Chapter 1
Introduction

1.1 Higher Education and Higher Technical Education

Higher education plays a significant role in the development of a country by contributing both to the development of its human capital and its economic development. The World Bank study (World Bank, 1995) in 192 countries showed that physical capital, and natural resources only accounted for 16-20% of wealth of a country while human capital was responsible for 64% of the wealth and higher education played a significant role in development of the human capital. Borahan and Ziarati (2002) reported that there was a strong correlation between a country’s competitiveness and the quality of higher education provided within that country.

Rani (2004) argues that higher education also plays a significant role in setting standards for primary and secondary education. It not only provides qualified teachers but also human capital for handling training needs and setting up policy for primary education. In the current globalized era no country can grow without appropriate development of higher education (Rani, 2003). It is also true that “Higher education is no longer a luxury; it is essential to national, social and economic development” (World Bank, 2000a).

With the realization that education was the key to development and socio economic upliftment of people, India’s first Prime Minister, Jawaharlal Nehru, and his government laid a great emphasis on higher education (World Bank, 2000b; Gosai, 2005). The Punnayya Committee (UGC, 1993) which examined funding of higher education noted
that growth and development of higher education sector had been viewed by Indian policy makers and planners from the very early times as not merely an effort to establish India’s cultural identity on the international scene but also as means to enhance the quality and productive capacity of India’s manpower. It was also perceived as a crucial input in India’s efforts to achieve self reliance and autonomy in various strategic functional areas. This concern of Government of India to propel growth of the country through higher education can also be inferred from the growth of institutions of higher learning after independence. Before independence, India had only eight universities but by 2002 it had 273 universities including 162 traditional universities, 40 in agriculture (including forestry, dairy, fisheries and veterinary science), 8 in medicine, 33 in engineering and technology, 3 in information technology (IT), 1 in journalism, 6 in law, and 10 open universities (AIU, 2002).

Higher education encompasses various streams like humanities, liberal arts, law and technical education. Technical education includes engineering, technology, management, architecture, and pharmacy (www.aicte.ernet.in). Engineering and technology education in India is imparted at 3 levels (Palit, 1998):

- Industrial Training Institutes (ITI) which conduct trade courses for skilled workers
- Polytechnic Institutes which conduct diplomas to produce middle level technicians
- Technical institutions which conduct undergraduate and postgraduate degree courses in engineering and technology.
Among these three types of institutions, technical institutions have received the maximum attention of policy makers and private entrepreneurs (Reddy, 2002; Shivaram, 2001). They cater to career aspirations of large student population of the country through better opportunities for jobs and upward mobility in the society. The advent of information technology and its success in India has further enhanced the demand for technical education. Growth of engineering colleges in the country from mere 222 in 1985 to more than 1200 by 1992 is a testimony to this demand (Agarwal, 2003).

1.2 Recent Developments

1.2.1 Declining Government Support

Despite the advantages, the governments all over the world including India are reducing their contributions to and involvement in higher education. Rani (2004) reported that the share of higher education as percentage of GDP (Gross Domestic Products) had decreased from 0.42 in 1985-86 to 0.38 in 1990-91. One of the major reasons for decreased public spending in higher education is lower social return in comparison to that of primary education.

It is being increasingly argued that social returns on investments from higher education are smaller than those from of primary education and do not justify the expenses. Ahmad and Siddique (2003) estimated that the social return on higher education was 1% as compared to 25% in the case of primary education. Research also shows that by and large beneficiaries of higher education are students belonging to higher socio economic sections of the society (World Bank, 1995). Tilak (1997a) accepts that public subsidization of higher education is often regressive as the benefits of subsidies go
to the better endowed sections of the society. In addition, cost per student in technical education is far more than that of primary education (Atchoarena & Caillods, 1999).

With a large population of the country still having no access to education and money spent on higher education increasingly perceived as less effective, the Government of India (1997) classified higher education as non-merit good and argued that the subsidy in higher education must be cut from existing 90% to 20%. Another report ("A Policy Framework", 2000) strengthened and expanded on this thinking. Verma and Bishoi (2001) argue that privatization should be encouraged since self-financing of higher education deters non serious candidates from joining tertiary education. Supreme Court has observed that right to higher education is not a fundamental right (Vakil, 1995). This means there is no constitutional obligation on part of the government to support higher education.

### 1.2.2 Demand for Autonomy

Autonomy is an important issue linked with effective running of an institute (UNESCO, 1996). Farrant (1996) argues that any strategic planning assumes that there is a considerable amount of autonomy to manage one’s own affairs. In case of top level government conceived and supported institutions in India like Indian Institutes of Management (IIMs), the government is ready to enhance its contributions, but the recipient institutions have been reluctant to accept the offer. One of the reasons for refusing the grant is that heavy subsidy may bring in more governmental control on institutions. If institutions need to develop at a world class level they should be autonomous and self dependent. This argument was made by IIMs in their tussle with Ministry of Human Resource Development, Government of India in 2003.
1.2.3 Increasing Demand

The demand for higher education is on the increase while government’s own resource base is shrinking in comparison to the growth of population and demand for resources (Rani, 2003; World Bank, 1995). There is a widening gap between the growth of student enrollment and number of higher institutions in India (Rani, 2003). While the enrolment has doubled in case of post-graduate and research programs, the growth in number of institutions for post-graduate and research programs has been at slower rate in 1990s as compared to 1980s. Growth in number of institutions has not kept pace with the demand for them. The demand for higher education can be derived from the fact that in India only 6.7% of the people eligible for higher education are having access to it, while access to higher education is at 100% and 80% in case of Canada and USA respectively (Ahmad and Siddiqui, 2003). Tilak (1995b) puts forward a minimum level of 20% enrolment ratio as the threshold level for a developing country like India. Globalization has also enhanced demand for technical education. Number of engineers and scientists in India were 134 per million in 1992 in comparison to 5183 in Japan and 3874 in USA. Increased demand for higher education has necessitated the need of larger resources from governments who are already operating with limited budgets and finding it difficult to meet the existing requirements.

1.2.4 Context of Liberalization

Economic liberalization of 90s in India hastened the process of governmental withdrawal from higher education and increased privatization (www.ficci-sedf.org, 2003). It did so by creating larger demand for higher education through globalization and
forcing the government to manage its fiscal deficit by reducing its contribution to higher education.

India liberalized its economy in 1991 when the Government of India went almost bankrupt with precariously small foreign currency reserve to support a few days of import (Aghion, Burgess, Redding & Ziliboti, 2003). The government took several hard decisions and one of them was reducing subsidy in several areas. One of the major areas which was seriously affected by government’s reduction of its contribution was higher education (Rani, 2003). Mishra (2003) reports that with structural adjustment regime in 1990s, the share of higher education in total allocation of resources in education budget of central and state governments dropped from 18 percent in 1991 to 16.7 percent in 1995-96. The ratio of public expenditure on education to GDP (gross domestic product) came down from 4.34 percent in 1991 to 3.8 percent in 1996-97. Government of India decided to divert its resources to primary education and directed the existing public institutions of higher learning to seek resources from private sources. In 1993, Government of India [MHRD] reduced its grants by 25 percent to UGC (University Grants Commission) which is the funding agency of higher education in India. Higher education was also removed from the list of merit goods. Approach paper to Tenth Five-Year plan iterated that since resources are limited, and the available resources need to be allocated to expanding primary education, it was required that universities make greater efforts to supplement resources received from the government (Planning Commission, 2001, 2002-2007). UGC decreed all universities and government run colleges to raise 10% of their budgetary requirement from private sources from the fiscal year 2003-04 (“Generate 10 percent,” 2003). The concept paper of MHRD (1998) suggested
institutions of higher education to raise resources through higher tuition fee, private donations, consultancy and other activities.

