MANPOWER STUDIES No. 4

2

SECTORAL MANPOWER SURVEY, 1964

(MANUFACTURING, MINING & QUARRYING, CONSTRUCTION & ELECTRICITY GENERATION)

NATIONAL MANPOWER BOARD

1967

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Manufacturing, Mining and Quarrying, Construction, and Electricity Generation.

NATIONAL MANPOWER BOARD, LAGOS
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C O N T E N T S

CHAPTER I

INTRODUCTION

In 1963, the Manpower Secretariat, in co-operation with Regional Manpower Committees conducted the first Manpower Survey for collection of data on manpower employed in establishments employing Ten or more persons in all sectors of the economy One of the purposes of that survey was to obtain data for projecting future manpower requirements with particular reference to high-level manpower. In working out such targets it was discovered that more detailed manpower data were needed for each sector of economic activity. It was therefore decided at the fourth meeting of the National Manpower Board held on 20th January, 1964, that sectoral manpower studies should be conducted by the Manpower Secretariat in a few important sectors. Similar recommendation was made by the International Seminar on Manpower Problems in Economic Development with Special Reference to Nigeria held in Lagos in March, 1964. As a result the Manpower Secretariat initiated in 1964 an establishment survey into four sectors viz - Manufacturing, Mining, Construction and Electricity for collection of basic manpower statistics. The present report covers the results of the survey.

CHAPTER II

PLANNING AND COVERAGE

Since the Federal Office of Statistics had also planned to start their 1963 - Industrial Survey covering establishments employing 10 or more persons in Manufacturing, Mining, Construction and Electricity Generation industries, it was decided to undertake a joint Industrial and Manpower Survey covering the four sectors, with the pooled resources and co-operative effort of the Manpower Secretariat, the Federal Office of Statistics and Statistical Divisions of Regional Ministries of Economic Planning. The Standing Committee on Statistics, approved the technical details and operational arrangements. The Manpower-side of the joint Survey was planned by the Manpower Secretariat in consultation with the other agencies and the Industrial-side was similarly planned by the Federal Office of Statistics and the two were integrated. The schedules for the two parts were distinct but they were to be issued together to the establishments and followed up together. It was arranged that at the level of each Region the mailing and collection of schedules would be done by the Statistical Branch of the Regional Government with the collaboration of the Regional Statistical Office of the Federal Office of Statistics and for the Federal Territory, the same would be done jointly by the Manpower Secretariat and the Federal Office of Statistics.

Experience in the past had shown the need to use field Enumerators for the follow up of the schedules and Regional Governments were authorised to recruit additional temporary Enumerators needed the cost for which was shared between the Manpower Secretariat and the Federal Office of Statistics. All the Enumerators were trained jointly by the Manpower Secretariat and the Federal Office of Statistics at each Regional Capital. It was arranged that schedules collected in a Region would be edited by the Statistical Branch of that Regional Government and then the Industrial-part would be sent to Federal Office of Statistics and the Manpower-part to the Manpower Secretariat for final editing, coding and processing.

The Manpower schedules were tabulated and processed by the Manpower Secretariat.

The survey was to cover all establishments employing 10 or more persons in each of the selected sectors. The Federal Office of Statistics undertook to prepare a directory of establishments for each sector. They examined the information available with the Federal Ministry of Labour, the National Provident Fund Organisation, the Federal Ministry of Commerce and Industry, Statistical Branches of Regional Governments, etc. On the basis of this they drew up a list of undertakings for each sector.

The definition of each sector was in accordance with the United Nations Industrial Classification of all Economic Activities. The definitions for the four sectors covered in this report are summarised below:

Manufacturing: Mechanical or Chemical transformation of inorganic or organic substances into new products whether it is done in a factory or in the workers' home, and whether the products are sold wholesale or retail. The assembly of component parts of manufactured products is considered except in cases where the activity is appropriately classified in construction.

Mining & Quarrying: Extraction of minerals which occur in nature as either solids, liquids or gases. Underground and surface mines, quarries and oil wells, with all supplemental operations for dressing and beneficating ores and other crude minerals, such as breaking, milling, washing, cleaning and grading, are included. Prospecting for minerals and preparing sites for extraction are also included.

Construction: Construction, repair and demolition of buildings, highways, streets, heavy construction of such projects as railroads, piers, tunnels, bridges, dams, drainage projects, irrigation and flood control projects, etc., marine construction and so on.

Electric Light and Power: Generation, transmission and distribution of electric energy.

All the listed undertakings were forwarded copies of questionnaires to be filled up and returned. If any of the undertakings had separate branches spread over the various Regions, e.g. in the construction industry, they were asked to furnish one consolidated return for each Region and Federal Territory in which

they are operating. For the electricity sector, the Electricity Corporation of Nigeria undertook to collect individual returns from their branches themselves and furnish consolidated returns for each Region and Federal Territory separately.

In Part A of the schedule, data were called for on employment at the beginning of 1963, accessions during 1963, separations during 1963, the employment at the beginning of 1964, broken up by Nigerians and Non-Nigerians and within each by sex, vacancies at the beginning of 1964 and occupations for which difficulties were experienced in getting suitable Nigerian personnel. All these data were required by broad occupational groups. The occupational groups were divided into four categories, viz, Senior, Intermediate, Skilled and Residual, based on education and training required. In completing the schedules, the undertakings had to match all their employees by categories and within each category by the specified occupations on the basis of job-descriptions. The definitions of the various categories were as follows:

Senior Category: - Persons normally required to hold a University Degree or high technical or professional qualifications.

Intermediate Category: - Persons normally required to have from at least one or two years of specialised training after the West African School Certificate or its equivalent.

Skilled Category - Persons with less than General Certificate of Education or West African School Certificate but with apprenticeship or craftsman training in an institution or equivalent proctical experience on the job.

Residual Category - All employed persons not coming under Senior, Intermediate or Skilled Categories.

The Occupational classifications within each category were mainly based on the function performed, as will be clear from the job-descriptions given in the schedule itself.

Part A of the schedule dealing with employment position is self-balancing i.e., the number at the beginning of 1963 plus additions during 1963 minus separations during 1963 would be equal to the number at the beginning of 1964. This part was meant to give data on current stock of manpower, employment trends between 1963 and 1964 and an idea of r eplacement needs due to death and retirement. In addition, the data would give occupational pattern or skill-mix for each sector and also certain important occupational ratios, e.g. Engineers to Engineering Assistants, Professional or Technical Officers to Technical Assistants, Senior Category to Intermediate Category, Skilled Category and Residual Category, etc. Data on vacancies when added to actual stock would reflect the current demand and in addition vacancies would indicate the areas of current shortages. This was further supplemented by information on occupations for which difficulties were experienced in getting suitable Nigerian Personnel.

In Part B of the schedule, items of information relevant to manpower projections were included. Firstly, the undertakings were asked to report whether the existing capacity for production or business was being utilized fully, if not what was roughly the percentage utilization of capacity. This information would reflect the general economic position

and would also help in working out future manpower requirements assuming higher utilization of existing capacity. Secondly the undertakings were asked to report on factors likely to affect future employment position and also to make forecasts of likely changes in employment year by year in future by occupational groups Lastly the undertakings were asked to give full details of their training activities so that an idea could be formed of skilled manpower likely to be generated through the undertakings to supplement data on the supply-side of manpower.

PART A - MANUFACTURING-

CHAPTER III

LEVEL AND STRUCTURE OF EMPLOYMENT

As shown in Table A.1, a total of 827 establishments were contacted and out of these, 687 responded. Thus, in terms of number of establishments, the response rate was 83.1%. The estimated total employment in this sector was about 99,290. The responding establishments employed a total of 86,059 workers. In terms of employment, the response rate was 86.7%. This high employment response rate is due to the fact that nearly all the big establishments supplied information. Those that failed to respond were mostly the small establishments.

The number of establishments responding and the rate of response within each region are as follows:

TABLE A.1

NUMBER OF ESTABLISHMENTS RESPONDING AND RATE OF RESPONSE

Region	No. of Establish-ments contacted	No. of Establish-ments that responded	% of Response
Lagos	175	148	84.6
North	180	149	82.8
East	176	143	81.2
West	201	154	76.6
Mid-West	95	93	97.9
TOTAL	827	687	83.1

The rates of response within regions was highest in the Mid-West which was 97 9% and the Federal Territory came next with 84 6%. On the whole, the rate of response in each of the regions was encouragingly high when compared with previous efforts.

TABLE A 2

SUMMARY OF EMPLOYMENT COVERED

Region	Total No. of Employment covered 'A	Estimated Total Employment in Manufacturing Industries * B	Percentage of Column A to Column B
Lagos	21,666	24,397	88.8
North	20,601	22,964	89 7
East	17,334	21,828	79.4
West	12,317	15,150	81.3
Mid-West	14,141	14,951	94.6
TOTAL	86,059	99,290	86 7

Table A.2 gives the details of coverage and estimated employment by Regions while Table 1 in Appendix shows the employment position by type of Industry.

* This is a simple estimation process - the number of establishments within each industry is on the average small - usually 2, 3 or 4. A check with previous records in each industry was carried out in order to identify the non-responding establishments. Where known, a simple average of the total employment of the responding establishments was taken for each non-responding establishment within such industry.

In January 1963, a total employment of 79,400 was reported in Manufacturing sector distributed as follows: 2,518 Senior Category personnel, 5,484 in the Intermediate Category, 32,772 in the Skilled Category and 38 626 in the Residual Category. In ratio terms this relationship works out at 10:24:131:153. A year later total employment in this sector had gone up to 86,059 made up of 2,659 Senior Category personnel, 6,021 Intermediate Category personnel, 35,875 Skilled Category personnel and 4,069 Residual Category personnel. This is of the order of 10:23:135:156. The foregoing ratios show that the various categories of manpower more or less retained their respective shares in total sectoral employment between 1963 and 1964.

Expatriates:

In the Senior Category more non-Nigerians were employed than Nigerians. This merely confirms a prevailing feature in the private sector of our economy. Of a total of 2,669 employees in this category in January 1964, non-Nigerians were 1,410 as opposed to 1,269 Nigerians. The majority of the expatriates were employed in the Scientific and Technological fields of the manufacturing industries particularly in the Engineering occupations. Eighty-eight Nigerian Mechanical Engineers were reported employed in 1964 as opposed to 317 non-Nigerians in this field. Similarly, in Electrical Engineering, the ratio was 29:66. This same picture was reflected in the number of new employees taken on roll in 1963/64. Out of a total of 488 employees engaged in the Senior Category, 312 were expatriates and 176 were Nigerians. Percentage-wise, this means that almost 64% non-Nigerians were taken on roll in the Senior Category as against 36% Nigerians - a ratio of about 5:3. In the other categories, Intermediate, Skilled and Residual, Nigerian employees constitute an overwhelming majority accounting for about 94% of employment in the Intermediate category, 99.6% in the Skilled and 98% in the Residual Categories.

Women:

Women constitute a very small proportion of employment in this sector. They account for just 2.2% of total sectoral employment in 1964. In the Senior, Intermediate, Skilled and Residual Categories their share of employment was 2%, 3.5%, 2.6% and 4% respectively. Details of employment at 1st January, 1964 by industry are shown in Table 1 of Appendix.

Unmet Demand:

Table 3 of Appendix shows the position of unmet demand for manpower at at 1st January, 1964. There were 1,791 vacancies representing a sectoral unmet demand of about 2.1% of total employment. The Senior, Intermediate, Skilled and Residual Categories show vacancies of 127, 200, 917 and 547 respectively. These represent 4.7%, 3.3%, 2.5% and 1.3% of employment in these categories in January, 1964. While the vacancy figures in the first three categories might be regarded as reflecting the skill shortages in the economy, those in Residual Category occupation would seem to be symptomatic of the friction of the labour market.

CHAPTER IV

Type Analysis and Manpower Mixes

Ideally, manpower mixes should be established not only for the sector as a whole, but also for each industry in the sector and within each industry by size of establishment defined in terms of capital invested. But in the present study, information has not been tabulated to permit this degree of analytical refinement. Statistics are however available for establishing manpower mixes for four major industrial groups within this sector. These are:

(a) Spinning, Weaving and Finishing Textiles;

(b) Repair of Motor Vehicles;

(c) Sawmills, Planing and other Wood Mills; and

(d) Manufacture of Rubber Products.

These four groups together account for over 46% of employed manpower in the Manufacturing Sector. Unfortunately, manpower analysis cannot be carried beyond this level of disaggregation because information is not available for the various establishment sizes in each industrial group.

As indicated elsewhere in this report, employment has been fractionalised in Table A.3 because the resulting figures are meant to serve merely as manpower multipliers.

According to column 3 of this table, in January, 1964, an average-sized establishment in the Spinning, Weaving and Finishing Textiles group employed a total of 4.27 Senior Category personnel, 7.76 Intermediate Category personnel, 183.14 Skilled Category personnel and 92.65 Residual Category employees. As contained in column 5, on the average, a Motor Vehicle Repairing establishment employed 5 Senior Category employees, 12.79 Intermediate employees, 63.14 Skilled employees and 64.40 Residual Category personnel.

The position as regards Sawmills, etc., was 2.8 Senior employees, 6.09 Intermediate employees, 35.02 Skilled employees and 93.54 Residual employees, while for the Manufacture of Rubber Products it was 4.53 Senior employees, 12.32 Intermediate employees, 40.12 Skilled employees and 165.44 Residual personnel.

It may be re-emphasised that the importance of these figures lies in their usefulness for purposes of evaluating the manpower content of proposed industrial projects. If for example 1,000 average-sized Spinning and Weaving establishments are being proposed multiplying column 3 of Table A.3 by 1,000 will give a first approximation of both the magnitude and the detailed occupational break-down of the Manpower requirements of the projects. The information contained in columns 5, 7 and 9 on the three other industrial groups can be utilised for a similar purpose.

