GOVERNMENT OF KARNATAKA

STATE MANPOWER PROFILE STUDY
KARNATAKA

SEVENTH FIVE YEAR PLAN

MANPOWER AND EMPLOYMENT DIVISION
PLANNING DEPARTMENT
JUNE 1989

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P R E F A C E

Manpower profiles bringout the Employment and Manpower situation of the State and help s judicious Manpower Planning, so that no programme suffers due to non-availability of appropriate Manpower at the appropriate time. These Manpower profiles at the State level or an important steps in the direction of adoption of a de-centralised planning stretegy wherein these profiles are built up at the district and at mandal levels. When all these profiles are completed for all the districts, mandal and states it will be of help in constructing Manpower profiles for the country as a whole.

At the beginning of the five year plans, exercises are taken up to build up a Manpower Profile of the State. In 1981, an exercise to build up a manpower profile for Karnataka was taken up for the Sixth Five Year Plan. Similarly, an effort has been made to bring out a manpower profile of Karnataka for the Seventh Five Year Plan. This includes data/information on(i) employment situation in general (ii) overall position of the educated unemployed(iii) estimated stock, labour force, unemployment requirements and availability of different categories of manpower in seventh plan period.

Our experience shows that the gaps in information have to be filled up this is a time consuming process. The State of art of Manpower Planning has to improve with each change in methodology improved skills and additional more reliable information. This is a continuing process. In this task suggestion for improvements are always welcome with a view to elicit suggestion/comments for its improvement the profile is being released for wider circulation.

Sri.K.Firoze Ahmed,Deputy Director and Sri.Keshava,Assistant Statistical Officer have assisted in completion of this work.

Bangalore,
Dated: 30.6.1989.

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Director,M&E Divn,Planning Department.

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STATE MANPOWER PROFILE STUDY - KARNATAKA SEVENTH FIVE YEAR PLAN

I. Introduction:

At the beginning of the Five Year Plans, exercises are taken up to build up a Manpower Profile of the State/Country. These profiles include estimation of Stock, Information on Training facilities, Projected requirement and availability, Employment situation of Agricultural, Engineering, Medical and Teaching Manpower. These exercises are useful, in that, they bring out clearly the employment and manpower situation of the State and help judicious manpower planning so that no programme suffers due to non-availability of appropriate manpower at the appropriate time. These manpower profiles at the State Level are an important step in the direction of adoption of a decentralised planning strategy wherein these profiles are built up at the district and at the Mandal levels. When all these profiles are completed for all the districts, Mandals and States, it will be of help in constructing manpower profile for the country as a whole.

2. In 1981, an exercise to build up a manpower profile for Karnataka was taken up for the 6th Five Year Plan. But the exercise completed had some limitations. Similarly, an exercise was taken up in 1985 for the 7th Five Year Plan. This could not be completed mainly because the estimates of surpluses/deficits for teaching manpower, agriculture and allied manpower and medical and para medical manpower could not be completed and finalised. This failure can be attributed to: (i) lack of proper response from some of the Government Departments and Government undertakings in the supply of requisite information, (ii) supply of information which was inconsistent with the information furnished earlier and the failure on the part of the concerned department to reconcile the discrepancies and provide correct and consistent information, and (iii) the adoption of cohort intake and out-turn data with information for repeaters separately to work out the pass out ratio and as a consequence, non-supply of intake and out-turn information by a large number of educational institutions. However, in what follows, the Manpower Profile of Karnataka for the 7th Five Year Plan with the available information has been presented, including an account of the efforts made for augmenting the supply of manpower in the 7th Five Year Plan through identification of technical Manpower shortages in the 7th

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Plan, the follow-up action taken and special efforts made for increasing the supply of electronics manpower as part of the efforts made by the department of electronics, Government of India.

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II. General Employment Situation:

3. Information on employment of persons is available through the employment Marketing Information System. The available information is processed and published in the Employment Reviews published by the Directorate of Employment & Training. The coverage is for all Public Sector Establishments and the Private Sector Establishments employing 25 or more workers under the provisions of the Compulsory Notification of Vacancies Act. But information on employment of persons with different levels of qualifications at the State Level are not available either with the Employment Reviews published by the Directorate of Employment and Training or from other sources. This is so only with reference to the States, whereas at the All India Level, employment review gives the occupational distribution of the educated employed, qualificationwise. In the absence of detailed data, it is difficult to assess the employment pattern of educated in relation to the qualifications possessed by them.

4. At the end of March 1985, total employment in the organised sector in the State was 1261.2 thousands. This increased to 1,324.5 thousands (5.1%) at the end of March 1987. Out of the total employment of 1,324.5 thousands at the end of March 1987, 950.5 thousands (71.7%) was in Public Sector and 374.4 thousands (28.3%) in Private Sector. As against this at the end of March 1985, 894.1 thousands (70.9%) and 367.1 thousands (29.1%) were in the Public and Private Sectors respectively. The structural composition of the employment in the organised sector of the economy in the state is presented in the table below:

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T A B L E - 1

Structural composition of Employment in organised sector in Karnataka

Division	Brief Description	Employment in the Organised Sector			
		March 1985		March 1987	
		No. in 000's	Percentage to total	No.in 000	Percentage to total
0 & 1	"Primary Sector"	73.0	5.8	76.8	5.8
0	Plantation & Forestry	44.6	3.5	49.2	3.7
1	Mining & Quarrying	28.4	2.3	27.6	2.1
2,3 & 4	"Secondary Sector"	409.8	32.5	412.5	31.2
2 & 3	Manufacturing	368.3	29.2	368.0	27.8
4	Electricity, Gas & Water	41.5	3.3	44.5	3.4
5	Construction	47.5	3.8	50.6	3.8
6,7,8&9	"Tertiary Sector"	730.9	57.9	785.0	59.2
6	Wholesale & Retail Trade Hotels and Restaurants	31.8	2.5	32.8	2.5
7	Transport, Storage & Communications	126.3	10.0	135.2	10.2
8	Financing, Insurance Real Estate and Business Services	86.2	6.8	93.7	7.0
9	Community, Social & Personal Services	486.6	38.6	523.3	39.5
	Total:	1261.2	100.0	1324.9	100.0

Source: Directorate of Employment and Training.

5. In 1985, Primary Sector accounted for 5.8%, of the total employment, Secondary Sector for 32.5% of the total employment and the Tertiary Sector for 57.9% of the total employment. In 1987, the Primary Sector accounted for 5.8% of the total and the Secondary and Tertiary Sectors accounted for 31.2% and 59.2% of the total employment respectively. Community, Social and Personnel Services accounted for the highest share of employment both in 1985 and 1987(38.6% and 39.5% in 1985 and 1987 respectively) to the total, followed by the manufacturing sector with a share of 29.2% and 27.8%

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in 1985 and 1987 respectively to the total. Between 1985 and 1987, there was a decline in the percentage of employment in the Secondary Sector, Tertiary Sector and the Financing Insurance, Real Estate and Business Services Sector. The Tertiary Sector has accounted for the highest employment generation whereas the Primary Sector, the least employment generation in the Organised Sector.

6. In Public Sector, out of the total employment generation of 894.1 thousands, at the end of March 1985 Central Government accounted for 120.2 thousands (13.4%), State Government for 382.4 thousands (42.8%), Quasi Government for 349.8 thousands (39.1%) and the Local Bodies for 41.7 thousands (4.7%) of the total employment. The increase in employment for Central, Central Quasi, State Government, State Quasi and Local Bodies at the end of March 1987 over that of the employment in these sectors at the end of March 1985 was 2.0%, 3.0%, 7.7%, 9.6% and 7.9% respectively. Details are given in Table-2.

TABLE - 2

Employment in organised sector in Karnataka

Sector	Employment in 000's	
	March 1985	March 1987
Public Sector		
1. Central Government	120.2	122.6
2. Central Quasi	188.7	194.3
3. State Government	382.4	412.0
4. State Quasi	161.1	176.6
5. Local Bodies	41.7	45.0
Total:	894.1	950.5
Private Sector		
1. Act	299.0	303.9
2. Non Act	68.0	70.5
Total:	367.0	374.4
State:	1261.1	1324.9

7. Unemployment situation could be assessed either by a reference to various reports of the National Sample Survey and decennial Census or the Live Register figures of employment exchanges.

