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CHAPTER - FIVE

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ANALYSIS AND PRESENTATION OF DATA

A. Capacity Utilisation.

B. Productivity.

CHAPTER - FIVEANALYSIS AND PRESENTATION OF DATA

Considering the conceptual inputs mentioned earlier the concepts have in precept restricted meaning as stated below, as per the study.

CAPACITY :-

The owners of the units have mentioned the annual attainable capacity of producing the castings taking into consideration their own various problems. That capacity is stated in metric tonnes per annum. Hence capacity is different in different foundry units, although the cupola are of the same size.

PRODUCTI ON :-

Total production of casting in tonnes during the year is given as stated by the owner in their reports/returns.

CAPACITY UTILISATION RATIO :-

The ratio is calculated taking into account the capacity and production as stated for each year.

PRODUCTIVITY RATIO :-

Labour productivity is calculated considering the production and man-hours utilised during the year. The man-hours figure is given by the owner in his report/return submitted to Govt. bodies. As stated in earlier chapter, output can be compared with any type of input. Since in this study data regarding consumption of raw materials is available, productivity, in terms of raw material as input, is calculated for 3 years.

UNDER UTILISATION :-

Since capacity utilisation is calculated in percentage, the negative portion of the percentage is under-utilisation.

Due to limitations of the availability of data, a few tables are prepared, graphs are drawn, and on the basis of the above concepts ~~and names~~ conclusions are arrived at. The scope of the study could have been widened if more aspects of the foundry units on the various types of data were collected but due to pressure on time, this was not possible.

The figures of percentages of capacity utilisation and productivity ratios are approximated

upto two decimls. The range for capacity utilisation is taken 0-10, 10-20, and for productivity ratios .00 - .020, .020 - .040, which is considered sufficiently accurate for this study.

There are about 100 foundries in Kolhapur City. The data is analysed of 28 foundries, which appears to be a reasonably just, as it is more than 25 percent. The pattern of working and the problems are one and same for all the units. So the inferences from 28 foundries reflect the realistic picture of the prevailing conditions.

In Table and Figure No. 5-1 the data regarding capacity Utilisation is tabulated and plotted on the graph. The capacity utilisation ratio is calculated taking into account the capacity as stated by the owners of the foundries and actual production during the years 77-78, 78-79 and 79-80. Then the number of foundries in each group of capacity utilisation percentage is conunted. The percentage of the foundries to total of foundries is calculated for analysis.

TABLE NO. 5-1

FREQUENCY DISTRIBUTION (ALONGWITH PERCENTAGES)
OF FOUNDRIES IN KOLHAPUR ACCORDING TO
CAPACITY UTILISATION.

Capacity Utilisation in %	1977 - 78		1978 - 79		1979 - 80	
	No. of foun- dries	% of foun- dries	No. of foun- dries	% of foun- dries	No. of foun- dries	% of foun- dries
0 - 10	1	3.6	1	3.6	-	-
10 - 20	4	14.3	1	3.6	3	10.7
20--30	3	10.7	2	7.1	1	3.6
30 - 40	7	25.0	6	21.4	4	14.3
40 - 50	5	17.9	7	25.0	6	21.4
50 - 60	1	3.6	5	17.9	8	28.6
60 - 70	2	7.1	1	3.6	4	14.3
70 - 80	4	14.3	3	10.7	1	3.6
80 - 90	1	3.6	2	7.1	1	3.6
90 - 100	-	-	-	-	-	-
<u>TOTAL</u>	28	100	28	100	28	100