The first thing to note about the occupational ratios in Table A.4 below is the fact that employment in the Intermediate Category occupations works out as a multiple of employment in corresponding Senior Category occupations. This accords with the general view that a Senior Category employee requires a number of Intermediate employees as supporting staff. The second important point is that these relationships have been stable for the two years covered. Thus in 1963 2 junior managers and supervisors worked to 1 senior manager and in 1964 the position was more or less the same: 2.2 junior managers and supervisors worked to 1 senior manager. Though Table 2 of Appendix shows 'Professional and Technical Officers' as belonging to the Senior Category, for purposes of establishing occupational ratios, employment in this occupation has been merged with that of Engineering and Technical Assistants in the Intermediate Category and the total has been expressed as a ratio of employment of Engineers in the Senior Category.

In defence of this 'merger' it can be urged that despite the fact that Technical Officers usually have qualifications that entitle them to inclusion in the Senior Category functionally, they are an integral part of the supporting staff for Engineers. It should not be difficult to accept the foregoing if the occupational ratios in Table A.4 are regarded as purely functional.

The ratio of Accountants and Auditors/Accounting and Audit Assistants is the only relationship which shows a change worth mentioning between 1963 and 1964. During this period, it fell from 1:4.25 (4:17) to 1: 4.6 (5:23).

TABLE A.4

OCCUPATIONAL RATIOS

OCCUPATIONS	RATIOS 1963	1964
Senior Managerial/Junior Managerial and Supervisors	1:2	10:22
Engineers/Technical Officers, Engineering Assistants, Technicals Assistants	10:19	10:19
Accountants and Auditors/Accounting and Audit Assistants	4:17	5:23

TABLE A.3

MANPOWER MIXES IN SELECTED INDUSTRIAL GROUPS: MANUFACTUIRING SECTOR.

Occupations	(a) ##	(a) ¢¢	(b) ##	(b) ¢¢	(c) ##	(c) ¢¢	(d) ##	(d) ¢¢
Directors, Managers, & Admin. Officers	37	0.9	162	1 62	94	1.05	69	2.03
Engineers (Mechanical)	49	1 13	141	1 41	15	0 26	21	.62
Engineers (Elect.)	7	.16	32	0 32	1	0 02	6	.18
Engineers (Civil)	-	-	6	0 06	1	0 02	1	.03
Engineers (Others)	6	.13	6	0 06	2	0.3	1	03
Prof. & Tech. Offrs.	30	.69	40	0 40	7	0 12	7	23
Accountants & Auditors	26	6	35	0 35	9	0 16	13	.38
Other Senior Officers	29	.67	78	0 78	35	0 6	36	1 06
TOTAL SENIOR CAT.	184	4 27	500	5 00	161	2 8	154	4 53
Junior Managers & Admin. Officers	27	0 62	137	1 37	50	0 86	53	1 56
Engineering Assistants	6	.13	36	0 36	30	0 52	23	.68
Technical Assistants	155	3 6	42	0 42	53	0 91	40	1 18
Accounting & Audit Assts.	19	.44	345	3 45	22	0 38	55	1 62
Work Supervisors	116	2 69	339	3 39	180	3 1	138	4 06
Other Intermediate Staff	11	.25	380	3 80	18	0 31	111	3 26
TOTAL INTERMEDIATE CAT.	334	7 76	1 279	12 79	353	6 09	420	12 32
Fitter, Machinist, etc.	57	1 32	785	7 85	100	1 7	120	3 23
Fitter Assemblers, etc.	15	.34	148	1 48	2	0 03	18	53
Plumbers & Pipe Fitters	16	.37	251	2 51	10	0 17	11	32
Welders & Flame Cutters	56	1.3	524	5 24	326	5 6	49	1 44
Carpenters, Joiners, etc.	52	1 2	316	3 16	22	0 38	38	1 12
Electrician Electric Repairmen	103	2.37	1 780	17 80	117	2 02	58	1 71
Mechanics Repairmen	15	.34	170	1 70	19	0 33	12	.32
Other Skilled Workers	4 875	-	1 727	17 27	1 243	21 43	890	26 18
Drivers	75	1 74	633	6 33	192	3 31	168	4 94
TOTAL SKILLED CAT.	5 264	183 14	6 314	63 14	2 031	35 02	1 364	40 12
Office Employees	386	8.97	1 863	18.63	395	6 81	231	6 79
Unskilled Workers	3,486	81 06	3 748	37 48	4 906	84 59	5 133	150 97
Casual Workers	112	2 6	829	8 29	127	2 19	261	7 68
TOTAL RESIDUAL CAT.	3,984	92 65	6 440	64 40	5 428	93 59	5,625	165 44
GRAND TOTAL	9,766	226.4	14 533	145.33	7,973	137.47	7,563	222.44

NOTE;

(a) Spinning, Weaving and Finishing Textiles (43 Estabs.)

(b) Repair of Motor Vehicles (101 Establishments)

(c) Sawmills, Planing & Other Wood Mills (58 Estabs.)

(d) Manufacture of Rubber Products (34 Estabs.)

Employment 1964

¢¢ Manpower Mixes 1964

CHAPTER V

FUTURE MANPOWER REQUIREMENTS

Rate of Growth of Employment:

According to estimates made by employers, additional needs for the 687 reporting establishments for the period 1964-70 will be 26,670 as shown in Table A.5. On the basis of their estimated share of present employment, additional requirements for the 140 establishments that did not respond would be about 4,000. Additional Manpower requirements of existing firms for future expansion is therefore of the order of 30:670 i.e. an annual growth in employment opportunities of about 4,400 per annum.

There has been no direct means of estimating the contribution to growth in the sector resulting from establishments of new firms. Since 1961 employment in the manufacturing sector has been as follows:*

	1961	1962	1963	1964
Employment	48,000	58,000	79,000	99,000
% Increase		21%	36%	25%

This gives an average annual growth of 27% in employment opportunities from all sources. The period covered by the series is too short and the sources of the data too varied to enable accurate estimates of growth. Considering however, the increased tempo in the sector since independence and the chances of this being kept up, it has been decided to assume an annual growth of 25% in employment for the sector. On this assumption, the level of employment in the sector by 1970 would be 247,500. Total additional requirements would therefore be 148,500.

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* Sources: 1961 figures derived from a survey conducted for the Ministry of Labour by an I.L.O. expert.

1962 figures derived from the Industrial Survey conducted by the Federal Office of Statistics.

1963 and 1964 figures derived from the Manpower Survey conducted by the Secretariat.

TABLE A.5

FUTURE MANPOWER REQUIREMENTS: 1964-70

MANUFACTURING: EMPLOYERS ESTIMATES - BY REGION

Occupations	Additional Needs By Regions					All Nigeria
	Federal	North	East	West	Mid-West	
Directors, Managers & Snr. Admin. Officers	96	37	71	73	44	321
Engineers (Mechanical)	127	15	27	15	56	240
Engineers (Electrical)	7	13	-	-	-	20
Engineers (Civil)	-	-	-	2	-	2
Engineers (Others)	13	6	2	11	-	32
Prof. & Tech. Officers	-	26	37	16	7	86
Accountants & Auditors	44	11	23	13	17	108
Other Senior Officers	31	6	40	14	13	104
TOTAL SENIOR CAT.	318	114	200	144	137	913
Junior Managerial & Admin. Officers	30	35	44	58	90	257
Engineering Assistants	3	26	17	4	17	67
Technical Assistants	21	18	16	84	-	139
Accounting & Audit Assistants	30	17	34	37	48	176
Worker-Supervisors	438	145	25	145	23	776
Other Intermediate Staff	58	38	133	48	6	283
TOTAL INTERMEDIATE CAT.	580	289	269	376	184	1 698
Fitter-Machinists, Machine Tool Workers, Fitter Assemblers	400	84	3	78	27	592
Plumbers,& Pipe Fitters	-	-	-	7	-	7
Welders & Flame Cutters	507	12	618	24	66	1,227
Carpenters, Joiners, Sawyers, etc	122	464	93	169	200	1 048
Electrician, Electric Repairmen	123	27	33	29	67	279
Mechanics-Repairmen	108	88	620	34	820	1,670
Furnacemen, Moulders, Blacksmiths, etc.	271	82	20	4	185	562
Other Skilled Workers	1,222	3,549	569	1 145	1.296	7,781
Drivers	121	104	42	85	649	1 001
TOTAL SKILLED CAT.	2 874	4 410	1 998	1 575	3,303	14 167
Office Employees	534	97	235	349	1 168	2.383
Unskilled Workers	4 132	953	133	1 045	803	7 066
Casual Employees	19	-	-	344	80	443
TOTAL RESIDUAL CAT.	4 685	1 050	368	1,738	2.051	9 892
GRAND TOTAL	8.457	5,863	2.835	3,833	5,682	26 670

On the basis of relationships existing between the various categories of manpower in 1964 as reported in Chapter III, the level of employment forecast for 1970 has been broken down by categories. From the results have been deducted the numbers employed in these categories in 1964 in order to obtain a break down by categories of additional requirements. The following table shows the position:

TABLE A.6

Categories	1964 Employment	Employment forecast for 1970	Additional Requirements 1964 - 1970
1	2	3	4
Senior	3,060	7,620	4,560
Intermediate	7,030	17,560	10,530
Skilled	41,250	102,910	61,660
Residual	47,660	118,910	71,250
ALL CATEGORIES	99,000	247,000	148,000

Rate of Wastage

As contained in column 9 of table 2 of Appendix, total separations from employed manpower in this sector amounted to 10,719 between Janaury 1963 and January 1964. The category distribution is as follows: 347, 673, 3,814 and 5,885 for the Senior, Intermediate, Skilled and Residual Categories respectively. The detailed occupational break-down is also contained in this column. In percentage terms, the category rates are, starting with the Senior Category, 13.7, 12.2, 11.6 and 15.2 respectively. Strictly speaking these rates based as they are on statistics of total separation, cannot be regarded as 'wastage' rates because they include figures of transfer and promotions which may not constitute a final loss of employment to the sector.

It will be more accurate if they are referred to as *gross rate of separation.* For the purposes of replacement however, only personnel lost through deaths and retirements may be validly viewed as a final loss or 'wastage' but those who were merely transfered from one establishment to another within the same sector and who are therefore returned as part of separations from employment in their original establishments cannot and should not be regarded as constituting 'wastage' to the sector as a whole because, while they represent a loss to some establishments they are additions to employment in others.

For the purposes of this report, manpower wastage has been confined to loss resulting from deaths and retirements. Between 1963 and 1964, 529 persons either died or retired from the sector i.e. about 1% of employment. On this basis, 6% of the level of employment at January 1964 would be required to meet loss due to death and retirement by 1970 i.e. about 5,200.

Total additional manpower requirements to meet the level of employment in the sector forecast for 1970 would be of the order of 153,700.

Prospects For Future Growth

It is common practice in economic literature to make future employment depend solely on the rate of future investment in the various sectors of the economy. This is a corollary from the common view that economic development (or more specifically, the growth of the National Income) is a direct function of the rate of productive investment. This view is not erroneous, but it could be very partial particularly in an underdeveloped country. The reason for this is simple enough. On account of a number of institutional, infra-structural and other obstacles, the economy often functions well below capacity. For individual productive units this means under-utilization of existing capacity and for the economy, an untapped growth potential.

The information on capacity utilization made availabel in the present study is contained in Table 4 of Appendix which shows that of the 687 manu facturing establishments covered, 122 did not furnish information on capacity utilization, 296 reported full utilization and 269 were functioning below capacity. The last group is made up as follows: 14 establishments with 0-24% utilization, 62 with 25-49% utilization, 139 with 50-74% utilization and 54 with 75-99% utilization. Taking the employment figures returned for these various establishment groups, this means that the Manufacturing Sector could provide additional employment ranging from a minimum of about 9,300 to a maximum of almost 26,500 with very little additional capital investment. The foregoing estimates are based on the assumption that the production function in this sector is linear and homogeneous i.e. the employment/output ratio is constant over the various stages of capacity utilization.

CHAPTER VI

TRAINING

Table A.7 summarises the training schemes in this sector by duration and fields of training covered. As ist January 1964 there were 88 Senio. Category, 272 Intermediate and 2 951 Skilled trainees, making a total of 3,311 for the whole sector. These figures cannot be compared with figures on future requirements with a view to ascertaining the probable magnitude and nature of manpower shortages in this sector for two reasons. In the first place the duration of training indicated in column 7 of the table is not sufficiently specific to facilitate the determination of annual out-turns from the various training schemes. For example the annual output of Professional and Technical Officers cannot be determined from the information available in this table because a training period of 4-3i months is too indeterminate for such an exercise. The same is true of a many other occupations. It would be misleading therefore to work out annual out-turn figures from the information available. Secondly, even if duration of training were specific it would be arbitrary to attempt an estimate of the annual output of these training schemes from the data presented in Table A.7 because the frequency of training courses is not indicated. In future studies it is intended to request employers to furnish information on the average annual out-turn from their training courses by field of training.

It has been assumed in this report that the number of trainees recorded in January 1964 would roughly represent the annual out-turn from all the training schemes. In support of this assumption it can be argued that many of the training schemes are about a year long (even though some are a few months long while others last for a number of years) and that the frequency is once a year. In Table A.8 the training figures as of January 1964 have been taken as figures of annual out-turn and matched with the average annual additional requirement forecast by employers. In Column 4 of Table A.8 the negative signs indicate the excesses of

TABLE A.7

ANALYSIS OF TRAINEES BY FIELD, NUMBER, TYPE AND DURATION OF TRAINING

Occupation	TYPE OF TRAINING					Duration in Months
	In-Service	Apprentice-ship	Overseas	Others	Total	
Managers & Admin. Officers	-	-	15	1	16	3-4
Engineers (Mechanical)	-	-	10	10	20	2-12
Engineers (Electrical)	-	-	1	3	4	2
Engineers (Civil)	-	-	7	-	7	6
Accountants & Auditors	-	-	2	-	2	2
Professional & Tech. Offrs.	6	-	9	3	18	4-31
Other Senior Staff	3	-	18	-	21	4-5
TOTAL SENIOR CATEGORY	9	-	62	17	88	
Junior Managers	8	-	-	10	18	3-8
Engineering Assistants	1	21	3	13	38	4-14
Technical Assistants	39	5	26	56	126	3-14
Accounting & Audit Assts.	1	-	1	8	10	3-6
Works Supervisors	5	-	7	60	72	2-12
Other Intermediate Staff	2	-	-	6	8	2-3
TOTAL INTERMEDIATE CATEGORY	56	26	37	153	272	
Fitter-Machinists	15	114	-	7	136	4-16
Welders & Flame Cutters	-	108	-	-	108	4-12
Electricians	12	27	-	6	45	3-12
Mechanics & Repairmen	127	532	-	67	726	2-60
Furnacemen-Moulders	11	162	-	-	173	3-18
Carpenters-Joiners	12	507	-	1	520	6-11
Other Skilled Workers	199	645	-	391	1,235	3-60
Drivers	5	3	-	-	8	4-5
TOTAL SKILLED CATEGORY	381	2,098	-	472	2,951	
GRAND TOTAL	446	2,124	99	642	3,311	

trainees over requirements for a number of occupations. This can certainly not be regarded as a reliable picture because it is most improbable that private business establishments which are most cost-conscious will mount training schemes that will produce skilled manpower in excess of their requirements.

