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GOVERNMENT OF KERALA

"STUDY ON THE UTILISATION OF TRAINED ENGINEERING PERSONNEL IN PUBLIC WORKS DEPARTMENT"

MANPOWER STUDY SERIES
No. 43

MANPOWER DIVISION
DEPARTMENT OF ECONOMICS
AND STATISTICS, KERALA
FEBRUARY, 1984

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P R E F A C E

'Manpower study series' includes reports on analysis of manpower situations, vital for an efficient system of manpower planning in the state. This/on 'utilisation of / study trained engineering personnel in P.W.D', conducted by Sri. K.Madhavan Unni, Manpower Officer of P.W.D examines the extent and possitilities of utilisation of trained engineers in the construction and development activities of the State. It is hoped that findings of this study will be of immense use in planning/effective / the involvement of technical manpower in the P.W.D.

Sd/-
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Trivandrum,
24.2.1984.

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CHAPTER - I

GENERAL ASPECTS OF THE STUDY

1.1 Introduction:

Several posts in public works department require specialised training for the efficient discharge of duties associated with them. Besides, specialised training becomes inevitable to get familiarised with advanced developments in engineering technology and management. Public works department do have a team of officers who are specially trained in public health engineering, structural engineering etc. In this context it was found useful to conduct a study on the utilisation of these trained technicians by the department.

1.2 Objectives:

The main objectives of this study are the following;

(1) To examine the category of trained engineering personnel in Public Works Department.

(2) To examine the fields in which engineers are trained or specialised

(3) To examine the extent of utilisation of trained engineers.

and

(4) To pinpoint reasons for under utilisation if any, and to suggest remedies for full utilisation.

1.3 Methodology:

In this study, engineering graduates or diploma holders who are specially trained in any engineering subject and engineering post-graduates in specific fields/treated as trained personnel. 120 trained personnel working in different offices of the department as on 1.3.1982 were contacted through mailed questionnaire, /are copy given as appendix, to collect the required details for the study. Details from 30 trained officers who either on deputation or on foreign assignment could not be collected.

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1.4 Response:

Inspite of the best of efforts only 40 informants have supplied the required data and hence the response is only 27 percent.

1.5 Period of Study:

The study was started in March 1982 and the report ~~was~~ was drafted in December 1983.

1.6 Limitations:

Poor field response and time lag in data collection are the main limitations of this study.

CHAPITER - 2

FINDINGS OF THE STUDY

2.1 Trained enginering personnels:

As is seen in table 2.1 the highest groups of trained technical personnel in PWD belong to the category of Executive Engineers and Assistant Executive Engineers. Assistant Engineers and Architects are comparatively small group of the trained ones.

Table : 2.1

Classification of trained engineering personnel according to post held

Post held	Number	Percentage
1. Chinef Engineer/Chief architect	3	7.5
2. Deputy Chief Engineer/Superintending Engineer.	6	15.0
3. Executive Engineer/Design Engineer	12	30.0
4. Assistant Executive Engineer/ Design assistant	13	32.5
5. Assistant Engineer/Junior designer	2	5.0
6. Assistant Architect	2	5.0
7. Junior architect	2	5.0
Total	40	100. 0

2.2 Field of training/specialisation:

Table 2.2 shows that the 35 percent of engineering personnel are specialised in the field of structural engineering. Almost equal number have got specialisation in

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Foundation Engineering and Building technology together. Engineers who are trained or specialised in areas like public Health Engineering, Production Engineering and Heat power is comparatively low.

Table : 2.2

Classification of trained engineering personnel according to field of training/specialisation

Field of training/ specialisation	No.of Engineers			
	Post-graduates	graduates	Total	%
1	2	3	4	5
1. Structural Engineering	14	-	14	35.0
2 Foundation Engineering	6	-	6	15.0
3 Building Technology	3	3	6	15.0
4 Irrigation Engineering	5	-	5	12.5
5 Water resource & Develpp-ment	3	-	3	7.5
6 Public Health Engineering	2	-	2	5.0
7 Production Engineering	2	-	2	5.0
8 Heat-power	2	-	2	5.0
Total	37	3	40	100.0

It isseen that 25 officers constituting about 63% of the trained personnel have acquired specialisation while in service sponsored by state Got/Central Govt. Another officers(23%) in the sample have acquired training while in service but at theirown expense, 2 officers(2%) were selected for training under the columbo plan, I, by the Brithish Council and the rest 3 officers by the Japanese government. In short about 70% of officers have aquired specialisation after entering government service and that too at government cost. 37 trained Engineers constituting about 93%, are post-graduates in engineering and only 3 officers(7%) are/basic engineering degree. / of

2.3 Age Composition:

Table 2.3 shows that majority of trained officers are in the younger age group and have ample time ahead in service to make use of the knowledge acquired through training.

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... might be better if more of officers below 40 in age are selected for training and specialisation.

Table : 2.3

Age-group distribution of trained engineering personnel.

Age-group	No. of Engineers	percentage
1	2	3
Below 40 years	8	20.0
40 - 49	19	47.5
50 and above	13	32.5
Total	40	100.0

2.4 Utilisation of trained engineers:

Table 2.4 gives the opinion of informants in respect of opportunities for utilisation of their training/specialiin the discharge of their duties. Almost 55% of trained officers affirmed that they could fully utilise their training/specialisation in the efficient discharge of their duties. About 33% of them are of the opinion that only partial utilisation of their specialisation could be achieved and about 13% admitted that they could not utilise their training/specialisation in their assigned fields of work in the department.