The liberalization of 90s also paved the way for integration of Indian economy with the world economy. Efficiency and competitiveness both at the domestic and global front became an imperative in the wake of integration. In the restricted economy earlier, competition was practically absent and quality of the workforce was not a concern. Industries just had to produce and transact in a seller’s market. The need for well trained personnel in the industry was limited. But globalization urged institutions of higher education to produce quality workforce to run industries and make them competitive (George, 2000). For quality education, institutions had to invest in better infrastructure, attract good faculty and set up better administrative processes. Thus larger resource base in terms of infrastructure, faculty, and information became a priority.

The globalization also indirectly increased the demand for higher education as more companies set up their offices and factories in India and there was an IT boom which required a large number of trained personnel. According to NASSCOM (National Association for Software and Services Companies), Indian IT service companies require 10 lakhs of trained IT personnel by 2010 while the country is producing only a fraction of it every year (www.nasscom.org). Globalization has also created a larger aspiration among people encouraging them to move and work in multinational companies operating in other countries.

Another major policy decision of government has been privatization of higher education. Enhancing access to higher education, providing world class quality education and inflow of private funds were some of the major considerations for promoting
privatization (www.ficci-sedf.org, 2003). IFC (2001) argues that “private investment can reduce the financial burden on governments by expanding the capacity of the sector as a whole”. Private education also helps the underprivileged by attracting fee paying population to private institutions and creating vacancies for them in the less expensive public institutions.

1.2.5 Responses

One of the responses towards government withdrawing its support and directing institutions to be self reliant has been cost recovery in the form of tuition fee (Tilak, 1997b). From almost paying no fee, students were asked to pay a substantial fee to cover major part of the recurring expenses of the institutes. As an illustration, Tilak (2004) sites that, in case of Indian Institute of Technology (IIT), Delhi, the fee was increased by 2-3 times between 1993-94 and 1998-99. Besides that, some additional fees for service provided were introduced and as a result the total fee income of the institution increased by more than 50 times during that period. Fee enhancement strategy has been also championed by World Bank (IFC, 2001).

Increased privatization of higher education especially in the area of technical education has been another major response. Though private institutions like Manipal Institute of Technology and Birla Institute of Technology & Science, Pilani (BITS) were established in 1940s and 1960s respectively, the pace of privatization of higher education in India picked up only in the mid 80s (Palit, 1998). In Tamilnadu which accounts for largest number of unaided institutions of higher learning in the country, there was a 150 percent increase in number of self-financing engineering colleges (from 76 to 207) between 1998 and 2002 (Raman, Koppikar & Anand, 2005).
Apart from entry of private institutions, semi privatization of government institutions also started in the form of self financing courses (Rani, 2003). Public institutions also started looking at private sources as evidenced from the efforts of different Indian Institutes of Technology (IITs) to generate resources from alumni and other sources (Murthy, 2001).

1.3 Imperative for Resource Mobilization

Excellence in higher education, strengthening of management system, bridging the existing gap between higher studies to the market needs, making higher education system financially sustainable, and upgradation of quality standards are some of the issues that higher education today needs to address (Goenka, 2000). According to George (2000), several issues and problems faced by our institutions of higher learning whether private or public are shortage of competent and motivated faculty, paucity of funds even to satisfactorily maintain the old and obsolete equipments and infrastructure, outdated teaching-learning processes, rigid curriculum, lack of freedom and motivation for innovation and experimentation, an ineffective examination system and indifferent and inefficient management structure. Indiresan (1995) lists decreasing academic standards, shortage of funds, poor human resource policies and diminishing social relevance as some of the major problems of higher education.

World Bank report (2002b) identified the following problems for science and technical education in India:

- *Over centralization and lack of autonomy and accountability.* There are many statutory bodies (UGC, AICTE, MCI, State Governments, and DTE) and Government departments exerting controls on institutions sparing hardly any
autonomy for them. A private technical institution has to report to at least DTE, state government, and AICTE.

- **Resource constraints and wastage.** Existing institutions are facing shortage of resources like building, equipments, and labs and because of myriad controls they are not even able to make the best use of the existing resources through sharing and utilization.

- **Poor quality and relevance.** Except for a few top institutions like IITs and NITs (National Institute of Technology), courses offered are outdated and have no relevance with the existing market demand.

- **Difficulties in retention of faculty members:** It is difficult to retain good faculty members owing to poor salary structure and other benefits in comparison to salaries and perks in industry.

- **Poor technology and infrastructure support.** Physical facilities are outdated and most institutions have bare minimum facilities in labs and libraries.

- **Limited access and regional disparity.** Only 2% of the population has access to science and technical education and that is also mostly available to well-to-do section of the society. Majority percentage of private technical institutions is located in southern and western part of the country.

But in the changed context, among all the problems mentioned above, resource mobilization appears to be a key challenge. Mathai (1974) asserted that self generation of funds is an important criterion for organizational continuity and success. In the context of organizational growth and development resource mobilization surfaces as a major challenge (Murthy, 2001). Natarajan (2002a) suggests that two key indicators for
institutional quality are mobilization of resources for development and diversity of 
external support. Resources are required to handle updating teaching-learning processes, 
streamlining examination system and making curriculum market oriented. In the ranking 
of institutions, some of the important indicators are faculty resources, per student 
spending and alumni giving rate (Graham & Morse, 1999).

Resource mobilization is more critical for technical institutions not because of 
their prominence but for their actual requirements. For many engineering programs like 
civil engineering, mechanical engineering or biotechnology there is a requirement of 
laboratories with sophisticated equipments (Singh, 2003). Some of these equipments are 
expensive (for example a UTM (Universal Testing Machine) may cost between rupees 2 
to 10 lakhs and a CNC (Computerized Numerically Controlled) machine may cost 
anywhere between rupees 5 to 10 lakhs). Setting up labs as required in the engineering 
programs is very expensive. In contrast, running a management school may require few 
good classrooms and faculty. Even industry people can be recruited as part time faculty 
and the program can be run. But, technical institutions face problems in finding visiting 
faculty other than in courses like IT and computer science. For other programs, except for 
cities like Pune and Chennai, there may not be many engineering industries around and 
the people working there may not be available or inclined to teach in engineering 
colleges.

A technical institution also needs to have a large number of programs in order to 
be self sufficient. This is because of the fees that students pay for undergraduate and post 
graduate programs are low in comparison to the overall cost incurred. Most engineering 
colleges charge about Rs.40,000/- per year while it is more than rupees 1 lakh per year
for MBA programs. More programs mean more students and requirement of larger infrastructure.

Earlier, there was a demand and supply gap as far as technical education was concerned. Demand exceeded supply. Thus, all new institutions were able to attract sufficient number of students. But over the last few years a large number of seats have remained vacant in many new institutions. In 2004, 5252 out of 14330 seats were vacant alone in Punjab (“Punjab College..”, 2005). Students select institutions based on their reputation for quality education and good placements. Thus institutions need to be competitive and strive for having good faculty and quality teaching-learning processes. Institutions, which are unable to provide adequate infrastructure and human resources, may not provide quality education and this may lead to fewer students joining them.

1.4 Resources Needed in Institutions

Inter-University Research Program in Institution Building (1964) identified five variables as important in institution building and resources are one of them (other four are leadership, doctrine, program, and internal structure). Resources are means for an organization to achieve its goals and objectives. Resource crunch in terms of money may lead to poor and irregular wages, poor working conditions for staff, poor infrastructure and less equipments and books for students (Kurup, 1998). In the context of resources for institutions, most of the researchers refer to financial resources. But, Malik (2002) gives a different view of resources and argues that actual resources for an institution are human resources, physical facilities and experiences. Weghodekar and Tekawade (2000) suggest that resources for an academic institution can be divided into three categories: 1)
humanware, 2) software and 3) hardware. This categorization has been elaborated in the following section –

Humanware: Humanware refers to human resources of an institution. Human resource determines the performance quality of an organization. No organization can do better than the human resource it has (Drucker, 1993). According to Thakar (1972), three major areas to focus in higher education are - 1) curriculum 2) teaching i.e. teacher and what he/she does for students and 3) the system of evaluation. Among these three areas, teacher and his/her part are considered the most important one.