An examination of the duration of training as contained in Column 7 of Table A.7 provides the answer to this problem. The periods of training indicated are far too short, in most cases, for equipping manpower with high or specialised skills. One wonders what type of engineer gets trained in 2 - 12 months as shown in Column 7 of Table A.7. The explanation must be that many of the training courses recorded here are mere booster courses designed not so much for equipping people with new specialist skills with a view to meeting future requirements, but in most cases, for improving the efficiency of those already employed.

TABLE A.8

MANUFACTURING TRAINING AND ADDITIONAL REQUIREMENTS

(1)	(2)	(3)	(4)
Managers & Admin. Officers	16	46	30
Engineers (Mechanical)	20	34	14
Engineers (Electrical)	4	3	- 1
Engineers (Civil)	7	-	- 7
Engineers (Others)	-	5	5
Accountants & Auditors	2	15	13
Professional & Tech. Officers	18	12	- 6
Other Senior Officers	21	15	- 6
TOTAL SENIOR CAT.	88	130	
Junior Managers, etc.	18	37	19
Engineering Assistants	38	10	-28
Technical Assistants	126	20	-106
Accounting & Audit Assistants	10	25	15
Work Supervisors	72	111	39
Other Intermediate Staff	8	40	32
TOTAL INTERMEDIATE CAT.	272	242	
Fitter-Machinists, etc.	136	85	-51
Plumbers & Pipe Fitters	-	1	1
Welders & Flame Cutters	108	175	67
Electricians	45	40	5
Mechanics & Repairmen	726	239	-487
Furnacemen & Moulders	173	80	-93
Carpenters, Joiners, etc.	520	150	-370
Other Skilled Workers	1,235	1,113	-124
Drivers	88	143	135
TOTAL SKILLED CAT.	2,951	2,026	

NOTE: (1) Occupations

(2) No. of Trainees ungergoing training in 1964

(3) Average Annual Additional Requirements

(4) Short-fall or Excess (Col. 3 - Col. 2)

PART B

CHAPTER VII

MINING AND QUARRYING

Level and Structure of Employment

Although it is known that there are just over 100 establishments in the Mining and Quarrying sector only 50 of these responded to the questionnaire sent out. The responding establishments employed a total of about 32,000 persons out of a total estimated employment of about 52,000 in the sector. This means that although only about 50% of the establishments responded coverage in terms of employment is about 60%. As indicated in Table B.1, of those employed in 1964, 763 were in the Senior Category, 1,085 in the Intermediate Category, 13,336 in the Skilled Category and 17,080 in the Residual Category. This works out at a ratio of 2:3:33:43. In 1963, a total employment figure of about 30,600 was recorded for the 50 reporting establishments - 741 in the Senior Category, 1,027 in the Intermediate Category, 12,569 in the Skilled Category and 16,244 in the Residual Category giving a ratio of 2:3:34:44. The foregoing shows that despite the big differences in some of the absolute figures given above, the proportional distribution of Mining and Quarrying Manpower did not change very much over the period 1963 - 64. In consideration of the unsatisfactory coverage achieved in the survey, and because of the need to have data in the form that will facilitate Manpower Planning, attention will be focussed in this report, not so much on the sectoral or category aggregates which change often and considerably over time, but, especially on the category, occupational and similar relationships which are much more stable and therefore more useful for planning purposes.

Expatriates:

Table B.2 gives the breakdown of total employment by nationality.

MINING & QUARRYING TABLE B.1 ALL REGIONS

EMPLOYMENT POSITION & TURNOVER BY TYPE OF OCCUPATION 1963-64

Occupational Title	No. of Employees on 1/1/63	Employees taken on roll in 1963			Employees Removed in 1963			Total No. on Roll on 1/1/64
		Nig.	Expt	Total	##	¢¢	Total	
Directors, Managers, etc.	97	5	6	11	3	7	10	98
Engineers (Mechanical)	50	3	3	6	-	4	4	52
Engineers (Electrical)	17	-	1	1	-	2	2	16
Engineers (Civil)	8	1	-	1	-	-	-	9
Engineers (Mining)	83	-	7	7	2	4	6	84
Engineers (Drilling)	54	-	8	8	-	-	-	62
Engineers (Others)	32	3	3	6	-	3	3	35
Surveyors	47	5	-	5	-	4	4	48
Professional & Technical Offrs	209	18	11	29	2	6	8	230
Accountants & Auditors	61	7	1	8	3	12	15	54
Other Senior Officers	83	13	1	14	4	18	22	75
TOTAL SENIOR CATEGORY	741	55	41	96	14	60	74	763
Junior Managerial etc.	30	8	1	9	1	-	1	38
Engineering Assistants	211	17	8	25	1	15	16	220
Technical Assistants	181	34	-	34	-	31	31	184
Accounting & Audit Assts.	107	5	2	7	1	14	15	99
Worker-Supervisors	351	63	-	63	-	25	25	389
Other Intermediate Staff	147	12	1	13	-	5	5	155
TOTAL INTERMEDIATE CAT.	1,027	139	12	151	3	90	93	1,085
Fitter-Machinists etc.	260	28	-	28	-	22	22	266
Plumbers & Pipe Fitters	120	9	-	9	1	9	10	119
Welders & Flame Cutters	105	14	-	14	-	7	7	112
Carpenters, Joiners, etc.	142	12	-	12	1	12	13	141
Electricians etc.	233	26	-	26	3	13	16	243
Mechanics - Repairmen	334	49	-	49	2	32	34	349
Furnacemen Moulders etc.	78	4	-	4	1	2	3	79
Riggers (Pet Well-drilling & related workers)	54	6	-	6	-	16	16	44
Drillers & related workers	175	139	-	139	-	43	43	271
Minners and Quarrymen	9,016	1,475	5	1,480	42	880	922	9,574
Others	1,484	263	-	263	14	178	193	1,554
Drivers	568	88	-	88	3	69	72	584
TOTAL SKILLED CATEGORY	12,569	2,113	5	2,118	68	1,283	1,351	13,336
Office Employees	612	70	-	70	2	51	53	629
Unskilled Workers	13,059	2,810	1	2,811	111	1,423	1,534	14,336
Casual Employees	2,573	..	..	..	..	..	..	2,115
TOTAL RESIDUAL CATEGORY	16,244	2,880	1	2,881	113	1,474	1,587	17,080
GRAND TOTAL	30,581	5,187	59	5,246	198	2,907	3,105	32,264

NOTES: .. : Turnpver position not collected

Death or Retirement

¢¢ Other Causes

Out of a total of 765 in the Senior Category expatriates account for 458 or 60%. In the Intermediate Category there are about 1,000 Nigerians to about 106 non Nigerians - a ratio of about 10:1. In the Skilled and Residual Categories expatriates are most insignificant accounting for about 10% and less than one-third of 1% respectively. The information presented in this table merely gives a statistical dimension to the general feeling that expatriates dominate the policy making positions in the private sector of the economy. It is note-worthy that the Senior Category distribution observed is exactly the same as the one made available by the High Level Manpower Survey of 1963.

Female Workers

In all the four Manpower Categories there are 550 women to about 32,000 men. This works out at about 1:53. The total picture among Nigerians is 1:62 while it is 1:18 for non Nigerians. In the Senior Category there are only 50 females to 713 males i.e. about 1 woman to every 15 men whilst in the Intermediate Category there are 39 women to 1 046 men (1:30), and in the Skilled Category 122 women to 13 214 men or about 1:108. In terms of absolute figures the majority of female employees (337) are in the Residual Category comprising office and unskilled workers. On the whole female workers constitute a most insignificant proportion of employed manpower in the Mining and Quarrying sector.

Unmet Demand:

Table B.2 shows the vacancy position as it was in January 1964. There were 1,160 vacancies representing an all-Category unmet demand of 3.6%. The Senior, Intermediate, Skilled and Residual Categories reflect vacancies amounting to 3.3% 4.1% 0.4% and 6.1% of their 1964 employment respectively. A scrutiny of occupations in which there is

a high incident of unmet demand does not offer any qualitative explanation for this phenomenon. For exmaple, it may be understandable that in country where skilled manpower is very scarce, unfilled vacancies amount to 18.7% of total employment in Electrical Engineering. This cannot be said however of an unmet demand of 6.6% in unskilled employment in an economy characterised by a high incident of unemployment of unskilled labour. The explanation will have to be in terms of the frictions of the labour market.

TABLE B.2

EMPLOYMENT POSITION BY TYPE OF OCCUPATION AND SEX 1964

MINING & QUARRYING ALL REGIONS

Occupational Title	No. of Employees on roll on the 1st working day of January 1964					Vacancies on 1st Jan 1964	Unmet demand as % total Empt.
	Nigerians		Expatriates		Total		
	Male	Female	Male	Female			
Directors, Managers etc.	42	1	52	3	98	5	5.1
Engineers (Mechanical)	14	-	38	-	52	2	3.9
Engineers (Electrical)	3	-	13	-	16	3	18.7
Engineers (Civil)	4	-	5	-	9	-	-
Engineers (Mining)	28	-	56	-	84	5	5.9
Engineers (Drilling)	11	-	51	-	62	-	-
Engineers (Others)	23	-	12	-	35	1	2.1
Surveyors	22	-	26	-	48	1	2.2
Professionals & Technical Offrs.	71	9	136	14	230	5	3.7
Accountants & Auditors	25	2	23	4	54	2	3.7
Other Senior Officers	46	4	12	13	75	2	2.7
TOTAL SENIOR CATEGORY	289	16	424	34	763	25	3.3
Junior Managerial, etc.	37	-	1	-	38	4	10.5
Engineering Assistants	140	-	80	-	220	14	6.4
Technical Assistants	153	29	1	1	184	10	5.4
Accounting & Audit Assts.	86	1	12	-	99	-	-
Worker - Supervisors	388	1	-	-	389	16	4.1
Other Intermediate Staff	142	2	6	5	155	1	0.6
TOTAL INTERMEDIATE CAT.	946	33	100	6	1 085	45	4.1
Fitter-Machinists, etc.	265	-	1	-	266	2	0.8
Plumbers & Pipe Fitters	115	-	4	-	119	-	-
Welders & Flame Cutters	112	-	-	-	112	1	0.9
Carpenters, Joiners, etc.	141	-	-	-	141	-	-
Electricians, etc.	241	-	2	-	243	9	3.8
Mechanics - Repairmen	347	-	2	-	349	1	0.3
Furnacemen, Moulders, etc.	79	-	-	-	79	-	-
Riggers (Petroleum well-drilling & related workers)	44	-	-	-	44	-	-
Drillers (Petroleum well-drilling & related workers)	271	-	-	-	271	-	-
Miners and Quarrymen	9 346	120	108	-	9 574	23	0.3
Others	1 545	2	7	-	1 545	5	0.3
Drivers	578	-	6	-	584	7	1.2
TOTAL SKILLED CATEGORY	13 084	122	130	-	13 336	48	0.4
Office Employees	591	38	-	-	629	5	0.8
Unskilled Workers	14 176	97	63	-	14 336	957	6.6
Casual Employees	1 913	202	-	-	2 115	80	3.8
TOTAL RESIDUAL CATEGORY	16 680	337	63	-	17 080	1 042	6.1
GRAND TOTAL	30 999	508	717	40	32 264	1 160	3.6

CHAPTER VIII

TYPE ANALYSIS AND MANPOWER MIXES

The analysis contained in Chapter VII relates to the manpower employed in all the establishments covered in t his sector. For purposes of detailed manpower planning it is necessary to disaggregate a little further and see the different pictures presented by establishments of different sizes. The importance of this lies in the fact that the level and structure of employment could vary considerably between establishments of different sizes within the same sector. For purposes of manpower forecasting therefore, particularly with respect to new establishments, it is necessary to know the probable distribution of manpower by size of establishments. Once employment in the sector has been analysed by size of establishments, it becomes more or less a simple arithmetical exercise to work out the amount and structure of employment in any new establishments.

Ordinarily, the size of a business establishment can be defined in terms of capital investment, amount of employment, turnover, value added, etc. But from the point of view of a manpower planner what is operationally relevant is the definition of establishment size in terms of a variable which can be determined in advance of project execution. This, in most cases, is the size of capital to be invested. The following type of analysis has therefore been carried out employing the capital invested as criterion for size determination.

All the establishments in this sector have been divided in Table B.3 into three size-types:

Type 1: Establishments employing capital of less than £5,000

Type 2: Establishments employing capital between £5,000 and £49,000.

Type 3: Establishments employing capital of £50,000 and above.

Of the 50 establishments covered in this sector only 43 gave information on the size of their invested capital. The analysis carried out in this chapter therefore relates only to these 43 establishments. The Category ratios for the three size types are as follows:

For Type 1: Senior: Intermediate: Skilled: Residual is approximately 1: 2: 3: 112. For Type 2 and Type 3 the relationships are roughly 1: 2: 5: 62 and 1: 1: 49: 112 respectively. These figures show that the Residual or Unskilled category accounts for about 95% of total employment in Type 1 establishments, 48% in Type 2 and 70% in Type 3. Thus, skilled manpower takes a proportionately higher share of total employment in Type 2 or medium-size establishments than in the other two establishment types.