FREQUENCY DISTRIBUTION ALONGWITH PERCENTAGE OF FOUNDARIES
IN KOLHAPUR ACCORDING TO CAPACITY UTILISATION

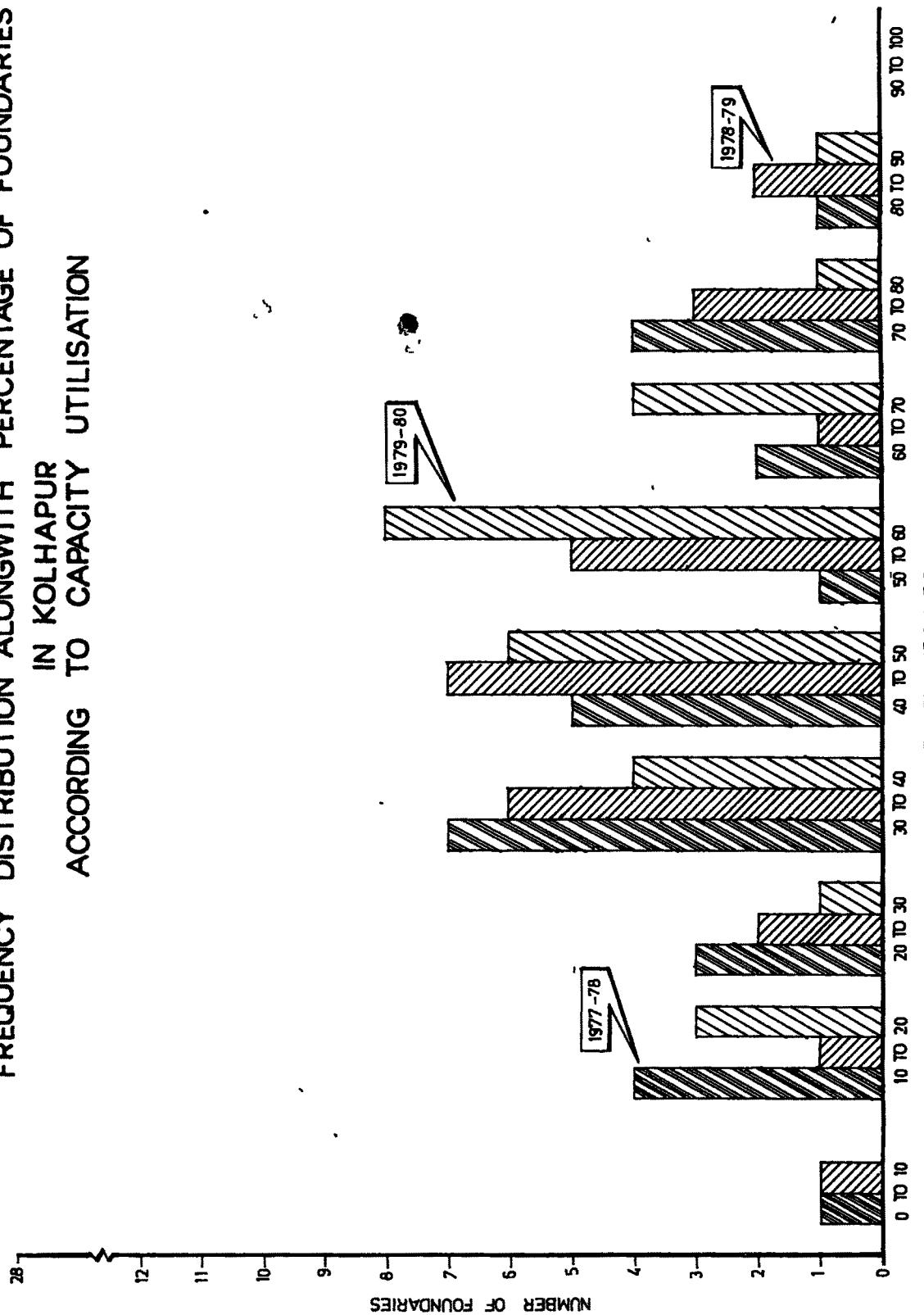


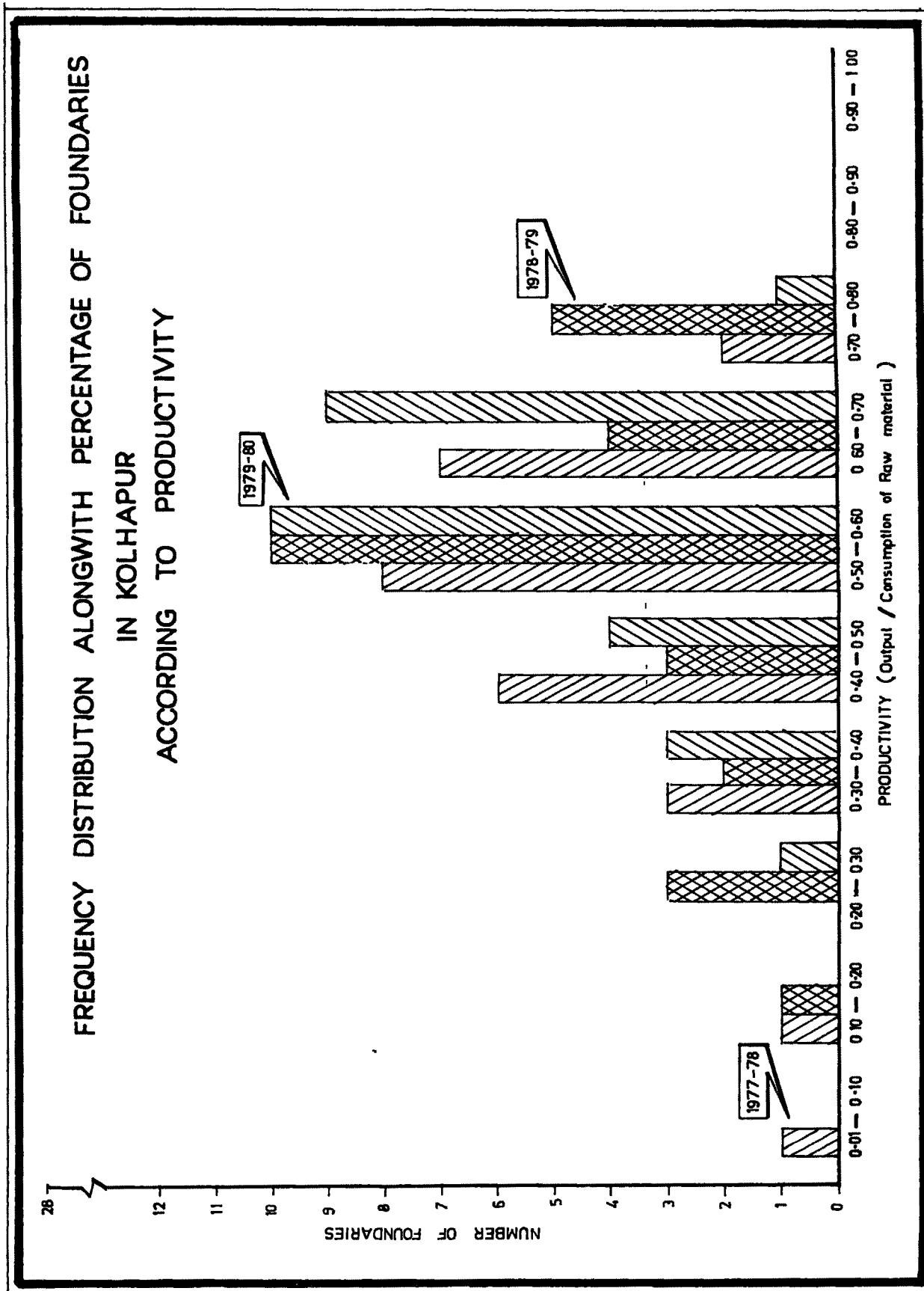
FIG No. 5-1

In Table and Figure No. 5-2, the data regarding productivity is tabulated, calculated and plotted on the graph. Productivity is calculated in terms of output divided by input. The consumption of raw material (R.M.) is considered as input - one aspect of input only - as stated in the conceptual framework in the earlier chapter. The ratio indicates the productivity in terms of utilisation of raw material.

