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PLANNING OF HUMAN RESOURCES IN ENGINEERING INDUSTRY

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Short Profile

P. G. Pawar is working as an Assistant Professor at Karmaveer Bhaurao Patil College, Vashi, Navi Mumbai. He has completed M.Com, M.Phil, GDCA, Ph.D. He has profesional experience of 24 years and research experience of 3 years.

ABSTRACT:

Engineering industry plays a significant role in the economic development of the country. It meets the growing needs of capital goods as well as those of construction, power and mining sector besides fulfilling country's defense requirements. The capital goods as well as consumer goods sectors of the engineering industry have made a substantial progress since the commencement of planning era. The engineering industry is one of the most important basic industries. It supplies plant and machinery for other industries, equipment to build up infrastructure, automobile, locomotives, aircrafts, ships, bicycles, household appliances and host of tools and equipment.

KEYWORDS

Planning of Human Resources , Engineering Industry ,economic development .

1.INTRODUCTION

Considering the role of the engineering industries, it is necessary to manage properly the human resources. To make proper use of all available resources, it is very important that the right type of personnel must be available in the right time to the organization .Therefore, it requires proper attention towards the human resource planning, recruitment and selection, promotion and transfer, training and motivation of the managers as well as employees in the industry.

Development of any industry depends on the right kind and type of human resource available. Human resource is the valuable assets, in any organization. Human resource should be made available as and when it is needed. This is the primary resource, without which all other resources like capital, land and material cannot be put in use. It is widely recognized that human resource is the most significant resource of all resources needed to run an organization. Attention must be paid towards acquiring, using, improving, upgrading and preserving such valuable asset. There should be ideal utilization of human resource. It has been relished that human resource is the key resource in the modern business and competitive economies.

To make proper use of all resources available, it is very important that the right type of personnel must be made available at right place in the right time to the organizations. Therefore there is a strong need for proper attention towards the planning, forecasting, recruitment, selection, training and motivation of the managers as well as employees of the organization.

Human resources planning is deemed necessary for all organizations for one or the other of the following reasons.

(1)To carry on its work each organization needs personnel with the necessary qualification, skills, Knowledge works experience and aptitude for work. These are provided through manpower planning.
(2)Since large number of persons have to be replaced who grown old or who retire, die or become incapacitated because of physical or mental ailments. There is constant need for replacing such personnel. Otherwise the work would suffer.
(3)In order to meet the needs of expansion programmes human resource planning is unavoidable.
(4)The nature of present workforce in relation to its changing needs also necessities the recruitment of new labour. To meet the challenge of new and changing technology and new techniques of production, existing personnel needs to be trained of new blood injected in an organization.

OBJECTIVES OF THE STUDY:

The study of human resource management in engineering industry is undertaken to examine the methods and the techniques of human resource planning and its implementation in different units of engineering industry in Satara District.

The main objectives of the study are as follows:

1)To study how the human resource planning and forecasting is done in selected units of Engineering Industry in Satara district.
2)To assess surplus or shortage, if any, of human resource available and effect of globalization on human resource planning in selected units of Engineering Industry in Satara district.

HYPOTHESES

Keeping in mind above objectives, some hypotheses were formulated as a base for study.

The hypotheses are as under:

The human resource planning and forecasting is made effectively and efficiently by medium and large scale engineering units than small scale units.

PRIMARY DATA:

The Primary data required for this study is collected through the detailed and comprehensive questionnaire which was prepared for managers for collection of required data. The pilot study was conducted to pretest the validity of the questionnaire. With the help of this pretested questionnaire the method of enquiry was suitably amended and the final draft of the questionnaire was made and necessary information was collected accordingly.

In all, 85 engineering units have been surveyed comprising 25% of small scale units and 25% of medium and large scale engineering units respectively.

Application of Chi-square test: To study the differences in different practices followed by small scale and medium and large scale EUs, Pearson's chi square test is applied. The actual result of this test is compared with .05 level of significance. If the result of chi square test is > .05, it is not significant and if the result is < .05, it is significant.

The information collected by way of questionnaire and observations regarding various practices of human resource planning is presented as follows:

Table 1
Aspects of Human Resources Planning

Responses		Type of Unit			X^2	P value	
		1 Small	2 Medium & Big	Total			
1 Technical Aspect	Count	24	15	39	8.930	.003	SIG
	Column N%	36.9%	75.0%	45.9%			
2 Non Technical Aspect	Count	4	6	10	8.378	.004	SIG
	Column N%	6.2%	30.0%	11.8%			
3 Arbitray Method	Count	39	7	46	3.850	.050	SIG
	Column N%	60.0%	35.0%	54.1%			
Total	Count	65	20	85	-	-	-
	Column N%	100.0%	100.0%	100.0%			

SIG = Significant   Source: Survey data

The table-1 states that 60% small scale units and 35% medium and large scale units found to be made their human resources planning by considering arbitrary method. The value of chi square is 3.850 with a p value of .050 which is equal to .05. It shows the differences regarding the arbitrary method used by size class of units. Basically, small scale engineering units are not adopting any scientific manpower

planning and forecasting process. Therefore, the difference exists between the units.