Manpower Mixes:

Perhaps more important for detailed planning are the manpower mixes in the various size types. The term 'Manpower Mixes' is here taken to mean the occupational and category disposition of manpower in an average establishment within a particular size type. In other words, it is the employment in each occupation divided by the number of establishments in the whole of a particular size type. Tabel B.3 summarises the position in this sector. It is unusual and seemingly meaningless to put down, for example, the number of Mechanical Engineers in an average Type 3 establishment as 2.2. But decimals have been used in the table above because rounding may prove so drastic in certain cases that serious errors will get introduced into the manpower estimates based on the rounded figures. For example, if it is known that about 1,000 Type 1 establishments are likely to go into operation

within the next five years, and if the figure of 1.55 for total Senior Category requirement for an average Type 1 establishment were rounded to 2. estimated additional future requirement in the Senior Category would go up from 1.550 to 2.000 an error of almost 30%. The figures in Table 8.3 should therefore be regarded as planning multipliers which should be left as they are in the interest of accuracy. This table shows quite clearly that there is a positive and powerful correlation between the size of the establishments (defined in terms of capital invested) and the size of employment.

Information is not available on the total amount of capital invested by the various establishment Types, and as a result, it has not been possible to work out the average size of capital invested in each size Type. This limitation makes it difficult to establish employment/capital ratios which, if available, will facilitate the determination of the establsihment size that has the highest employment/capital ratio. From the information available, all that can be said is that the smaller the size of an establishment, the smaller the amount of employment it generates and vice versa. While the average Type 1 establishment shows a total employment of 225.6 Type 2 has an employment figures of 383 and Type 3, 1,716.8. This is a relationship of about 2:3:16. The relationship is much closer in individual Categories. They are as follows: Senior Category: 1:2:7, Intermediate Category 5:10:17, Skilled Category: 1:4:12 and Residual Category 1:1:7.

In subsequent studies it is hoped that establishments will be divided into more size Types in order to make more dependable, the planning ratios which they will throw up. It is recognised also that these various ratios will change over time particularly with changes in technology and productivity. But they are likely to be reasonably reliable for a period of 5-7 years which is about the normal duration of our proposed medium-term plans.

MINING AND QUARRYING

TABLE B.3

TYPE ANALYSIS OF EMPLOYMENT

Occupational Title	TYPE 1 (a)	(b)	(c)	TYPE 2 (a)	(b)	(c)	TYPE 3 (a)	(b)	(c)
1	2	3	4	5	6	7	8	9	10
Directors, Managers, etc.	23	20	1.2	30	18	1.7	7	5	1.4
Engineers (Mech.)	-	20	-	4	18	0.2	11	5	2.2
Engineers (Elect.)	-	20	-	-	18	-	2	5	0.4
Engineers (Civil)	-	20	-	-	18	-	1	5	0.2
Engineers (Mining)	3	20	0.15	7	18	0.4	16	5	3.2
Engineers (Others)	1	20	0.05	-	18	-	1	5	0.2
Surveyors	-	20	-	6	18	0.3	3	5	0.6
Others	-	20	-	4	18	0.2	3	5	0.6
Accountants & Auditors	3	20	0.15	3	18	0.2	6	5	1.2
Other Senior Officers	1	20	0.05	-	18	-	4	5	0.8
TOTAL SENIOR CATEGORY	31	20	1.55	54	18	3.0	54	5	10.8
Junior Managers, etc.	5	20	0.25	9	18	0.5	1	5	0.2
Engineering Assts.	17	20	0.85	50	18	2.8	26	5	5.2
Technical Assts.	1	20	0.05	3	18	0.4	5	5	1.0
Accounting & Audit Assts	1	20	0.5	8	18	0.2	8	5	1.6
Worker Supervisors	49	20	2.45	61	18	3.4	12	5	2.4
Other Intermediate Staff	1	20	0.05	4	18	0.2	11	5	2.2
TOTAL INTERMEDIATE CAT.	74	20	3.7*	135	18	7.5	65	5	12.6
Fitter-Machinists, etc.	1	20	0.05	9	18	0.5	17	5	3.4
Plumbers & Pipe Fitters	3	20	0.15	-	18	-	10	5	2.0
Welders & Flame Cutters	-	20	-	-	18	-	16	5	3.2
Carpenters, Joiners, etc.	7	20	0.35	33	18	1.8	24	5	4.8
Mechanics-Repairmen	10	20	0.5	-	18	-	29	5	5.8
Furnacemen & Moulders	1	20	0.05	9	18	0.5	55	5	11.0
Riggers (Petroleum well-drilling)	-	20	0-05	2	18	0.1	6	5	1.2
Drillers (Petroleum well-drilling)	12	20	0.6	-	18	-	36	5	7.2
Miners & Quarrymen	803	20	40.15	3280	18	182.2	196	5	39.2
Others	14	20	0.7	37	18	2.1	1,840	5	368.0
Drivers	16	20	0.8	28	18	1.6	64	5	12.8
TOTAL SKILLED CAT.	867	20	43.6*	3368	18	188.8	2,622	5	524.4
Office Employees	11	20	0.6	14	18	0.8	59	5	11.8
Unskilled Workers	3,177	20	158.9	2561	18	142.3	5,353	5	1070.6
Casual Employees	273	20	14.7	762	18	42.3	658	5	131.6
TOTAL RESIDUAL CAT.	3,461	20	174.2*	3337	18	185.4	6,070	5	1214.0
GRAND TOTAL	4,433	20	225.6*	6894	18	384.7	8,809	5	1761.8

NOTES: * The figures here may not add up to the total because of rounding

(a) Employment

(b) Number of Establishments

(c) Manpower Mixes Column (a)-Column (b)

CHAPTER IX

FUTURE MANPOWER REQUIREMENTS

The growth rate of employment is usually the resultant of the rate of accession and the rate of wastage. Between January 1963 and January 1964, total employment grew in this sector by 7%. This rate of growth should be taken with great caution for two reasons. In the first place the one year period (1963-64) covered by the present report is too short to be used for such generalisation. Data collected over a much longer period of say 6-8 years are required before valid conclusions could be reached on the relationship between postulated and achieved rates of growth of the Labour Force in this particular sector. Secondly, it should not be surprising if there is a divergence between the rate of growth of total employment in the whole economy and the growth rate of total employment in any particular sector, for there is nothing in the economic system which suggests that growth of employment or of any other national aggregate should or could be evenly distributed between the various sectors, and within each sector, among the various industries.

Bearing in mind these limitations comparisons could be made between the rates of growth of the various categories of manpower in the Mining and Quarrying sector and the generalised rates of growth assumed for these categories in Manpower Study No. 2: Nigeria's High-Level Manpower 1963-70. In the last named, with the 4% planned rate of growth of the National Income as a base, it was assumed that employment in the Senior and Intermediate Categories would grow at 8% and 12% per annum respectively between 1963 and 1970.

But as Table B.4 indicates, Senior Category employment grew by 2.9% between 1963 and 1964 while the Intermediate Category achieved a net increase of just 5.6%. One interesting point about these figures is that they are about half of the expected rates of growth in these categories.

Rate of Wastage: Hitherto, in Manpower Study No.2 - Nigeria's High-Level Manpower 1963-70, an annual manpower wastage rate of 3% was assumed for every occupation, every category and every sector. The various wastage rates shown in column 6 of Table B.4 may not be very reliable for the reason already stated, but they do spotlight the need to use different rates for

different occupations, different categories and different sectors of the economy. Although the category wastage rates are fairly close (ranging from 9% in the Intermediate to 10.8% in the Skilled), the occupational rates show very wide differences, even within the same category. For example, in the Senior Category the occupation 'Other Professional and Technical' shows a wastage rate of 3.8% between 1963 and 1964 while Accounting and Auditing manifests a wastage rate of 24.6% for the same period. A comparison of occupational wastage rates between categories shows a much wider divergence, ranging from 3.8% (Senior Category: 'Other Professional & Technical') to 29.6% (Skilled Category: Riggers & Related Workers). The important deduction from the foregoing is that every important occupation should be studied over time in all sectors of the economy in order to refine estimates of future manpower requirements and thereby make them more reliable guides to policy.

Prospects For Future Growth

The information made available in the present study as contained in Table B.5 shows the degree of capacity utilization in this sector. Out of a total of 50 establishments only 23 reported full utilization of capacity. Seven did not, and two stated that they were not in a position to furnish information on capacity utilization. Of the remaining 18 establishments that gave information on capacity utilization one reported 0-24% utilization, 3 indicated 25-49% utilization, 8 showed 50-74% utilization and six 75-99% utilization. Taking the employment figures recorded for these various establishment groups, this means that the Mining and Quarrying sector could provide additional employment ranging from a minimum of about 1 000 to a maximum of almost 3 000 without new capital investment. The foregoing estimates are based on the simplifying assumption that the production function in this sector is linear and homogeneous - in other words, that the employment/output ratio is constant over the various stages of capacity utilization.

The explanation for this significant waste of productive capacity is contained in Table B.6. Of the twenty establishments which indicated the difficulties in the way of full utilization of capacity only one mentioned lack of contracts or Government patronage which is construed as inadequate demand.

TABLE B.4

RATE OF WASTAGE AND GROWTH OF THE LABOUR FORCE ACCRETION

MINING AND QUARRYING

1	2	3	4	5	6	7	8
Directors, Managers, etc.	97	11	11.3	10	10.3	1	0.1
Engineers (Mechanical)	50	6	12.0	4	0.8	2	0.4
Engineers (Electrical)	17	1	5.9	2	11.8	1	5.9
Engineers (Civil)	8	1	12.5	-	-	1	12.5
Engineers (Mining)	83	7	8.4	6	7.2	1	1.7
Engineers (Drilling)	54	8	14.8	-	-	8	15.0
Engineers (Others)	32	6	18.7	3	9.4	3	9.4
Surveyors	47	5	10.6	4	8.5	1	2.1
Prof. & Technical Offrs.	209	29	13.9	8	3.8	21	11.0
Accountants and Auditors	61	8	13.1	15	24.6	- 7	-6.6
Other Senior Officers	83	14	16.1	22	26.5	- 8	-9.6
TOTAL SENIOR CATEGORY	741	96	12.9	74	10.0	22	2.9
Junior Managerial, etc.	30	9	30.0	1	33.3	8	26.7
Engineering Assistants	211	25	11.4	16	7.6	9	4.3
Technical Assistants	181	34	18.8	31	17.1	3	1.7
Accounting & Audit Assistants	107	7	6.5	15	14.0	-8	-7.5
Worker-Supervisors	351	63	17.9	25	7.1	38	10.8
Other Intermediate Staff	147	13	8.8	5	3.4	8	5.4
TOTAL INTERMEDIATE CATEGORY	1 027	151	14.7	93	9.0	58	5.6
Fitter-Machinists, etc.	260	28	10.8	22	8.9	6	2.3
Plumbers & Pipe Fitters	120	9	7.5	10	8.33	- 1	-0.8
Welders & Flame Cutters	105	14	13.3	7	6.67	7	6.7
Carpenters, Joiners, etc.	142	12	8.5	13	9.2	- 1	-0.7
Electricians, etc.	233	26	11.1	16	6.9	10	4.3
Mechanics - Repairmen	334	49	14.4	34	10.2	15	4.4
Furnacemen, Moulders, etc.	78	4	5.1	3	3.8	1	1.2
Riggers & Related Workers	54	6	11.1	16	29.6	-10	-18.9
Drillers & Related Workers	175	139	79.4	43	24.6	96	54.9
Miners and Quarrymen	9,016	1,480	17.5	922	10.2	558	6.2
Others	1,484	263	17.7	193	13.0	70	4.2
Drivers	568	88	15.5	72	12.0	16	2.8
TOTAL SKILLED CATEGORY	12 569	2 118	16.9	1 351	10.8	767	6.1
Office Employees	612	70	11.1	53	8.7	17	2.8
Unskilled Workers	13,059	2,811	21.5	1,534	11.8	1,277	9.7
Casual Employees	2,573	-	-	-	-	-	-
TOTAL RESIDUAL CATEGORY	16,244	2,881	17.7	3,587	9.8	1,294	8.0
GRAND TOTAL	30,581	5,246	17.2	3 105	10.2	2,141	7.0

NOTES:

1 Occupations

2 No. of Employees on roll on 1st working day of Jan. 1963

3 No. of Employees taken during 1963

4. Rate of Accession to Labour Force (Col.3 as % of Col. 2)

5. Wastage during 1963

6. Rate of Wastage (Col. 5 as % of Col.2)

7. Net Addition to Employment (Col.3 - Col. 5)

8. Rate of Growth of Employment (Col.7 as % of Col.2)

TABLE B.5

DISTRIBUTION OF ESTABLISHMENTS BY PERCENTAGE OF CAPACITY UTILIZED

MINING AND QUARRYING — ALL REGIONS

Percentage Capacity Utilized	No. of Establishments	Employment
Information not furnished	7	10,682
100% Utilization	23	14,192
0 - 24% Utilization	1	264
25 - 49% Utilization	3	374
50 - 74% Utilization	8	2,030
75 - 99% Utilization	6	4,550
Percentage Not Known	2	172
TOTAL	50	32,264

TABLE B.6

DISTRIBUTION OF ESTABLISHMENTS BY NATURE OF DIFFICULTIES EXPERIENCED IN THE UTILIZATION CAPACITY

MINING AND QUARRYING — ALL REGIONS

Difficulties Experienced	No. of Establishments
No Difficulties Experienced	23
No Information Furnished	7
Taxes, Duties, Import, Policies, etc. are hampering factors	-
Lack of Contracts or Government Patronage	1
Lack of Capital and Funds or any Other Financial difficulties	4
Unfavourable Market Condition, Insufficient Demand for Products, Not Enough Customers, etc.	-
Difficulties about Supplies of Raw Materials, Electric ity, Fuel, Transport, etc.	3
Lack of Technical Skills to Work Mines fully in Rainy Season	12
Other Difficulties	-
TOTAL	50

Four reported 'financial difficulties' (probably inadequate working capital), three had infrastructural difficulties (difficulties about electricity fuel, transport, etc.), while twelve complained of 'lack of technical skills to work mines fully in the rainy season'. Though information is not available on the value added to National Income by these various establishments, it can still be inferred that infrastructural inadequacies and manpower shortages are the most important factors hampering the contribution of the Mining and Quarrying sector to National Income and employment. The foregoing thus gives some statistical content to the view that the shortage of skilled manpower may prove to be the greatest obstacle in the path of growth of the economy.