TABLE NO. 5-2

FREQUENCY DISTRIBUTION (ALONGWITH PERCENTAGES)
 OF FOUNDRIES IN KOLHAPUR ACCORDING TO
 PRODUCTIVITY (OUTPUT/CONSUMPTION OF R.M.)

Productivity Output Input - R.M.	1977 - 78		1978 - 79		1979 - 80	
	No. of foun- dries	% of foun- dries	No. of foun- dries	% of foun- dries	No. of foun- dries.	% of foun- dries
.01 - .10	1	3.6	-	-	-	-
.10 - .20	1	3.6	1	3.6	-	-
.20 - .30	-	-	3	10.7	1	3.6
.30 - .40	3	10.7	2	7.1	3	10.7
.40 - .50	6	21.4	3	10.7	4	14.3
.50 - .60	8	28.6	10	35.7	10	35.7
.60 - .70	7	25.0	4	14.3	9	32.1
.70 - .80	2	7.1	5	17.9	1	3.6
.80 - .90	-	-	-	-	-	-
.90 - .100	-	-	-	-	-	-
TOTAL	28	100	28	100	28	100



In Table and Figure No. 5-3, the data regarding productivity is tabulated, calculated and plotted on the graph. Here the productivity is calculated in terms of man-hours utilised for the production of castings during the year 77-78, 78-79 and 79-80. This called as labour productivity. Since the exact number of workers was not available, the data regarding man-hours used during the year, as stated by the foundry owners is taken into account.

TABLE NO. 5-3

FREQUENCY DISTRIBUTION (ALONGWITH PERCENTAGES)
 OF FOUNDRIES IN KOLHAPUR ACCORDING TO
 PRODUCTIVITY (PRODUCTION / MAN-HOURS)

Productivity	1977-78		1978-79		1979-80	
Production Man-hours.	No. of foun- dries	% of foun- dries	No. of foun- dries	% of foun- dries	No. of foun- dries	% of foun- dries
0.001 - 0.020	11	39.3	8	28.6	7	25.0
0.020 - 0.040	7	25.0	10	35.7	12	42.9
0.040 - 0.060	4	14.3	3	10.7	3	10.7
0.060 - 0.080	3	10.7	3	10.7	3	10.7
0.080 - 0.100	-	-	1	3.6	-	-
0.100 - 0.120	-	-	-	-	-	-
0.120 - 0.140	1	3.6	-	-	-	-
0.140 - 0.160	1	3.6	1	3.6	1	3.6
0.160 - 0.180	1	3.6	1	3.6	-	-
0.180 & above	-	-	1	3.6	2	7.1
TOTAL	28	100	28	100	28	100