37% small scale units and 75% medium and large scale units opined that they take into account the technical aspects while making human resources planning. The value of chi square is significant. There are variations in making the use of technical aspects. Medium and large scale engineering units are mainly technical oriented as compared to small scale units.

Non technical aspects found to be taken into account by 6% small scale units and 30% medium and large scale units respectively while doing human resources planning. The chi square value of 8.378 has a p value of .004 which is < .05, hence, it is significant. The non technical aspect is taken into account for the clerical, accounting jobs. More staff is appointed in medium and large scale engineering units. There is no necessity of such type of personnel in small scale type of engineering units.

Table 2
Methods of Human Resources Planning

Responses		Type of Unit			X^2	P value	
		1 Small	2 Medium & Big	Total			
1 Annual estimate of vacancies	Count	28	11	39	.144	.704	NS
	Column N %	52.8%	57.9%	54.2%			
2 Long range estimate of vacancies	Count	2	8	10	17.182	.000	SIG
	Column N %	3.8%	42.1%	13.9%			
3 Fixed minimum man specific requirement	Count	15	2	17	2.450	.118	NS
	Column N %	28.3%	10.5%	23.6%			
4 Specific position estimate	Count	10	7	17	2.505	.113	NS
	Column N %	18.9%	36.8%	23.6%			
5 Any other	Count	2	1	3	-	-	-
	Column N %	3.8%	5.3%	4.2%			
Total	Count	53	19	72	-	-	-
	Column N %	100.0%	100.0%	100.0%			

SIG = Significant, NS = Not Significant   Source: Survey data

It is inferred from table2 according to 53% small scale units used the annual estimate vacancies for human resources planning, whereas, 58% medium and large scale unit found to be responded to the same. The value of chi square is not significant.

28% small scale units opined that they consider fixed minimum man specific requirements method for human resources planning, as against this, 11% medium and large scale unit stated about the use of same method. The value of chi square is not significant as value 2.450 with a p value of .118 which is > .05.

The specific position estimate method found to be adopted by 19% small scale units and 37% medium and large scale units respectively for human resources planning. The value of chi square is 2.505 with a p value of .113 which is > .05. Hence, it is not significant. 4% small scale units and 42% medium and large scale units respectively said that they take into account long range estimate of vacancies method for human resources planning. The value of chi square in this respect is significant. Medium and large scale engineering units have different plans like expansion or diversification and they require more employees. Therefore, they need long range estimate of vacancies. However, in small scale engineering units, there is no possibility to create more vacancies. It seems that there is a

significant difference between both type of units in this respect.

The table-3 indicates that 73% small scale units said the purpose of human resources planning is to match employees abilities to organization's requirements whereas, 68% medium and large scale units responded to the same purpose. The value of chi square is not significant.

Table 3
Purposes of Human Resources Planning

Purposes		Type of Unit			X^2	P Value	
		1 Small	2 Medium & Big	Total			
1 To Balance current supply of employees	Count	10	7	17	1.588	.203	NS
	Column N %	22.2%	36.8%	26.6%			
2 To Develop realistic forecasts of labour supply and demand	Count	3	4	7	-	-	-
	Column N %	6.7%	21.1%	10.9%			
3 To Match employee abilities to organization's requirements	Count	33	13	46	1.247	.264	NS
	Column N %	73.3%	68.4%	71.9%			
Total	Count	45	19	64	-	-	-
	Column N %	100.0%	100.0%	100.0%			

NS= Not Significant.   Source: Survey data

According to opinion of 22% small scale units that the purpose of human resources planning is to balance current supply of employees as against this, 37% medium and large scale units found to be responded. The value of chi square is not significant as value 1.588 with a p value of .203 which is > .05. 7% small scale units & 21% medium and large scale units respectively stated that the purpose of human resources planning is to develop realistic forecast of labour supply and demand. As the responses are very less, therefore, chi square test is not applied.

The table-4 indicates that 93% small scale units found to be considered one to three years period for human resources planning as against this, 67% medium and large scale units responded to the same plan range. 4% small scale units and 17% medium and large scale units told that they take into account five and above years of period while doing human resources planning. To the plan range of three to five years, 3% small scale units and 17% medium and large scale units responded. 2% small scale units found to be made human resources planning according to production requirements or need based short period type plan range is used for human resources planning. The chi square value is 10.892 with p value of .012 < .05 which is significant. It seems that there are differences regarding the plan ranges used by small scale and medium and large scale engineering units. Medium and large scale units have requirements of human resources for long time therefore these units have given weightage for 3 to 5 years and 5 and above years over the small scale.

