STATUS OF TECHNICAL EDUCATION IN THE STATE OF RAJASTHAN

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1. INTRODUCTION :

In the year 1986, National Planning on Education (NPE) |1| decided to introduce the concept of universalization of elementary education and total literacy programme in our country. Large funds were, therefore, addressed to elementary education. This resulted in scarcity of funds for higher education. As a consequence of this, higher education needed external support.

Since focus of the Govt. was on elementary and upto higher secondary education, it generated huge students population from secondary and higher secondary schools who needed good centers for tertiary education. This compelled the Govt. to allow entry of private managements who were willing to lend support to the tertiary education in different fields of education. Private participation at all levels (primary, secondary and tertiary) was existing in British India as well. But it appeared in a big–way in free India during early 80s.There was a National policy shift during the eighties towards permitting involvement of private and voluntary organizations in setting up of technical and management institutions on self financing basis, |2| As a consequence of this, Professional education in the field of Engineering, Medical and Management has attracted the attention of private managements and these private managements have established many self financed professional institutes. Thus, the growth of professional institutes has been contributing substantially to the generation of human resource needed. In this paper, we shall confine our attention to the growth of Engineering Education particularly in the state of Rajasthan. (Salient features of the State of Rajasthan are presented in Table 1.)

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Salient features of the State of Rajasthan

Area	:	3,42,239 Sq. Km.	Areawise 1st in the country
Population	:	5,64,73,122 (2001 Census)	Rank eigth among the state and union territories in the country.
Literacy	:	61.03% (M:76.46, F:44.34)	Less than national average which is 65.38%
No. of Universities	:	13	

S. No.	Name of the Course	No. of the Institutes	Sanctioned intake
1.	Degree in Engineering	42	12937
2.	Diploma in Engineering	19	2100
3.	Degree in Medical Sceince(M.B.B.S.)	08	800
4.	Degree in Dental Science (B.D.S.)	08	700
5.	Degree in Pharmacy (B.Pharma)	20	1140
6.	Diploma in Pharmacy (D.Pharma)	16	990
7.	Master of Computer Application (M.C.A)	24	1380
8.	Master of Business Admin. (M.B.A.)	22	901

Table No. - 1

2. EDUCATION SCENARIO IN THE STATE:

At the time of independence, average literacy in the state was quite insignificant. The first census of India of 1951 indicates only 8.9% literacy in the state of Rajasthan.The average literacy gradually improved up to 38.6% in 1991 and it shows a quantum jump during the decade 1991 to 2001. The average literacy rate as per the census of 2001 is 61.03%. Active participation of various educational institutes, constant efforts of Govt. and some of the NGOs for the promotion of education are influencing factors responsible for improvement of literacy in the state. Information showing the growth of population and the growth of literacy in the state of Rajasthan is presented in Table No.2

*Literacy rate of Rajasthan as compared to National level.

Sources:

(i) Census of India

(ii) Economy of Rajasthan (Book)- Laxmi Narayan Nathuramka

National Figures:					Figures for Rajasthan:			
Year	Population in Crores	Literacy % Avg.	Male	Female	Population in Crores	Literacy % in Avg.	Male	Female
1951	36.1	18.33	27.16	8.86	1.59	8.9	14.4	3.0
1961	43.92	28.31	40.40	15.34	2.01	15.2	23.7	5.8
1971	54.81	34.45	45.95	21.97	2.58	19.1	28.7	8.5
1981	68.33	43.57	53.45	28.46	3.43	30.1	44.8	14.0
1991	84.63	52.21	64.13	39.29	4.40	38.6	55.0	20.4
2001	102.27	65.38	75.85	54.16	5.65	61.03	76.46	44.34

Table No. - 2

Literacy rate of Rajasthan as compared to National level.

Increase in percentage literacy to as high as 61% has naturally made the people ambitious who would like to participate in emerging areas of Education. Education in Engineering is one such field, which is dynamic in nature and growing fast.

In the state of Rajasthan, there were limited Engineering Colleges up to 1997. To be exact, there were only five government colleges with an intake of around 1400. For a state with more than 5 Crore population, the facilities for Engineering Education were meagre. By 1997, more than 600 Private Engineering colleges were established all over the country. But the state of Rajasthan was an exception. The first two private self financed Engineering Colleges in the state were established in the year 1998.

(one at Sikar and the other at Alwar).|3|

Subsequently, other private managements came forward and added more Engineering Colleges.

Number of Engineering Colleges and their sanctioned and actual intake.