In the present study as in the High-Level Manpower Survey of 1963, employers were requested to furnish data on their future manpower requirements. But the quatum and time distribution of the requirements are such that it will be dangerous to draw any policy or planning conclusions from them. For example, the employers estimates given in Table B.7 suggest that, employment will grow on the average at 3.0, 2.3, 3.2 and 3.3 percent per annum for the Senior, Intermediate, Skilled and Residual Categories respectively during the period 1964-70. If these rates are compared with the annual growth rates of 10% and 13% thrown up by the 1963 exercise for Senior and Intermediate Categories, or with the slightly lower rates of 8% and 12% suggested by the Manpower Seminar of 1964 and used for setting manpower targets in these categories in Manpower Study No.2, the unreliability of the information supplied by employers in this respect will come into focus.

The distribution of the additional requirements over the six-year period is equally suspect because new additional employment is concentrated in the first and last few years of the forecas period.

TABLE B.7

ESTIMATED FUTURE ADDITIONAL EMPLOYMENT BY OCCUPATION 1964-70

MINING AND QUARRYING - ALL REGIONS

Occupational Title	¢¢	ESTIMATED ADDITIONAL REQUIREMENTS* 1964	1965	1966	1967	1968	1969	1970	##
Directors & Managers	98	4	3	-	-	-	-	-	7
Engineers (Mechanical)	52	-	-	-	-	-	-	8	8
Engineers (Civil)	9	-	-	-	-	-	-	2	2
Engineers (Others)	181	1	2	-	-	-	-	42	45
TOTAL SENIOR CATEGORY	340	5	5	-	-	-	-	52	62
Engineering Assistants	220	2	6	8	11	1	1	1	30
Other Inter. Staff	155	-	2	1	1	-	-	18	22
TOTAL INTERMEDIATE CAT.	375	2	8	9	12	1	1	19	52
Mechanics - Repairemen	349	-	330	201	1	1	1	5	539
Others - Miners	11,443	130	270	332	263	263	293	293	1,844
Drivers	584	3	-	1	1	1	1	1	8
TOTAL SKILLED CAT.	12,376	133	600	534	265	265	295	299	2,391
Unskilled Workers	14,336	275	490	410	380	400	400	400	2,755
Casual Employees	2,115	100	120	140	30	30	50	50	520
TOTAL RESIDUAL CAT.	16,451	375	610	550	410	430	450	450	3,275
GRAND TOTAL	29,542	515	1,223	1,093	687	696	746	820	5,780

NOTES: * As given by employers

¢¢ No. of Employees on 1st January, 1964

Total additional Needs 1964-1970

For example, all the staff increases envisaged for the Senior Category are exclusively in the last and the first two years of this period. It is improbable that the reporting establishments will not require any additional Senior Category personnel for four whole years 1965-69. It is equally unlikely that thereafter, there will be a sudden upsurge of demand for such personnel in 1970 after five years of absolute stagnation. It is possible, of course, to explain such behaviour in terms of the expected course and duration of a business cycle, but even then it is most unusual for certain sectoral variables to stand still even when the business cycle is at its trough. The picture presented here which re-occurs with only slight modifications in the other categories, underscores the important point, that much reliance should not be placed on employers' estimates of additional manpower requirements for periods of more than 2 to 3 years.

CHAPTER X

TRAINING

The training information furnished by employers in this sector is contained in Table B.8. In January 1964, the reporting establishments in this sector were providing training for 4 Senior Category, 141 Intermediate and 114 Skilled personnel under the following schemes:

(a) Overseas Scholarships: These were offered mainly to Electrical Technicians, Marine Engineering Assistants and Accounting and Audit Assistants. In all, 16 establishments indicated that they had such a scheme and between them they had 36 people in training in January 1964. The duration of training ranges from 2 months for Electrical Technicians to 60 months for Accounting and Audit Assistants. It was not possible to find out what kind of traing takes 5 years to impart to Audit Assistants as distinct from Auditors. This training scheme would seem to cater for intermediate personnel only.

(b) Scholarships - Local Universities: The two establishments which were operating this scheme had 2 Mechanical and 2 Electrical Engineers in training in January 1964. The duration of 36 months indicated is the same as the normal duration for undergraduate studies in Nigerian Universities.

(c) Scholarships - Local Technical Colleges: Four of the reporting establishments operated this scheme in January 1964. There were 15 trainees expected to complete their training over a period of 24-60 months. This scheme produces Intermediate Category personnel like scheme (a) above.

(d) Establishment Training: This is a scheme for Intermediate personnel. The establishments running it had a total of 182 employees-in-training in January 1964, which represented about 70% of all trainees in this sector as at that date. It appears as if this is the most important single scheme for the training of Intermediate Category manpower in this sector. The duration of training ranges from 18 - 36 months.

(e) In Service, Apprenticeship and Booster Courses: These three schemes between them had 22 trainees in 1964. About 15 of these were skilled personnel while 4 were of Intermediate Category Calibre. The duration of training was 5 months for the former and 36 months for the latter.

The form in which training information has been made available precludes estimation of the annual out-turn of the schemes and therefore any comparison of such estimates with future manpower requirements. In addition there is no indication as to whether any particular scheme is run on a regular basis, or whether it is a crash programme to be operated once-and-for-all to meet specific shortages. It can be said however, that most of the trainees catered for in these schemes are Intermediate Category personnel. An inference could be that the manpower shortage in this sector is more acute in the Intermediate than in the other categories.

TABLE B.8

TRAINING SCHEME BY TYPE AND DURATION - MINING & QUARRYING

Nature of Scheme	Type of Employees Covered	No. of Establishments	No. of Persons Under Training Jan. 1964	Normal Duration of Training in Months
Scholarship - Overseas	Electrical Technicians	4	1	2
	Marine Engineering Assts	4	16	36
	Accounting & Audit Assts	4	7	60
	Others	4	12	36
Scholarship - Local Universities	Mechanical Engineers	1	2	36
	Electrical Engineers	1	2	36
Scholarship - Local Technical College	Eng. & Mining Assts	4	15	24-60
Establishment Training Institutions	Eng. & Mining Assts	3	42	18-24
	Accounting & Audit Assts	3	2	24
	Supervisors	3	12	..
	Technical Assistants	3	33	18
	Others	3	93	36
In-Service-Training	Works Superintendent	1	1	36
	Mechanical Technicians	1	2	36
	Electrical Technicians	1	1	36
Apprenticeship	Fitters	1	3	5
	Electricians	1	3	5
Booster Courses	Plumbers, Fitters, Carpenters, etc.	1	12	..
		43	259	

NOTE: .. indicates that duration of training is less than one month.

CHAPTER XI

LEVEL AND STRUCTURE OF EMPLOYMENT

The response of establishments in Construction was rather poor compared with those in other sectors covered by this survey. In fact it has been impossible to determine the rate of response because of deficiencies that were later discovered in the directory used. Many of the establishments listed in the directory were found to be defunct some were wrongly classified under construction while addresses in many cases were incomplete. It was therefore not possible to determine how many establishments were in the sector and their total employment. This report covers 79 establishments employing about 14 154 persons from which returns were received.

As shown in Table C 1, of the 15 154 persons employed on 1st January 1963 388 were in Senior Category, 661 Intermediate, 6 192 Skilled and 6 913 Residual. In ratio terms, this relationship is of the order of 10: 17: 160: 180. In 1964 total employment in this sector had dropped to 13 532 made up of 373 in the Senior Category, 641 in the Intermediate, 6 127 in the Skilled and 6 391 in the Residual Category. This works out at a ratio of 10: 17: 166: 170. The contraction in employment shown here can be attributed to a probable fall in contract awards for construction work. Despite the slight increase in the proportionate shares of the Skilled and Residual Categories in total sectoral employment, these category ratios have been fairly stable over the one-year period covered.

Expatriates:

As in other sectors, expatriates are very few in the Skilled and Residual Categories, accounting for only nine out of a total of well over 12,000 in these two categories. In the Senior and Intermediate Categories the expatriate shares in employment are 44% and 17% respectively. This is at variance with the picture presented in certain industries in the Private sector where expatriates have the bigger share of employment

TABLE C.1

EMPLOYMENT POSITION & TURNOVER BY TYPE OF OCCUPATION 1963-64 - ALL REGIONS

Occupational Title	No. of Employees 1/1/63	Employees taken on roll during 1963			Employees Removed during 1963			Total No. on roll on 1/1/64
		Nig.	Expt	Total	(a)	(b)	Total	
Directors, Managers, etc.	143	20	4	24	8	17	25	142
Engineers (Mechanical)	20	1	5	6	-	6	6	20
Engineers (Electrical)	14	1	2	3	-	-	-	17
Engineers (Civil)	73	2	6	8	1	22	23	58
Engineers (Others)	11	1	-	1	-	2	2	10
Architects & Town Planners	33	6	1	7	5	6	11	29
Surveyors	33	-	8	8	-	5	5	36
Other Technical Officers	2	1	-	1	-	1	1	2
Accountants & Auditors	32	7	-	7	1	6	7	32
Other Senior Officers	27	4	-	4	-	4	4	27
TOTAL SENIOR CATEGORY	388	43	26	69	15	69	84	373
Junior Managerial, etc.	71	14	-	14	-	7	7	78
Engineering Assistants	27	13	-	13	1	10	11	29
Technical Assistants	103	13	-	13	2	28	30	86
Accounting & Audit Assts.	112	14	-	14	-	26	26	100
Worker-Supervisors	292	54	23	77	2	74	76	293
Other Intermediate Staff	56	5	1	6	-	7	7	55
TOTAL INTERMEDIATE CAT.	661	113	24	137	5	152	157	641
Fitter-Machinists, etc.	153	46	-	46	-	24	24	175
Plumbers & Pipe Fitters	209	11	7	18	-	18	18	209
Welders & Flame Cutters	151	20	-	20	2	34	36	135
Carpenters, Joiners, etc.	1,759	444	-	444	9	308	317	1 886
Electricians, etc.	165	47	1	48	-	12	12	201
Mechanics-Repairmen	175	50	-	50	-	65	65	160
Furnacemen, Moulders, etc.	73	16	-	16	-	11	11	78
Bricklayers, Masons, etc.	2,147	425	-	425	5	420	425	2 147
Painters, Decorators, etc.	429	79	-	79	5	107	112	396
Operators of Crane, Hoist, etc	265	43	-	43	-	120	120	188
Other Skilled Workers	185	23	-	23	-	25	25	183
Drivers	481	85	-	85	2	195	197	369
TOTAL SKILLED CATEGORY	6,492	1,289	8	1,297	23	1,339	1,362	6,127
Office Employees	360	65	23	88	2	123	125	323
Unskilled Workers	5,629	1,741	-	1,741	24	2,269	2,293	5 357
Casual Employees	924	...	...	...	...	...	...	711
TOTAL RESIDUAL CATEGORY	6,913	1,806	23	1,829	26	2,392	2,418	6,391
GRAND TOTAL	14,154	3,251	81	3,332	69	3,952	4,021	13,532

NOTES: (a) Deaths or Retirements

(b) Other Causes

(..) Turn-over position not collected

* One large establishment did not give employment turn-over because the figures were not available. Hence the employment generated minus attrition plus 1963 employment is not equal to 1964 January. Employment level in this category.

particularly in Senior Category occupations. The difference shown here is perhaps due to the presence of many small and medium-sized indigenous construction firms which operate in this sector. The owners of such business units who pass for manager and directors, go to swell the share of Nigerians in Senior Category employment even though they may not all have the specified educational and training qualifications. A look at Table C.3 shows that expatriates are still in the majority in the more technical Senior Category occupations like Engineering, Surveying, Architecture and Town Planning. In these occupations, in January 1964, there were 102 expatriates as against 68 Nigerians.

TABLE C.2

OCCUPATIONAL RATIOS

Related Occupations	1963	1964
Managers & Admin. Officers/Junior Managerial	2:1	9:5
Engineers/Engineering Assistants	22:5	18:5
Accountants & Auditors/Accounting & Audit Assts.	29:100	1:50
Technical Officers/Technical Assistants	1:50	1:50

As in the Mining and Electricity Generation sectors, Junior Managerial personnel in this sector is just a fraction of what obtains in the Senior Managerial occupation. The only difference is that, whereas the ratio of Senior Managerial/Junior Managerial is roughly 4:1 in those two sectors, it is just 2:1 in this sector. As for Engineering, the relationship is about 1:1 in both Mining and Electricy Generation but it rises rather sharply to 22:5 in Construction. The Accountants and Auditors/Accounting and Audit Assistants relationship is the only ratio that conforms with the expected pattern in all three sectors for it constitently shows Senior Category Employment

TABLE C.3

EMPLOYMENT POSITION BY TYPE OF OCCUPATION AND SEX 1964

CONSTRUCTION — **ALL REGIONS**

Occupational Title	No. of Employees on roll on 1st working day of Jan. 1964					No. of Vacancies 1/1/64
	Nigerians		Non-Nigerian			
	Male	Female	Male	Female	Total	
Directors, Managers, etc.	96	3	42	1	142	-
Engineers (Mechanical)	7	-	13	-	20	1
Engineers (Electrical)	6	-	11	-	17	1
Engineers (Civil)	24	-	34	-	58	-
Engineers (Others)	2	-	8	-	10	-
Architects & Town Planners	21	-	8	-	29	2
Surveyors	8	-	28	-	36	1
Other Technical Officers	2	-	-	-	2	-
Accountants & Auditors	24	-	8	-	32	-
Other Senior Officers	16	-	11	-	27	-
TOTAL SENIOR CAT.	206	3	163	1	373	5
Junior Managerial, etc.	52	-	26	-	78	6
Engineering Assistants	25	-	4	-	29	1
Technical Assistants	71	-	15	-	86	2
Accounting & Audit Assts.	99	1	-	-	100	1
Worker-Supervisors	234	-	59	-	293	4
Other Intermediate staff	46	1	2	6	55	-
TOTAL INTERMEDIATE CAT.	527	2	106	6	641	14
Fitter-Machinists, etc.	175	-	-	-	175	-
Plumbers & Pipe Fitters	209	-	-	-	209	1
Welders & Flame Cutters	135	-	-	-	135	10
Carpenters, Joiners, etc.	1 886	-	-	-	1 886	9
Electricians, etc.	201	-	-	-	201	-
Mechanics-Repairmen	160	-	-	-	160	-
Furnacemen, Moulders, etc.	78	-	-	-	78	2
Bricklayers, Masons, etc.	2 147	-	-	-	2 147	4
Painters, Decorators, etc.	396	-	-	-	396	-
Operators of Cranes, Hoist, etc.	186	2	-	-	188	-
Others	183	-	-	-	183	1
Drivers	369	-	-	-	369	-
TOTAL SKILLED CAT.	6 125	2	-	-	6 127	27
Office Employees	319	4	-	-	323	2
Unskilled Workers	5 357	-	-	-	5 357	-
Casual Labourers	702	-	9	-	711	15
TOTAL RESIDUAL CAT.	6 378	4	9	-	6 391	17
GRAND TOTAL	13 236	11	278	7	13 532	63

(Accountants and Auditors) as a fraction of Intermediate Category personnel (Accounting and Audit Assistants).