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The 38th round of the Survey on employment and unemployment of the National Sample Survey Organisation gives information for the period January - December 1983. According to these results, unemployment rate in Karnataka for the population of the age-group 5 and above was 2.1%. The estimated unemployed in Karnataka was 3.8% of the estimated total unemployed in the country as a whole. The results of the 38th round of National Sample Survey for the population in the age-group 15-59 on the basis of usual activity status are presented in the table below:

T A B L E - 3

Unemployment, employment in Karnataka - 38th round of N.S.S.(Four sub-rounds combined-usual status)

Rural			Urban		
Male	Female	Total	Male	Female	Total
Percentage of unemployed to persons in labour forde of population of age 15 to 59 years.					
1.13	0.73	0.99	5.74	6.01	5.80
Total unemployed (lakhs)					
0.81	0.27	1.08	1.73	0.53	2.26
Total working (lakhs)					
76.41	75.04	151.45	33.59	31.00	64.59

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III. Structure and Functions of the Manpower and Employment Division:

8. Manpower and Employment Division of the Planning Department is part of the Planning Department working under the overall control and guidance of the Secretary to Government, Planning Department. The division is headed by a Director, assisted by a Joint Director, a Deputy Director, an Assistant Director and Four Senior Investigators. The functions of the Manpower and Employment Division are shown in Annexure-I. Manpower and Employment Division is striving hard to attend to the functions assigned by completing a number of studies and taking follow-up action on a number of reports completed. A list of studies completed and a list of studies on which follow-up action was taken are given in Annexure-II.

9. An analysis of Wastage and Stagnation in Medical Education at Diploma/Degree/Post Graduate level in Karnataka showed very high levels of stagnation. To remedy this situation, the agreement bond form 19 in Rule 62 of K.C.S.Rules was amended in Notification No. FE 17 SRS 84 dated 4th April 1985 to include a clause that it shall be lawful to the Government to make recovery of the amount (including Pay, Allowances, Stipend, Dearness Allowances, Tuition Fee etc.) spent on study leave from the Salary of the Obligator in case the competent authority comes to the conclusion that he had not shown sufficient progress in the studies or failed to complete the courses in proper time. In case it is not possible to recover from the salary, the obligator and the sureties should be jointly and severally liable for the repayment of full amount of expenditure incurred by Government.

10. A survey to find out the Nurse-Patient ratio in Government Hospitals in Karnataka showed that the Nurse-Bed ratio was below 1:10 in Teaching General Hospitals, Non-Teaching General District Hospitals and Non-Teaching General Taluk Hospitals. Based on this analysis and the severe shortage of Nurses prevailing in the State, the economy orders of the Government werere laxed to fill up cent per cent vacant posts of Nurses both under Plan and Non-Plan in the Department of Health & Family Welfare and Medical Education to render better services to the patients in 1983. In addition, Government issued orders creating deputation and leave reserve posts of Nursing personnel as per the guidelines in force.

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11. Based on an analysis of the Wastage and Stagnation in Agricultural Education in Karnataka, it was recommended to introduce the Students Career Cards and to amend the regulations pertaining to registration of students in different courses. From the year 1988-89, an attempt is made to introduce the Student Career Progress Card for students who were admitted in 1988-89.

12. On a proposal from the University of Agricultural Sciences to open B.Tech.Degree Course in Agricultural Engineering, Manpower and Employment Division conducted a study to assess the employment available to B.Tech.Degree holders in Agricultural Engineering and the utilisation of these graduates where these courses have already been introduced. Bases on this analysis, a recommendation was made not to open the courses as there is very little employment. However, the course has been introduced.

13. An analysis of the deficiencies in infrastructural facilities in the Industrial Training Institutes was made at the request of the department and a number of recommendations were made. These included increasing the Plan allocations for modernisation of equipments in the Industrial Training Institutes by a crore of Rupees every year to cover the cost of 7.8 crores, required for modernisation in a phased manner of the Industrial Training Institutes, by purchase of equipment, both as fresh and replacement for depleted machinery; setting up of a Flying Squad in the Central Office for maintenance of equipments; availing institutional finance for construction of building; increasing the average training expenditure and examination costs in Industrial Training Institutes and more delegation of powers to Principals of Industrial Training Institutes to enable them to undertake repairs without reference to the head office. Although the plan allocation was increased by a crore of Rupees in 1987-88, the Department did not use the entire money as decided. In Government order No. SWI 296 ETI 85 dtd: 3rd March 1988, delegation of revised administrative and financial powers to Principals of Industrial Training Institutes have been issued.

14. Taking note of the poor progress in the opening of sub-centres in the Department of Health & Family Welfare and identifying the reason for this slow progress as lack of trained manpower at the auxiliary level, a study of manpower requirements in Health & Family Welfare Department was undertaken. After detailed discussions of the recommendations made in the report in March 1987, a decision was

taken to amend the agreement bond to provide for recovery of the amount spent on training from those who had undergone training not reported in places where posted and work for a minimum period of three years. To monitor filling up of vacancies through direct recruitment and promotion and to prevent delays in filling up of vacancies created due to the expansion of activities, retirement and transfer, it was decided to set up a Manpower and Training Unit in the department. The shortage of Manpower in Primary Health Workers, Junior Health Inspectors, Senior Laboratory Technician catogeries was noted. Particularly in the case of refractionists, it was decided to examine the training facilities available for refractionists and either increase the intake or increase the number of training centres by one or two. A special Manpower Plan was to be prepared in collaboration with the Manpower and Employment Division of the Planning Department. However, due to lack of interest on the part of the department, no action has been taken on these decisions.

15. While reviewing the progress of the schemes like National Rural Employment Programme, Rural Landless Employment Guarantee Programmes and Rural Employment Guarantee Scheme as part of the Karnataka Development Programme Review, it was observed that the cost per manday was on the high side and this requires to be examined in greater detail. Based on a survey through field visits, Manpower & Employment Division conducted a study on employment generation in National Rural Employment Programme and Rural Employment Guarantee Scheme. As one of the recommendations of the study, Norms for employment generation were suggested for adoption by the implementing authorities while preparing the action plan. These norms would prevent the emergence of wide variations in the targetted employment generation given in the Action Plan and the actual employment generation based on the findings of the study, the Zilla Parishads were requested by Government to adhere to the proportion of 50% of the total expenditure on wages as stipulated in the Guidelines given. The norms suggested for estimating employment generation were adopted by the department.

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16. The information on educated unemployed are available from the different rounds of the National Sample Survey, results of the survey of degree holders and technical personnel (census 1981) and from job seekers registered in employment exchanges. These information gives us an insight as to the nature and the magnitude of the problem.

17. Utilising the unemployment rates of the survey of unemployment and employment of 38th round of National Sample Survey to the projected population of 1985, the number of educated unemployed in the state (including certificate holders of Industrial Training Institutes and T.C.H. Certificate holders and excluding Matriculates and below) was 68,841. Among this the graduates in Arts, Science and Commerce were 32,973 (47.9 percent of the total) Post graduates in Arts,Science and Commerce were 3,601.

18. The survey of degree holders and technical personnel(Census 1981) gives us the position of unemployed among science and technology personnel. The distribution of unemployed science and technology personnel according to the level of qualification shows that 21,725 post graduate and graduates and graduates were unemployed and trying for job in Karnataka. Among unemployed S and T personnel in Karnataka, in all categories, males out numbered females. An analysis of the unemmployed S and T personnel according to the field of specialisation shows that 13,740 persons with specialisation in science, 3,780 persons with specialisation in Engineering and Technology and 1,265 persons with specialisation in Education were unemployed and trying for job. Details are given in Tables 4 and 5.

19. Out of a total of 21,725 persons whoware unemployed and trying for job, 19,960 persons were either below 20 years or in the age group of 20 to 34 years. The number of unemployed and trying for job declines after the age of 35 years. Among S & T personnel the unemployed was more pronounced in the age group of 20 to 29 years. In all the age groups the number of unemployed and trying for job were more among males. The number of unemployed and not trying for job was 4,020 persons in the age group of 20 to 34 years. Of these 3,275 were females. In all the age groups except in the age group of 55 to 58 years the number of unemployed and not trying for job among females were more than the males. Details are given in Table-6.

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Table - 4

Distribution of Unemployed Science & Technology Personnel According to Level of Qualification & Sex

Level of Qualification	Unemployed trying for job			Unemployed Not Trying for job			Total Unemployed		
	M	F	T	M	F	T	M	F	T
Ph.d	45	25	70	5	10	15	50	35	85
M.Phil	10	5	15	0	0	0	10	5	15
P.G.Degree	1065	730	1795	85	425	510	1150	1155	2305
P.G.Diploma	140	25	165	10	15	25	150	40	190
Graduate	10575	4855	15430	745	3960	4705	11320	8815	20135
Equal to graduate	90	10	100	20	10	30	110	20	130
U.G.Diploma	2305	195	2500	135	55	190	2440	250	2690
U.G.Certificate	80	5	85	0	0	0	80	5	85
I.T.I	1400	100	1500	40	10	50	1440	110	1550
Others	0	0	0	0	0	0	0	0	0
Not given	50	15	65	0	0	0	50	15	65
Total:	15760	5965	21725	1040	4485	5525	16800	10450	27250

M: Male F: Female and T: Total

Source: Statistical tables on Scientific and Technical Personnel - Karnataka -CSIT -New Delhi. Degree Holders and Technical Personnel Survey.

