ON RESOURCE GENERATION IN ENGINEERING INSTITUTIONS WITH SPECIAL REFERENCE TO SFEIs.

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1.0 INTRODUCTION

Technical education is perhaps one of the most crucial inputs for economic and social development with enormous potential for improving the quality of life of people. New technologies of enormous potential transforming products, processes markets and economies keep emerging at unprecedented rate and scale. As such planning for technical education should be based on a vision of future to create self sustaining growth and to provide basic material requisites for well being of people.

In recognition of this importance, there has been a phenomenal expansion of technical education facilities during the past four decades in the country with about 190 recognised technical institutions at the first degree level and more than 475 recognised polytechnics at diploma level with an annual admission capacity of 37000 and 75000 respectively. We have today one of the largest system of technical education in the world. About 140 institutions offer facilities for post graduate studies and reseach in engineering, technology and management with an annual intake capacity of 9400 students.

However, in spite of such a large network of technical institutions it has been given comparatively a lower priority in the matter of sectoral allocation of resources. For seventh five year plan, total central and state plan expenditure on education was only 3.55 % of total plan expendature. The reason being that education is treated as a social service and often gets for itself only the residual resources after allocation to the so called productive sectors. India ranks 115 in the world in terms of investment in education as percentage of GNP. In addition to this, on account of increasing resources crunch, share of education in plan allocation has been declining over the years and have come to be sub-optimal. Moreover, the flow of funds from Govt. is not timely, regular and reasonably adequate. Even getting these inadequate funds is herculean task because of procedural delays and financial difficulties, with the result, that the institutions end up with a negative balance every year, forcing the institutions to divert developmental funds to meet the inevitable recurring expenses.

Faced with this economic crises on one hand and to meet the global competition for creativity, innovation, quality control , efficiency and cost effectiveness on the other hand, technical institutions have to look for generating alternative internal resources. In this paper efforts will be made to critically review the various marketing services which a technical institution can offer and based on these avenues to suggest some resource-generating measures to meet the increased demand and achieve self reliant growth.

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2.0 TECHNICAL INSTITUTIONS AS A SERVICE INDUSTRY :

Services provided by technical institutions are diverse, time variant and intangible in contrast to the product business where product is fairly standardised. However, these services should be of acceptable level of quality, at an affordable prices and according to scheduled or promised times. The various areas in which technical institution can offer their services can be enumerated as below :

(i) Retraining and continuing education of work force to adopt new technologies of modern design, production and management techniques using CAD/CAM, Robots, Computers etc.

(ii) Industry specific training programmes both of short and long duration. For example short term courses on computerization as needed by banking industry, short or long duration courses on ceramics, medical, electronics, nuclear waste disposal etc.

(iii) Unconventional programmes like ergonomics design, aesthetics, packaging, user friendliness, modular design etc. Easy repairability, reusability and recycling capability are other services offered in terms of sponsored research.

(iV) Disseminatin of state of art technology to innovate and update technology of the industry in the area of advances in products, processes, plants and machinery and latest softwares.

(V) Utilising R&D activities as commercial prducts to have a close interaction with user industry which had been low so far because of (a) absence of need felt by industry for R&D input (b) Lack of faith in abilities of technical institutions to deliver R&D solution in time and (c) A general lethargy on the part of technical institution in taking up application oriented and time bound research work. For this purpose, technical institution should establish their credebility and competence.

(Vi) Providing consultancy service in the areas of design, development and testing to the industries in the region. However it is to be canvassed intially until name and fame are established.

(Vii) Assisting industries to test industrial products as per the BIS to maintain quality and issue the necessary certificate using existing equipments.

(Viii) Providing facility to the consumer for extensive and scientific testing of consumer products like electric bells, electric iron, pump sets, tiles etc. with regard to their quality, reliability, durabilty, operating costs and to give a consumer rating of the products.

(iX) To provide industry with technology and forecasting and assessment of man power needs by collecting technical literature from R & D laboratories world over, interacting with some major industries and R & D laboratories in India and getting access to informations and publishing perodicals, news letters outlaying the latest trends to help the industry to stay in free-front.

(X) Offering entrepreneurship development programmes especially for S&T personnels, Entrepreneurship awareness camps, preparation of opportunity profiles and establishing of science and technology entrepreneur parks. For this purpose, National service and Technology entrepreneurship development Board (NSTEBD) Industrial Development Bank of India, Dept. of Industrial development, Small Scale Industries Services Institute (SISI) and CSIR laboratories can be collaborated.

However, to achieve this the institute should make their presence as a service industry capable of providing competent technical experts on which industry can bank upon to overcome

their technical problems. All the activities undertaken by the institution should be maintained on commercial principles and procedural time delay should be minimized.

