)	27	-	27 (0.1)
Service	52	-	52 (0.4)	64	-	64 (0.3)

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1	2	3	4	5	6	7
Production & related work and transport equipment operation	1100	54	1154 (9.2)	995	61	1056 (5.0)
Freshers*	4224	147	4371 (34.7)	6486	541	7027 (33.6)
Unskilled	3008	68	3076 (24.4)	7974	339	8413 (40.2)
Total:	10849	1742	12591 (100.0)	18204	2700	20904 (100.0)

(Figures in brackets indicate percentage to total)

6.8 Of the total Live Register at the end of June, 1973 8413 (40.2%) were registered for unskilled categories and 7027 (33.6%) were freshers. 3446 (16.5%) of the total were seeking jobs in the category of professional and technical. Only small number of job seekers had the necessary background for taking up such work as production and related work and transport equipment operators, clerical farming, fishing and hunting and administrative, executive & managerial. Hardly any person was available in the category of sales.

6.9 It will also be observed from the above table that the proportion of the job seekers to total decreased in all the categories in 1973 as compared to that in 1969 except for unskilled in whose case it rose from 24.4% in 1969 to 42.2% in 1973. The number of persons available for administrative, executive and managerial jobs, farming fishing & related workers and production & related workers & transport equipment operators decreased between 1969 to 1973. Freshers whose number was 4371 at the end of June 1969 almost doubled in 1973 and numbered 7027. 2732 of the total number of persons seeking jobs were in the category of professional and technical in 1969 and this increased to 3446 in 1973.

*persons seeking employment who have not received any professional, technical or vocational training or work experience.

6.10 The number of women job seekers was 1606 in the professional and technical category (of which 1531 were seeking teaching jobs). Only handful of them were seeking jobs as clerks and in the category of production and related workers and transport equipment operation.

6.11 As all applicants on the live register are not necessarily unemployed, the live register figures have to be adjusted by applying correction factors to eliminate those who were employed or were students in order to formulate an estimate of unemployment in the district. The following table shows number of job seekers who could be considered as unemployed after applying adjustment factors. The correction factors applied were based on results of the D.G.E & T. Survey conducted to ascertain the proportion of employed persons on the Live Register of Employment Exchanges in 1972.

Table 15

Estimated No. of unemployed persons during 1972

<u>Category</u>	<u>No. of unemployed</u>
1. Professional & technical	3064
2. (i) Teachers	2652
(ii) Other professional & technical	412
2. Clerical & related workers	669
3. Production & related workers and transport equipment operators	821
4. Graduates & above without professional training or experience	674
5. Matriculates & above without professional training or experience	2601
6. Below matriculates without professional training or experience	1372
7. Other occupations	38
Total	9327

C H A P T E R - VII

DEMAND AND SUPPLY

7.1 By and large mobility among craftsmen, production process workers and other lower categories is limited to the boundaries of an employment market area. The same will not, however, be true in respect of higher technical and professional categories such as engineers, technologists, doctors scientists etc. who have a country-wide mobility and may some times even move out of the country. Accordingly, while the exercise of balancing supply and demand for craftsmen and production process workers may be a meaningful exercise and helping the strengthening and diversification of current training programmes, a similar exercise in respect of engineers, etc will not be valid. Attempt, therefore, has been made in this chapter to balance supply of manpower with the future demand (1972 to 1977) for craftsmen and production process and other lower categories of workers only.

7.2 Data on the demand side, i.e. manpower requirements of the area, has been outlined in chapter-IV. The component elements that have been taken into account to build up supply side are:-

- (i) Out-turn from training institutions, Colleges etc. *ibid* Chapter-V.
- (ii) Unemployed persons currently available for work- *ibid* Chapter-VI.

7.3 The balancing of supply of manpower with the future demand has been worked out in order to identify skills in which

- A. Supply is likely to be in excess of future needs
- B. Demand is expected to be met by informal or inservice training.
- C. Demand will outstrip supply indicating strengthening of existing training and educational facilities.

This analysis reveals the following position:-

A. Supply is likely to be in excess of future needs:-

Field	Number
Stenographers	330
Tailors and dress makers	290
Nursing attendants	220
Precision instrument makers & repairers	100
Mechanics & fitters automobile	260

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B. Demand is expected to be met by informal or inservice training

Accountants & Auditors	390
Book-keepers & cashiers	430
Office assistants	330
Store keepers	290
Drivers, motor vehicles	240
Bus conductors	670

C. Demand will outstrip supply indicating strengthening of existing training & educational facilities

Teachers, secondary school	990
Teachers, primary & pre-primary school	1010
Moulders and core-makers	960
Furnace operators	500
Rolling mill operators	670
Chemical & related workers	680
Metal drawers	590
Spinners & winders (Textile)	820
Weavers, power-loom	830
Blacksmiths, hammersmiths & forgemen	310
Die makers & pattern maker, metal	280
Tools and machine setters	430
Machinists	1560
Fitters	1740
Turners	2530
Drillers	190
Millers	200
Shapers	120
Slotters	140
Grinders	370
Power press operators	850
Polishers	180
Assemblers workshop	110
Fitting, assembling & machine erecting operators	720
Welders	440
Potters and China clay workers	350
Tyre-builders and vulcanisers	150
Plastic products makers	380
Painters	210
Paper product makers	140

C H A P T E R - VIII

AGRICULTURAL FARMS

8.1 A survey of 50 largest agricultural farms was carried out simultaneously with the skill survey of the area to study trends on such aspects as employment, manpower shortages, farm equipment, financial assistance, etc. Since, the selection of farms was done on the basis of size from each development block, the results presented in this chapter depict only general trends on the aspects taken up for study. Further because of land reform measures etc and the consequent lack of interest and hesitation on the part of farm owners in furnishing information, the results may have to be viewed with caution.