FREQUENCY DISTRIBUTION ALONGWITH PERCENTAGE OF FOUNDARIES
IN KOLHAPUR
ACCORDING TO PRODUCTIVITY

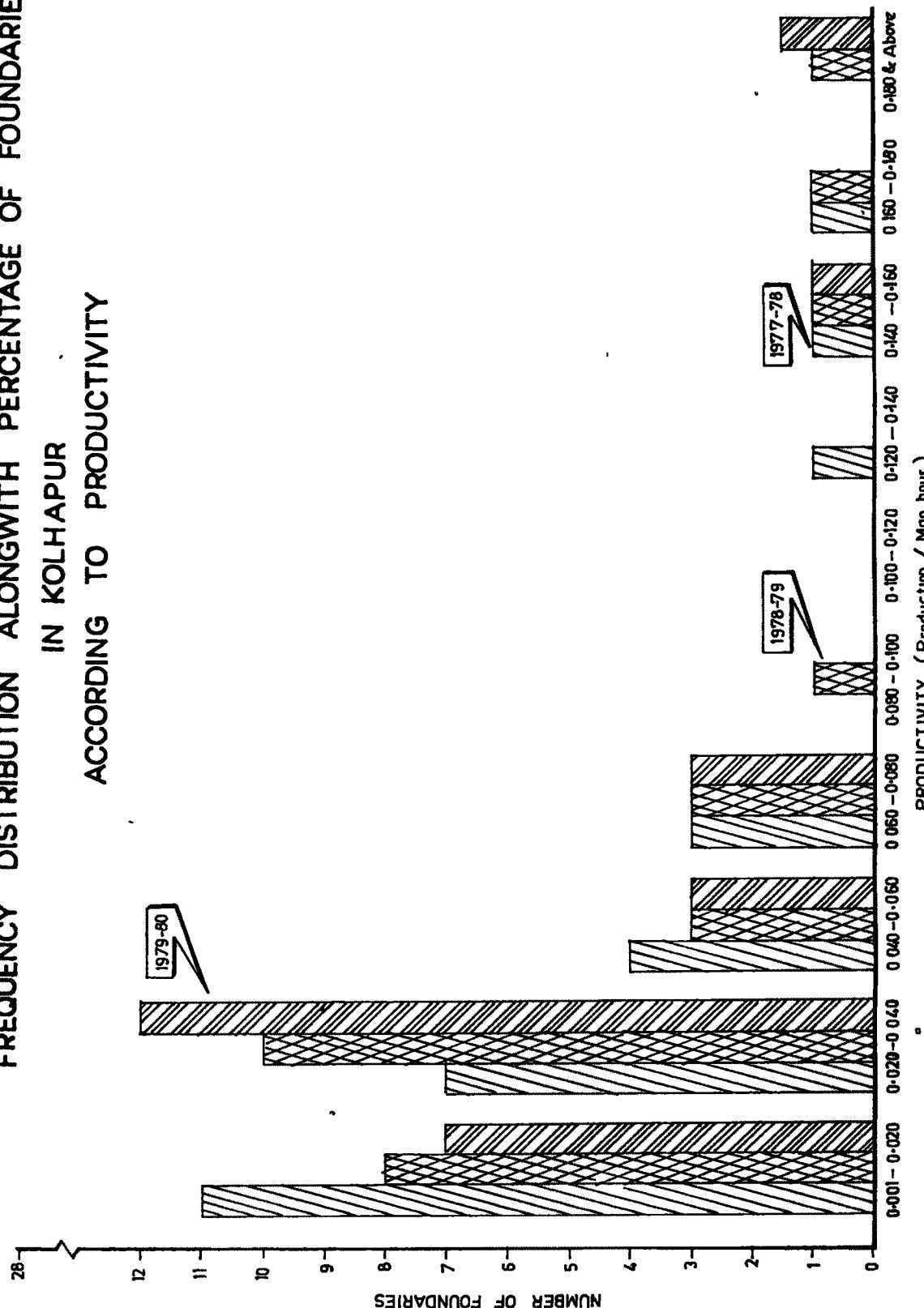


FIG. No. 5-3

7	1826	1326	1583	768	744	885	39.12	37.90	45.08	.60	.56	.56	.021	.021	.025	35424	1963		
8	700	800	875	320	400	450	30.43	39.29	44.20	/	.46	.50	.51	.019	.025	.028	16128	1018	
9	250	250	228	160	150	140	79.20	74.25	69.30	/	.64	.60	.61	.079	.074	.069	2016	202	
10	250	250	700	950	100	400	600	12.11	48.43	72.63	/	.40	.57	.63	.006	.027	.041	14592	826

CHART SHOWING THE COMPUTATION OF DATA FOR ANALYSIS

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
11	234	283	269	120	200	210	30.93	51.55	54.12	.51	.71	.78	.035	.058	.061	3456	388
12	458	707	895	178	260	340	31.28	45.69	59.75	.39	.37	.38	.011	.017	.022	15360	569
13	290	510	640	200	300	360	26.91	40.38	48.25	.69	.59	.56	.006	.011	.012	29440	743
14	147	122	226	83	84	125	10.11	10.23	15.24	.56	.69	.55	.172	.175	.260	480	821
15	317	335	290	152	170	184	41.87	46.83	50.69	.48	.51	.67	.022	.024	.026	7020	363
16	635	726	528	450	512	365	43.94	50.0	35.64	.71	.71	.69	.030	.033	.023	15552	1024
17	124	126	121	85	80	70	12.18	11.46	10.02	.68	.63	.58	.025	.023	.020	3456	698