Software: Software includes entities such as knowledge, information, intellectual capability and innovative ideas (Weghodekar & Tekawade, 2000). “Information is the life blood of higher education. It is a resource and needs managing as such; this puts it on a par with finance and human resources (Joint Information Systems Committee (JISC), 1995, preface)”. JISC also emphasizes the need for an information strategy as it believes that information is going to play a crucial role in teaching and research in future.

Hardware: All physical facilities including building, computers and labs form the hardware or physical resource of an institution. AICTE (Anon, 1995) specifies minimum quantum of physical resources in terms of classrooms, library and computers for a technical institution to get its approval. Murthy (2001) argues that infrastructure and facilities such as quality audio-visual systems, computers, campus wide network, and latest lab equipments considerably enhances quality of education in an institution. Cunningham (1999) stresses that institutions need to build appropriate infrastructure as research shows that learning environment can have positive or negative effect on learner motivation.
All the resources discussed are interlinked in the sense that finance is a means to acquire other primary resources. It is required to establish infrastructure, pay for human resources and even to procure certain information in the form of databases. But, having sufficient finance alone does not guarantee good infrastructure, better human resources and even required information. Besides having money, institutions have to make specific efforts to mobilize primary resources like good infrastructure, faculty and support staff and knowledge base. Existing intellectual capital of an institution helps to attract better faculty resources. Good faculty resources can develop better information resources.

Resources need to be generated, bought, maintained and saved. Physical infrastructure most often needs to be bought and maintained. Information can be bought and generated while human resources need to be attracted, nurtured and retained. Doing all of the above may be termed as resource mobilization and its management.

1.5 Resource Mobilization Strategy

The word “strategy” is borrowed from military and business campaigns. Essentially it means that an organization needs to create an advantageous position for itself and maintain it. Strategies encompass determination of basic long term goals and objectives of an enterprise, and adoption of courses of actions and allocation of resources necessary for carrying out those goals (Drucker, 1993; Chandler, 1962). Drucker (1993) and Chandler (1962) assert that resource mobilization is one of the major components of an institutional strategy.

Resource mobilization strategy entails plans, actions and allocation of resources that are necessary to mobilize required resources for organization to accomplish their larger goals. While resource mobilization may not be the primary objective of an organization,
it is important considering the relevance of resources in pursuing larger goals. In fact, choices involving major organizational resources are at the crux of decisions made by leaders at the top within organizations (Doran & Gunn, 2002). Tilak (1995a) asserts that resource mobilization strategy is important as institutions can’t survive just with tuition fees alone; rather sole dependence on fees for running technical institutions would be detrimental for students and the society at large.

Resource mobilization has to be planned and executed well. First, an institute must recognize the need for both the type and quantum of resources and then design and implement a strategy to mobilize those resources. A proper resource mobilization strategy will include the following essential steps (Avasthi, 1996; Duke, 2002; Manzo, 1996; Elwood & Leyden, 2000).

- **Look at possibilities of RM efforts.** Institutions must be cognizant of various ways that resources can be mobilized (Avasthi, 1996). This will reduce over dependence on any particular method and even if in a given context few efforts don’t work others will work and meet the requirements.

- **Plan ahead for implementation issues:** Any new effort will face its own share of challenges (Mok, 2000; Duke, 2002; Weiler, 2000). It makes sense to examine challenges that similar efforts have faced elsewhere and then design own effort to counteract those challenges as effectively as possible. For example, if an institute intends to raise resources through some business pursuits, it must look into what kind of road blocks it may face with respect to government regulations and how it should address those challenges.
• **Be aware of consequences:** There will be both positive and negative and intended and/or unintended consequences of the RM efforts made (Manzo, 1996; Altbach, 2005; Bok, 2003; Levine, 1992). The strategy should cognize those consequences and see how those negative consequences can be minimized by taking appropriate actions. For example, high stress on sponsored projects and consultancy may leave little time for faculty members for their primary task of teaching and as a result the teaching-learning process may suffer. This may affect the ability of the institute to attract good students. Thus, an institute may put a bar on the quantum of time a faculty may spend on research and consultancy. Alternatively, an institute may hire one set of faculty especially for research and consultancy and another set of faculty exclusively for teaching. Advance thinking, planning, strategizing about various efforts could help to reduce unintended consequences.

• **Making the required change in structure, processes and culture.** To be able to successfully mobilize resources it may be required to make significant changes in structure, process, and culture of an institution (Elwood & Leyden, 2000; Eckel, Hill, Green & Mallon, 1999). For example, autonomy needs to be given to the head of an institution so that s/he not only can formulate the RM strategy but also engage required resources for its successful implementation. The institution may require setting up a separate cell to interface with alumni or industry. Thus a strategy should be able to identify required changes in institutional processes and take necessary steps.

According to Ping (1981) unlike business, institutions have hardly linked their resource decisions to institutional goals and performance. A well formulated resource
mobilization strategy would help in achieving balance in getting possible resources from all fronts to achieve the twin goals of quality education at affordable prices.

1.6 Looking Ahead

With identifying RM strategy as a possible area of study it was necessary to examine the literature focusing on resource mobilization in higher education for better understanding of RM strategy. Variety of RM efforts being practiced, nature of attendant changes required for implementation, impact and consequences of such RM efforts were searched for. The next chapter depicts this review of literature for understanding the entire gamut of resource mobilization in institutions of higher education.
To survey the literature on the subject of resource mobilization in higher education both printed and electronic sources were explored. Papers and articles relevant to higher education, technical education and resource mobilization were referred. EBSCO Host research database and Google Scholar search engine was used extensively to locate relevant papers. For India related information, The Indian Journal for Technical Education, University News, newspapers, and magazines like Economic and Political Weekly were also scrutinized. Besides these, websites of World Bank, UNESCO, IFC, NIPEA (National Institute of Planning and Educational Administration), Indian Society for Technical Education (ISTE) and EDCIL (Educational Consultants of India Ltd.) were also explored for relevant articles and information.

The papers, chapters and articles found can be grouped into four main categories: efforts by institutions to enhance the supply of resources, efforts to reduce demand for resources, changes that are required to facilitate RM efforts and consequences that RM efforts may bring in. All these categories are reported separately in this chapter.

Most of the literature refers to universities as the context while discussing about higher education. With technical education considered as a part of higher education it is assumed that in general what is true for higher education would also be true for technical education or any other branch of higher education.
2.1 Efforts to Increase Supply of Resources

Most of the efforts reported in the literature cover how to raise more financial resources. A large part of the financial resources are spent in setting up required infrastructure and paying for human resources. While, financial resources can take care of physical facilities, for human and information resources specific efforts need to be put up by institutions. This section covers what institutions have been doing to raise financial, human and informational resources.

2.1.1 Financial Resources

In case of financial resources tuition fees, corporate support, research and consultancy, business pursuits and financial investment form bulk of the efforts to mobilize resources.

_Enlarged Resources through Tuition Fees:_ Institutions of higher learning all over the world have accepted that tuition fee is a major means for resource generation (Tilak, 1997a). Colleges must prefer cost recovery through tuition fees and other means like facilities rental, ancillary activities such as canteen and residences as it can also enhance their market orientation and reduce dependence on government (Norton, 2000). Tuition fees change the behavior of both students and institutions (Weiler, 2000). Institutions become more responsive towards the needs of fee-paying students while students and their families pay attention to the education that cost them.

The total tuition fee collection can be increased either by raising the fee, increasing the enrollment by having more students in the existing programs or by floating new programs, attracting nontraditional students, and/or enhancing the market scope.
**Increased tuition fees:** According to Katz (1999) increasing tuition fee has been a standard measure adopted by many institutions to mitigate resource constraints. Several committees set up by Government of India to look into resource mobilization for higher education recommended increasing student tuition fees (AICTE, 1994; UGC, 1993). A study of 40 universities by Tilak and Rani (2002) showed that most of the universities have initiated modest increase in various fees such as tuition fees, examination fees, admission fees, registration fees, entrance examination, and charges for hostel and other services. Handa (1972) and Jimenez (1986) argue that as price elasticity of demand for education is estimated to be less than one, cost recovery in the form of fee will not hamper enrollment, rather it will help to generate substantial resources. Charging higher price for education indirectly also creates pressure for delivering quality. This may lead to enhanced organizational efficiency (Anubhai, 1995).