Year	No.of Colleges	Sanctioned Intake	Actual seats filled it
1997-98	6	1507	1507
1998-99	8	1987	1987
1999-2000	11	2707	2706
2000-01	22	4962	4691
2001-02	25	6314	6218
2002-03	31	7874	6693
2003-04	39	10565	7536
2004-05	42*	12937	9500

* Includes 6 Govt. Colleges

Table No.3

Table no.3 indicates the growth of Engineering Colleges with sanctioned intake. |4|,|5| The quantitative growth of Engineering Colleges in the state has given rise to another problem. There is no sufficient number of takers in the state. As a result of this, lot of seats remain vacant in many self-financed colleges. Every private management does its best to attract more students for admission to first year. Some of the private institutes have started lowering of fees to attract more students. This in turn has introduced inter-institute competition to lower the fees. In fact, there is a price –war on the downward side in the state of Rajasthan. Indirectly, it has produced one good result. The question of paying any donation to get a seat for an eligible candidate for any course in the Management Quota in the state of Rajasthan does not arise. Thus it is a state, which is fool-proof against donations so far as Engineering Education is concerned.

3. PROBLEMS ASSOCIATED WITH GROWTH OF ENGINEERING COLLEGES

Growth of Engineering Institutes all over the country is phenomenal. At the time of independence we had only 44 Engineering Colleges with an annual intake of 3200, |6|. At present we have got about 1300 Engineering Colleges with an annual intake of more than 4 lac students, |7|. Population wise, we have grown three fold (from 34 Crores to 102 Crores) but in terms of admissions of Engineering, we have grown 125 fold. (From 3200 to 4 lacs). Proliferation of Engineering Colleges in the country far in excess of what the Indian Economy can bear has resulted in the degradation of Engineering education. The state of Rajasthan is no exception.

Engineering education in the state of Rajasthan is also gradually and steadily growing since 1997.

Some of the problems associated with engineering education in the state are presented below:

(i) Inadequate number of students available as input:

The data collected for XII science (Maths) students who have passed from the Board of Secondary Education,Ajmer during the last four years is given in table no 4.

Students appeared in Science (Mathematics) in Board of Secondary Education,Ajmer

Year	Appeared	Pass	%
2000-2001	19499	14593	74.83%
2001-2002	21011	11731	55.83%
2002-2003	25628	15833	61.78%
2003-2004	22384	13147	58.73%

Table No.-4

In addition to the students qualifying from Ajmer Board, there may be around 4000 students of Rajasthan who annually pass XII Science (Maths) from C.B.S.E. Board. About 40% of the total students do not meet eligibility criteria of admission to Engineering Colleges. Finally, we are left with hardly 10,000 students as against the intake capacity of 12917 in Rajasthan.

Thus, there is net deficiency of about 3000 students. Migration of students from one state to the other for Engineering education is self-compensating phenomena. Hence, it does not improve the number at input stage. The net result is insufficient number of students at the input stage. This causes inadequate number of admissions in many self-financed colleges who get affected badly finance wise.

Possible Reasons for Poor Admissions:

(i) Enrolment in XII Standard science stream is the controlling and effective parameter to meet the intake capacity of

professional colleges. This itself is very weak in the state.

(ii) Most of the parents in Rajasthan consider that the fee per year of Engineering courses which is Rs. 41,000/- per annum is beyond their paying capacity.

(iii) Loan facility of education is not a certainty to all. Normally, banks finance education loans only to well-to-do families and not to the people with uncertain income.

(iv) People do not have confidence about getting job after completion of U.G. Degree courses. Rising unemployment rate of Engineering graduates is bound to scare a common-man.

(v) Some people prefer to delay in admitting their wards. Their thinking is that if the vacancies exist on a large scale, Managements of the Pvt. College will be bound to reduce the fees to fill up the vacancies.

(vi) In general, there is apathy towards engineering education in the state of Rajasthan.

(ii) Admission of undeserving students :

Since the vacancies are more than the takers, lot of undeserving students get admission in self financed Engineering Colleges. On one side we talk of excellence and on the other side we have got poor quality students to be transformed in to excellent graduates. It is really a tough task. Somebody has rightly said, it is impossible to produce 22-carat wedding ring out of 9 carat gold. Similar is the situation with the self-finance Engineering Colleges. They are required to accomplish an unachievable task of transforming average students into excellent Engineering graduates. Increased mobility and free market environment have contributed to the enhancement of competition for positions in Government, MNCs, PSUs and International Organizations. Students getting degrees from many self-financed colleges cannot cope up with this competition in job market. The blame finally goes to the private self-financed colleges and their credibility remains at stake.

(III) NON-AVAILABILITY OF SENIOR FACULTY

Our students should be endowed with purpose and vision and have proper technical skills and knowledge. Moreover, they should be persons with character coupled with dedication, devotion and determination so that they can cooperate, persevere and become trustworthy members of the society. This can not be done without availability of brilliant faculty, whom they can epitomize. There is tremendous quantitative growth of engineering education. With the sanctioned intake of 4 lac students for a four-year degree course, the students population all over the country is around 16 lac. If we assume the ratio of one teacher for every 15 students (1 : 10 Ideal) the total teachers required will be 1066666. As per the norms of AICTE one unit consists of 1 P + 2 AP + 4 L.