Unmet Demand

It is surprising that a sector for which an employment of over 13,000 has been recorded, shows a vacancy position of only 63 for January 1964. This is less than half of one percent of total sectoral employment. Comparable figures for Electricity Generation and Mining and Quarrying are 8% and about 4% respectively. Because employment in this sector is often determined by the amount and type of contracts received, and considering that these could vary substantially even over short periods of time, it is difficult to talk of normal establishment from which current employment could be subtracted to obtain the vacancy position. This may be a possible explanation for the paucity of vacancies in the Skilled and Residual Categories. But since construction firms like other business establishments tend to have fairly stable establishments in the Senior and Intermediate Categories, it should be possible to have meaningful vacancies in these two categories. On the contrary as Table C.3 shows, there were only 19 vacancies in these categories in January, 1964. It may be necessary to ascertain the factors that tend to prevent the occurence of vacancies in the Senior and Intermediate Categories of this sector.

CHAPTER XII

FUTURE MANPOWER REQUIREMENTS

Rate of Growth of the Labour Force

The most outstanding thing about the Labour Force in this sector is the fact that during 1963-64, there were employment decreases in the sector as a whole, in all four categories within the sector and in nearly all occupations in every one of these categories. As contained in Table C.4, total sectoral employment declined by about 4.9%, the Senior Category by 3.8%, Intermediate by about 3%, the Skilled Category about 1% and the Residual Category by as much as 8.5%.

As already pointed out, the coverage achieved in this sector is rather poor. But, if it is presumed that the quantitative deficiency consequent upon such a poor coverage is not sufficient to vitiate the picture set out in the foregoing paragraph, then the general decline in employment in this sector could only be attributed to a possible down turn of the building cycle, which, in a partially planned economy like that of Nigeria is influenced to a certain extent by the amount type and phasing of capital projects in the Development Plan. This point buttresses the argument for studies (maybe of a limited nature) spread over a period of time that will be sufficiently long to eliminate cyclical variations

Wastage:

At a time when there is contraction of employment, high wastage rates are to be expected. The sectoral wastage rate between 1963 and 1964 was 28.4% compared to 9.8% in Electricity Generation and 10.3% in the Mining and Quarrying sector. The Category rates are 21.7% for Senior, 23.8% in Intermediate, 21.9% for Skilled and about 35% for Unskilled Categories. Taken by themselves, and bearing in mind the unstable nature of the Construction Industry, these rates may not be too high, but compared with those obtaining in the other two sectors, they are very high indeed.

TABLE C.4

CONSTRUCTION — RATES OF GROWTH AND RATES OF WASTAGE

Occupation	(a)	(b)	(c)	(d)	(e)	(f)	(g)
Directors, Managers & Admin. Officers	143	24	16 8	25	17 4	1	0,68
Engineers (Mech.)	20	6	30	6	30	-	-
Engineers (Elect.)	14	3	21 4	-	-	3	21 5
Engineers (Civil)	73	8	10 9	23	13.0	-15	-20.5
Engineers (Others)	11	1	9 1	2	18.0	- 1	- 9.0
Architects & Town Planners	33	7	21 2	11	33.3	- 4	-12.1
Surveyors	33	8	24 2	5	15 0	3	9 0
Other Tech. Officers	2	1	50 0	1	50.0	-	-
Accountants & Auditors	32	7	21 9	7	21 8	-	-
Other Senior Officers	27	4	14 8	4	14 8	-	-
TOTAL SENIOR CAT.	388	69	17.8	84	21.7	-15	-3.8
Junior Managerial & Admin. Officers	71	14	19.7	7	9 8	7	9.8
Engineering Assistants	27	13	48.1	11	40.7	2	7.4
Technical Assistants	103	13	12.6	30	29.1	-17	-16.5
Accounting & Audit Assts.	112	14	12.5	26	23 2	-12	-10.7
Workers Supervisors	292	77	26.4	76	26.0	1	3.4
Other Intermediate Staff	56	6	10.7	7	12.5	-1	-1.7
TOTAL INTERMEDIATE CAT.	661	137	20.7	157	23.8	-20	-3.02
Fitter, Machinists, etc.	153	46	30.1	24	15,69	22	14.38
Plumbers & Pipe Fitters	209	18	8.6	18	8.61	-	-
Welders & Flame Cutters	151	20	13.2	36	23.84	-16	-10.60
Carpenters, Joiners, etc.	1,759	444	25.2	317	18.02	127	7.22
Electrician, Electric Repairmen	165	48	29.1	12	7.27	36	21.82
Mechanics, Repairmen	175	50	28.5	65	37.14	-15	-8.57
Furnacemen, Moulders, etc.	73	16	2.2	11	15.07	5	6.85
Bricklayers, Masons, etc.	2,147	425	19.8	425	19.79	-	-
Painters, Decorators, etc.	429	79	18.4	112	26.11	-33	-7.69
Operators of Crane, Hoists	265	43	16.2	120	45.28	-77	-29.06
Other Skilled Workers	185	23	12 4	25	13.51	-2	-1.08
Drivers	481	85	17 7	197	40.91	-112	-23.28
TOTAL SKILLED CAT.	6,192	1,297	20.9	1,362	21.99	-65	-1.04
Office Employees	360	88	24.4	125	34.72	-37	-10.28
Unskilled Workers	5,629	1,741	30.9	2,293	40.73	-552	9.81
Casual Workers	924	-	-	-	-	-	-
TOTAL RESIDUAL CAT.	6,913	1,829	26.5	2,418	34.98	-589	-8.52
GRAND TOTAL	14,154	3,332	23.5	4,021	28.41	-689	-4.87

NOTE:
(a) No on roll in 1963
(b) Employees taken on roll in 1963
(c) Rate of Accretion
(d) Employees Removed in 1963
(e) Percentage Wastage
(f) Net Addition to Labour Force
(g) Rate of growth of employment

Rate of Accretion of the Labour Force.

Like the sectoral rate of wastage, the rate of accretion of 23.5% for the whole sector is very high but since there is a net decline in employment for the period covered, it is necessarily lower than the rate of wastage. The net rate of retrenchment which is the difference between these two rates is about 5% for the period 1963-1964.

As in the case of wastage, the category rates of accretion are fairly close to one another in this sector. They are as follows: 17.8% for the Senior Category and 20.7% for the Intermediate Category; 20.9% for the Skilled Category and 26.5% for the Residual Category. Because of the acute sensitivity of this sector to various seasonal, monetary and other disturbances, it should not be surprising that labour turn-over particularly in the Skilled and Residual Categories, has the proportions depicted in Table C.4. But, what may not be quite expected is the behaviour of employment in the Senior and Intermediate Categories which have shown rates of wastage and accretion that are very close to those prevailing in the other two categories.

Prospects For Future Employment

Table C.5 gives the degrees of capacity utilization as of January 1964. Out of a total of 79 establishments covered, 34 with an employment of about 6,100 were operating below existing capacity. In other words, the contribution of this sector to income and employment could be substantially raised with little additional capital investment. Using the information contained in Table C.5 it is found that this sector could offer a minimum of about 7,000 and a maximum of about 11,000 new additional employment opportunities if productive capacity were fully utilized. Unfortunately information is not available on the causes of capacity under-utilization, but bearing in mind the cyclical instability that characterizes the Construction Industry, it can be inferred that the flagging of the building boom is probably responsible.

TABLE C.5

DISTRIBUTION OF ESTABLISHMENTS BY PERCENTAGE OF CAPACITY UTILIZED

CONSTRUCTION - ALL REGIONS

Percentage Capacity Utilized	Number of Establishments					Employment Level 1st Jan. 1964
	Federal	North	East	West	M/West	
Information not furnished	7	4	13	2	5	6,187
100% Utilization	1	-	-	4	7	1,112
0 - 24% Utilization	1	-	1	3	4	1,384
25 - 49% Utilization	2	2	-	1	3	1,153
50 - 74% Utilization	3	3	-	5	4	2,959
75 - 99% Utilization	1	-	-	1	-	575
Percentage not known	-	1	-	-	1	162
TOTAL	15	10	14	16	24	13,532

CHAPTER XIII

TRAINING

In January 1964 a total of 111 persons were being trained by 23 establishments in this sector. Of these 3 (Architects, were in the Senior Category 28 were in the Intermediate Category and the rest were in the Skilled Category. In the absence of estimates of future manpower requirements, these figures tell no story for by merely looking at them in isolation one cannot say anything about the extent to which existing training schemes can take care of the manpower requirements of this sector. However it can be safely assumed that the training of 3 architects and 28 Intermediate Category personnel will certainly not meet the Senior and Intermediate training needs of the sector not to talk of the requirements for expatriate replacement.

TABLE C.6

TRAINING SCHEME BY TYPE OF EMPLOYEES & DURATION

	CONSTRUCTION	ALL REGIONS		
Nature of Scheme	Type of Employees Covered	No. of Establishments	No. of Persons Undergoing training in Jan '64	Normal Duration in Months
Scholarship	Engineering Assts.	4	10	24 - 48
In-Service Training	Technical Assts.	3	8	36-72
In-Service Training	Architects	2	3	36
Apprenticeship	Carpenters	3	15	24-60
Apprenticeship	Bricklayers	3	15	24-48
Apprenticeship	Painters	2	5	9-24
Apprenticeship	Welders	1	14	60
Apprenticeship	Electrician	1	19	12
Apprenticeship	Plumbers	2	11	12-18
Apprenticeship	Draughtsmen	1	1	18
Booster-Training-Course	Foremen	1	10	1½
TOTAL		23	111	

PART D ELECTRICITY

CHAPTER XIV

LEVEL AND STRUCTURE OF EMPLOYMENT

Total employment in the Electricity Generation Sector on 1st January, 1963 was 4,507 as compared to the 1964 figure of 4,989. In the first year, there were 179 employees in the Senior Category, 214 in the Intermediate, 1,480 in the Skilled and 2,634 in the Residual Category. These figures work out at a ratio of 5:6:41:73. In 1964, 217 were in the Senior Category, 256 in the Intermediate Category, 1,636 in the Skilled Category and 2,880 in the Residual Category. In ratio terms they show a relationship of 5:6:38:67. By comparing this ratio with that for 1963, it can be seen that the Senior and Intermediate Categories gained proportionately at the expense of the other two categories over the one-year period.

Expatriates:

Previous surveys have shown that the employment of expatriates is proportionally more predominant in Private Establishments than in the Public Sector, particularly in Senior Category occupations. In certain sectors expatriates account for upwards of 60% of total employment in this Category. The picture presented in a public utility undertaking like Electricity Generation is therefore very apt for purposes of contrasting the degree of Nigerianisation in the private and public sectors. A look at Table D.1 shows that of the 217 employees in the Senior Category in January 1964, 161 were Nigerians and 56 non-Nigerians. This relationship of 3:1 in favour of Nigerians contrasts rather sharply with the Nigerian/non-Nigerian ratio of 2:3 in the private sector. The personnel of Intermediate and Skilled Categories is exclusively Nigerians, while there are 21 non-Nigerians in the Residual Category. There is something significant about this because it is unusual to have expatriates in the Residual Categ in any sector. The explanation is probably that the 21 expatriates recorded here are

TABLE D.1

EMPLOYMENT POSITION BY TYPE OF OCCUPATIONS AND SEX 1964

ELECTRICITY GENERATION - ALL REGIONS

Occupational Title	No. of Employees on roll on 1st working day of January, 1964					Vacancies on 1st Jan. 1964	
	Nigerians		Non-Nigerians		Total	Number	Vac. as % of '64 Employt.
	Male	Female	Male	Female			
Directors, Managers & Snr. Admin. Officers	11	-	2	-	13	1	7.7
Engineers (Mechanical)	17	-	10	-	27	3	11.1
Engineers (Electrical)	57	-	34	-	91	17	18.7
Engineers (Civil)	10	-	1	-	11	1	9.1
Engineers (Others)	-	-	-	-	-	-	-
Other Prof. & Tech. Officers	9	-	1	-	10	2	20 0
Accountants & Auditors	22	-	5	-	27	5	18.5
Other Senior Officers	33	2	3	-	38	5	13.2
TOTAL SENIOR CATEGORY	159	2	56	-	217	34	15.7
Junior Manager & Admin. Officers	3	-	-	-	3	2	66.7
Engineering Assistants	166	-	-	-	166	16	9.6
Technical Assistants	21	-	-	-	21	10	47.6
Accounting & Audit Assts	47	-	-	-	47	6	12.8
Worker Supervisors	3	-	-	-	3	-	-
Other Intermediate Staff	15	1	-	-	16	1	6.5
TOTAL INTERMEDIATE CATEGORY	255	1	-	-	256	35	13.7
Fitter-Machinists, Machine Tools Workers, etc.	108	-	-	-	108	12	11.1
Plumbers & Pipe Fitters	7	-	-	-	7	-	-
Welders & Flame Cutters	10	-	-	-	10	-	-
Carpenters, Joiners, Sawyers, etc	44	-	-	-	44	-	-
Electrician-Elec. Repairmen	445	-	-	-	445	49	11.1
Mechanics - Repairmen	42	-	-	-	42	5	11.9
Furnacemen, Moulders, Blacksmiths, etc.	8	-	-	-	8	1	12.5
Linesmen & Cable Jointers	322	-	-	-	322	27	8.5
Electrical Fitters	48	-	-	-	48	17	35.4
Other Skilled Workmen	356	2	-	-	358	20	5.6
Drivers	244	-	-	-	244	11	4.5
TOTAL SKILLED CATEGORY	1,634	2	-	-	1,636	142	8.7
Office Employees	1,648	48	21	-	1,717	76	4.4
Unskilled Workers	1,163	-	-	-	1,163	94	8.1
Casual Labourers	-	-	-	-	-	-	-
TOTAL RESIDUAL CATEGORY	2,811	48	21	-	2,880	170	5.9
GRAND TOTAL	4,859	53	77	-	4,989	381	7.6

non-Nigerians from neighbouring African countries who have settled permanently in the country. If this surmise is right, then it will be necessary to recognise that certain classes of expatriates will continue to be a normal feature of employed manpower in Nigeria. There will therefore have to be a relaxation of the assumption of full replacement of expatriates often made in determining future manpower requirements.