One of the strategies that institutions can adopt to raise their fees is offering specialized courses or opting for niche marketing. Brueder (1996) suggests that colleges have to operate more like business and they can’t be all things to all people. This implies that colleges have to build a niche and divert resources to those niche areas to build competitive advantage. This means colleges may have to take the hard decision of eliminating some programs which have poor financial returns. Keller (1983) also supports the same idea. He argues that an institute runs several programs at the same time and not all of them can be in demand at the same level. In order to maximize return from the limited resources, an institute may use the BCG (Boston Consulting Group) matrix to evaluate courses and programs, the way a business evaluates its various services or products, and then strengthen “star” courses and programs while milking the “cash cows”
course and programs. Chabotar and Honan (1990) support the idea of niche marketing by suggesting that institutes should opt for “boutique” model of courses against the earlier practice of “supermarket” model of courses. They should offer few high demand programs than several low demand programs.

**Higher fees for foreign students:** In recent times internationalization of education has become an important facet of institutional strategy. Universities in Canada and Australia are not only able to enhance enrolment, they are also able to generate additional financial resources by admitting more foreign students and charging higher fees from them. United States of America (USA) earns about $11 billion from approximately 0.5 million foreign students studying in its colleges and universities. The export of education makes it the nation’s fifth largest service export (Altbach, 2003b). International education is also one of Australia’s major revenue earners contributing about $2.6 billion and is more profitable than its beef or wool industry (Stevenson-Perks & Nuna, 2002). In India, institutions of higher educations are allowed to charge higher fees from non-resident Indians (Tilak, 1999). IITs charge $3000 as tuition fees from foreign students which is comparably higher than what they charge from Indian students (Malik, 2002). Some universities in Punjab are mobilizing more than 20% of their total earnings through fees from NRI students (Raikhy, 2002).

**Differential fees:** In Singapore differential fees are charged for different courses (Bray, 1998). Instead of treating all undergraduate programs as one type of products institutions may create differentiation and charge differently for different programs. This as a whole may increase the total revenue generated.
Higher enrolment: Chabotar & Honan (1990) found from a survey that most institutions prefer to increase student recruitment in order to increase revenue. Desjardins (2002) reports that enrollment-generated revenue has become an important component of university budgets. Enrolment can be enhanced either by increasing seats in the existing programs or floating new programs.

An institution must have a minimum number of students in order to raise sufficient resources through tuition fees. Thus AICTE has made a policy decision of allowing technical institution to have an enrolment in the range of 1500-2000 students with a minimum annual intake of 180 and an intake of 40-60 students in each discipline (MHRD, 1998). Larger enrolment brings in economies of scale thereby reducing unit cost (Johnstone, 1997). But Saint (1992) cautions that increased enrollment at a point can lead to decline in educational quality.

New programs: AICTE (1994) suggested government funded/ aided colleges to start new specialized programs for specific target groups on self-financing/ net revenue earning basis. Desai (1995) also suggests that public institutions should offer self-financing courses as part of continuing education to not only meet market needs but generate extra revenue. Mok (1999) advocates that new courses and curriculum should be market driven and have practical and applied value. Katz (1999) suggests that while designing new programs, institutions must consider the following three dimensions to utilize available opportunities and generate extra revenue:

- The product (both the discipline and delivery medium)
- The market (resident learners, distance learners, degree-program learners, or non-degree program learners)
- The geographical focus (campus, local, regional, national or global)

  **Twinning programs:** Institutions are also enhancing their student strength through twinning programs where programs are offered by two institutions from two different countries. Students first complete a part of the program in the host institute and then go to the other institute to complete the rest of the program. The certificate is either given jointly or by the institute with better reputation. Students prefer this arrangement as it reduces overall cost of education and they also obtain foreign degrees.

  **Adult programs and Distance learning:** As life-long learning has become a necessity in today’s knowledge economy, institutions are also increasingly focusing their attention towards adult learners. As a result, executive and continuing education have become major revenue earners (Avasthi, 1996). Sponsored programmes for industry can also contribute extensively to the bottom line of an institution (Murthy, 2001). In USA, the student profile has already changed. According to Keller (1983) about 40% of American students are part time and 36% are mature, aged twenty five and older. These kinds of changes are slowly occurring in other countries forcing institutions to seriously explore adult and distance learning programs. Distance education not only increases access it also generates revenue (Teferra, 1999; Gosai, 2005). According to Davis and Botkin (1994), the market for lifelong learning is larger (and is growing faster) than the degree-granting segment.

  **Course bundling:** Another profit-maximizing strategy is course bundling. It allows students to pursue two programs for a consolidated fee. For example, a student can pursue a degree in business management while also studying for a diploma in software engineering. The student needs not pay separate fee for both the programs. Spiegel and
Templeman (1996) argue that if an institution can’t charge differently for different courses or different students, it can still have a profit-maximizing strategy by opting for course bundling.

**New market**: Katz (1999) argues that like businesses institutes of higher learning may also seek new markets for their products both in the country of origin and abroad. According to Gupta (2002) resource mobilization can be the main reason for certain institutions to set up campuses beyond national boundaries.

However, fee alone can’t take care of the cost of education as is evident in US universities where 40% of cost only is generated from tuition fee (www.ficci-sedf.org, 2003). Thus, institutions have to look for other options to generate necessary financial resources.

**Donations and Corporate Support**: Institutions are also looking at other stakeholders like alumni, industry and community for generating resources (Teferra, 1999). Mora and Nugent (1998) report that in 1890, Yale graduates established Yale Alumni Fund and raised $11,000 from 385 graduates. In few decades this fund had created an endowment of over $1 million. According to Natarajan (2002b), many alumni from Indian institutions are now offering substantial financial support to their alma mater. Alumni of BITS donated an amount to the tune of 1.2 million dollars to build campus wide network at BITS (Ganguly, 2003). A large donation from two alumni of IIT Bombay, Nandan Nilekani and Kanwal Rekhi, helped IIT Bombay to establish Kanwal Rekhi School of Information Technology that aims at moulding the future leaders of Indian IT industry by imparting world class IT education (www.it.iitb.ac.in/about/).
American universities have been quite proficient in raising funds from corporations (Mora & Nugent, 1998). Jain, Puri and Jindal (2000) discuss industry interfacing as an effective means for resource mobilization. Industry not only can provide resources in the form of endowments, chair professorship and projects, it can also enrich programs by providing insight about latest technologies and skills. The institutes also can take help of industry advisory committee for fund generation (Tener, 1996). According to UNSECO (1996) industry interfacing is a win-win situation for both institutions and industry. Apart from the benefits mentioned, the institutions can also benefit from greater utilization of expertise and infrastructure, improved quality of faculty and improved quality of students. Industries benefit by greater competitiveness in domestic and global market, meeting the future human resource needs, lower cost of research and development, access to latest knowledge and technology development and market for spin-off technologies. Besides alumni and industry, the community in general can also contribute to institutions of higher learning (Government of India, 1997).

*Sponsored Research & Consultancy*: Extent of sponsored research and consultancy is an important measure of resource mobilization (Shrivastava, 1998). Faculty members must derive benefit of various research grants available with national and international agencies as that brings in many other benefits to the institutions (Malik, 2002). Research infrastructure is built, institutions get extra funds for various overheads and more research students can be accommodated. In Australia federal funding is based on the research output of institutions (Ruth & James, 2002). Many other countries are also adopting this approach. This means institutions have to focus on research even to attract better government funding. Hari (2003) reports that even institutions like Indian
Institute of Science which has been working on many front end technologies has been shy in applying for patents and thus losing a large amount of royalty that it would have earned. Thus, patenting of new discovery or innovations can be a substantial revenue earner for technical institutions.