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Table - 5

Distribution of Unemployed Science & Technology Personnel According to the Field of Specialisation and Sex

Field of Specialisation	Unemployed traying for job			Unemployed Not trying for job			Total Unemployed		
	M	F	T	M	F	T	M	F	T
Agricultural Science	355	15	370	35	0	35	390	15	405
Science	8935	4805	13740	650	3965	4615	9585	8770	18355
Veterinary Science	0	0	0	0	0	0	0	0	0
Engineering and Technology	3555	225	3780	245	60	305	3800	285	4085
Medicine Homeopathy	40	15	55	0	0	0	40	15	55
Medicine Allopathy	575	90	665	30	25	55	605	115	720
Medicine Ayurvedic	175	40	215	15	5	20	190	45	235
Medicine Unani	10	5	15	0	0	0	10	5	15
Dentistry	15	10	25	0	0	0	15	10	25
Nursing	0	5	5	0	10	10	0	15	15
I.T.I	1410	115	1525	40	10	50	1450	125	1575
Education	625	640	1265	25	405	430	650	1045	1695
Medicine-others	5	0	5	0	0	0	5	0	5
Others	25	0	25	0	0	0	25	0	25
Not given	35	0	35	0	5	5	35	5	40
Total	15760 (93.817)	5965 (57.08)	21725 (79.727)	1040 (6.197)	4485 (42.927)	5525 (20.28)	16800 (100.00)	10450 (100.00)	27250 (100.00)

M : Male F : Female T : Total

Source: Statistical Tables on Scientific and Technical Personnel - Karnataka - CSIR - New Delhi (Census 1981)

Degree holders and Technical Personnel Survey.

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Table - 6

Distribution of Unemployed Science & Technology Persons According to Age Group and Sex

Age Group	Unemployed trying for job			Unemployed Not trying for job			Total Unemployed		
	M	F	T	M	F	T	M	F	T
Below 20 years	390	45	435	5	15	20	395	60	455
20-24 years	5915	2870	8785	145	900	1045	6060	3770	9830
25-29 years	6305	1925	8230	275	1430	1705	6580	3355	9935
30-34 years	1855	655	2510	325	945	1270	2180	1600	3780
35-39 years	560	190	750	115	480	595	675	670	1345
40-44 years	145	60	205	60	240	300	205	300	505
45-49 years	105	15	120	25	160	185	130	175	305
50-54 years	35	0	35	15	60	75	50	60	110
55-58 years	10	0	10	20	20	40	30	20	50
59-60 years	5	0	5	10	20	30	15	20	35
Above 60 years	25	0	25	0	5	5	25	5	30
Not given	410	205	615	45	210	255	455	415	870
Total	15760	5965	21725	1040	4485	5525	16800	10450	27250

M : Male F : Female T : Total

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20. Information on duration of unemployment after passing the course for persons possessing qualifications with different specialisation can be had by a survey wherein a specific question is introduced, in the questionnaire used for the survey. In the absence of such a survey on the status of the unemployed, an attempt was made to use the information collected for the National Technical Manpower Information System for the year 1982-83. In the year 1982-83, 2,710 Engineering graduates have passed the various disciplines in Karnataka. Of this about 599 (32.1%)have responded and furnished information to the National Technical Manpower Information System. Although the response is poor, still an effort has been made to have a rough estimate about the duration of unemployment of the respondents after passing the course. In Civil Engineering out of 138 employed, 74 (56.3%) got their first employment within 6 months. Out of 21 Chemical Engineers employed, 10 got their jobs in less than 6 months. Out of 153 Mechanical graduates employed 110(57.5%) were employed in less than 6 months of passing their course. Out of 138 Civil Engineering graduates employed 44(31.9%) got their first job after one year. Among Electrical Engineers 13 (30.2%) out of 43 got their first job after one year. 5 out of 21 Chemical Engineering graduates (23.8%) got their first job after one year. Among Electrical power graduates 19 were employed, out of this 12 (63.2%) got their first employment within one year of their completion of course. Among Metallurgy Engineers all the 6 got their jobs within one year of their passing the course. Similarly among Electrical Technology and Electronics all the 8 have got their job within one year after passing their examination and 87.5 per cent secured their first employment within 3 months itself. Among the Textile Engineering graduates all the 7 got their first employment within one year of passing their examination. About 5(71.4%) of them got their job within 3 months after passing the examination. In the disciplines of Electrical and Electronics Engineering there was only one respondent who had passed the course in 1982-83 and he secured the first appointment within one year after passing the course. Details are given in table - 7.

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Table - 7

Duration of Unemployment - Time Taken to Obtain First Employment by Engineering Degree Holders (1982-83 batch)

Discipline	Total employed	Time taken to get first employment	
		Less than 1 year(%)	More than 1 year(%)
Civil	138	94 (68.12)	44 (31.88)
Mechanical	163	137 (84.05)	26 (15.95)
Electrical	43	30 (69.77)	13 (30.23)
Electronics	36	29 (80.56)	7 (19.44)
Electronics & Communication	36	31 (86.11)	5 (13.89)
Chemical	21	16 (76.19)	5 (23.81)
Electrical Power	19	12 (63.16)	7 (36.84)
Electrical Technology and Electronics	8	8 (100.00)	-
Textiles	7	7(100.00)	-
Metallurgy	6	6(100.00)	-
Electrical & Electronics	1	1(100.00)	-

Source:- National Technical Manpower information System - Karnataka Regional College of Engineering,Suratkal.

21. The information on the registrants in the live register of employment exchanges gives an idea of the distribution of those who were registered for the job in the Employment Exchange qualificationwise. Although the data suffers from limitations like non-registration of unemployed and multiple registration and registration of persons who are employed with a view to get better employment opportunities it still gives an idea of the magnitude of those who are in search of jobs. The number of unemployed graduates and post graduates in Arts, Science and Commerce, Agricultural and Veterinary graduates, graduates in Education among the degree and diploma-holders in Engineering as on 31st March 1985 was 61,578. This is likely to increase to 73,998(20.2 per cent). The distribution of the number of unemployed of these categories at the beginning of the plan period as well as at the end is given in the following table.

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Table - 8

Estimated unemployment among graduates and diploma holders.

Sl No	Category	Unemployed 1984-85(%)	Unemployed 1985-90(%)	Percentage increase ( )
1.	Engineering degree	2162(3.5)	3266 (4.4)	51.1
2.	Engineering Diploma	4811(7.8)	7499(10.1)	55.9
3.	Medical Graduates	959(1.6)	1146(1.6)	19.5
4.	Agriculture graduates	464(0.8)	520(0.7)	12.1
5.	Agriculture Post Graduates	22(neg)	28(neg)	27.3
6.	Veterinary graduates	36(neg)	51(0.1)	41.7
7.	Arts graduates	24461(39.7)	27507(37.2)	12.5
8.	Arts Post graduates	2256(3.7)	3358(4.5)	48.9
9.	Science graduates	8974(14.6)	9501(8.8)	5.9
10.	Science Post graduates	1358(2.2)	1628(2.2)	19.9
11.	Commerce graduates	11030(17.9)	13028(17.6)	18.1
12.	Commerce Post graduates	234(0.4)	337(0.5)	44.0
13.	Education	4811(7.8)	6129(8.3)	27.4
	All	61578(100.00)	73998(100.00)	20.2

Arts graduates account for highest percentage of unemployed followed by Commerce graduates. The science graduates are next highest in the magnitude as well as in sharing the educated unemployed. Thus Arts,Science and Commerce graduates together account for about 90.4% of the total unemployed among the general degree and post graduates degree holders. Among the technical graduates and diploma holders, unemployment at the beginning of the plan was highest in the engineering diploma category 4811(7.8%). Unemployment among veterinary graduates was insignificant. Among Agriculture and Medical graduates unemployment was 0.8% of the total and 1.6% of the total respectively. Among the post graduates in the non-technical categories, Arts group had 3.7 percent of the total unemployment followed by Science group 2.2 percent. The unemployment among the Commerce,Post graduates was 0.4 percent of the total unemployed. Unemployment among agricultural post graduates was negligible. But the Diploma holders in engineering accounted for 7.8 percent of t he total unemployed. Thus unemployment problem is serious among the Arts,Science and Commerce Graduates and post graduates.

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22. The Director General of Employment and Training, Ministry of Labour, Government of India had undertaken a survey to estimate the proportion of registrants as on 1st February 1988 who are already in employment, who are purusing further studies and those unemployed with a view to obtain an estimate of the percentage of the unemployed persons out of all persons registered with the employment exchanges. Out of a smaple size of 2873 of the registrants in the Employment Exchanges of Karnataka, it was possible to contact and collect information on the activity status of 1523 registrants. Manpower and Employment Division of the Planning Department culled out information of the canvased schedules and worked out preliminary estimates of the proportions of employed/unemployed and students among the different categories of the registrants. In this analysis based on the information furnished on the date of Registration, an estimate was made on the length of stay on the live register of the Employment Exchanges. About 78 percentx of the registrants were waiting for employment for less than 5 years and 20 per cent between 5 and 10 years.

Those waiting above 10 years constituted 2 percent of the registrants. The minimum period of waiting was one year and maximum was 15 years.