3.0 STRATEGIES FOR RAISING FINANCIAL RESOURCES :

Subsidisation of education in general and higher and technical education in particular, on one hand and higher priorty for primary and secondary education through national education scheme and consequently lesser subsidies to higher and technical education on the other hand has created twin problems of increasing demand and falling resources from Govt. agencies. To provide access, equity and quality in technical institutions, it becomes imperative to reduce unit cost on one hand and generate internal resources on the other hand. Following are some measures suggested to make the management of services more meaningful and productive :

(A) Improving cost effectiveness :

(i) By pooling, sharing, optimizing and networking of Journals, computer softwares, advanced computing facilities, costly and specialized equipments and even highly specialised expertise through the use of modern networking with satellite communication facilities, faculty exchange programme, institute industry interaction, compatible computer facilities etc. efficiency in effective education can be improved.

(ii) By exercising economy in administration which can be made by

(a) Giving certain services like security, cleaning, gardening and transport facilities on contract.

(b) Replacing the LTC facilities by lump-sum payment.

(c) Creating medical insurance instead of medical reimbursement.

(d) Adopting better planning, advanced technology and practices and modern management as non-monetary inputs for administrative efficiency.

(e) Minimising, if not eliminating, certain posts such as of peons, bearers, attendents etc.

(iii) By converting PG scholarship into teaching / research assistantship granted to the institutions, a significant amount of teaching load (laboratry work, tutorial work, assignment corrections and even some lecture work) can be entrusted to PG students.

(B) Generating Resources Through Funds :

(i) Restructuring of tuition fee : Though a sensitive matter, it can be taken up as a policy decision so that fee structure may be revised, based on actual costs accompanied by having a provision for assistantship to the needy in the form of scholarship and bank loans. As such fee structure in all technical institution should be revised from time to time to generate about 15 % to 25 % of annual recurring expenses. A task force committes headed by Prof. C. S. Jha already recommended to Govt. of India to charge a tution fee of Rs. 3000/- per year and $3000/- per year from all foreign students in the first and subsequent years for B.Tech. / B.E. courses. The recent Supreme Court Judgement has favoured cost based education as a principle and accordingly State Govts. have been asked to work out fee structure for the so called " free " and "payment" seats. But these are, particularly for payment seats, very high and beyond the reach of even middle class and even higher middle class; which means this is beyond the reach of 95 % of the population. As such, every institution will have to reduce the fees of payment seats and to bring it within the reach of at least the middle class society; and for this, resource

generation potential will have to be exploited to the maximum.

(ii) Self financing programmes : All retraining and continuing education programmes like short term programmes, workshops, summer and winter schools and other specialized programmes should be on self financing basis. The programmes may be cosponsored / sponsored by institutes, Universities, Industries and R & D establishment.

(iii) Testing and consultancy services : Without a corresponding reduction in Govt. funding, more aggressive selling of these services can substantially enhance the revenue of institution from 10 % to 50 % of their annual recurring expenses. Faculty may be encouraged to undertake testing and consultancy services. Norms of remunaration for these work be suitably revised.

(iv) Self financing foreign student training programme (both UG and PG) : Foreign students admitted to technical institutions apart from those coming under technical exchange programme may be charged fee at international rates. Separate self financing programme can be run for groups of foreign students, catering to their special needs taking into account their basic educational backgrounds.

(v) R & D activities : Aggressive persuations by technical institutions to commercialize R & D activities is the principal means of obtaining sponsored projects. Greater emphasis on the applied R & D activities can evoke support from industry and generate financial resources.

(vi) Sponsoring of students by industry : A certain percent of the intake at the PG.level may be reserved for emplyed candidates sponsored by the industry on the condition that the industry would meet the full training costs at commercial rates. The institute should be able to design and offer courses as per needs of industries.

Multiple use of infrastructural facilities : Multiple usage of infrastructural activities can generate additional funds. Additional possible avenues may be generated by offering part time (evening)courses and use of spare capacity of equipments available for productive purposes; Letting out on rent their facilities like conference rooms, auditoriums etc. be encouraged to generate additional resources.

(viii) Creation of corpus funds : The corpus funds may be created and amounts collected as revenue from grants, donations, endowments etc. from individuals institutions, contribution to R &D fund by industries and Government can be pooled as a corpus fund for the development and operation of technical institution.

(ix) Establishment of chairs after the name of great personalities : Industries, Govt., financial organisation and individuals can be requested to establish chair after the names of great scientists, industrialists, social reformers, great politicians etc. All financial requirements be raised from sponsoring sources.

(x) Extension lectures be organised for working personnel in institution to establish effective linkages and to generate income for the institutions.

4.0 CONCLUSION

With the increasing demands and hard resource constraints, resources for technical education can never be adequate. Hence higher budgetary allocation should be complemented by other measures as suggested above which when implemented would provide marketing orientation to interaction activities and result in reliance, faith and confidence of industries in technical institutions. This will also help in revamping of technical education through

technical upgradation, technological guidance and improved information. However, due to various risks of conflict of interest, commercial projects should be limited to the extent that such engagement is synergistic with institution's primary mission in education and basic research.

For SFEI's, it is quection of survival; The fees must be brought down or they should close down. Hence, resource generation must be on top priority for them. It is hoped that this paper will be of immense help to them for generating their resources.

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