Female Workers

Female workers represent an insignificant proportion of total employment in this sector. Out of a sectoral total of about 5,000 they account for about 1% or 53 in absolute terms. All of these are Nigerians and nearly all are in the Residual Category.

TABLE D.2

OCCUPATIONAL RATIOS

OCCUPATIONAL TITLES	SENIOR/INTERMEDIATE RATIOS	
	1963	1964
Senior Managerial/Junior Managerial	4:1	43:100
Engineers/Engineering Assistants	81:100	77:100
Professional & Technical Officers/ Technical Assistants	43:100	24:50
Accountants & Auditors/Accounting & Audit Assistants	47:100	29:50

The numbers employed in Intermediate Category occupations are, usually multiples of the corresponding numbers in the Senior Category. The ratios recorded for the 'Managerial' occupation in Table D.2 are therefore quite outstanding in the sense that they show the reverse of expected relationships. Thus for 1963, there are 4 Senior Managerial Staff to every Junior Managerial employee. As regards 1964, this ratio, like all the other ratios except one, show marked increase over the 1963 position. However, there is an important distinction to be made here: Whereas the 'Engineering', 'Technical' and 'Accounting' ratios have improved in a manner regarded as normal, the 'Managerial' ratio has continued to

rise in an abnormal direction. In the absence of satisfactory explanation, it may be necessary to study this occupations more closely with a view to ascertaining the factors making for this peculiarity of the Managerial occupations.

Unmet Demand

For the reasons already stated elsewhere in this report, unmet demand is here taken to mean the vacancy position on the relevant date. In January, 1964 there were 381 vacancies in this sector representing almost 8% of employed manpower in the sector. The category position was as follows: Senior Category: 15.7%, Intermediate Category: 13.7%, Skilled Category: 8.7% and Residual Category: 5.9%. In the last-named category, there were 94 vacancies in unskilled occupations. Since the existence of such vacancies cannot be attributed to shortage of unskilled people seeking employment, it will have to be in terms of the frictions of the labour market.

CHAPTER XV

FUTURE MANPOWER REQUIREMENTS

Rate of Growth

In view of the huge investment going into Electricity Generation during the current plan period, it is not surprising that employment grew appreciably in this sector between 1963 and 1964. The growth of 10% in total employment recorded in this sector contrasts rather sharply with the 7% in the Mining and Quarrying sector, and much more so with the all-Category growth rate of 2% forecast for the whole economy in Manpower Study No. 2. With all the limitations of the present study specified elsewhere in this report, it can still be said that the Electricity Sector constitutes one of the major growth points in the economy. It would have been useful if figures were available to facilitate comparisons of rates of capital investment and rate of employment creation.

Senior Category grew by 21% during this period, intermediate, by 19.6% the Skilled Category by 10.5% and the Residual Category by 9.3%. The foregoing shows that the more skilled categories recorded the higher rates of growth. This lends a highly qualitative colour to the growth of employment in this sector, and if this proves to be the beginning of a trend, then, much training may be necessary before employment creation in this sector can impinge sufficiently on the unemployment problem currently characterised by unskilled and inexperienced labour.

Rate of Wastage

The wastage rates contained in column 5 of Table D.3 lend more statistical weight to the contention that it is a misleading over-simplification to use a single wastage rate for all occupations in every category of manpower in all the sectors of the economy. At the sectoral level, the annual wastage rates for the Mining and Electricity sectors are quite close: 10.2 for the former and 9.8 for the latter. If any reliance can be placed on these figures, then, not only the general application, but also the magnitude of the rate used

in Manpower Study No. 2 will be open to question. Despite the limitations of the present study it will appear as if a wastage rate of 3% is too low to be adopted even at the sectoral level.

TABLE D.3

RATE OF GROWTH OF EMPLOYMENT 1963 - 1964

Occupational Title	No. on roll on 1/1/63	Employees taken in 1963	Employees Remvd in '63	% Wastage	Net Addition	% Rate of Growth
Directors Managers etc.	12	1	-	-	1	8.5
Engineers (Mech.)	20	13	6	30	7	35.0
Engineers (Elect.)	73	43	25	34,2	18	24.7
Engineers (Civil)	7	5	1	14.3	4	57.1
Engineers (Others)	-	-	-	-	-	-
Other Prof. & Tech. Offrs.	9	2	1	11.1	1	11.1
Accountants & Auditors	22	7	2	9	5	22.8
Other Senior Officers	36.	3	1	2.8	2	5.5
TOTAL SENIOR CAT.	179	64	36	20.1	38	21.2
Junior Managerial, etc.	3	-	-	-	-	-
Engineering Assistants	123	66	23	18.7	43	35.0
Technical Assistants	21	1	1	4.7	-	-
Accounting & Audit Assts.	47	5	5	10.6	-	-
Worker-Supervisors	2	1	-	-	1	50.0
Other Intermediate Staff	18	3	5	27.7	-2	-11.1
TOTAL INTERMEDIATE CAT.	214	76	34	15.9	42	19.6
Fitter-Machinists, etc.	99	12	3	3.0	9	9.0
Plumbers & Pipe Fitters	6	1	-	-	1	16.6
Welders & Flame cutters	9	1	-	-	1	11.1
Carpenters, Joiners, etc.	54	5	15	27.7	-10	-18.5
Electricians & Electric Repairmen	339	123	17	5.0	106	31.3
Mechanics-Repairmen	48	3	9	18.7	-6	-12.5
Furnacemen, Moulders, etc.	9	1	2	22.2	-1	-11.1
Linesmen & Cable Jointers	329	30	37	11.3	-7	2.1
Electrical Fitters	55	5	12	21.8	-7	-12.7
Other Skilled Workmen	312	81	35	11.2	46	14.8
Drivers	220	32	8	3.6	24	10.9
TOTAL SKILLED CAT.	1,480	294	138	9.5	156	10.5
Office Employees	1,423	427	133	9.3	294	20.6
Unskilled Workers	1,211	56	104	8.6	-48	-3.9
Casual Labourers	-	-	-	-	-	-
TOTAL RESIDUAL CAT.	2,634	483	237	8.3	246	9.3
GRAND TOTAL	4,507	927	445	9.8	482	10.7

TABLE D.4

EMPLOYMENT POSITION & TURNOVER BY TYPE OF OCCUPATION 1963-64

ELECTRICITY GENERATION - ALL REGIONS

Occupational Title	No. of Employees 1/1/63	Employees on roll in 1963			Employees Removed in 1963			Total No. on roll 1/1/64	Vacancies 1/1/64
		Nig	Expt	Total	$$	**	Total		
Directors, Managers, etc.	12	1	-	1	-	-	-	13	1
Engineers (Mech)	20	10	3	13	1	5	6	27	3
Engineers (Elect.)	73	22	21	43	-	25	25	91	17
Engineers (Civil)	7	4	1	5	-	1	1	11	1
Engineers (Other)	-	-	-	-	-	-	-	-	-
Other Prof.& Tech.Officers	9	2	-	2	-	1	1	10	2
Accountants & Auditors	22	7	-	7	-	2	2	27	5
Other Senior Officers	36	3	-	3	-	1	1	38	5
TOTAL SENIOR CAT.	179	49	25	74	1	35	36	217	34
Junior Managerial, etc.	3	-	-	-	-	-	-	3	2
Engineering Assistants	123	66	-	66	3	20	23	166	16
Technical Assistants	21	1	-	1	-	1	1	21	10
Accounting & Audit Assts.	47	5	-	5	-	5	5	47	6
Worker-Supervisors	2	1	-	1	-	-	-	3	-
Other Intermediate Staff	18	3	-	3	-	5	5	16	1
TOTAL INTERMEDIATE CAT.	214	76	-	76	3	31	34	256	35
Fitter-Machinists, etc.	99	12	-	12	-	3	3	108	12
Plumbers & Pipe Fitters	6	1	-	1	-	-	-	7	-
Welders & Flame Cutters	9	1	-	1	-	-	-	10	-
Carpenters, Joiners, etc.	54	5	-	5	2	13	15	44	-
Electricians, etc.	339	123	-	123	9	8	17	445	49
Mechanics, Repairmen, etc	48	3	-	3	1	8	9	42	5
Furnacemen, Moulders, etc	9	1	-	1	-	2	2	8	1
Linesmen & Cable Jointers	329	30	-	30	2	35	37	322	27
Electrical Fitters	55	5	-	5	-	12	12	48	17
Other Skilled Workmen	312	81	-	81	2	33	35	353	20
Drivers	220	32	-	32	-	8	8	244	11
TOTAL SKILLED CAT.	1,480	294	-	294	16	122	146	1,636	142
Office Employees	1,423	425	2	427	10	123	133	1,717	76
Unskilled Workers	1,211	56	-	56	2	102	104	1,163	94
Casual Labourers	-	-	-	-	-	-	-	-	-
TOTAL RESIDUAL CAT.	2,634	481	2	483	12	225	237	2,880	170
GRAND TOTAL	4,507	900	27	927	32	413	453	4,989	381

NOTE: Nig. - Nigerians
Expt - Expatriates
$$ - Death & Retirement
** - Other Causes

One striking thing about the category rates of wastage in this sector is the fact that there seems to be a correlation between degrees of skill and the rate of wastage. The rates for the four categories are as follows: 20.1% for the Senior Category, 15.9% for Intermediate, 9.3% for the Skilled Category and 8.3% for Residual. This shows that the more skilled the category, the higher is its rate of wastage. This view is supported by Table D.4 which shows as causes for removals from the highly-skilled occupations, not death and retirement, but 'All Other Causes' which necessarily include resignations. If the foregoing analysis is correct, then the correlation between high wastage rates and high degree of skill can be expected to deteriorate over time as manpower shortages are obviated through various training schemes. It may be useful to test the validity of this hypothesis through sectoral studies which will yield the time series necessary for reaching more definite conclusions.

Within each category there is a wide divergence between the lowest and the highest occupational rates. The ranges for the different categories are as follows: Senior Category: 0% - 34.2%, Intermediate Category, 0% - 27.7%, Skilled Category: 0% - 27.7%. There is no range to talk about in the Residual Category since only two occupations show wastage rates: these are 8.6% and 9.3%.

Future Manpower Requirements:

It is necessary to point out two things about the figures in Table D.5. The first is that they have not been forecast by employers, rather, they are figures of employment actually achieved in this sector during the period 1963-67. When the present study was conducted in 1964, there were difficulties in collecting information on future manpower requirements. However, in January 1967 it became possible to gather data on the employment position in this sector for January, 1963, 1964, 1965, 1966 and 1967. The figures in column (4) of Table D.5 therefore represent actual increases in employment over the period 1963 to 1967 but viewed from the position as it was in 1963

the figures could be regarded as the then future manpower requirements for the Electricity sector. Secondly, because of apparent variations in occupational classification, it may be misleading to compare the employment figures for 1963 and 1967 in every individual occupation. The following analysis will therefore be confined to the category level.

As contained in Table D.5 total employment rose in this sector from 4,507 in January 1963 to 8,066 in January 1967. Total increase in sectoral employment is therefore 3,559 for the 4-year period covered. The average annual increase is 890 which is about 20% of 1963 employment. Senior Category employment increased on the average of 78 every year, i.e. at the rate of 43.6% for the period covered; Intermediate manpower grew by 349 giving an average annual growth rate of 40.7%. In the Skilled Category, there was an annual increase of 388 which represents a growth of 26.2% while the Residual Category increased by 337 per annum or at the rate of 12.8% per year.

TABLE D5

ELECTRICITY: INCREASE IN SECTORAL EMPLOYMENT 1963 - 1967

Categories	1963 Employment	1967 Employment	Absolute Total Increase	Average Annual Increase	Average Annual Rate of Increase
Senior Category	179	489	310	78	40.57
Intermediate Category	214	563	349	87	40.65
Skilled Category	1,480	3,034	1,554	388	26.21
Residual Category	2,634	3,980	1,346	337	12.79
TOTAL ALL CATEGORIES	4,507	8,066	3,559	890	19.74

On the basis of these rates of growth manpower requirements from 1967 up to 1970 will be of the order of 5 000 broken down as follows:

TABLE D.6

EMPLOYMENT RATES OF GROWTH AND ESTIMATED ADDITIONAL REQUIREMENTS

Categories	1967 Employment	Observed rates of Growth between 1963 & 1967	Estimated Additional Requirements 1967 to 1970
Senior Category	489	43.6	641
Intermediate Category	563	40.7	687
Skilled Category	3,034	26.2	2,385
Residual Category	3,980	12.8	1,528

CHAPTER XVI

Training

Training of personnel in this sector can be considered under three main headings: (a) normal training, (b) crash training; and (c) short courses. While the first two types of schemes are designed to meet at least in part, the additional manpower requirements in this sector, the short courses are geared to the upgrading of staff already employed.