23. By the educational level of the job seekers diploma holders in Engineering had a maximum period of stay of 7 years and the minimum period was one year. In the case of certificate holders of Industrial Training Institutes, the maximum period of stay was 11 years and the minimum period was one year. In case of degree holders in engineering, the maximum period of stay was 11 years and the minimum one year. In case of Science Post graduates the maximum period of stay was 4 years and the minimum period one year. Similarly for post graduates in Arts and Commerce, the maximum period of stay was 7 years and the minimum period one year. In case of B.A., B.Sc., and B.Com, degree holders the maximum period of stay was 8 years and the minimum period was one year. For B.Ed. degree holders the maximum period of stay was 8 years and the minimum was one year. Thus the severity of unemployment as reflected by the waiting period among the educated unemployed in the live register is also more severe among the categories of post graduates in science, arts and commerce and degree holders in Arts Science and Commerce. Details of classification of job seekers by length of stay are given in Table- 9.

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Table - 9

Classification of Job Seekers by Length of Stay

(per centage)

Education level	Below 5 years	5-10 years	Above 10years	Total	Max.	Min
Matric,below graduate						
(a) (i) with technical	70.1	28.4	1.5	100	15 years	1 year
(ii) others	76.5	20.3	3.2	100	16 years	1 year
(b) T.C.H	71.0	25.8	3.2	100	12 years	1 year
(c) C.P.Ed.	60.0	40.0	-	100	7 years	1 year
(d) D.Pharma	-	-	-	-	-	-
(e) D.in.Engineering	88.0	12.0	-	100	7 years	1 year
(f) D.in Medicine	-	-	-	-	-	-
(g)I.T.I	92.1	7.9	-	100	8 years	1 year
Graduate and above						
(a) Engineering	93.3	-	6.7	100	11 years	1 year
(b) Medicine	-	-	-	-	-	-
(c) Agriculture	-	-	-	-	-	-
(d) Teaching	72.7	27.3	-	100	9 years	1 year
(e) Post graduate(Science)	-	-	-	-	4 years	1 year
(f) Post graduate (Arts and Commerce)	83.3	16.7	-	100	7 years	1 year
(g) B.A, B.Sc, B.Com,	78.2	21.8	-	100	10 years	1 year
(h) B.P.Ed	50.0	50.0	-	100	8 years	1 year

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V. Employment aspects of the Seventh Five Year Plan:

24. Employment generation takes place as a result of implementation of different plan programmes of both Central and State Governments. Information on the employment potential and subsequent generation of various State Plan Schemes under implementation are collected through EMP-I and EMP-II proformas. The information collected for the 7th Five Year Plan shows that the targetted employment generation is 7,354 lakhs person days in the construction phase and 27,250 person years in the continuing phase. In 1985-86, the employment generated was of the order of 701.37 lakh person days and 6,351 person years in construction and continuing phases respectively.

25. During 1987-88, the employment generated was 1,238.24 lakh person days in construction phase and 4,845 person years in the continuing phase. The distribution of the actual employment generated in the 7th Five Year Plan among the various sectors are given below:

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Employment aspects of Seventh Five Year Plan (1985-90) in Karnataka

Sl. No.	Sector	Seventh Plan 1985-90 Target		Employment generated during						Total		Percentage	
				1985-86		1986-87		1987-88					
		Construction lakh person days	Continuing person years	Construction lakh person days	Continuing person years	Construction lakh person days	Continuing person years	Construction lakh person days	Continuing person years	Construction lakh person days	Continuing person years	Construction	Continuing
1	2	3	4	5	6	7	8	9	10	11	12	13	
1.	Agriculture	658.74	7525	118.72	1266	146.80	2410	160.26	144	425.78	3820	64.6	50.8
2.	Rural Development	2402.88	-	289.69	-	414.33	-	401.40	-	1105.42	-	46.0	-
3.	Irrigation & Flood Control	2623.36	-	42.43	-	496.11	-	413.05	-	951.59	-	36.3	-
4.	Energy	368.00	-	75.60	-	69.53	-	119.50	-	264.63	-	71.9	-
5.	Industry & Minerals	23.70	132	10.54	-	3.77	-	4.36	-	18.67	-	78.8	-
6.	Transport	369.10	54	67.33	-	84.77	-	48.84	16	200.94	16	54.4	29.6
7.	Communication, Information and Publicity	-	200	-	50	-	75	-	-	-	125	-	62.5
8.	Social Services	633.01	19324	20.70	5035	28.42	5274	34.26	4685	83.38	14994	13.2	77.6
9.	Others	276.00	15	76.36	-	88.64	-	56.57	-	221.57	-	80.3	-
	Total:	7354.79	27250	701.37	6351	1332.37	7759	1238.24	4845	3271.98	18955	44.5	69.6

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In the construction phase, rural development contributed the highest share of 33.8% to the total employment generated followed by irrigation and flood control (29.1%) and Agriculture 13% during the first three years of the 7th Five Year Plan. These three sectors put together generated about 75.4% of the total employment generated in the construction phase. The Energy Sector, in the construction phase, generated employment opportunities of 8% of the total employment generated.

26. In the continuing phase, social services sector accounted for a share of 73.9% of the total employment generated during the first three years of the 7th Five Year Plan. Agriculture accounted for 18.8% of the total continuing employment generated during the first three years of the 7th Plan.

27. Thus, in the construction phase, rural development, irrigation and flood control, Agriculture and Energy Sectors have a high potential for employment generation whereas in the continuing phase, social services and Agriculture Sectors have a higher capacity of employment generation. Agricultural Sector has a high capacity of employment both in continuing and construction phases(about 13% and 19% respectively).

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VI. Stock Labour Force unemployment requirements and Availability of Engineering Agriculture, Medical and Teaching Manpower with Special Reference to imbalances:

28. The very first step in Manpower plan exercises is the assessment of the stock of the manpower group which we are studying. The stock indicates the manpower resources position at the given point of time. The estimated stock, labour force, employment requirements and availability of Agriculture, Engineering, Medical and Para Medical and Teaching Manpower in Karnataka at the beginning of 1985-86 and at the end of 1985-90 is given in the table below:

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TABLE - 11

Estimated stock, employed and unemployed post Graduates/Diploma holders in 1985-86 and 1989-90(end).

Sl. No.	Category	1985-86(beginning)			1989-90(end)			Increase in the stock in 1985-90 over 1984-85			Percentage increase in stock 1985-90 over 1984-85		
		Total	Employed	Unemployed	Total	Employed	Unemployed	Total	Employed	Unemployed	Total	Employed	Unemployed
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.	Engineering Degree	51188	49026	2162	77341	74075	3266	23748	22644	1104	51.1	51.1	51.1
2.	Engineering Diploma	51551	46740	4811	80349	72850	7499	23981	21293	2688	55.9	55.9	55.9
3.	Medical Graduates	16474	15515	959	19683	18537	1146	3209	3022	187	19.5	19.5	19.5
4.	Agricultural Graduates	4271	3807	464	4787	4267	520	516	460	56	12.1	12.1	12.1
5.	Agrl.Post Graduates	1254	1232	22	1608	1580	28	354	348	6	28.2	28.2	28.2
6.	Veterinary Graduates	1014	978	36	1428	1377	51	414	399	15	40.8	40.8	40.8
7.	Education Graduates	49625	44814	4811	63218	57089	6129	13593	12275	1318	27.4	27.4	27.4
8.	Arts Graduates	184768	160307	24461	207778	180271	27507	23010	19964	3046	12.5	12.5	12.5
9.	Arts Post Graduates	22105	19849	2256	32904	29546	2358	10799	9697	1102	48.9	48.9	48.9
10.	Science Graduates	110281	101307	8974	116763	107262	9501	6482	5955	527	5.9	5.9	5.9
11.	Science Post Graduates	15071	13713	1358	18067	16439	1628	2996	2726	270	19.9	19.9	19.9
12.	Commerce Graduates	72539	61509	11030	85679	72651	13028	13140	11142	1998	18.1	18.1	18.1
13.	Commerce Post Graduates	2965	2731	234	4276	3939	337	1311	1208	103	44.2	44.2	44.2

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29. The number unemployed duly corrected for those who are employed and seeking better jobs, and multiple registrations in the Live Register figures are also given in the above table. The highest percentage of increase in stock is expected to be among Engineering Diploma holders followed by Degree holders in Engineering. The percentage increase in stock among Science Graduates is expected to be the least.

30. Among unemployed, the highest number of unemployed will be among Arts Graduates followed by Engineering Diploma holders. Engineering Manpower groups accounts for 80% of the total employed among the Engineering, Medical and Agricultural Manpower. This position is not likely to change even at the end of the Plan period because in-take and out-turn pattern is assumed to be constant for those courses.