8.2 The size of the holdings studied ranged between 6 to 200 acres. The total area of the farms was 1.3 thousand acres giving an average of 26 acres per farm. Of the total area, 1.2 thousand acres was fully irrigated and the remaining was un-irrigated. 94 percent of the agricultural farms were using well, pumps or tubewells of their own for irrigation. The remaining 6 percent were using canal waters, in addition to tubewells or pump water. Major crops grown were wheat, barley, bajra, gram, jawar and vegetables. Only 20 percent of the agricultural farms have taken up dairy farming, 2 percent flour milling and 6 percent poultry farming in addition to agricultural operations.

Mechanisation and Farm Equipment

8.3 The study has revealed that most of the farms were mechanised and were using intensive methods of cultivation. As many as 50 percent of them had their own tractors while 76 percent had thrashers and other harvesting combines. Only 2 percent were using tractors on hire basis. Maintenance facilities for repairing and servicing of equipment were available at a distance ranging between 1 to 28 kilometers from the area of operation. The various types of implements that are being used in the agricultural farms are:-

Type of equipment	No. of equipment	No. of farms using the equipment
Tractors	27	27
Trollies	15	15
Thrashers	26	24
Diesel Engines	17	10
Tubewells	43	28
Pumping sets	5	4
Thrashers-Bullock driven	2	1
Harrows	10	10
Seed fertilizer drillers	6	6
Ploughs	27	25
Levellers	11	11
Cultivators	6	6
Chaser Machine	1	1
Spray machines	2	2

Employment

8.4 Because of intensive machanisation, regular employment of the 50 farms (excluding farm owners) was only 177 in 1972 as against 96 five years ago (1967).

	<u>1967</u>	<u>1972</u> ✓
Agriculture Sub-Inspectors	6	6
Managers	1	5
Watchmen	-	3
Agricultural Labourers	75	136
Tractor Operators	6	17
Farm Machine Operators	4	4
Milkers	2	2
Malis	-	1
Flour Mill Operators	2	2
Truck drivers	-	1
	<u>96</u>	<u>177</u>

8.5 In addition to the above, 73 owners and partners were also working on their farms. Besides exercising over all supervision, the owners were also operating tractors and other mechanical equipment.

8.6 Seasonal Labour to the extent of 35.1 thousand man-days was engaged during the year for sowing & harvesting (34.9 thousand man-days) and other agricultural operations (0.2 thousand man-days).

8.7 The farms have been engaging agricultural labour locally and no shortages are being experienced by them.

Financial Assistance:

8.8. Financial assistance was obtained by 32 percent of the agricultural farms either for the purchase of tractors or installation of tube-wells, levelling of land, well blasting and fertilisers. A majority of them have been able to meet their requirements from their own resources.

8.9 As has been stated earlier in this report, the study is based on information collected from fifty largest agricultural farms in the area selected on the basis of size from each development block. Accordingly the results presented in this chapter are relevant to the conditions prevalent in larger agricultural farms only. Broadly speaking most of the farms were mechanised and were using intensive methods of cultivation. Majority of them have been able to meet their requirements for improvements in agricultural operations from their own resources.

R E S U L T S A T A G L A N C E

The Area Skill Survey of Gurgaon District revealed that wage and salaried employment (i.e. number of regular employees) recorded an increase from 47.6 thousand in 1967 to 96.7 thousand in 1972, thereby showing an yearly growth rate of 20.7 percent. The employment is expected to rise further to 142.7 thousand by 1977 at the rate of 9.5 percent per year.

(Chapter II)

2. More than 70 percent of the total employed labour force is engaged in Manufacturing Industry. Large labour force was employed in such Industries as Sundry hardwares, motor vehicles (as well as parts and servicing), engine parts, machine tools, electrical machinery, cotton weaving rerolling of iron & steel, agricultural implements, diesel engines & tractor parts and rubber goods. The other promising industries of the area which rank second in importance are crockery, medicines & pharmaceuticals, paper & paper products, metal products, bicycles & accessories and electrical equipments.

(Chapter II)

3. Analysing occupationally, production & related workers and transport equipment operators who rose by 22.4 thousand between 1967-72 are expected to increase by 26.0 thousand in the next five years.

(Chapter II)

4. Shortage of raw-material and electricity are the main factors which were hindering existing production and/or expansion in the private industrial sector of the area.

(Chapter II)

5. Additional opportunities for self-employment to the extent of 14 thousand persons could be created in the rural areas in the light of modernisation of agriculture, local produce, other resources, expanding needs for maintenance and other services. Besides allied agricultural fields viz; dairy, poultry farming & live stock rearing, considerable scope for self-employment exists in soap making, retail trading, masonry work, carpentry, hand loom weaving, oil expelling, electric fitting and services. In urban areas, self-employment opportunities are expected to expand in plying of rickshaws, eatables and confectionery vending and tonga driving.

(Chapter III)

6. Working proprietors & partners of private firms have played an important role in building up a sizeable industrial complex in the area. The principal industries which were built up by individual entrepreneurship are: motor vehicles, engine parts & accessories, sundry hardwares, smelting & rolling and brick & tiles.