*Returns from Business Pursuits:* Pillai (2003) suggests that institutions can generate revenues by selling products that students and teachers design and develop in laboratories. They can also sell testing services. According to her, many agricultural colleges in India are selling bio-fertilizers and bio-products. Haryana University of Agriculture has released over 95 varieties of fruits, cereals and vegetables in the market. Uganda’s Makerere University generates a substantial part its revenue from sale of bakery products (“The brain business…”, 2005). This kind of activities not only generate extra resources for colleges but also create brand equity for them. Weiler (2000) suggests that institutes can offer services of contractual research and training and even can sell services such as language teaching or use of libraries and data networks. In order to professionalize these kinds of activities, the technical institutes can establish for-profit organizations, the way US, UK and Australian Universities have done (Ghosh, 1995; UNSECO, 1996). University of Edinburgh has set up UnivEd, a company with 30 staff experienced in industry and law, to negotiate research and development contracts. As a cooperative effort institutions can set up science parks as done by 60 colleges and universities in Shanghai to sell research results and provide factory space for commercial exploitation (Sanyal & Collins, 1995).

An institutional press can be a major source of revenue earner besides creating visibility for the institution (Mishra, 2003). Oxford University Press, Cambridge
University Press and Harvard Business School Press are some of the examples of this strategy.

Higher education institutions like IITs charge placement fees to corporate for students recruited by them. Hostels and cafeteria can also become revenue earners. In institutions of higher education in USA twenty two percent of revenue is generated from hostels and cafeteria (Wolanin, 2000). Saint (1992) suggests that educational institutions can recover full cost from services such as photocopying, telephone, and transport and also generate some surplus. Allowing commercial outlets to run their franchises in the campus can also add to the revenue (Duke, 2002). Institutions can even sell articles and stationeries often with their emblem printed on them and generate additional resources (Khanna, 1996).

*Return through Financial Investments:* As per government norms in India, institutions put their surplus in fixed deposits which earn very low interest. Waghodekar & Tekawade (2000) argue that government should allow institutions to generate resources by investing in shares and securities like any other public limited companies.

### 2.1.2 Faculty Resources

With respect to faculty resources two important activities that need to be performed well are - 1) attracting competent faculty members and 2) helping faculty members to develop and retaining them by providing good infrastructure, facilities and working environment.

To meet shortage of faculty, Dave (1997) proposes several innovative steps such as facilitating doctoral admission for teachers in regional engineering colleges (RECs) and IITs, offering more post graduate programs, allowing final year students to teach
juniors, providing better salary, extending scholarship with an understanding that recipients will become teachers, using retired people selectively and attracting industry personnel to teach. One of the strategies followed by some American colleges to save money and still get enough people to teach is hiring of more adjunct faculty (Manzo, 1996). According to Singh (1996) pooling of staff by several institutions can be an effective strategy to handle shortage of faculty and reduce expenses on faculty resources.

People from industry: One of the strategies to alleviate finding competent and experienced faculty members is to explore with industries that can loan people to teach cutting edge technical subjects (May, 2001). Engineering colleges also can invite people from industry for specific topics if not for a full course.

Retired faculty: Most of the retired faculty members are physically and mentally fit and can pursue teaching for many more years. Murthy (2001) suggests that retired faculty may be used to augment regular faculty.

Differential salary: Keller (1983) suggests the institutions should offer differential salary in order to attract computer science teachers and other subject teachers who are in demand. In fact, he suggests a two-tier salary system with traditional disciplines at the bottom and new high-technology fields at the top. Murthy (2001) argues that even base salary structure and other perquisites for traditional subject teachers should be made attractive so that more people will be interested to opt for teaching as a career.

Faculty development: Besides trying to get good faculty, efforts must be put to develop existing faculty by extending them required training, infrastructure and facilities to become more effective and productive. Rao (2002) suggests that Maslow’s need hierarchy theory can be used to motivate faculty members. Not only basic needs like
better salary and facilities, but safety needs in terms of permanent job, training to develop
extpertise and mentoring should be provided. By creating an environment for team
working and translation of own potential, social and self actualization needs also can be
addressed. Saunders and Hamilton (1999) also believe that staff development can be an
effective strategy to maximize returns from human resources. They in fact suggest
“twinning initiative” where two institutions can team up with each other and pursue a
shared staff development strategy as a powerful method for staff development. Not only
faculty members, but also support staff should be trained properly.

Reddy (2002) advocates that induction programs should be conducted for all
newly recruited faculty members. World Bank (2000b) also suggests induction programs
for teachers for training in curriculum design, lesson plan preparation, laboratory exercise
setting, and management of classroom and laboratories.

Institutes should have clear policy on earning from consultancy. Higher
percentage of the earning should go to the faculty concerned while the institute can retain
smaller part towards infrastructure, overheads and surplus (UNSECO, 1996). This will
encourage faculty members to be more proactive in seeking consultancy assignments and
not only develop their own expertise but also generate resources for the institutes.

*Equity in private companies:* Faculty members may be allowed to set up private
companies individually or along with few faculty members or in collaboration with other
individuals/organization based on their research. Government institutions normally do
not allow such freedom and private institutions don’t proactively promote this. Existence
of such policy would provide benefits not only to the concerned faculty members but also
bring in more research and increased brand image to the institution. Indian Institute of
Science (IISc) changed its policy in mid 2000 and allowed its faculty members to hold equity in start-up enterprises. This has spawned companies like Picopeta Computers to develop Simputer and Strand Genomics to offer bioinformatics services (Rai, 2005).

### 2.1.3 Information and Knowledge Resources

According to Katz (1999) colleges and universities with most intellectual capital will have a new and powerful source of competitive advantage. Intellectual capital refers to the knowledge base an institution has through its human resources and institutional processes. Information is the unit from which knowledge is derived. Reid (2001) believes that production, storage, dissemination, and authorization of knowledge instead of remaining a concern of individuals should concern the whole institute to maximize competitive advantages. IITs have emerged as center for excellence not just for their infrastructure and faculty but also for their culture and processes (Palit, 1998). A large corporate may set up similar infrastructure and hire reputed faculty members from other institutions, but it will find it difficult to develop the softer aspects like implicit knowledge that IITs hold today and the culture they have developed over years.

Traditionally institutions have been concerned about teachers, library and labs, but in recent times information and knowledge are emerging as key resources. It is claimed that institutions are going to build and manage their competitive advantage based on their information and knowledge base (Drucker, 1993).

Bates (1997) argues that universities have to learn to manage their most precious resource – the knowledge they deliver. They must be structured such a way that information can flow easily from the people who have information to the people who require information (Dhillon, 2001). This flow of information makes an organization a
learning organization. Thus, institutions of higher learning not only have to be involved in creation of knowledge but they also have to learn how to manage their knowledge well. This process of managing the valuable asset of intellectual capital or knowledge is referred to as knowledge management (Dhillon, 2001).

Kidwell, Vander Linde and Johnson (2000) argue that “an institutional approach to knowledge management can lead to exponential improvements in sharing knowledge-both explicit and tacit”. According to Arora & Sharma (2002) knowledge management reduces cost of information. Thus, institutions should adopt knowledge management processes to acquire information from both external and internal sources, create knowledge base and use them for competitive advantages (Dhillon, 2001). Stevenson (2001) suggests that knowledge management should be the driver for shared decision making processes in the institute especially in academic matters. Though knowledge management is not all about IT systems IT acts as a facilitator for creating and using knowledge repository. Intranet can be a powerful tool for knowledge dissemination (Buniyamin & Barber, 2004).