31. Having realised the need to have an effective co-ordination between Manpower Planning and Educational Planning, Manpower and Employment Division has been making periodical assessment of the Manpower requirements and the supply for various technical courses. In this process of constant review, sophistications in assessment of the Manpower requirements, specialitywise and the type of courses that are offered is made. However, for the 7th Five Year Plan as estimates of surpluses/deficits for teaching Manpower, Agriculture and allied manpower and Medical and Para Medical Manpower could not be finalised due to various factors as pointed out earlier. However, Manpower and Employment Division finalised a report on the assessment of demand and supply of Engineering personnel during the 7th Five Year Plan after collection of information on Manpower at disaggregative level. These estimates have revealed that there are huge surpluses in a number of areas. The estimates of surpluses or deficits after matching supply and demand for manpower have been made for Engineering Degree, in Civil, Mechanical and Electrical and many other branches, Engineering Diploma in Civil, Mechanical, Electrical and many other branches, trades of various types conducted by the Industrial Training Institutes of the department of employment and training. The phasing of surplus or deficit of Engineering Manpower during 1985-90 is given in table below:

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T A B L E - 12

Annual phasing of surplus or deficit of Engineering Manpower in Karnataka for 1985-90

Category	Surplus(+) Deficit(-)					
	1985-86	1986-87	1987-88	1988-89	1989-90	Total
I. Engineering Degree						
Civil	+1118	+1500	+1414	+1395	+1391	+6818
Mechanical	+1813	+1351	+1342	+1342	+1252	+7100
Electrical	+ 858	+ 799	+ 790	+ 785	+ 778	+4010
Architecture	+ 129	+ 122	+ 122	+ 122	+ 122	+ 617
Chemical	- 71	+ 184	+ 184	+ 184	+ 99	+ 580
Metallurgy	- 154	+ 16	+ 16	+ 16	+ 16	- 90
Mining	- 10	+ 16	+ 16	+ 16	+ 16	+ 54
Others	-2269	+ 659	- 630	+ 621	+ 613	+ 254
II. Diploma						
Civil	+1016	+ 770	+ 756	+ 753	+ 748	+4043
Mechanical	+2402	+ 795	+ 791	+ 791	+ 787	+5566
Electrical	+1436	+ 564	+ 545	+ 545	+ 545	+3635
Metallurgy	+ 78	+ 29	+ 29	+ 29	+ 29	+ 194
Mining	- 91	+ 24	+ 24	+ 24	+ 19	-
Others	+3961	+2393	+2388	+2388	+2388	+13512
III. I.T.I.						
Draughtsman Civil	- 416	+ 213	+ 205	+ 205	+ 205	+ 412
Draughtsman Mechanical	+1206	+1112	+1108	+1108	+1108	+5642
Electrician	+ 243	+ 558	+ 540	+ 537	+ 537	+2415
Welder	+1056	+ 529	+ 529	+ 529	+ 501	+3144
Others	-5574	+3700	+3430	+3415	+3403	+8374

32. The recommendations made mainly relate to take special steps to equip the laboratories, libraries and provide adequate teachers to Government run Polytechnics and Engineering Colleges so that the All India Council for Technical Education does not de-recognise some of these institutions. This, it was thought necessary particularly in the light of the powers conferred on the All India Council

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for Technical Education under the recently enacted All India Council for Technical Education Act. The employment situation for the Engineering Diploma holders and I.T.C.Certificate holders shows that unemployment is on the increase. This is mainly because of a mismatch between demand and supply of these categories. This calls for adjustments not only among the Educational Institutions by reduction of intake, closure of a few courses and organising re-orientation or conversion courses for those unemployed in emerging areas where manpower requirements have been identified. A suitable employment oriented manpower strategy have to be formulated. A huge surplus has emerged in the traditional courses in Civil, Mechanical and Electrical. This requires replacement by other courses where there is demand. The surpluses that have already emerged have to be utilised after suitable conversion and re-orientation courses to make them employable in various areas where shortages have been reported. As the number of technical institutions, Engineering Colleges, Polytechnics and Industrial Training Institutes are more than what is required and the out-turn is also more in traditional courses, it is necessary not to give permission to open new Engineering Colleges, and permit only courses in the emerging areas of new technology only, while denying permission to open new courses in the traditional areas. Similarly, permission should not be given to open new Industrial Training Institutes but to open new diversified courses. While doing so, the surpluses that emerge within the educational system has to be utilised after suitable conversion courses in other areas where courses have to be opened. These recommendations are under consideration of Government.

33. Manpower Planning has another role, that is promotional. The promotional aspect of manpower planning is one of identification of emerging areas of critical shortages in the economy in the foreseable future and provide for opening of new courses by utilising the financial resources released through the closure of a few courses which have outlived their utility and by finding additional resources (this should be the last resort) for opening up of new courses. In short, this means adjustments have to be made within the educational system by reducing the intake or by closing some courses and thereafter utilise the surpluses in shortage areas by suitable re-orientation or induction training.

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34. Realising the need to follow a proper manpower policy in Karnataka to avoid serious maladjustments between the output of educated manpower and the demand for it, Manpower and Employment Division of Planning Department, in consultation with the concerned departments has been making detailed exercises to identify the areas where courses can be diversified. These attempts have led to important policy decisions. An account of the new thrusts taken to identify the requirement of skills in emerging technologies during the 7th Five Year Plan in Karnataka is given in Annexure-III.

35. The limitations of the methods adopted for various estimates used in this profile has to be kept in mind while interpreting the results and arriving at conclusions. When the knowledge of the behaviour of different parameters available to us is in-complete and the state of art of estimation in Manpower Planning is imperfect, these limitations in methodology are bound to be there. But this does not detract the importance and the need to take remedical action on inferences or conclusions drawn in this paper. The details of the methodology adopted for estimating different parameters like unemployment, stock, labour force, supply and demand of different manpower categories are set out in Annexure-IV and V.

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ANNEXURE -- I

FUNCTIONS OF MANPOWER AND EMPLOYMENT DIVISION, PLANNING DEPARTMENT.

1. To associate with different departments in the formulation of development programmes to ensure that the Manpower requirements are properly spelt out.
2. To estimate the supply/demand of different educated and skilled categories of personnel and to integrate the estimates into a consistent frame for the economy as a whole.
3. To assist the Government in ensuring the supply of different categories of manpower by (a) influencing decisions regarding programmes of education and training and (b) suggesting advance action regarding recruitment.
4. To review periodically the progress of manpower plan with particular reference to shortages/surpluses.
5. To initiate/assist in conducting studies in the field of manpower jointly with (concerned) departments.
6. To assist in improvement of the data base relevant to manpower by preparing a fact book etc.,
7. To liase with different state departments which are concerned with the manpower studies and with the Directorate of Manpower, Institute of Applied Manpower Research, New Delhi.
8. Generally, to prepare profiles of different categories of manpower, particularly of technical categories.
9. To study the trends of unemployment in different sectors and regions.
10. To study the impact of plan programmes on employment.
11. To identify employment intensive sectors and suggest special programmes.

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ANNEXURE - II

NUMBER OF STUDIES COMPLETED AND NUMBER OF REPORTS ON WHICH FOLLOW UP ACTIONS WERE TAKEN BY MANPOWER & EMPLOYMENT DIVISION, 1985-90.

Studies completed:

1. Sample survey of some important small scale industries in Household and unorganised sector in Karnataka.
2. Characteristics of migrants into Karnataka, 1971.
3. Wastage and Stagnation in Agricultural Education in Karnataka.
4. A comparative analysis of utilisation of B.Tech.Degree holders in Agricultural Engineering.
5. A Report on Medical and Health Services in Karnataka.
6. Fact Book on Manpower.
7. Study on deficienties of training infrastructure in the State for training in Vocational Trade.
8. Study on Manpower requirements in Health and Family Welfare, Department.
9. Profile of Medical and Para Medical Manpower in Karnataka.
10. Profile on Engineering Manpower in Karnataka.
11. Study on Employment Generation in National Rural Employment Programme and Rural Employment Guarantee Schemes.
12. A study on Developing Investment Employment Ratios for Key Economic Indicators.
13. Employment Generation during 7th Five Year Plan.
14. Manpower Profile of Teaching Personnel in Karnataka.
15. Report on the Assessment of Demand and Supply of Engineering Personnel during 7th Five Year Plan.

Reports on Which follow up aections were taken:

1. Utilisation patten of reservation facility in B.Sc.(Agril)for farmer's children.
2. Wastage and Stagnation in Agricultural Education in Karnataka.
3. Wastage and Stagnation in B.Ed, and T.C.H courses in Karnataka.
4. Survey to findout Nurse-Patient ratio in Government Hospitals in Karnataka.
5. Study on deficiencies of training infrastructure in the State for training in Vocational Trades.
6. Study on Manpower requirements in Health and Family Welfare Department.
7. Study on Employment Generation in NREP and RLEGS.