(Chapter III)

7. Additional manpower needs of the area during 1972-77 will be of the order of 45.3 thousand (excluding unskilled workers which is likely to be of the order of 10.8 thousand) Some of the important and crucial manpower needs are estimated to be as follows:-

I	Professional & technical workers	<u>8200</u>
	(i) Scientists, engineers & technologists	2361
	(ii) Doctors and medical & health technicians	406
	(iii) Teachers	4786
	(iv) Accountants, social scientists & other professionals	647
II	Administrative, executive and managerial workers	2233
III	Clerical and related workers	3560
IV	Sales workers	172
V	Service workers	336
VI	Farmers, loggers and related workers	142
VII	Production & related workers and transport equipment operators	<u>30668</u>
	(i) Production and related workers	30271
	(ii) Transport equipment operators	397
	Total	<u>45311</u>

(Chapter IV)

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8. Balancing of demand for and supply of manpower among production and related workers and other lower categories has revealed following imbalances:-

- a) Supply is likely to be in excess of future needs in respect of stenographers, tailors, and dress makers, nursing attendants, precision instrument makers and repairers, mechanics and fitters automobile
- b) Demand will outstrip supply indicating strengthening of existing training and educational facilities in respect of teachers secondary schools, teachers primary and pre-primary schools, moulders and coremakers, furnace operators, rolling mill operators, chemical & related workers, metal drawers spinners & winders (textile), weaver power looms, blacksmiths, hammersmiths & forgerman, die makers & pattern maker- metal, tool and machine setters, machinists, fitters, turners, drillers, millers, shaper, slotters, grinders, power-press operators, polishers, assemblers workshop, fitting and assembling and machine erecting operators, welders, potters and china clay workers, tyre builders and vulcanisers, plastic product makers, painters and paper-product makers.

(Chapter VII)

EMPLOYMENT GROWTH BY ECONOMIC ACTIVITY

ECONOMIC ACTIVITY-	No. of employees		
	1967	1972	1977
1	2	3	4
<u>AGRICULTURE, LIVE STOCK & FORESTRY</u>	<u>199</u>	<u>512</u>	<u>564</u>
<u>Manufacturing</u>	<u>32094</u>	<u>69179</u>	<u>108689</u>
Rice, atta, flour, etc.	101	226	298
Jam, jelly, souce & canning and preservation of fruits	-	-	123
Butter, ghee and cheese	10	11	11
Edible fats and oils	49	75	143
Sweet-meat and condiments	60	45	45
Distilled spirit, wine, liquor from alcoholic malt	-	87	143
Aerated and mineral water	45	52	52
Ice	-	13	13
Cotton spinning & weaving in mills	714	1339	1961
Cotton dyeing and bleaching	36	172	337
otton weaving in power-looms	2920	3625	4406
rinting of cotton textile	905	1527	1594
otton cordage, rope and twine	5	64	64
ool spinning and weaving in mill	14	310	466
ool weaving in power loom	-	16	58
ool weaving in hand loom	32	40	40
mbroidery and art work in woolen extile	-	-	10
pinning & weaving of silk textile in mills	-	603	765
rinting of silk textile	-	34	34
ilk cortage, rope and twine	-	-	11
arpet and other similar type of extile products	35	479	610
osiery & ready made garments	27	39	264
mbroidery & making of crepe lace & rings	346	225	439
ewing and planing of wood	35	155	265
ooden furniture and fixture	-	38	129

1	2	3	4
Structural wooden goods such as beams doors & windows	166	221	322
Boxes and packing cases	34	182	262
Pulp from wood, rags, waste-paper & other fibres, paper board (in mill)	357	422	605
Pulp from wood, rags, wastepaper & other fibres-paper board (hand made)	•	68	189
Paper bags, boxes, cards and envelopes	104	379	787
Printing and publishing of books	25	85	125
Lithography, block-making and printing	1344	1923	2083
Tyres & tubes	1114	1947	2785
Rubber & leather foot wear	1192	1502	1737
Rubber goods used for industrial purposes	481	1194	2165
Synthetic rubber	148	174	305
Chemicals such as acids, alkalis etc	35	107	290
Dyes, paints, colours & varnishes	8	117	285
Fertilisers	25	65	261
Medicines, pharmaceutical preparations and cosmetics	203	897	1614
Soap and other washing compounds	26	83	167
Turpentine, synthetic & plastics products	815	1282	2854
Fire extinguishing foam compounds	41	61	126
Bricks & tiles	569	861	1728
Cement products	168	280	777
Structural stone goods and stone crushing	165	270	409
Refractories & RCC pipes	339	722	967
Asbestos products	947	1271	1355
Chinaware and crockery	892	1136	1554
Poreclain and products	27	44	135
Glass bangles and beads	31	31	64
Glass and glass products	466	750	832
Smelting and re-rolling of steel	567	3056	5146
Smelting, refining of non-ferros metals	111	238	582

XVI

1	2	3	4
Structural steel products such as rail, sheets and plates	142	405	629
Iron and steel furniture	-	137	293
Brass and bell metal products	358	221	353
Aluminium products	521	618	819
Metal products such as tin can	734	1170	1528
Enamelling, galvanising, plating & polishing of metal products	56	186	402
Sundry hardwares	1137	6544	14261
Agricultural implements & other machinery	1505	3198	4584
Assembling of diesel engines, road rollers, tractors	956	3913	5406
Machine tools	1195	4351	5566
Textile machinery	-	10	24
Heavy electrical machinery such as motors, generators	1330	1894	3840
Electric lamps and fans	138	735	1536
Insulated wire and cables	450	1218	1374
Electronic equipments-radios microphones	514	1465	1862
Electric machinery & apparatus, air conditioning	1128	3995	5738
Wagons, coaches, and other rail road equipment	39	77	115
Assembling of motor vehicles	2146	2746	5608
Motor vehicles engines parts	2340	4884	8356
Repairing and servicing of motor vehicles	232	565	737
Bicycles and accessories such as paddle seat frame, gear	567	845	958
Animal drawn and hand drawn rehras	-	10	10
Optical instruments and lenses	26	86	214
Scientific & medical instruments	374	738	891
Assembling and repairing of watches and clocks.	24	15	15
Pencils, penholders and fountainpen	405	516	681
Repair work of goods not assignable to any other group	17	68	123