2.2 Efforts to Reduce Demand for Resources

Mishra (2003) suggests that to manage resource crunch, one golden principle is to economize- minimize wastage and under utilization and remove bottlenecks. In the highly competitive world, besides raising more resources industries also have restructured their organizational structure and processes to reduce their requirement of resources. Johnstone (1997) argues that educational sector should also opt for similar exercise. In case of an educational institute, restructuring will include streamlining of existing processes and outsourcing of non critical activities. The demand for resources
can also be reduced by making best use of available resources and by bringing in better internal efficiency (UNSECO, 2000). Mitra (1989) calls for an optimal deployment of resources as an attitude towards resource mobilization. Campuses use their physical plants very sparsely (Ping, 1981). Thus, both utilization and maintenance of existing infrastructure are highly desirable. University of Melbourne carries out space audits of its building usage and occupancy to optimize use of existing infrastructure (www.unimelb.edu.au/).

Some steps to reduce requirement of resources as discussed in the literature are presented in the next section.

Resource Sharing: Teferra (1999) advocates resource sharing between institutions of higher education as a mechanism for resource mobilization. Reddy (2002) calls for sharing of labs by cluster of engineering colleges in a particular territory as a means for better utilization of resources. He cites the example of a Common Information Dissemination Centre at Osmania University, Hyderabad where constituent and affiliated colleges contribute funds so that this centre can subscribe and make available a large number of journals to all member institutions. Similarly, the labs in Centre for Cellular and Molecular Biology, Hyderabad are kept open as a centralized facility for outside researchers to use for a nominal cost (Malik, 2002). A survey conducted by Chabotar & Honan (1990) found out that sharing faculty resources could be a cost-cutting approach. One of the respondents in that survey commented “There is no reason why my leading Egyptology professor can’t be jointly appointed by three universities”. Natarajan (2002b) suggests that institutions located in different places can also share resources through computer networks. INFLIBNET project of Government of India is an attempt towards
this thinking. Instructional materials contained in audio-video cassettes, slides, transparencies, microfilms and computer and computer projections can be shared easily between institutions (Arora & Sharma, 2002).

*Outsourcing:* Today outsourcing is the preferred strategy for businesses all over the world to reduce their cost of operations. It enables them to focus on core activities that can enhance their competitive advantage and let third party service providers to take care of their non-critical activities (Schniederjans, 2005). For example, many manufacturing units and even banks are letting third party vendors to manage general queries of their existing and prospective customers. Many multinational companies are outsourcing their back office operations like insurance claim processing, and payroll etc. to business process outsourcing (BPO) organizations in India. Brueder (1996) argues that institutions of higher learning can also reduce their overall cost by outsourcing several of their activities to others who can do them inexpensively. Ratios of support staff to students can be minimized to both reduce cost and enhance quality of services (Saint, 1992). Pillai (2003) suggests that institutions can outsource their non-core activities like website and software maintenance, infrastructure maintenance, gardening services, health services, transportation, mess services, printing, and photocopying.

*Increase Efficiency through Technology:* An institution can opt for computer aided teaching and automation of administrative processes to enhance efficiency and garner more out of limited resources (Smethurst, 1992). Internet can be used to teach large classes and thereby maximize benefits of limited resources (Shivaram, 2001). Virtual labs and classrooms can reduce infrastructure requirement (Arora & Sharma, 2002). Audio-video conferencing can also be used to share faculty resources. Studies
show that digital technology reduces cost of teaching and learning while maintaining or enhancing effectiveness (Newman & Couturier, 2001).

Open Resources: Institutions can reduce their expenses by opting for several open resources. For example, they can save a lot of money on software by shifting from proprietary software to open source software (www.bridges.org). Open source software are available free of cost and institutions can customize them as per their needs as source codes are also available with the software. Open source software are available in all categories of uses starting from compilers, operating system, application software and teaching-learning programs. Institutions will not need to buy any proprietary software.

Institutions can also opt for open access journals and reduce their budget for journals (Suber, 2002). MIT has put all its courseware on the web that can be downloaded for no cost (http://ocw.mit.edu/index.html). Institutions can use these quality teaching-learning materials.

All these efforts to reduce requirement of resources showed that institutions can opt for two-pronged strategy- expand resource base and at the same time reduce requirement of resources thus find a way to meet the requirement of additional resources easily.

2.3 Implementation Issues

Shared attitudes, behaviors, beliefs and values of people form the culture of an organization (Borahan & Ziarati, 2002). Culture can be an enabler of any initiated change effort. Processes are the tools using which an institution can carry out its activities. The structure, processes and institutional culture need to be aligned with the strategic intent of an organization for effective implementation of the organizational strategy (Bowman,
Ward & Kakabadse, 2002; Elwood & Leyden, 2000). According to Eckel, Hill, Green and Mallon (1999) for a strategy to be successful, appropriate supporting structures and allocation of adequate resources are essential.

Any effort to mobilize more resources would need adjustments in the structure and culture of an organization. These adjustments can be considered as implementation challenges. The survey of literature revealed following implementation challenges with respect to RM.

*Structural changes:* RM efforts may require change in the organizational structure. For example, there may be requirement of a specific senior position to look after interfacing with alumni and industry for getting resources and support from them. The person may have to be supported with necessary infrastructure, budget and support staff. The head of the institution may not be in a position to look after both academic and administrative tasks including resource mobilization. Senior positions may need to be created to look after academics and administration on a day-to-day basis while the head of the institution can concentrate on resource mobilization. Similar kind of arrangements may need to be made even at the departmental level where resource mobilization efforts are carried out. Each department may be divided into two units: academic and administrative (Pillai, 2003). While academic unit focuses on teaching/learning, research and other academic aspects, the administrative unit can look after fund generation and utilization and other administrative tasks.

Malik (2002) argues that apart from sharing of resources with outside institutions or organizations sharing of resources must also happen inside the institutions. Most of
equipments bought from specific project funds are not used by other researchers in the institute which leads to under utilization of resources.

*Market sensitive institutional culture:* Mok (2000) believes that the impact of globalization has led to the marketization of various government activities including education. Al-lamki (2002) argues that challenges of more resources require marketing orientation for the institutions or market-sensitive institutional culture. Brueder (1996) asserts that “Colleges will need to operate more like a business. For some educators this may be a difficult adjustment as it represents a significant departure from the way educators see a college’s role and responsibility”. Political contingency perspective demands that higher education should develop customer responsiveness as stakeholders like students have control over resources (Richardson, 1995). Maheswari (2001) argues that customer satisfaction is the key to increase market share. Student satisfaction needs to be used as an effective instrument to raise quality of programs offered. The concept paper brought out by UGC on “Model Act for the Universities of the Twenty First Century in India” highlights two kinds of additional cultures that universities have to adopt: commercial and corporate. While commercial culture will facilitate activities like consultancy, distance education, and publication to generate resources, corporate culture will bring in modern management practices into academic arena. The paper even suggests that universities can set up for profit companies for revenue generation.

Duke (2002) forecasts increase in semi privatization of higher education keeping in view the increased requirement of higher education with massification (more people opting for higher education because of perceived benefits) of higher education and decrease of public funds with reduced role of ‘welfare state’. Institutions will have to
adopt several practices of private institutions like building brand, looking for alternative funding, treating students more as customers and proactively interfacing with industries.

One of the big challenges for institutions is to find ways to reconcile market oriented values with traditional academic values (Kezar, 2003). To what degree should higher education become private? Elwood and Leyden (2000) asserts that, in general, academic culture is fractured and it will pose a big challenge for institutional authorities to develop a common strategy and vision and align interests of academicians with that of the institution.

Thus any institution opting for resource mobilization strategies has to maintain balance between the need for market orientation and adherence to traditional academic values.

*New leadership:* According to Davies, Hides and Casey (2001), resource management for higher education in the present dynamic and uncertain environment calls for a new kind of leadership. Institutional heads have to lead rather than only manage. Management is defined as planning, organizing and controlling of activities in an organization while leadership is considered as establishing direction, motivating people and aligning their interests with that of the organization (Stevenson, 2001). Instigating and implementing change rather than maintaining status quo is the needs of today. Institutional heads need to understand challenges and build strategies to address them and also lead institutions to higher glory. According to Michael (1996) institutions are looking for leaders who are astute in raising funds, marketing their institutions and competing fiercely for resources and recognition.
Matching interests: Weiler (2000) argues that in most cases external funding agencies have their inherent agenda in giving funds to an institution. For example if IBM donates computers to an institution, it would like students to be comfortable with its technology so that in future they all could become its customers. It may even like students to learn its software as part of the curriculum which may be a difficult proposition for an institute to do. In fact, some years back a music company offered a huge grant to the music department of a Canadian university and then it wanted to include some specific topics in the music course syllabus. Thus, there can be a conflict of interest between the receiver and supplier of donation or grants and it will be a big challenge for an institution to match its own priorities with that of the outside funding agencies (Tilak, 1995b).