Normal Training

Under this programme, skilled manpower is trained for the Senior, Intermediate and Skilled Categories. As indicated in Table D.7, about 18 graduate Engineers are produced for the Senior Category annually. This out-turn is normally distributed in the ratio of 4 Electrical Engineers to 1 Mechanical Engineer. In the Intermediate Category, about 65 Technicians or Assistant Technical Officers are produced yearly. These are also distributed in the ratio of 4 Electrical to 1 Mechanical Technician. The qualification attained is the Ordinary National Certificate. Under Craftsmen Training, about 30 Skilled Category personnel are trained every year, made up of about 20 Electrical and 10 Mechanical Craftsmen.

Crash Training:

As the title indicates, this scheme is an emergency measure being taken to meet the additional manpower requirements which will be generated at the time the Kainji Project is commissioned. In all there are about 300 trainees made up of 8 Senior Category, 35 Intermediate Category and 260 Skilled Category trainees. Those in the Senior Category are Graduate Engineers who are being trained for about a year as Load Despatchers. The Intermediate personnel involved are 17 Sub-Station Supervisors whose training will last for about 2 years. 10 Lines Supervisors who will be trained for 2½ years and 8 Assistant Load Despatchers who will train for about a year.

In the Skilled Category, those covered are Sub-Station Mechanics-in training. Sub-Station operators and Linesmen. The Mechanics as well as Operators, train in two batches of 50 each. The duration of training of each set is about 2 years. Over the life span of this scheme, 100 Sub-Station Mechanics and 100 Sub-Station Operators will be trained. The 60 Linesmen covered under this scheme are being trained on-the-job by the firm of contractors which is constructing the grid system. Their training is planned to last about 2½ years.

Short Courses:

The information supplied on these courses is contained in Table D.9 which shows that all the courses are of six months duration. In all, there were 268 trainees in 1964, made up of 40 Senior Category employees (15 Mechanical and 25 Electrical Engineers), 170 Intermediate personnel (Technicians), and 58 Skilled Category trainees. The last named were made up of 14 Fitter-Machinists, 14 Electricians, 14 Mechanics/Repairmen and 16 Other Skilled personnel.

TABLE D.7

NORMAL TRAINING SCHEME

Type of Scheme	Average Annual Out-turn
1. Undergraduate Engineering	18
2. Assistant Technical Officer-in-Training (Ordinary National Certificate)	65
3. Craftsmen Training	30

TABLE D.8

ELECTRICITY: CRASH TRAINING SCHEME BY TYPE OF TRAINEES

Type of Trainees	DURATION OF TRAINING AND OUT-TURN Duration of Training in Years	Date of Commencement of Training	Number to be Trained
SENIOR CATEGORY:			
Load Despatchers (in-training)	1	1965	8
INTERMEDIATE CATEGORY:			
Sub-Station Supervisors	2	1965	17
Lines Supervisors	2½	1964	10
Assistant Load Despatchers	1	1965	9
T O T A L			35
SKILLED CATEGORY:			
Sub-Station Maintenance Mechanics-in-training	2	1965	100
Sub-Station Operators-in-Training	2	1965	100
Linesmen	2½	1964	60
T O T A L			260
TOTAL ALL CATEGORIES			303

TABLE D.9

TRAINING SCHEME BY TYPE OF EMPLOYMENT & DURATION

ELECTRICITY GENERATION - ALL REGIONS

Nature of Scheme	Type of Employees Covered	No. of Persons Undergoing Training in January 1964	Normal Duration in Months
Engineers-in-Training	Engineers (Mechanical)	15	6
Engineers-in-Training	Engineers (Electrical)	25	6
Technicians-in-Training	Engineering Assistants	170	6
Apprenticeship	Fitter Machinists	14	6
Apprenticeship	Electricians	14	6
Apprenticeship	Mechanics Repairmen	14	6
Apprenticeship	Other Skilled Workmen	16	6
TOTAL		268	

* E.C.N. Headquarters, Lagos caters for all training programmes

APPENDIX

TABLE 1

EMPLOYMENT AS AT 1ST JANUARY 1964 BY INDUSTRY MANUFACTURING - ALL NIGERIA

Industry	No. of Employees on roll on the 1st working day of January 1964					Vacancies
	Nigerians		Non-Nigerian		Total	
	Male	Female	Male	Female		
Slaughtering preparation & preserving of meat	665	101	19	-	785	-
Manufacture of diary products	204	14	12	-	230	3
Canning & preserving fruits & vegt.	56	19	1	-	76	-
Manuft. of grain mill products	475	12	39	7	533	-
Manufacture of bakery products	1,830	235	20	3	2,088	8
Sugar factories & refineries	975	1	19	-	995	107
Manuft. of cocoa, chocolate & sugar confectionery	469	183	26	2	680	10
Manuft. of Miscellaneous food	203	1	4	-	208	-
Breweries & manuft. of malt	1,530	20	47	1	1,598	9
Soft drinks & Carbonated waters	752	36	27	-	815	-
Tobacco Manufactures	1,329	205	26	-	1,560	114
Spinning, Weaving & finishing of textiles	9,210	303	248	5	9,766	375
Knitting Mills	27	38	3	-	68	7
Manufacture of Foot-wear	401	73	7	-	481	5
Manuft. of wearing apparel except foot-wear	495	147	6	1	649	15
Manuft. of Made-up textile goods	77	-	2	1	80	1
Sawmills Planing & other Woodmills	7,852	31	87	3	7,973	99
Manuft. of Cork & Wood Products	95	-	-	-	95	-
Manufacture of Furniture	5,674	39	119	3	5,835	37
Printing, Publishing, etc.	3,906	319	44	24	4,293	65
Manuft. of Articles of Pulp, Paper	62	21	1	-	84	-
Tanneries and Leather Plants	320	-	9	-	329	1
Manufacture of Leather Products	384	89	11	-	484	-
Manufacture of Rubber Products	7,406	45	109	3	7,563	108
Basic Industrial Chemicals, etc.	33	-	7	-	40	-
Vegetable & Animal Oils & fats	3,843	164	53	3	4,063	1
Manufacture of Paints, Vanishes, etc.	171	12	19	-	202	-
Manufacture of other Chemical Prodts.	2,555	374	75	5	3,009	54
Manuft. of Misc. Products of Petroleum and coal.	112	-	1	-	113	-
Manuft. of Structural Clay Products	333	-	9	1	343	1
Manufacture of Glass, etc.	277	13	10	-	300	1
Manuft. of Pottery, China, etc.	340	5	2	-	347	561
Manufacture of Cement	2,019	1	36	14	2,070	17
Manuft. of non-metalic mineral prdts.	1,082	1	22	4	1,109	6
Non-ferrous metal, etc.	116	-	7	-	123	-
Manufacture of Metal Products	3,693	32	175	4	3,904	78
Manuft. of Machinery except Electric	58	-	6	-	64	16
Manufacture of Electrical Machinery, etc.	188	19	10	-	217	17
Ship building and Repair	491	1	10	-	502	-
Manuft. of Rail-road equipment	5,272	6	7	-	5,285	16
Manufacture of Motor Products	1,160	7	21	1	1,189	2
Repair of Motor Vehicles	1,401	140	373	19	14,533	47
Manuft. of Motor cycles & Bicycles	86	-	1	-	87	-
Manuft. of Industries not elsewhere classified	1,194	18	77	2	1,291	10
TOTAL	81,421	2,725	1,807	106	86,059	1,791

TABLE 2

EMPLOYMENT POSITION AND TURN-OVER BY TYPE OF OCCUPATION 1963-64

MANUFACTURING - ALL NIGERIA.

Occupational Title	No. of Employees on 1/1/63	Employees taken on roll in 1963			Employees Removed during 1963					Total on roll 1/1/64
		Nig.	Expt	Total	##	%%	**	Total	¢¢	
1	2	3	4	5	6	7	8	9	10	11
Directors, Managers,	1109	56	104	160	13	1.17	108	121	10.9	1148
Engineers (Mech.)	395	15	76	91	7	1.77	74	81	20.5	405
Engineers (Elect.)	81	7	17	24	-	-	10	10	12.3	95
Engineers (Civil)	48	1	7	8	-	-	7	7	14.5	49
Engineers (Others)	83	1	26	27	2	2.4	10	12	14.3	98
Other Prof. & Tech. Officers	260	39	34	73	-	-	50	50	4.6	283
Accountants & Auditors	199	30	19	49	1	0.5	21	22	11.5	226
Other Senior Officers	343	27	29	56	2	0.58	42	44	12.9	355
TOTAL SENIOR CATEGORY	2518	176	312	488	25	0.99	322	347	13.7	2659
Junior Managerial, etc.	590	96	33	129	2	0.34	78	80	13.5	639
Engineering Assistants	223	38	9	47	1	0.45	28	29	12.9	241
Technical Assistants	685	136	2	138	4	0.58	102	106	15.4	717
Accounting & Audit Asst	854	186	2	188	2	0.23	97	99	11.5	943
Worker Supervisors	1648	369	6	375	23	1.39	129	152	9.2	1871
Other Intermediate Staff	1484	315	18	333	29	1.95	178	207	14.2	1610
TOTAL INTERMEDIATE CAT.	5484	1140	70	1210	61	1.11	612	673	12.2	6021
Fitter-Machinists, etc.	4232	392	6	398	22	0.51	211	233	11.1	4397
Plumbers & Pipe Fitters	446	62	-	62	3	0.67	27	30	6.7	478
Welders & Flame Cutters	697	151	-	151	1	0.14	77	78	11.1	770
Carpenters, Joiners, etc	3346	381	5	386	18	0.54	271	289	17.1	3443
Electricians, etc.	1067	194	1	195	3	0.28	69	72	6.7	1190
Mechanics-Repairmen	3160	377	-	377	14	0.44	302	316	10.0	3221
Furnacemen, Moulders, etc	992	299	-	299	16	1.60	173	189	19.5	1102
Drivers	2203	499	-	499	11	0.50	292	303	13.7	2399
Other Skilled Workers	16629	4545	3	4548	146	0.87	2158	2304	13.8	18873
TOTAL SKILLED CAT.	32772	6900	15	6915	234	0.71	3580	3814	11.6	35873
Office Employees	5807	881	-	881	48	0.83	586	634	10.9	6054
Unskilled Workers	29931	7391	7	7398	161	0.53	5084	5245	17.5	32084
Casual Employees	2888	-	-	-	-	-	-	-	-	3368
TOTAL RESIDUAL CAT.	35738	8272	7	8279	229	0.69	5670	5879	15.2	41506
GRAND TOTAL	76512	16488	404	16892	549	0.69	10184	10713	13.5	86059

NOTE: Nig. - Nigerians %% - Rate of Wastage
Expt - Expatriates ** - All other Causes
- Death and Retirements ¢¢ - Rates of Separation

For casual employees the turnover data were not collected and hence in columns 3 - 10 no figures are shown for casual employees.

TABLE 3

EMPLOYMENT POSITION BY TYPE OF OCCUPATION AND SEX 1984

MANUFACTURING - ALL NIGERIA

1	2	3	4	5	6	7	8
	No. of Employees on roll on 1st working day Jan. 1964					No. of Vacancies on 1st Jan. 64	@@@
	Nigerians		Expatriates				
Occupational Title	Male	Female	Male	Female	Total		
Directors, Managers, etc.	559	19	554	16	1,148	33	2.9
Engineers (Mechanical)	87	1	317	-	405	29	7.2
Engineers (Electrical)	29	-	66	-	95	8	8.5
Engineers (Civil)	17	-	32	-	49	2	4.1
Engineers (Others)	23	-	74	1	98	3	3.1
Professional & Tech. Officers	161	5	110	7	283	28	9.8
Accountants & Auditors	149	1	76	-	226	12	5.3
Other Senior Officers	197	1	151	6	355	12	3.4
TOTAL SENIOR CATEGORY	1,222	27	1,380	30	2,659	127	4.7
Junior Managerial, e tc.	530	4	104	1	639	41	6.5
Engineering Assistants	182	-	47	12	241	13	5.4
Technical Assistants	590	36	89	2	717	41	5.6
Accounting & Audit Assistants	896	27	11	9	943	23	2.4
Worker-Supervisors	1,820	20	31	-	1,871	43	2.2
Other Intermediate Staff	1,501	56	9	44	1,610	39	2.4
TOTAL INTERMEDIATE CAT.	5,519	143	291	68	6,021	200	3.3
Fitter-Machinists, etc.	4,366	21	10	-	4,397	49	1.1
Plumbers & Pipe Fitters	477	-	1	-	478	6	1.2
Welde s & Flame Cutters	761	-	9	-	770	13	1.6
Carpenters, Joiners, etc.	3,409	-	34	-	3,443	89	2.5
Electricians, etc.	1,180	-	10	-	1,190	18	1.5
Mechanics - Repairmen	3,221	-	-	-	3,221	44	1.3
Furnacemen, Moulders, etc.	1,080	-	22	-	1,102	144	3.1
Drivers	2,396	-	3	-	2,399	33	1.3
Other Skilled Workers	17,927	918	23	5	18,873	521	2.7
TOTAL SKILLED CATEGORY	34,817	939	112	5	35,873	917	2.5
Office Employees	5,747	301	6	-	6,054	138	23.7
Unskilled Workers	30,927	1,149	5	3	32,084	243	0.8
Casual Workers	3,189	166	13	-	3,368	166	4.9
TOTAL RESIDUAL CATEGORY	39,863	1,616	24	3	41,506	547	1.3
GRAND TOTAL	81,421	2,725	1,807	106	86,059	1,791	2.1

NOTE: @@@ Rate of Unmet Demand (Col.7 as % of Col.6).

TABLE 4

DISTRIBUTION OF ESTABLISHMENTS BY PERCENTAGE OF CAPACITY UTILIZED

MANUFACTURING - ALL NIGERIA

Percentage Capacity 1	No. of Establishments 2	Total Employment 3
Information not furnished	106	18,968
100% Utilization	296	39,603
0 - 24% Utilization	14	722
25 - 49% Utilization	62	2,656
50 - 74% Utilization	139	13,366
75 -99% Utilization	54	8,917
Percentage Not Known	16	1,837
TOTAL	687	86,059

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