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XVII

1	2	3	4
Artificial teeth	26	26	84
<u>CONSTRUCTION</u>	<u>860</u>	<u>2288</u>	<u>3387</u>
Maintenance of building, flooring and sanitary installations	483	927	1196
Roads, railways, bridges	110	588	1369
Telegraph and telephone lines	77	103	142
Maintenance of bunds canals, tanks tubewells, wells	190	670	680
<u>ELECTRICITY, GAS, WATER AND SANITARY SERVICES</u>	<u>£545</u>	<u>3359</u>	<u>3690</u>
Distribution of electric energy	1437	3101	3334
Manufacturing of gas in gas works & distribution to domestic and industrial consumers	108	146	157
Water supply & sanitary services	-	112	199
<u>TRADE & COMMERCE</u>	<u>526</u>	<u>1267</u>	<u>1544</u>
Wholesale and retail trade	94	236	313
Banking	408	940	1140
Providents and insurances	24	91	91
<u>TRANSPORT STORAGE & COMMUNICATION</u>	<u>1060</u>	<u>1702</u>	<u>1809</u>
Transport by bus	469	961	961
Transport by motor vehicles (other than omni bus)	40	93	123
Packing, carting & travel agency	-	-	55
Storage and warehousing	18	52	52
Postal and telegraphic communication	456	502	502
Information and broadcasting	77	94	116
<u>SERVICES</u>	<u>11272</u>	<u>18418</u>	<u>23054</u>
Public services in administrative departments & offices of the Central Govt.	558	668	668
Public services in administrative departments & offices of quasi-Govt. & local bodies	1056	2433	2474
Public services in administrative departments & offices of State Govt.	2845	3556	3691
Educational services, technical	218	376	403

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XVIII

	1	2	3	4
Educational services, non-technical	4639	8570	12837	
Scientific & research institutions	137	184	191	
Public health and medical services	1121	1393	1439	
Veterinary services	29	359	388	
Welfare services	48	65	71	
Services rendered by trade organisation	228	287	290	
Community services	237	269	269	
Recreation & catering services	66	121	170	
Personal services	90	137	163	
GRAND TOTAL	47556	96725	142737	

EMPLOYMENT GROWTH BY OCCUPATIONS

Occupation	Number of employees		
	1967	1972	1977
1	2	3	4
<u>Professional, Technical & related Workers</u>	<u>7037</u>	<u>13753</u>	<u>20407</u>
i) <u>Scientists, engineers & technologists</u>	<u>1388</u>	<u>3853</u>	<u>5822</u>
Physicists and chemists	37	114	199
Metericologists and physical scilientists	6	27	43
Physical science technicians	29	66	80
Architests and town planners	8	16	21
Civil engineers (general)	9	46	70
Civil engineers (building)	8	27	30
Civil engineers (public health)	17	34	40
Electrical engineers and designers	92	235	282
Telecommunication, radio and sound engineers	25	56	69
Electronics engineers	51	213	470
Mechanical engineers, general	169	680	1380
Designers, machine	3	9	12
Tool engineers	15	34	38
Mechanical engineers (Production)	32	60	77
Mechanical engineers (Maintenance)	7	12	12
Mechanical engineers (Structural)	9	19	19
Mechanical engineers (Automobile)	9	17	50
Mechanical engineers (aeronautical)	1	2	5
Mechanical engineers (Air conditioning)	5	46	58
Chemical engineers	7	24	76
Metallurgists	-	3	6
Industrial & planning engineers	12	31	57
Works inspector-engineering	379	850	1024
Textile technologists	21	51	55
Spinning, weaving, dyeing & printing masters	9	28	40
Rubber technologists	13	27	35
Engineers & technologists oil, glass leather etc.	41	72	86

1	2	3	4
Draughtsmen (Civil)	27	89	91
Draughtsmen (Electrical)	32	103	103
Draughtsmen (Mechanical)	145	290	411
Overseers (Civil engineering)	82	394	569
Civil engineering technicians, others	5	24	43
Plane tabler & surveyors	1	3	3
Laboratory assistants, engineering	11	28	100
Tracers	26	56	69
Blue printers	3	5	28
Mycologists & entomologists	30	30	30
Plant pathologists, agronomist & horticulturists	4	9	25
Life Science technicians	8	18	21
ii) <u>Doctors and medical & health technicians</u>	<u>832</u>	<u>1262</u>	<u>1461</u>
Physicians general	141	148	161
Surgeons	2	11	11
Radiologists	4	6	6
Physicians ayurvedic & unani	1	16	16
Dentists	1	2	2
Veterinarians, general	4	17	23
Veterinary surgeons	-	32	39
Chemists, pharmaceutical	17	57	97
Pharmacists	181	250	268
Vaccinators & medical assistants	27	30	30
Veterinary & pharmaceutical assistants	11	112	182
Nurses	53	93	102
Midwives	159	170	173
Health visitors	23	29	29
Nursing, sanitary & other medical health-technicians	208	289	322
iii) <u>Teachers</u>	<u>4147</u>	<u>7154</u>	<u>11168</u>
Teachers, college	100	287	416
Teachers, secondary school	954	2180	3486
Teachers, middle schools	51	90	90
Teachers, primary & pre-primary school	2922	4393	6965
Art and crafts teachers	120	204	211

1	2	3	4
iv) <u>Accountants, social scientists and other professionals</u>	<u>720</u>	<u>1484</u>	<u>1956</u>
Statistical investigators	19	41	56
Accountants, auditors	336	772	1078
Librarians	8	16	111
Translators	3	4	4
Personal managers	14	39	45
Employment officers	2	5	5
Labour welfare officers	63	98	103
Village level workers	94	116	116
Lawyers, judges, magistrates & legal assistants	13	15	15
Sheriff & petition writers	50	50	51
Editor, public relation officers and publicity- assistants	29	46	49
Commercial artists, decorators & designers	3	16	17
Photographers	-	2	3
Composers, musicians, singers, actors and circus performers	12	19	19
Atheletes, sportsmen and related workers	54	174	206
Laboratory attendents	20	71	73
<u>ADMINISTRATIVE, EXECUTIVE & MANAGERIAL WORKERS</u>	<u>2060</u>	<u>4571</u>	<u>6311</u>
Administrative & executive officials, union government	97	134	134
Administrative & executive officials- state government	452	871	875
Administrative & executive officials- quasi-government	16	44	45
Administrative & executive officials- local bodies	39	77	77
Working proprietors, directors and managers- wholesale trade	58	103	154
Working proprietors, directors and managers- retail trade	2	4	24
Directors and managers - bank	36	97	104
Directors and managers - insurance	7	39	39