Thus the sub-division of staff in the three categories will be 15238 Professors, 30476 Asst. Professors and 60952 Lecturers.

As per the norms, the qualifications for the post of Professor and Asst. Professor are Doctoral Degree in appropriate branch, We do not have adequate number of Ph. D's available. And all those who may be Ph.D. need not pursue teaching profession. This has resulted in vacant positions at senior level in most of the institutes. In the absence of senior faculty, most of the self-financed Engineering Colleges are compelled to manage the show with graduates and some Post-graduates.

Engineering colleges cannot merely be graduate producing units. They ought to be places of learning, research and development. Therefore urgent and serious attention must be paid to the quality improvement program on a large scale so that reasonable number of

Professors and Asstt. Professors with proper qualification will become available.

(IV) INDUSTRY-INSTITUTE INTERACTION

Human resource requirement of industries in the context of technical manpower is met by the pass out of various Engineering College. Thus, the industries are biggest beneficiaries of technical educations. We, therefore, feel that the industries should participate in technical manpower generation process.

At present, there has been glaring absence of Industries in the educational process of Engineering College. Gifted are those institutes, which have close liaison with some of the industries.

Industry-Institute collaboration would help us in redirecting the tremendous energy of youths in a productive way. The training imparted to students jointly by the institutes and industries would help our students in learning real life situations, current practices of industries and latest technologies. Our students will be introduced to the concepts of production analysis, decision making and management capabilities.

In the state of Rajasthan there are limited industries, which regularly absorb Engineering Graduates. The net effect is that it is very difficult to find slots of 6 to 8 weeks for industrial training to Engineering students, which is mandatory part of Degree curriculum. This situation needs to be improved upon for meaningful technical education in the state.

RECOMMENDATIONS

i) Literacy in the state should be increased. Greater emphasis should be given on girls' education and female literacy. It has been observed that female literacy and girls' education play dominant role in improvement of human culture and are considered to be conducive to achieving economic growth.

ii) Educational standard needs to be improved so that the state remains competitive in the emerging knowledge based economy.

iii) At present, most of the management are managing the show by recruiting fresh engineering graduates as Lecturers. Non-availability of properly qualified senior faculty has become the most deterrent factor in the development of competitive Engineering Institute. Development of proper infrastructure and recruitment and retention of capable faculties are the key areas where financial inputs cannot be compromised. All private managements may take a serious note of this.

iv) Lack of academic leadership on account of absence of qualified Principal is a dominant factor in the poor growth of Engineering College. Every Institute should therefore have a Principal who is experienced and qualified person and has a vision to develop an Engineering college.

v) The Govt. of Rajasthan must pay adequate attention to the growth of Education in Science up to XII standard, because the pas outs of XII std. become the input to professional colleges.

vi) Education in emerging areas such as Communication Engg., Information Technology, Bio-technology and Electronics suffers due to shortage of teachers, inadequate infrastructure, no revision of curriculum for years together and improper way of examination and evaluation system. Serious attention needs to be paid to improve upon this situation.

vii) Admission procedure for Engineering Education in the state of Rajasthan has become a serious joke. Centralised admission committee declares the criteria

for admissions. RPET and AIEEE qualified students are considered eligible for admission. This is fine as per the norms of AICTE. Unfortunately, even 50% seats are not covered by RPET & AIEEE students. There are vacant seats all over. Then suddenly, it announces the eligibility of XII Science pass (Maths) students having minimum 45% marks in P.C.M. (Physics, Chemistry, Mathematics). Fresh applications are invited and lot of time is wasted in finalizing their admissions. The result of this is that those who join late, suffer academically. Moreover, those who had earlier taken admission in science courses and now shift to engineering suffer economically. Even after doing all this, the extent of admissions on average is 75% only.

viii) The number of Engineering Colleges should be reduced and if this is not possible then the increase in intake, which is annually permitted by AICTE, should be totally discouraged.

ix) There are 13 universities in the state but there is no technical university to monitor and supervise technical education. We are of the opinion that there should be separate technical university in the state, which will pay undivided attention to the growth of technical education, will conduct the examinations timely and would announce the results quickly.

While concluding we want to say that the state of Rajasthan has an enviable history of producing eminent industrialists. The great industrialist like Mr. G. D. Birla, Steel King Mr. L.N. Mittal, Mr. Singhania, Mr. Bangur, Mr. Goyanka, Mr. Dalmia, Mr. Modi, Mr. Poddar, Mr. Kamal Morarka and many others are contributing a lot in the National Reconstruction Programme. On this background, it is difficult to digest an apathy of people of Rajasthan towards Engineering Education. In fact, Engineering education does help in entrepreneurship development. Sooner or later, we feel, Engineering education in the state will assume greater role and would help the nation in alleviation of poverty and attaining economic growth.

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