Table : 2.4

Classification of trained engineering personnel according to opinion of utilisation

Opinion on utilisation of speciality	No. of engineers	percentage
1	2	3
1 Full utilisation	22	55.0
2 Partial utilisation	13	32.5
3 Non-utilisation	5	12.5
Total	40	100.0

2.5 A case of non-utilisation:

The study revealed some specific instances of non-utilisation of trained engineering personnel due to the unimaginative placement of trained officers in jobs which does not require such specialisation/training.

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Table 2.5 gives the list of few items of wrong placement and resultant mis-utilisation of trained personnel

Table : 2.5

Field of training/specialisation and field of placement case of mis-utilisation

Field of training/specialisation	Field of placement
1	2
1 Construction of civil engineering structures.	supervision of Irrigation cannal construction.
2 Fundation Engineering and Soil Mechanics	Research, Administration and Investigation work of Irrigation projects.
3 Structural Engineering & project formulation	Supervision of irrigation Works.
4 Public Health Engineering	Supervision and execution of irrigation works.
5 Town planning & Architecture	Execution and maintenance of road works.
6 Industrial Engineering	Design of irrigation projects
7 Advanced hydraulics, Dam-construction & Irrigation	Office administration.

2.6 Suggestions for full-utilisation:

The following are some of the suggestions of informants for attaining full utilisation of trained engineering personnel in the State P.W.D:

1) Trained Engineers should be posted in such sections where their training/specialisation is of direct use. cases pointed out in section 2.5 is a matter which requires immediate attention of higher level authorities.

2) As the main item of work of superintending Engineers is office administration, trained/specialists in this category should be given suitable postings commencerate with their speciality.

3) [illegible] More of co-operation and co-ordination of the works of different activities of the department can lead to effective utilisation of trained personnel.

4) Starting of a design unit in all circle offices which handle major works up to Rs 20 lakhs can ensure better utilisation of trained engineers in designe and development

5) Starting of a 'Research and Development' wing in the department utilising the services of specialised/trained Engineers in different fields is a worthwhile proposition to pool and utilize the trained talents for optimial utilisation of trained capacities.

C H A P T E R - 3

SUMMARY AND CONCLUSION

1) The public works department of Kerala had 150 trained engineering personnel in 1982.of which 120 were working in the department and 30 were either on deputation to other organisation or on foreign assignment.

2) Of the 120 trained engineers contacted for this survey, only 40 persons responded and the percentage of response is about 27.

3) Low response is the major limitation of the findings of this study.

4) Engineering personnel working in the cadre of Executive Engineers and Assistant Executive Engineers formed the majority(63%) of trained engineering personnel in the Department.

5) About 78% of engineering personnel are trained in areas like structural engineering, foundation engineering, Building technology, and Irrigation engineering and those trained in water resource and development, public health engineering, production engineering and heat power constituted only 22% of therrespondants.

6) About 70% of engineers have acquired specialisation or training while in service and that too at government cost.

7) 68% of trained engineering personnel are in the dynamic age groupof below 49 and have enough time in service to make full and effective utilisation of their training

8) The department could not achieve full utilisation of trained engineering personnel and 55% of informats only affirmed that they got enough opportunity in service for direct utilisation of training/specialisation.

9) Some specific cases of wrong placement of officials by the department illustrate unfavourable conditions for full utilisation of trained engineering personnel.

10) Lack of imagination in placement of trained engineering personnel to units totally unassociated with the fields of training obtained is the main cause of mis utilisation of trained capacities.

11) "Starting of a 'Research and Development Wing' in the department and starting of a design wing in all circles, with major works up to Rs 20 lakhs, establishment of a separat wing for the effective co-ordination of various activities of the department etc are some of the suggestio for attaining full utilisation of trained engineering perso personnel in the Department.

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Annexure I

STUDY ON THE UTILISATION OF TRAINED ENGINEERING PERSONNEL IN THE PWD

(Proforma) (condifiential)

1. Name
2. Official Address
3. Date of Birth
4. Basic Qualification possessed

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a. General B.Sc.Engg/B.E/Diploma

b. Others

1

2

3

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5. Employment

	Designation	Organisation/ Department	Period	Functions of the present job.
1	Present job			
2	Previous job			
	1			
	2			
	3			

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6. Details of Specialization/Training

7. Degree or certificate obtained

2 Area of specialization or training

3 Agency awarding the degree or certificate with name of the country.

4 Agency sponsored your specialization or training

5 Year of obtaining the specialization/training

6 Duration of the course

7 Special function for with which the specialization equips

8 Your opinion on facility for specialization or trainingavailable in our state and the role played by your Department.

9 Did you obtain the specialization/training while in service or before entry in to service.

7 Details of utilization:

1 The specific field and functions for which the specialization equips.

2 Does your organisation require the special training obtained for any of its function?

3 Is your organisation surplus/deficit in the field of your specialization

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4	Have you got any charge to make use of your specialization or training obtained to the present field of activity	
	If Yes, State some of your own contributions.	
5	Howfar the present post utilized the specialization or training obtained by you.	
6	Whether the utilization is full or partial in your present field.	
7	If partial, what are your suggestions to make it full	

(Signature)

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