	1	2	3	4
Working proprietors, directors and managers- construction and manufacturing		1279	3089	4674
Working proprietors, directors and managers- transport storage and communication		13	23	28
Working proprietors, directors and managers - other services		61	90	157
III CLERICAL AND RELATED WORKERS		5205	10268	12753
Clerical supervisors, office superintendents-		76	116	156
Head clerks		398	1084	1299
Office assistants		398	1084	1299
Panchayat Secretaries		95	107	108
Patwaris		315	471	471
Stenographers and stenotypists		220	525	674
Typist and teletypist		213	401	518
Book keepers and account clerks		273	712	976
Cashiers		108	234	473
Audit clerks and tellers, bank		1	2	10
Book-keeping and calculating machine operators		44	64	71
Clerks		2637	4965	6068
Store keepers and related workers		164	514	759
Receptionists		2	7	13
Time keepers		91	273	237
Ticket sellers		19	33	45
Duplicating & embossing machine operators		8	20	34
Bill collectors		13	16	16
Proof readers		50	62	62
Copy holders		28	34	34
Post master and sub post master		23	24	24
Telegraph inspectors and wireless supervisors		17	19	19
Traffic inspectors and goods supervisors		25	44	44
Telephone Inspectors		4	6	6
Bus conductors		217	400	400

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	1	2	3	4
Postmen		100	137	137
Telegraph messengers		22	36	36
Telephone operators		34	54	55
Wireless operators		8	8	8
IV <u>SALES WORKERS</u>		<u>107</u>	<u>331</u>	<u>472</u>
Retail dealers and sales supervisors		6	18	19
Purchasing agents		40	123	150
Technical salesmen and service advisors		8	34	46
Commercial travellers,		29	84	135
Salesmen, wholesale trade		4	35	54
Salesmen, retail trade		4	13	29
Petrol pump salesmen		3	10	10
Shop attendants		13	14	29
W <u>SERVICE WORKERS</u>		<u>1696</u>	<u>2074</u>	<u>2192</u>
House keepers, cooks and matrons		48	73	188
Bullers, bearers and waiters		2	29	43
Bartenders and related workers		15	15	15
Ayahs, nurses and maids		32	35	35
Domestic servants		-	22	22
House keeping service workers, others		126	150	150
Building caretakers		4	20	20
Dhobis		2	6	20
Hair dressers, barbers and related workers		23	33	33
Protective service workers		1444	1688	1733
Guides		-	3	3
VI <u>FARMERS, LOGGERS AND RELATED WORKERS</u>		<u>324</u>	<u>613</u>	<u>692</u>
Managers, poultry and horticulture		2	4	16
Poultry farmers		28	33	37
Farm machinery operators		17	27	31
Herdsmen		3	69	81
Gardeners and nursery workers		168	340	387
Foresters		16	20	20
Forest Guards		85	105	105
Fisherman		-	15	15

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	1	2	3	4
VII <u>PRODUCTION & RELATED WORKERS AND TRANSPORT</u>		<u>21695</u>	<u>44144</u>	<u>70193</u>
i) Production and related workers		<u>21180</u>	<u>43139</u>	<u>68965</u>
Shot firers and well drillers		14	31	31
Mixermen and convertermen		-	4	16
Furnace operators (open harth)		-	50	455
Furnace operatives		-	58	141
Operators hot rolling mill (non-ferrous metal)		1	43	43
Rolling mill operatives		53	871	1454
Chargers, cupola		12	20	20
Heat treating furnace operators		107	259	334
Metal melters and reheaters		40	51	51
Laddlemen and ladle cleaners		-	49	63
Moulders		237	446	1092
Foremen moulders		14	14	20
Core makers (hand)		64	49	57
Moulding and coremaking operatives		15	275	564
Annealers, hardners (metal)		24	39	46
Heat treatment operatives		4	30	45
Wire drawers		31	169	649
Barbed wire makers and metal drawing operatives		5	265	330
Electroplaters		11	83	146
Metal platers and coaters		34	107	137
Sample checkers, metal		7	36	40
Pumblers		58	131	186
Metal processors		7	24	24
Wood sawyers		56	86	117
Paper pulp preparers		73	88	88
Paper makers		459	518	535
Millers (Chemical)		6	12	21
Panmen Soap		4	21	74
Straining operators (rubber reclaim)		11	38	93
Mixers rubber		89	134	197
Chemical and related workers		79	267	923

1	2	3	4
Jobbers (textile)	109	235	260
Fibre preparers	66	232	379
Doffers, fly frame	116	210	241
Piecers	157	309	367
Mulepiecers and twistors	69	76	98
Hand spinners and winders (textile)	203	350	471
Reelers (Textile)	346	333	368
Spinning and winding operatives	1982	2433	3005
Warpers and sizers (textile)	45	75	130
Knitters	20	66	112
Weavers power loom	423	858	1631
Drawing and weaving operatives	18	91	115
Carpet makers and finishers	3	68	70
Printing jobbers	147	314	327
Wool, finishing, bleaching, dyeing and printing operatives	12	124	366
Folders machine (textile)	84	126	151
Hide and skin setters, hand	15	22	88
Millers, parchers (food grains)	39	97	113
Crushers and pressers, oil seeds	19	23	30
Khandsari, sugar and gur making operatives	-	26	26
Food preservers	-	38	110
Dairy product processors	6	16	22
Malt makers	50	57	81
Bottling operators	22	24	25
Tobacco product makers	-	13	35
Tailors	12	32	188
Pattern makers and cutters	7	24	46
Sewers and embroiderers	3	15	121
Upholsterers and related workers	13	23	175
Shoe repairers, cobblers	997	1271	1371
Carpenters and cabinet makers	168	386	632
Wood working machine operators	20	42	92
Coach and body builders	10	15	28