Table No 4
Human Resources Plan Ranges

Responses		Type of Unit			X²	P value	
		1 Small	2 Medium & Big	Total			
1 1-3 years	Count	54	12	66			
	Column N%	93.1%	66.7%	86.8%			
2 3-5 years	Count	1	3	4			
	Column N %	1.7%	16.7%	5.3%			
3 5 and-above years	Count	2	3	5			
	Column %	3.4%	16.7%	6.6%			
Any other	Count	1	0	1			
	Column %	1.7%	.0%	1.3%			
Total	Count	58	18	76	10.892	.012	SIG
	Column %	100.0%	100.0%	100.0%			

SIG = Significant   Source; Survey data

It can be concluded that majority of the small scale units (93%) and medium and large scale units (67%) consider short or medium plan range for human resources planning. It is due to fluctuation in order position, seasonable nature of production, availability of man power and tendency of proprietors not create burden of employees.

The different criteria used or taken into account for human resources planning by selected engineering units is presented in table.

As per table-5 it is found that 52% small scale units and 70% medium and large scale units respectively considered qualification and experience desired as a criteria for human resources planning. The value of chi square is not significant as value 2.020 with a p value of .155 which is > .05.

45% small scale units and 55% medium and large scale units told that they take into account detailed job description for each position. The value of chi square is not significant to the criterion detailed job description for each position.

It is found to be responded by 35% small scale units regarding training and development criterion they consider for human resources planning, however, 75% medium and large scale units stated about the same criterion. The chi square value is 9.870 with a p value of .002 which is < .05 therefore, it is significant.

Table 5
Criteria used for Human Resources Planning

Criteria		Type of Unit			X^2	P value	
		1 Small	2 Medium & Big	Total			
1 Recruitment plan	Count	08	30	21	19.821	.000	SIG
	Column N%	13.8	65	26.9			
2 Training and development	Count	20	15	35	9.870	.002	SIG
	Column N %	34.5	75	44.9			
3 Age distribution of the employees	Count	11	9	20	5.287	.021	SIG
	Column %	19	45	25.6			
4 Qualification and experience desired	Count	30	14	44	2.020	.155	NS
	Column %	51.7	70	56.4			
5 Detailed job description for each position	Count	26	11	37	.617	.432	NS
	Column %	44.8	55	47.4			
6 Total No of personnel available	Count	11	12	23	9.536	.002	SIG
	Column N%	19	60	29.5			
7 Salary Range	Count	09	04	13	.215	.643	NS
	Column N %	15.5	20	16.7			
Total	Count	58	20	78			
	Column %	100	100	100			

SIG = Significant, NS= Not Significant   Source: Survey data

19% small scale units and 60% medium and large scale units said that they take into account the criterion as number of personnel available for human resources planning. The value of chi square is significant in respect of the criterion total number of personnel are available. In respect of recruitment plan the value of chi square is significant.

To the criteria age distribution, 19% small scale units and 45% medium and large scale units found to be responded.

Regarding the criteria like salary range, 16% small scale units and 20% medium and long scale units respectively found to be considered. There are no differences in respect of salary range as a criterion used for human resources planning, as value of chi square .215 with a P value of .643 which is > .05, therefore, it is not significant.

Due to retirement or turnover of employees medium and large scale engineering units have a number of vacancies, theses units have future plans like expansion or diversification. These units require right type and kind of people at the right time, therefore, they take into account factors like recruitment plans, training and development and number of personnel available. Requirements of small scale engineering units are different from the medium and large scale. Hence, there is a significant difference in respect of the recruitment plan, training and development and number of personnel available between both types of engineering units.

CONCLUSIONS:

1)It can be concluded that the Engineering Units mainly concentrate on technical aspects and arbitrary methods as told by 46% and 54% of engineering units respectively while making human resource

planning. Non-technical aspects are considered very less i.e. by 12% of engineering units only.

2)Regarding the use of methods for human resource planning by engineering units, it is inferred from the analysis that annual estimate method of vacancies has been used by 54% engineering units for human resource planning. Long range estimate of vacancies by 14%, fixed minimum man specific requirements by 24% and specific position estimate method by 24% engineering units have taken into account while making human resource planning.

3)It is observed in respect of purposes of human resource planning that to match employees abilities to organization's requirements is stated by 72% and to balance current supply of employees by 27% are the main purposes of human resource planning as stated by engineering units. Towards development of realistic forecasts of labour supply and demand few i.e. 11% engineering units responded.

4)In regard to the plan ranges for human resource planning, majority of the engineering units i.e. 87% responded to one to three year plan range is considered. Two to five year and five and above year plan ranges are considered by 5% and 6% engineering units respectively. It can be concluded that majority of the EUs consider short or medium plan range for human resource planning. It is due to fluctuations in order positions, seasonable nature of production, availability of manpower etc.

SUGGESTIONS:

- ⌃ The engineering units should make use of long range estimate of vacancies, fixed minimum specific requirements, specific position estimates as a method for human resource planning.
- ⌃ Long term human resource planning is planning of personnel for more than two or three years. In the long run, the management has sufficient time gaps to take necessary steps, so as to make effective a process of matching jobs and individuals. Therefore, it is suggested, that the engineering units have to adopt long range (i.e. more than three years) human resource planning for the benefit of units and employees.

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