Though Government of India has provided for tax concessions to commercial enterprises for extending financial support to educational institutions, this facility has not been used much. While enterprises on their own have exploited this facility in setting up their own non-profit arms and educational institutions, they have not cared much to support other educational institutions. On the other hand, most of the educational institutions have not come forward to benefit from this facility because of the fear of undue influence of donors (Raghvan, 2003).

Credibility: According to Anandakrishnan (1995), only those institutions that have developed credibility of providing high quality education or carrying out cutting edge research will be able to charge higher fees and attract donation or research grants from corporations. Thus, good brand name supported by credible performance will be the key for higher resource mobilization.
2.4 Consequences

Resource mobilization efforts bring in several unintended consequences. Some of these consequences can be positive while many of them may be negative. Understanding of those consequences may help to redesign RM efforts and take appropriate steps to minimize negative impact of particular RM efforts.

According to a study conducted by Manzo (1996), the followings are some of the positive consequences of resource mobilization strategies adopted by various colleges of USA.

- *Diversified financial base.* Institute is not solely dependent on tuition fees; it rather connects to various sources like research, consultancy, business pursuits, and donation for required resources.

- *Increased enrollment.* With emphasis on resource mobilization colleges attract more students. This enhances access to higher education for a larger section of the society.

- *Close review of academic programs.* Colleges constantly review academic programs to find out which programs are doing well and which are not doing well. More popular programs are strengthened and weaker ones are closed down.

- *A smaller faculty size.* Institutions try to enhance productivity of staff members while trying to minimize the number of faculty members on the roll. A smaller faculty size means better attention from the institute to each individual faculty member and also better interpersonal relationship among faculty members.
• *Lesser tenure tracks.* To reduce cost colleges are opting for more faculty members on contract basis than on tenure track. As a result, there is a high influx of new which also leads to influx of new ideas and approaches.

• *More collaboration among colleges.* To make better utilization of existing resources colleges are collaborating more among themselves.

• *Increased use of technology.* Technology is used as a tool to reduce cost of routine transactions in institutions. It is also used in teaching-learning processes to be able to reach to a larger number of students. As a result technology itself getting a boost resulting in better technology.

Besides these, professionalization of institutional management (Michael, 1996), and focus on output (Henn, 1997; Weiler, 2000) are some of the positive consequences of RM efforts. Institutions adopt best management practices to reduce cost and enhance productivity. They also use several marketing strategies to reach to their potential students, donors, and collaborators. In fact, following commercial enterprises, educational institutions have started treating students as customers and extending better value for money to them (Mok, 1999). Slaughter and Leslie (1997) state that academic entrepreneurship has been a response of institutions to the pressure of mobilizing more resources and the competitive situation in which they are required to seek funding from both public and private sources.

**Negative Consequences**

Literature showed that there could be several negative consequences of resource mobilization efforts and institutions must be aware of them to redesign their own RM strategy accordingly.
Skewed focus: Weiler (2000) believes that intense resource mobilization efforts lead to a skewed focus which could mean selling what sells rather than doing what is good for holistic development of students. Most new technical institutions in India offer market oriented courses like IT and telecommunication. Students are reluctant to opt for courses like civil engineering and chemical engineering. This may create an imbalance as the country will soon face shortage of qualified civil and chemical engineers.

Danger to professoriate: Altbach (2005) argues that increased entrepreneurship in resource generation may also cause severe damage to professoriate, the most central element of teaching and learning. Faculty members may engage in research where more funding is available rather than programs where socially relevant knowledge creation may happen. They may also prefer consultancy assignments more than actual classroom teaching or learning. Increased “managerialism” may increase efficiency but at certain human and social costs (Mok, 1999). There will be stress, anxiety and sense of powerlessness. To enhance productivity the workload of faculty may increase leaving them less free time to think and ideate. The question of intellectual freedom will also crop up as faculty members are made to design and deliver both curricula and pedagogy that are market-oriented (Mok, 1999).

Compromising ethics: According to Bok (2003), to generate more resources institutions are compromising in their procedures and value system. In USA, several institutions are compromising on their admission criteria to attract good players for their football and basketball clubs so that institutions can get high visibility to help in larger support from corporate and alumni. In correspondence courses faculty members are not compensated well. Institutions are floating more net based courses and trying to reach
more students from developing or under developed countries. The emphasis is more on earning money than developing academic standard in those countries. In case of research carried out with grants from corporate, universities are pressurized to not publish unfavorable results. For example, a pharmaceutical product may have more harmful side effects than published by the company and publication of actual facts by researchers from the participating institution may harm the financial interests of the company. In such cases many companies may pressurize the institute and its researchers not to publish true facts since they pay for the research. Such behavior leads to curtailing of freedom of researchers and subversion of research processes.

*Decreased public trust:* Levine (1992) argues that institutions have not fully taken care of increase in enrollment because of greater efforts of resource generation. This has led to decrease in quality of education and public trust. Such situations may harm institutes in the long run. For example, admitting large number of non-resident Indian (NRI) students may generate additional revenue, but it may lead to lowering of academic standards especially if proper selection criteria are not followed. It may also reduce number of seats available for deserving Indian students (Tilak, 1997a). There might also be problems of cultural mismatch and dissatisfaction among the student body if the NRI students are allowed special facilities even on a paid basis.

### 2.5 Gaps in the Literature

Literature survey revealed that, in the resource mobilization efforts though several studies focused on individual resources no study was found to include all the four types of resources (financial, human, physical, and information). Weghodekar and Tekawade
(2000) were the only authors to mention three types of resources necessary for institutions.

Technical institutions have more pronounced need for resources as compared to other types of institutions. Though many studies discuss the necessity of resource mobilization for institutions of higher learning no study has made a special case for the express need of resources for technical institutions.

Many researchers have suggested efforts needed to garner resources (Avasthi, 1996). Shrivastava (1998) identified the basic income and expense heads of an institution and based on its past data and extrapolation, he concluded that increasing fee and intake capacity along with rationalization of faculty strength could mobilize required resources. The focus of Shrivastava’s and many other studies is on actions that institutions need to take rather than developing a comprehensive resource mobilization strategy for long-term viability and sustenance.

2.6 Objectives of the Study

With RM being critical for technical institutions of higher learning and literature not showing any discussion on comprehensive strategy that could be followed by Indian institutions, an interest was developed to understand how Indian technical institutions were faring in terms of RM and if any comprehensive RM strategy was adopted in actual practice. Thus a study was carried out as an attempt to address this interest and inquiry. It was also assumed that individual institutions would differ in their approaches to RM because of their contextual differences and these differences can provide richer understanding about RM efforts.
The study was designed to focus on technical institutions of higher learning because of their importance in economy and their higher requirement of resources. The rationale for choosing them can be summarized as follows:

1) Technical education is in greater demand because of its intrinsic relation with the job market.
2) The highest level of private participation is in this field in India.
3) The pressure on resource is high owing to requirement of a fairly large base of laboratories, library resources, computer set-up, and technical human resources. The rate of obsolescence is also quite high thus requiring continuous upgradation of both physical infrastructure and technical information base.
4) Many changes and innovations are happening in the technology arena.