1	2	3	4
Stone cutters and carvers	2	3	5
Supervisors and foremen machine tool operatives	12	69	93
Blacksmiths	100	279	398
Hammermen	47	181	353
Smithy operatives	2	90	201
Markers, metal	7	21	34
Tool makers	70	238	263
Die makers and pattern maker, metal	68	158	452
Tool makers, others (including helpers)	274	783	1301
Tool setters, general	128	163	583
Tool setters, press	13	14	55
Setters, drop forging machine	51	68	103
Setters, automatic machine	1	46	46
Machinists general	1013	2173	3718
Turners	551	1153	3971
Turret and capstan lathe operators	26	44	57
Shapers	39	144	253
Planners	12	41	79
Slotters	212	171	294
Millers	161	433	605
Heavy duty end-mill operators	8	32	95
Drillers, metal	114	430	584
Machine tool operators, (other including helpers)	2471	4840	6801
Grinders, general	286	703	1143
Metal Polishers and tool sharpners	43	222	385
Power press operators, metal	574	959	1716
Armourers	-	28	38
Mechanic, precision instruments	59	108	133
Fitters	1165	3299	5317
Assemblers, workshop machine and equipment	199	373	442
Fitting, assembling & machine erecting operatives	102	298	996
Assemblers (Automobile)	52	104	122
Assemblers (Motor cycle)	73	104	106

XXVII

1	2	3	4
Mechanics and fitters (automobile)	54	121	255
Mechanics diesel engine	60	120	178
Tractor mechanics	41	146	203
Mechanics, turbine	17	59	70
Mechanics, maintenance (chemical plant)	46	89	96
Mechanics, general	140	244	521
Overhauling and repairing operatives	132	159	272
Viewers, workshop	31	60	152
Electrician, general	283	716	964
Repairmen and related electrical operatives	46	143	257
Assembling operators, radio	2	448	484
Radio technicians	55	30	30
Radio mechanics	18	103	106
Wiremen, light and power	20	60	79
Electricians, automobile	15	64	64
Linemen, light and power	632	1156	1172
Maintenance mechanics, linemen and cable jointing operatives-telephone & telegraph	67	91	97
Armature winders, coil winders	134	268	293
Cinematograph operators	16	22	39
Supervisors and foremen, sheet metal working	-	1	9
Plumbers and pipe fitters	24	42	47
Welders, gas and electric	294	742	1742
Gas cutters	-	72	96
Welding and flame cutting operatives	37	135	300
Sheet metal workers	43	56	130
Dent remover	8	29	31
Tin-smith	11	45	59
Sheet metal working operatives and plate setters	119	368	388
Goldsmiths and silversmiths	18	79	82
Blowers, glass	41	57	65
Glass cutters, grinders and finishers	201	282	360

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XVIII

1	2	3	4
Potters (pottery and porcelain)	204	215	257
Makers (pottery and porcelain)	95	166	354
Pressmen (ceramics)	38	55	103
Brick and tile moulders, hand	298	486	568
Pressmen (abrasive)	44	78	152
Kilnmen, pottery and porcelain	136	151	156
Kilnmen, brick and tile	42	66	66
Glass engravers and etchers	94	277	177
Hand painters ceramics	95	114	114
Glazers, pottery and porcelain	20	28	28
Glass formers, potters and related workers	145	222	302
Supervisor and foreman, rubber goods making	-	-	25
Plastic product moulders and operatives	253	313	663
Rubber and rubberised product makers	122	316	489
Extruding machine operators (rubber)	15	135	171
Rubber-fabric cutting machine operators	100	159	203
Bead makers (rubber tyre)	164	228	228
Trimmers and tyre repairers	93	148	160
Tyre builders, vulcanisers and related workers	276	376	507
Card board and envelope makers	21	136	359
Job printers	5	7	15
Compositors, hand	245	317	384
Type setters (printing)	58	90	90
Machinemen, automatic printing	162	327	401
Printing press operatives	132	217	384
Stereotype and electrotype operatives	-	17	25
Photo and printing engravers	39	49	51
Book binders and operatives	169	253	253
Photographic dark room workers	4	4	4
Painters, general	77	164	425
Painters, spray	37	156	222
Painters, construction	25	57	82
Production and related workers (others)	213	474	775

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1	2	3	4
Brick layers, plasterers and masons	53	125	183
Electrical switch board operators	50	142	145
Pumpmen	26	34	41
Stationary engine and equipment operatives	4	144	144
Boilermen and firemen	32	64	125
Oilers and greasers	51	208	248
Crane and earth moving machine operatives	15	83	125
Checkers, testers, sorters, weighers and counters	28	82	91
Packers, and labellers	264	688	1041
<u>ii) Transport equipment operators</u>	<u>515</u>	<u>1005</u>	<u>1228</u>
Boatmen	4	11	11
Car drivers	183	458	577
Driver, bus	186	351	351
Driver, truck	49	62	90
Cart drivers	67	67	127
Pack animal drivers and rikshaw pullers	28	56	72
UNSKILLED WORKERS	9382	20971	29717
Grand Total	<u>47556</u>	<u>96725</u>	<u>142737</u>