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ANNEXURE - III

NEW THRUSTS TO IDENTIFY REQUIREMENT OF SKILLS IN EMERGING TECHNOLOGIES

1. On the positive side of identification of requirement of skills for different categoires of manpower as a result of emerging changes in technology in the 7th Five Year Plan, number of attempts were made to develop a futuristic policy of substitution of out moded courses with new courses and opening of new course wherever it is inevitable through mobilisation of additional resources. In a paper on investment in skill formation(prepared for the Economic and Planning Council - Karnataka), number of recommendations were made by the Manpower and Employment Division. These included constituion of a District Tripartite Committee at the local level with employers and I.T.Is. to evaluate the training given at Industrial Training Institutes, suggest changes in course content, impart training by exposing the I.T.I students to knowledge of day-today simple repairs of electrical home appliances, plumbing work, repair of common utility items like Sewing Machines, Bicycles, etc., as an extra curricular activity period every week, introduction of production oriented training scheme on a pilot basis at Industrial Training Institutes, formulation of a scheme to extend the community polytechnics, setting up of a maintenance cell for maintenance of machinery and equipment in Industrial Training Institutes and diversification of courses from the traditional courses like Civil, Mechanical and Electrical Engineering in Polytechnics.

2. However, the follow-up action taken on many of these measures leaves much to be desired. The extra curricular period for repairs of common utility items has been introduced. Although a Government Order No. dated was issued on having production oriented training programmes in a selected Industrial Training Institutes, the scheme has not been implemented. In the 7th Five Year Plan, a provision of Rs 5.00 lakhs was made to expand the Community Polytechnics as a State Scheme. But in practice the scheme was not implemented. The tripartite committee at the district level has been constituted. On the diversification of courses at various levels, particularly in the Diploma level, has not yeilded much results. The flying squad for maintenance of equipments in Industrial Training Institute has not been set up. The major emphasis of the recommendations on opening up of Community Polytechnics and introduction of production oriented training programmes have not been implemented.

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3. Based on an identification of critical shortages of newly emeging skills of manpower during the 7th Five Year Plan in March 1985 by the Manpower and Employment Division, a number of recommendations were made. These included introduction of courses in the area of Computer Programming, Environmental Engineering, Instrumentation servicing Centres, opening of T.V.Servicing and Electro Medical Equipment Courses in rural areas, opening of Crank Shaft Grinder Courses, formulation of a scheme with the help of commercial banks and district Industries Centres to train I.T.I. Certificate holders and apprentice trained to improve their skills, opening of a six months course in Jig Boring at I.T.I., Hosur Road, Bangalore, with the assistance of the teaching staff of the Polytechnics, starting of a short term - 6 months to one year course in traditional trades like Turner, Fitter, Welder, Moulder and Grinder and utilisation of Nittur Technical and Training Foundation Expertise to train the teachers in I.T.Is. These proposals were discussed in a number of meetings under the Chairmanship of the Chief Secretary and action to open some of these courses were to be taken. Excepting for opening of the environmental engineering and degree and diploma courses in a few places, the rest of the decisions taken in this meeting have not been implemented. Infact, in the case of the Crankshaft Grinder Course, a Government Order No.ED 128 TPE 86 dated 10th March 1987 was also issued but the course has not been opened. The opening of short term 6 months to one year courses in traditional trades like Turner,Fitter,Welder,Moulder and Grinder were not introduced on the plea that the employment opportunities for these trades were not these and a subsequent proposal by industries department to have rural industrial training institute. This only shows that despite decisions taken at high level to restructure the technical education system to make it responsive to chaning emerging technologies and consequent requirement of skills, the implementation is some what luke warm and tardy. On the opening of the Jig Boring Course, by utilising the facilities already available at the Industrial Training Institute,Hosur Road, Bangalore, through UNDP assistance, still the course has not commenced for want of approval from the appropriate authorities.

4. Government of India in the department of electronics, had formulated a special programme for electronics manpower development based on a detailed assessment of the Manpower requirements of the electronics industry as a whole. Government of Karnataka consistuted a study Group comprising of representatives of Director of Employment and Training, Director of Technical Education, Director of Karnataka

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Government Computer Centre, with KEONICS as the Nodal Agency. This working group made detailed estimates of the manpower requirements of electronics and computers in Karnataka. Based on these estimates and the deliberations of the Zonal Meeting in January 23,1987 held in Trivendrum by the Department of Electronics, there were a number of action points on which action was to be taken to promote development of electronics manpower within the State. One of them was opening of an orientation programme conversion course of six months to one year duration to help the degree holders and diploma holders in colleges. The syllabi had to be prepared in consultation with professors of the Universities and Industry. The course was to enable the use of the surplus electrical engineering degree holders in electronics industry. In the I.T.Is., electronics certificate courses should be opened. For servicing and repairs of electronics equipments, crash training programmes had to be organised in I.T.Is. The crash training programme for service technicians for repairs of electronic equipments is organised in I.T.I for women, Gulbarga, I.T.I for women,Belgaum, in addition to I.T.I for Hosur Road,Bangalore. Admissions are also made to the certificate holders of Electrical Trade. But this programme has not been extended to the women's polytechnic at Bangalore, as was decided in the Zonal council meeting. The conversion or reorientation course for electrical engineering has not been started. The programme to train people in short term courses for Secretarial Practice like Word Processer has not been formulated and implemented. The Diploma Course in Computer Applications has not been started. Based on the guidelines circulated by the Ministry of Electronics for funding of laboratories and polytechnics, assistance has been obtained for eleven polytechnics. An advisory committee has been constituted to review the progress of the crash scheme to train service technicians and to give guidance to the trainees for self-employment. The Karnataka State Electronics Development Corporation had proposed setting up of a centre for Human Resources Development in Electronics at Bangalore. This also has not been operationalised. Even here, the achievements are not commensurate with the efforts put in.

5. As part of the efforts at diversification of courses in Polytechnic level, the State Government had constituted a committee in June 1981 comprising Secretary to Government, Education and Youth Services Department, as Chairman, Danish expert who is working in Government Tool Room and Training Centre, two representatives from Industries and Director of Technical Education as Member-Secretary for examining the

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possibilities of starting more diversified courses, rationalising and upgraling of existing courses in polytechnics. The Committee in its report of 14th May 1982 inter-alia recommended the following:

> To make an exhaustive list of emerging technologies based on the detailed survey of the needs of the industries and also to identify some more specific courses to meet the requirments of the industries from time to time. This report of the committee was accepted by the Government on 20th August 1982. In the meeting held on 20th March 1985 to consider identification of critical shortages of newly emerging skills of manpower in the 7th Five Year Plan, the conduct of the survey was entrusted to Manpower and Employment Division of the Planning Department. This survey was to take note of the needs of industries and the identification of courses to meet their requirements from time to time.

6. As the survey had to be repeated at some regular intervals and rapid changes are taking place in technology, the volume of work involved is considerable and cannot be handled by any single agency, a committee consisting of Secretary, Education Department, Joint Secretary of the Karnataka State Council for Science and Technology, Director of Technical Education, Secretary of the Institution of Engineers, Commissioner, Planning Department, or his nominee, Director of Government Tool Room and Training Centre, Dr.L.S.Chandrakanth, Former Education Advisor(Technical), Government of India, Dr.Chowdaiah, Professor of Mechanical Engineering, University Engineering College, and Professor B.R.Narayana Iyengar, was constituted in Government Order No.PD 149 PMM 85 dated 8th July 1985. The periodicity with which the survey should be repeated was to be decided by this committee. The work of conducting the survey was to be entrusted to Karnataka State Council for Science and Technology as a research project. The preparation of the project, design, time, profile and cost of the project, etc., was to be taken up by the Karnataka State Council for Science and Technology. There was only one meeting of this committee on 11th March 1986. After this, the committee has not met nor the survey has been completed.

7. From this account, it is very clear that all efforts put in to redirect the manpower development programme on positive lines has only met with very low or partial success. It is necessary that these efforts

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are further intensified and the courses so identified by these efforts are introduced by suitable re-adjustments in the technical education system. For this, the educational system has to be more responsive to suggestions for opening of new courses by weedingout some of the out moded courses. The Manpower thus rendered surplus in the Technical Education system should be redeployed after suitable training in new areas, where there is need for manpower to impart training.

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ANNEXURE - IV

METHODOLOGY ADOPTED FOR ESTIMATING OVERALL POSITION OF EDUCATED UNEMPLOYED

Unemployed for 1984-85 is estimated by applying correction factor to the Live Register data as at 31st March 1985. The correction factors are:

1. 58% for Engineering Degree holders
2. 48% for Engineering Diploma holders
3. 51.5% for Medical graduates
4. 54.9% for Agricultural graduates
5. 79.5% for Arts graduates
6. 72.1% for Science graduates
7. 73.0% for Commerce graduates
8. 50.1% for Arts & Commerce Post graduates and
9. 56.8% for Science Post graduates
10. 79.5% for Education degree holders.

2. For Arts, Science and Commerce and Engineering personnel the correction factors used are based on the status studies of Registrants in Employment Exchanges conducted by Manpower & Employment Division, in 1977. In case of other categories the results of DGET survey on Activity status of the candidates Registered in Live Registers of Employment Exchanges 1975.

3. As no separate percentage of actually unemployed among registrants is available for veterinary graduates the percentage applied to Agriculture graduates category has been utilised.

4. The unemployed figures for 1990 have been forecast by assuming that the ratio of unemployed to total stock x in 1985 would hold for 1990.

5. The unemployment figures given in the Proforma III in Annexure-VI cannot be compared with the figures given in the Text since the methodology adopted is different.