18	385	509	513	168	147	217	8.73	7.64	11.27	.44	.29	.42	.012	.011	.016	13824	1924
19	211	189	231	140	119	159	57.85	49.17	65.70	.66	.63	.69	.065	.055	.074	2160	242

26	258	330	353	157	192	213	44.23	54.08	60.0	.61	.58	.60	.019	.024	.026	8100	355
27	93	82	174	39	30	70	43.45	33.79	78.30	.42	.37	.40	.011	.009	.020	3456	90
28	476	494	1216	329	353	846	28.96	31.07	74.47	.69	.73	.70	.011	.012	.029	28800	1136

A/ CAPACITY UTILISATION :-

The extract from Table No. 5-1 reveals the following position -

Capacity Utilisation in %	1977-78		1978-79		1979-80	
	No. of foundries	% of dries	No. of foundries	% of dries	No. of foundries	% of dries
30-40	7	25.0	6	21.4	4	14.3
40-50	5	17.9	7	25.0	6	21.4
50-60	1	3.6	5	17.9	8	28.6
Sub-Total	13	46.5	18	64.3	18	64.3
TOTAL	28	100	28	100	28	100

From the data available of 3 years period it appears that maximum number of foundries have capacity utilisation range between 30 to 60%. On the basis of data in Table No. 5-1, we can safely infer that the capacity utilisation is 50% in foundry units of Kolhapur.

The capacity utilisation is less than 30% in 25% of the foundries whereas in 25% of the foundries the capacity utilisation is more than 60% but less than 90%. However, the maximum capacity utilisation is .
%



between the range 80 to 90% and the number of such foundries is very small, that is to say one or two. The number of foundries in which the capacity utilisation is 60 to 80% is 6 in 1977-78, 4 in 1978-79 and 5 in 1979-80. In case of foundries falling between the range 60 to 90%, capacity utilisation, we may conclude that capacity utilisation is satisfactory.

In case of foundries where capacity utilisation is 30 to 60% it may be said that there is under capacity utilisation ~~is~~ varying from 70 to 40%.

In case of foundries where capacity utilisation is less than 30%, the percentage of under-capacity utilisation is more than 70%. There are number of problems and causes for this situation.

From this it may be concluded that in majority of foundries 50% of the capacity ~~is~~ not utilisation is not for productive purposes.

B/ PRODUCTIVITY : / Raw Material as Input 7

It is quite natural that where there is under-utilisation of capacity, the productivity is also low. The basis for calculation of productivity are taken to be raw material and man-hours used.

Year	Productivity Range	No. of foundries	% of foundries
1977-78	0.40 to 0.70	21	75.00
1978-79	0.40 to 0.70	17	60.70
1979-80	0.40 to 0.70	23	82.10

It appears that, the frequencies are clustered at a ratio 0.50 to 0.60. The maximum number of foundries are around the productivity ratio 0.40 to 0.70. There are few factories where the productivity is less than 0.30. Between 0.70 to 0.80 range the number of foundries is few. If we may speak in terms of percentage, the productivity is 50% in case of utilisation of raw material. That means more than 50% of the raw material is wasted. But some wastage of raw material is unavoidable. As per experts' opinion 60% to 70% capacity utilisation is satisfactory in case of foundries. Considering this 10% to 20% wastage of raw material was taking place in these foundry units.

LABOUR PRODUCTIVITY (Man-hours)

In case of units under study the productivity in terms of man-hours utilisation two extremes are found as per the revelation of the Table No.5-3.

In some foundries the labour productivity is lowest whereas in other foundries it is the highest. This picture is unrealistic. Conclusions cannot be inferred on the basis of man-hours regarding the labour productivity.

In this context, following extract may be considered -

" the marginal productivity of labour for all industries ranged between 23 to 33% of the output." - S.C. Shrivastava - 1984.