MANPOWER NEEDS DURING 1972-1977

OCCUPATION	NUMBER
<u>I. PROFESSIONAL TECHNICAL AND RELATED WORKERS</u>	<u>8200</u>
<u>i) Scientists, engineers & technologists</u>	<u>2361</u>
Physicists and chemists	98
Meteorologists and physical scientists	19
Physical science technicians	21
Architects and town planners	7
Civil engineers	23
Civil engineers, building	6
Civil engineers, public health	9
Civil engineers, others	6
Electrical engineers and designers	70
Telecommunication, radio and sound engineers	19
Electronics engineers	278
Mechanical engineers	770
Designers machine	4
Tool engineers	7
Mechanical engineers, production	23
Mechanical engineers, structural	2
Mechanical engineers, automobile	35
Mechanical engineers aeronautical	3
Mechanical engineers, airconditioning	17
Chemical engineers	54
Metallurgists	8
Industrial and planning engineers	19
Works inspectors, engineering	259
Textile technologists	9
Spinning, weaving, dyeing and printing masters	15
Rubber technologists	11
Engineers and technologists, oil, glass, leather etc.	21
Draughtsmen, civil	11
Draughtsmen, electrical	11
Draughtsmen, mechanical	151
Overseers, civil engineering	214

Occupation	Number
Civil engineering technicians, others	21
Laboratory assistants, engineering	75
Tracers	21
Blue printers	23
Mycologists and entomologists	4
Plant pathologists, agronomists and horticulturists	17
Life science technicians	5
ii) <u>Doctors and Medical & health technicians</u>	<u>406</u>
Physicians & surgeons, allopathic	47
Physicians, ayurvedic and unani	2
Veterinarians general	8
Veterinary surgeons	10
Chemists, pharmaceutical	46
Pharmacists	43
Vaccinators and medical assistants	5
Veterinary and pharmaceutical assistants	81
Nurses	18
Midwives	20
Health visitors	3
Nursing, sanitary and other medical health & technicians	123
iii) <u>Teachers</u>	<u>4786</u>
Teachers, colleges	160
Teachers, higher secondary and secondary schools	1546
Teachers middle schools	31
Teachers primary and pre-primary schools	3011
Art and crafts teachers	38
iv) <u>Accountants, social scientists and other professionals</u>	<u>647</u>
Statistical investigators	20
Accountants & auditors	391
Librarians	98
Personnel and and occupational specialists	11
Labour welfare officers	15

Occupation	Number
Village level workers	23
Lawyers, judges, magistrates and legal assistants	2
Sheriff and petition writers	6
Editor, public relation officers and publicity assistants	10
Commercial artists, decorators and designers	3
Photographers	6
Composers, musicians, singers, actors and circus performers	2
Atheletes, sportsmen and related workers	50
Laboratory attendants	10
II. ADMINISTRATIVE, EXECUTIVE AND MANAGERIAL WORKERS	2233
Administrative and executive officials, Union Government	13
Administrative and executive officials, State Government	123
Administrative and executive officials, quasi-govt.	8
Administrative and executive officials, local-bodies	11
Working proprietors, directors and managers-wholesale trade	61
Working proprietors, directors and managers-retail trade	20
Directors and managers bank	17
Directors and managers insurance	4
Proprietors and managers, construction & manufacturing	1893
Proprietors and managers, transport, storage and communication	7
Proprietors and managers, other services	76
III CLERICAL AND RELATED WORKERS	3560
Clerical supervisors, office superintendents and head clerks	54
Office assistants	331
Panchayat secretaries	14
Patwaris	50
Stenographers and stenotypists	208

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Occupation	Number
Typests and teletypists	157
Book keepers and account clerks	335
Cashiers	262
Audit clerks and tellers, bank	8
Book keeping & calculating machine operators	13
Clerks	1628
Store keepers and related workers	296
Receptionists	7
Time keepers	81
Ticket sellers	15
Duplicating & embossing machine operators	16
Bill collectors	2
Proof readers	6
Copy holders	3
Post masters & sub post masters	2
Telegraph inspectors and wireless supervisors	2
Traffic inspectors and goods supervisors	4
Telephone inspectors	1
Bus conductors	40
Postmen	14
Telegraph messengers	4
Telephone operators	6
Wireless operators	1
<u>iv) Sales Workers</u>	<u>172</u>
Retail dealers and sales supervisors	3
Purchasing agents	39
Technical salesmen and service advisors	15
Commercial travellers	59
Salesmen, wholesale trade	23
Salesmen, retail trade	17
Petrol Pump salesmen	1
Shop attendants	15
<u>V SERVICE WORKERS</u>	<u>336</u>
House keepers, cooks and matrons	57

Occupation	Number
Butlers, bearers and waiters	17
Bartenders and related workers	2
Ayahs, nurses and maids	5
Domestic servants	2
House keeping service workers, others	15
Building caretakers	2
Dhobis	15
Hair dressers, barbers and related workers	3
Protective service workers	218
<u>FARMERS, LOGGERS & RELATED WORKERS</u>	<u>142</u>
Managers, poultry and horticulture	12
Poultry farmers	7
Farm machinery operators	7
Herdsmen	19
Gardeners and nursery workers	82
Foresters	2
Forest Guards	11
Fishermen	2
<u>PRODUCTION & RELATED WORKERS AND TRANSPORT EQUIPMENT OPERATORS</u>	<u>30668</u>
i) Production & related workers	<u>30271</u>
Shot firer & well driller	3
Mixermen and convertermen	12
Furnace operators (open hearth)	410
Furnace operatives	89
Operators, hot rolling mill (non-ferrous metal)	4
Rolling mill operatives	670
Charger, cupola	2
Heat treating furnace operators	101
Metal melters and reheaters, other	5
Laddlemen and ladle cleaners	19
Moulders	691
Foreman, moulders	7
Core makers (hand)	13
Moulding and coremaking operatives	317

XXXIV

Occupation	Number
Machinemen, automatic printing	107
Printing press operatives	189
Stereotype and electrotype operatives	10
Photo and printing engravers	7
Book binders	25
Painters, general	277
Painters, spray	82
Painters, construction	31
Production and related workers. n.e.c.	379
Brick layers, plasterers and masons	71
Electrical switch board operators	17
Pumpmen	10
Stationary engine and equipment operatives	14
Boilermen and firemen	67
Oilers and greasers	132
Crane and earth moving machine operatives	50
Checkers, testers, sorters, weighers and counters	17
Packers and labblers	464
<u>ii) Transport equipment operators</u>	<u>397</u>
Boatman	1
Car drivers	165
Drivers, bus	35
Drivers, truck	107
Cart drivers	67
Pack animal drivers and rikshaw pullers	22
Total	45311
VIII. Un-skilled workers	10843
GRAND TOTAL	<u>56154</u>