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ANNEXURE - V

METHODOLOGY ADOPTED FOR ESTIMATION OF STOCK, LABOUR FORCE, UNEMPLOYED, SUPPLY AND DEMAND OF DIFFERENT MANPOWER CATEGORIES.

Proforma-II

Total estimated intake for 1980-85 has been arrived at by adding the actual intake(admissions) during 1980 to 1985 whefer data are available. In other cases the intake level of 1984-85 is kept constant. Intake during 1985-90 is estimated by assuming the intake level for the latest year on which information is available as constant. Similarly, the outturn during 1980-85 and 1985-90 have been arrived.

Proforma-III

2. The procedures detailed in Methodology Note supplied by the Planning Commission through the D.O.letter No.LEM42/1/85-MP dated 14th May 1985, have been followed broadly to estimate the stock, Labour force, Employed and Unemployed, Availability and Requirements of different manpower categories & veterinary.

3. In the D.O.Letter No.DHTP 14(29)-81/89 dated 1-6-1989 Sri.Indradev Scientist Incharge ofDivision for Scientific and Technical Personnel has written that there was large non-response in the DHTP, 1981 survey. After considerable deliberation the CSIR have bome to the conclusion that DHTP Survey data are not suitable for calculating the stock of S & T Personnel. However, he suggested to make use of the data published in Census of India 1981 Part-IV'A': Social and Cultural Tables which contain the number of persons according to the level of education. But this data is incomplete in rural segment. It does not give the break up of graduate and above category speciality wise. A Proforma seeking this information was designed and sent to Registerar General of Census with a request to furnish the same. The Registerar General in his letter No.DO No.10-1/88-DD dated 6th Septmber 1988 has stated that this information is not available. Infact such detailed coding was not under taken in the Census. Inview of this they pleaded their inability to supply the required data.

4. Therefore, for the Manpower categories of Engineering Degree & Diploma, Agricultural graduates & Post graduates and Veterinary graduates & Post graduates the stock is built up by utilising the DHTP 1971 survey results as the Base Line Stock. Adjustments of the stock at the beginning are made by making suitable allowances for attrition due to death, retirement & resignation, on the basis of the Report on the study on stock and attrition of High level Manpower

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in the State Sector brought out by the M&E Division, Planning Department. Stock at the end of the year is estimated by adding fresh institutional outturn during the year. The institutional outturn for the year 1985-86 is estimated by applying the pass out ratio to the intake of 1985-86 which is estimated on the data on intake outturn of the past five to six years. This is kept constant till 1989-90.

5. Stock of the remaining categories viz., Medical Teaching and General graduates & Post graduates is xxxx updated by assuming the base line stock earlier built up for the Sixth Five Year Plan by Manpower & Employment Division of Planning Department.

6. In the case of ITI certificate holders taking the 1981 census ITI certificate holders population as the base, the stock is estimated. This does not include the base line figure for rural areas since the census data suffers from the defect already mentioned in para for want of a substitute source of information on rural ITI certificate holders the urban figures have been used. To this extent the stock of ITI certificate holders are in-complete.

7. The Labour Force Stock of each manpower category is estimated by applying state specific labour force participation rate to the estimate of stock of manpower of the concerned category. The following Labour Force Participation Rates for different categories of the 38th Round of NSS are used.

Agriculture	76.98
Engineering	90.80
Medicine	88.42
Others	77.73

8. In order to estimate the unemployed in each manpower category, the unemployment rates of 38th round for each category is applied to the Labour force stock estimated. The unemployment rates are ;

Agriculture	Nil
Engineering	3.27
Medicine	3.57
Others	11.54

9. The difference between labour force stock and unemployed stock gives the estimate of employed stock in that category.

10. Net supply during 1985-90 is estimated as the total institutional outturn by applying the pass out ratios to the intake of 1985-86 which is estimated on the basis of data on intake and outturn of the Past five to six years.

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11. Direct Enquiry Method was adopted for working out the demand of Engineering Personnel from State Government Departments and State Government undertakings. Shortage as at the beginning of the Plan, Replacements worked out by applying correction factor to the employed stock at the beginning of the Plan, and manpower for new programmes together formed the requirement of State Government and state undertakings. The ratios of employment between State Government (including state Govt. undertakings) and the Central Government, Central undertakings, and the local bodies have been considered as given in the Reports of Occupational pattern issued by the DGET for the year 1982 to work out the ratios. These ratios were applied to the Demand of State Govt. and State undertakings to arrive at the demand of Central Government and local bodies. The total demand of State Government, State Government, Local Bodies. The total demand of State Government, State Government undertakings, Central Government, Central Government undertakings, and the local bodies together formed the total demand of Public Sector.

12. The requirement of Private Sector is worked out by applying the ratio between Public and Private Sector as given in the report on occupational pattern in Public Sector for 1982 and the report on occupational pattern in Private Sector for the year 1978. The requirement of Public and Private Sector together formed the total requirement of that category.

13. So far as Electronics Degree and Diploma courses are concerned although separate estimates of additional demand and additional supply were worked out, the demand that was reported was partial and supply that was available was full. In the state government and state undertakings the demand for these two categories was only from the Karnataka Electronics Development Corporation. For the Degree holders the demand was only 41 and for the Diploma holders the demand was 162. Since the Central Government, Central Government undertakings and Private Sector demand was not reported, these estimates were considered as not dependable and hence they have not been presented.

General Information on population of the State

1. Population

Census	Total Population	Rural		Urban		Rural	Urban	Male	Female	Decennial Growth rate	Literacy Rate Male	Female	Total
		Male	Female	Male	Female								
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1971	29299014	11249209	10927712	3722691	3399402	22176921	7122093	14971900	14327114		41.62	20.97	31.52
1981	37135714	13352400	13053708	5570227	5159379	26406108	10729606	18922627	18213087	26.75	48.81	27.71	38.46

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2. Population according to Education Level

Census	Illiterate	Primary	Middle	Certificate holders	Matriculate/ Higher Secondary	Diploma holders	Graduates & above @	Total literates (Col.3 to Col.8)
1	2	3	4	5	6	7	8	9
1971								
Male)				Not available				
Female)								
Total	20063887	4296283	1778683	-	1243088	45221	15810	7379065
1981								
Male	9686350	2895219	1817843	2022	1244140	104472	398572	6462268
Female	13166644	1656685	1055793	533	558109	26518	113018	3410656
Total	22852994	4551904	2873636	2555	1802249	130990	511590	9872924

@ Engineering & Technology	Medicine	Agriculture	Veterinary	Teaching	Others	
Male	32740	12904	2546	659	16826	101766	
Female	831	3089	56	26	10215	11606	
Total	33571	15993	2602	685	27041	113372	(Others include Nursing, Science, & Commerce)

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3. Workers by Activity:

Proforma - I Contd.

Census	Cultivators	Agriculture Labourers	Live Stock Forestry Fishing etc.	Mining & Quarrying	Manufacturing Processing services & Repair		Construc-tion	Trade and Commerce	Transport Storage & Communi-cation	Other Servi-ces	Total Workers (Col.2 to Col.11
					House hold indu-stry	Other than House hold Industry					
1	2	3	4	5	6	7	8	9	10	11	12
1971	4072079	2717537	419020	51888	438555	599909	182162	598582	272920	824862	10179114
1981('000s)	5222	3655	523	71	560	1065	245	871	337	1101	13650

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4. N.S.S. Usual (Principal) Status Labour Force participation rates: a) General Labour Force:

N.S.S.Round	Age Group	Labour force participation rates								
		Rural Male	Rural Female	Urban Male	Urban Female	Rural	Urban	Male	Female	All
1	2	3	4	5	6	7	8	9	10	11
27th Round	5-14									
	15-29	92.07	67.23	69.20	22.96	79.77	47.29	N.A.	N.A.	N.A.
	30-44	99.39	77.90	96.35	34.18	88.98	65.86	N.A.	N.A.	N.A.
	45-59	96.14	65.09	93.36	29.78	80.57	65.43	N.A.	N.A.	N.A.
	60+	56.57	21.77	42.53	12.69	44.15	24.98	N.A.	N.A.	N.A.
	all ages	67.05	49.75	58.14	19.32	58.64	39.30	N.A.	N.A.	N.A.
32nd Round	5-14	22.14	17.37	92.23	6.22	19.81	7.81	19.14	14.91	17.09
	15-29	90.39	59.52	73.50	32.08	75.43	53.56	85.69	51.96	69.37
	30-44	98.89	68.86	98.47	37.28	83.90	69.68	98.78	61.57	80.47
	45-59	95.83	58.11	91.78	30.79	78.42	62.00	94.88	51.20	74.44
	60+	58.51	23.29	46.45	13.54	40.49	29.25	55.92	21.13	38.03
	all ages	67.78	44.49	59.30	24.05	56.42	42.39	65.67	39.53	52.97

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Proforma - I Contd.