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Occupation	Number
Annealer, hardeners (Metal)	11
Heat treatment operatives	18
Wire drawers	497
Barbed wire makers and metal drawing operatives	92
Electroplaters	71
Metal platers and coaters, others	41
Sample checkers, metal	8
Pumblers	68
Metal processors	2
Wood sawyers	40
Paper pulp preparers	9
Paper makers	69
Mixers (chemical)	13
Panmen soap	55
Straining operators (rubber reclaim)	59
Mixers, rubber	76
Chemical and related workers	683
Jobbers (textile)	49
Fibre preparers	170
Doffer, fly frame	52
Piecers	89
Mulepiecers and twistors	30
Hand spinners and winders (textile)	156
Reelers (textile)	68
Spinning and winding operatives	815
Warpers and sizers (textile)	62
Knitters	53
Weavers, power loom	859
Drawing and weaving operatives	33
Carpet makers and finishers	9
Printing jobbers	44
Wool finishing, bleaching, dyeing and printing operatives	236
Folders machine (textile)	38

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Occupation	Number
Hide and skin setters, hand	68
Millers, parchers (food grains)	26
Crushers and pressers, oil seeds	9
Khandsari, sugar and gur making operatives	3
Food preservers	76
Dairy product processors	8
Malt makers	30
Bottling operators	3
Tobacco product makers	23
Tailors	159
Pattern makers and cutters	24
Sewers and embroiderers	108
Upholsterers and related workers	154
Shoe repairers, cobblers	227
Carpenters	285
Wood working machine operators	54
Coach and body builders	15
Stone cutters and carvers	2
Supervisors and foremen machine tool operatives	31
Blacksmiths	147
Hammermen	190
Smithy operatives	120
Markers, metal	15
Tool makers	30
Die makers and pattern maker, metal	329
Tool makers, other (including helpers)	596
Tool setters, general	436
Tool setters, press	42
Setters drop forging machine	42
Setters automatic machine	5
Machinists	1762
Turners	2933
Turret and capstan lathe operators	17
Shapers	123
Planners	42

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Occupation	Number
Slotmen	140
Millers	215
Heavy duty and-mill operators	66
Drillers, metal	193
Machine tool operators, other including helpers	2625
Grinders	510
Metal polishers and tool sharpeners	185
Power press operators, metal	853
Armour	13
Mechanics precision instruments	36
Fitters	2343
Assemblers (automobile)	28
Assemblers (Motor cycle)	12
Assemblers, workshop-machine and equipment	106
Fitting, assembling and machine erecting operatives	728
Mechanics and fitters (automobile)	126
Mechanics diesel engine	70
Tractor mechanics	72
Mechanics, turbine	17
Mechanics, maintenance (chemical plant)	16
Mechanics, general	301
Overhauling and repairing operatives	129
Viewers, workshop	98
Electricians	320
Repairmen and related electrical operatives	128
Assembling operators, radio	81
Radio technicians radio manufacturing	3
Radio mechanics	13
Wiremen, light and power	25
Electricians, automobile	6
Linemen, light and power	132
Maintenance mechanics, linemen and cable jointing operatives- telephone & telegraph	15
Armature winders, coil winders machine	52

Occupation	Number
Cinematograph operators	19
Supervisors and foremen, sheet metal working	8
Plumbers and pipe fitters	9
Welders, gas and electric	1074
Gas cutters	31
Welding and flame cutting operatives	179
Sheet metal workers	80
Dent removers	5
Tin smiths	19
Sheet metal working operatives and plate setters	57
Goldsmiths and silversmiths	11
Blowers, glass	14
Glass cutters, grinders and finishers	106
Potters- pottery and porcelain	64
Makers- pottery and porcelain	205
Pressman (ceramics)	54
Brick and tile moulders, hand	131
Pressmen (abrasive)	82
Kilnmen, pottery and porcelain	20
Burners-cement	7
Glass engravers and etchers	18
Hand painter, ceramics	11
Glazers pottery and porcelain	3
Glass formers, potters and related workers	102
Supervisors and foremen, rubber goods making	25
Plastic product moulders and operatives	381
Rubber and rubberised product makers	205
Extruding machine operators (rubber)	50
Rubber-fabric cutting machine operators	60
Bead makers (rubber tyre)	23
Trimners and tyre repairers	27
Tyre builders, vulcanisers and related workers	169
Card board and envelope makers	237
Job printers	9
Compositors hand	99
Type setters (printing)	9

Occupation	Number
Machinemen, automatic printing	107
Printing press operatives	189
Stereotype and electrotpe operatives	10
Photo and printing engravers	7
Book binders	25
Painters, general	277
Painters, spray	82
Painters, construction	31
Production and related workers. 'n.e.c.	379
Brick layers, plasterers and masons	71
Electrical switch board operators	17
Pumpmen	10
Stationary engine and equipment operatives	14
Boilermen and firemen	67
Oilers and greasers	132
Crane and earth moving machine operatives	50
Checkers, testers, sorters, weighers and counters	17
Packers and labllers	464
ii) <u>Transport equipment operators</u>	<u>397</u>
Boatman	1
Car drivers	165
Drivers, bus	35
Drivers, truck	107
Cart drivers	67
Pack animal drivers and rikshaw pullers	22
Total	45311
VIII. Un-skilled workers	<u>10843</u>
GRAND TOTAL	<u>56154</u>

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 17-B, Sr. Anbinda I, New Delhi-11001
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 Date: ...