1	2	3	4	5	6	7	8	9	10	11
38th Round	5-9	4.24	3.37	0.98	0.73	3.79	0.88	NA.	NA.	NA.
	10-14	35.75	27.81	12.75	9.37	31.82	11.12	15.60	11.84	13.72
	15-29	89.31	48.94	75.00	25.24	69.02	50.39	84.49	41.14	62.82
	30-44	98.13	55.91	98.71	32.51	77.88	69.78	98.32	48.93	75.30
	45-59	92.94	42.82	89.04	27.67	67.57	59.30	91.82	38.74	65.26
	60 +	54.84	16.09	44.52	14.85	35.72	28.51	52.09	15.73	33.75
	All Ages	67.43	36.18	60.23	20.09	51.86	40.84	65.17	31.34	48.47

b) Specific Manpower Categories:

NSS Rounds	Labour Force participation rates			
	Graduates and above in Agriculture	Graduates and above in Engineering & Technology	Graduates and above in Medicine	Graduates and above in other subjects
1	2	3	4	5
27th Round		Not available		
32nd Round	72.56	79.49	90.32	83.05
38th Round	76.98	90.80	87.37	77.71

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Proforma-II

Manpower data including training facilities for various educational categories in the State

Categories	Educational/ Training Institution		Total Estimated intake during		Total Estimated Out-turn during		Live Register figures of unemployment as on 31st December					
	Number*	Intake	1980-85	1985-90	1980-85	1985-90	1979	1980	1981	1982	1983	1984
1	2	3	4	5	6	7	8	9	10	11	12	13
I. Engineering Personnel:												
(i) Engineering(Degree)	44	12274	50860	61370	25238	43080	2331	2319	2377	2815	2704	3273
(ii)Engineering(Diploma)	97	12499	34368	62495	17167	32495	5751	6489	6296	7640	8782	9526
(ii)Engineering(Crafts-men Total)	204	13148	44848	50000	22424	25000	11586	10684	10777	11919	13491	15146
II. Medical Personnel:												
(i) Doctor(Allopathic)	16	2900	14500	17000	4682	4700	1321	1346	753	1131	1194	1394
(ii)Doctor(Ayurvedic)	1	200	1000	1000	400	450	-	-	211	278	295	311
(iii)Dentist(BDS)	4	215	1075	1100	330	350	-	-	42	51	46	54
(iv)Pharmatists(B.Pham.)	13	600	3000	3000	1800	1800	-	-	-	-	-	-
(v) Nurses(BSc.)	1	65	325	750	230	530	-	-	-	-	-	-
(vi)General Nurses	8	310	1550	4000	1986	2000	-	-	-	-	-	-
(vii) A.N.M.S.	19	950	4750	4750	4750	4750	-	-	-	-	-	-
(viii)Lady Health Visiters	4	200	1000	1000	1000	1000	-	-	-	-	-	-
(ix) Sanitory Inspectors)												
(x) Dental Technicians)			Not available									

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1	2	3	4	5	6	7	8	9	10	11	12	13
III. Teaching personnel:												
(i) Basic Training Certificate(Primary Level Teachers) (ii) Middle level Teachers)	92	6100	32152	30500	19729	19215	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
(iii)B.Ed.(Education Graduate)	49	4870	24371	24350	17892	18995	3426	3451	3886	4387	5032	5803
IV. Agricultural Personnel:												
(i) Graduate in Agriculture	1	326	1750	1800	1266	1300	516	510	586	754	692	778
(ii)Post Graduate in Agriculture	1	260	1346	1350	726	750	12	12	28	30	36	40
(iii)Forest Personnel												
(a) Graduates/Post Graduates	1	-	-	150	-	100	-	-	-	-	-	-
(b) Others	-	-	-	-	-	-	-	-	-	-	-	-
(iv) Fishery Personnel												
(a) Graduate/Post Graduate	1	50	275	275	222	230	-	-	-	-	20	20
(b) Others	-	-	-	-	-	-	-	-	-	-	-	-
(v) Dairy Personnel												
(a) Graduates/Post Graduate	1	40	160	160	60	150	-	-	-	-	-	-
(b) Others	-	-	-	-	-	-	-	-	-	-	-	-
(vi) Other Agriculture Workers	5	750	750	750	750	750	-	-	-	-	-	-

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1	2	3	4	5	6	7	8	9	10	11	12	13
(vii) Horticulture Graduates/PG	1	60	300	300	190	200	-	-	-	-	-	-
(b) Others	-	-	-	-	-	-	-	-	-	-	-	-
V. Veterinary Personnel												
(i) Graduates	1	150	635	650	415	450	9	11	72	70	60	65
(ii)Post Graduate	1	20	110	110	110	110	-	-	-	-	-3	3
(iii)Live Stock Inspectors	12	60	600	600	600	600	-	-	-	-	-	-
VI. General Graduates and Post Graduates:												
(i) Arts Graduates	339	45321	221635	226605	106939	86223	31079	30597	32394	31785	31920	30147
(ii)Science Graduates		23716	115970	118580	51645	59586	16238	16333	15092	16644	12273	11937
(iii)Commerce Graduates		22838	106265	114190	42798	33572	12830	12828	14686	14929	14459	14167
(iv)Arts Post Graduates	5	5032	24640	25160	11889	9575	3709	3788	3524	3688	3821	4365
(v) Science Post Graduates		1358	6615	6790	2946	3400	1902	1902	1453	1686	1785	2274
(vi)Commerce Post Graduates		525	2580	2625	967	775	330	326	286	323	351	434

*At the end of Sixth Plan.

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Manpower Data for various Educational Categories in the State with Reference to Seventh Five Year Plan (1985-90)

Categories	Labour Force						Supply during 7th Plan			Gross Additional requirement during 1985-90 Plan	Surpluses/ Shortages at the end of Seventh Plan(Col. 10-Col.11)
	At the beginning of Seventh Plan			At the end of Seventh Plan			Backlog* of unemployed at the beginning of 1985	Net supply during 1985-90 Plan	Not availability Col.8+ Col.9)		
	Total	Employed	Unemployed	Total	Employed	Unemployed					
1	2	3	4	5	6	7	8	9	10	11	12
I. Engineering Personnel											
(i) Engineering(Degree)	46478	44958	1520	70226	67930	2296	1520	30133	31653	10790	+ 20863
(ii) Engineering(Diploma)	42926	40153	2773	66907	62585	4322	2773	30839	33612	33889	+ 29723
(iii) Craftsman Total:	61029	47877	13152	77425	60740	16685	13152	43418	56570	23431	+ 33139
II. Medical Personnel:											
(i) Doctors(Allopathic)	14566	14046	520	17404	16783	621	520	4640	5160	NA	NA
(ii)Doctors(Ayurvedic)	)										
(iii)Dentists(B.D.S)	)										
(iv)Pharmacists	)										
(v)Nurses(B.Sc)	)										
(vi) General Nurses	)										
(vii)A.N.Ms.	)										
(viii)Lady Health Visitors	)										
(ix) Sanitary Inspectors	)										
(x) Dental Technician	)										

Not Available

1	2	3	4	5	6	7	8	9	10	11	12
III. Teaching Personnel:											
(i) Primary(Trained)) (ii) Middle(Trained))	82094	72243	9851	85000	74800	10200	9851	17225	27076	NA	NA
(iii)Secondary/Higher Secondary(Trained)	38574	34123	4451	49139	43468	5671	4451	19000	23451	NA	NA
IV. Agricultural Personnel:											
(i) Graduate in Agrl.	3288	3288	-	3685	3685	-	-	1200	1200	NA	NA
(ii) Post Graduate in Agrl.	965	965	-	1238	1238	-	-	625	625	NA	NA
(iii)Forest Personnel											
(a) Graduates/Post Graduates) (b) Others)											
(iv) Fishery Personnel)											
(a) Graduates/Post Graduates) (b) Others)				Not Available							
(v) Dairy Personnel)											
(a) Gfaduates/Post Graduates) (b) Others)											
(vi) Other Agricultural workers)											
V. Veterinary Personnel:											
(i) Graduates	781	781	-	1099	1099	-	-	650	650	NA	NA
(ii) Post Graduates	192	192	-	248	248	-	-	120	120	NA	NA
(iii)Live Stock Inspectors	-	-	-	Not Available		-	-	-	-	-	-

1	2	3	4	5	6	7	8	9	10	11	12
VI. General Graduates & Post Graduates:											
(i) Arts Graduates	143620	127046	16574	161505	142868	18638	16574	42425	58999	NA	NA
(ii) Science Graduates	85721	75829	9892	90760	80286	10474	9892	17775	27667	NA	NA
(iii) Commerce Graduates	56384	49877	6507	56598	50913	7685	6507	20930	27437	NA	NA
(iv) Arts Post Graduates	17182	15199	1983	25576	22625	2951	1983	13450	15433	NA	NA
(v) Science Post Graduates	11715	10363	1352	14043	12422	1621	1352	4625	5977	NA	NA
(vi) Commerce Post Graduates	2305	2039	266	3324	2940	384	266	1660	1926	NA	NA

*Same as in Col.4 in this proforma.

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