The study was designed to:

- Explore various resource mobilization efforts by technical institutions of higher learning in India and investigate whether any comprehensive strategy for resource mobilization is being tried out
- To understand how technical institutions of higher learning in India have been tackling internal and environmental opportunities and constraints in their resource mobilization efforts and what have been their unresolved and partially resolved issues so far.
- Relate experience of Indian institutions with foreign institutions and identify areas for learning.
• To outline a road map for building organizational strategy for resource mobilization

2.7 Looking Ahead

To pursue the objectives of the study, it was required to collect actual information from the field, compare with literature and then draw insights that may be useful for RM efforts and RM strategy. Chapter-3 focuses on the methodology for data collection.
Chapter 3
Methodology

To address the objective of exploring RM processes in Indian technical institutions visit to some institutions for collecting necessary information was required. To collect data case study method was opted for as it can help to capture in depth insights (http://www2.chass.ncsu.edu/garson/pa765/cases.htm). It was felt that though survey method might cover a larger number of institutions but it would not provide the depth needed for understanding the logic, process, and strategies used for resource mobilization by institutions. Also for exploratory type of research and holistic interpretation of the event as is the case in this study, case study method is a better tool (http://writing.colostate.edu/guides/research/casestudy/pop2a.cfm). Qualitative methods are used for theory building, model and hypothesis testing, and descriptions of lived experiences (Gilgun, 2005). It has been argued that case study method is better suited to the purpose of building theory (Yin, 2003). One of the objectives of this study was to gain insights into resource mobilization methods and processes to be able to contribute to the theory of developing RM strategy for institutions of higher learning. This study attempted to explore resource mobilization strategies in many institutions and then generate some insights about RM methods and processes based on the findings. It is argued that any institute intending to shape its resource mobilization strategy can benefit from these insights.

Though, case studies are not representative of the entire population, but they are not methodologically invalid and they can have richness to add or validate a theory
(http://www2.chass.ncsu.edu/garson/pa765/cases.htm). According to Walshe, Caress, Chew-Graham and Todd (2004), “Case study strategy is appropriate to use when complex situations need to be addressed; when context is central to the study; when multiple perspectives need to be recognized; when the design needs to be flexible; when there is no strong theory to which to appeal…” It was felt this study required in depth understanding. This understanding was possible only through detailed discussion with some key functionaries of institutions and using the case study facilitated reaching the objective.

According to Jensen and Rodgers (2001), case studies are of different types: snapshot case studies, longitudinal case studies, pre-post case studies, patchwork case studies and comparative case studies. Comparative case studies method was used for this study as the purpose was to carry out cross-unit comparison and collect both quantitative and qualitative data. According to Yin (1994), case study method may have one or multiple cases but the generalization of results should be made to the theory and not to the population. No attempt will be made in this study to generalize any conclusion or propose a universal model for resource mobilization.

Literature showed that the data related to following aspects of RM needed be collected.

- Resource Sharing
- Outsourcing
- Staff Development
- Increase Efficiency through Technology
  - Automation
Resource Mobilization

- e-learning

- Open Source Software

- Enlarged Resources through Tuition Fees
  - Increase fee
  - Increase enrollment
  - Enhance market scope

- Donations and Corporate Support
  - Alumni
  - Industry

- Sponsored Projects & Consultancy

- Continuing Education

- Government Grants

- Returns from Business Pursuits

- Return through Financial Investments

- Proactive Recruitment Process

- Knowledge Management

But to know what all information needed to be captured, it was decided to carry out a pilot study. It was assumed that to prepare case studies some background information about the institutes like date of establishment, profile of promoter, details of location, various programs conducted and infrastructural facilities must be gathered.

3.1 Pilot Study

For ease of convenience it was decided to carry out the pilot study in local technical institutions (based in Ahmedabad and around). Four local institutions chosen
for the pilot study were: Nirma Institute of Technology, Ahmedabad (NITA), Dharmsinh Desai Institute of Technology, Nadiad (DDIT), L D College of Engineering, Ahmedabad (LDCE) and Dhirubhai Ambani Institute of Information & Communication Technology, Gandhinagar (DA-IICT). Besides these four institutes, two more institutions namely, Tolani Maritime Institute, Induri (TMI) and Birla Institute of Technology and Science, Pilani (BITS) were also included in the pilot study. Last two institutions were chosen because of the convenience of access to them. The author personally visited highest authorities/ officers (Director/ Principal) of all these institutions with a formal request letter for the pilot study. All the institutions except DA-IICT agreed for the pilot study.

For all five institutions general information was collected from their websites and brochures. Qualitative data were collected by interviewing head of the institution or the person assigned by the head of the institution for this purpose. For example, in case of NITA, the Director gave most of the information while in case of DDIT, the Controller of Examination was assigned by the Vice Chancellor to provide required information. Initially a checklist was created to help in the interview process and this was improved with more insights gained from each interview. For example, initially it was not thought that the profile of the promoter might influence resource mobilization strategies, but soon it became clear that the same can also be an influential factor. In case of LDCE, the government being the promoter, there was not much initiative to find out where resources were available and how the same could be tapped. But, in case of NITA, with an industrial house backing it, efforts were made to explore financial support provided by AICTE and other governmental bodies and the process to garner them. Similarly, the fact that location could be a factor impacting RM was not thought of initially. Thus, the pilot
study helped to refine the checklist and prepare the final checklist (See Appendix A) for
the main study. This checklist was sent with a formal request letter to several institutions
for permission for the main study.

As institutions, which were studied as part of pilot study, were also later visited
for collecting same set of information as for the institutions under main study, findings of
institutions under pilot study are also included in analysis and discussion. In fact,
institutions like BITS provided more insights than several institutions included in the
main study.

3.2 Sample

The next step for the study was to select institutions for the main study.
According to Stake (1995) cases should be selected in such a way that knowledge can be
maximized in limited time. Cases that are selected should be easy and willing subjects.

Keeping this fact in mind and the requirements of the study, the following criteria
were developed to choose institutions. One of the criteria was ownership (private,
public), - whether an institute was started by government or a private promoter. With
private institutions coming up, it was assumed that ownership might influence resource
mobilization efforts. It was also assumed that age of the institution might also influence
resource requirement. Thus, age of the institute or years of existence (old, new) was
chosen as another criterion. It was considered that institutions older than 15 years would
be considered old while institutes younger than 15 years would be considered as new
institutions. India being a vast country with many regional differences, an assumption
that location might also influence RM efforts was made. Thus, location (east, west, north
and south) was the third criterion for selection of institutes. Overall, it was decided that
there would be at least one institute for each criteria. For example, there should be an
institute which is old, public and located in western India.

Before applying the criteria, a list of top 20 technical institutions was needed to be
prepared. But, there seemed to be not many systematic surveys to rank top technical
institutions of the country. India Today was the only magazine which conducted a survey
and brought out a list of top ten colleges in different categories like science, engineering,
arts and medicine. The author contacted the Executive Editor of India Today to find out if
they had a list of top 50 or 100 engineering colleges of the country for preparing the
required top twenty list. But India Today denied having such a list. Its methodology was
designed to find out only top 10 colleges and not beyond. An effort was made to obtain
name of top institutions of the country from members of several e-groups with little
success. Based on personal information, suggestions from e-groups and discussion with
faculty of some institutions a list of 20 institutes was prepared. Then the selected criteria
were applied to arrive at the final list for the main study.

First, the institutions were divided into two groups based on their year of
existence. Older institutes were categorized as per their ownership, that is, whether they
were public institutions or privately promoted. One old public and one old private
institute from both north and southern regions of the country were selected as it was
assumed that study of four old institutions will give enough insights. In case of newer
institutions it was found that mostly they were private institutions. So it was decided to
choose a private technical institution from each of the four regions of the country- north,
east, west and south. This implied that a total of 8 institutes needed to be studied. But,
there was a possibility that an institute chosen might refuse to give permission for study.
Thus, it was decided that after classifying all the 20 institutions selected as per the criteria, all twenty institutions should be approached for permission to study and depending on responses eight institutions will be selected for final study.

3.3 Stages

The twenty selected institutions were sent formal request letters to allow in depth studies and write cases. The letter contained a checklist (attached as Appendix-A) that explained what kind of data were required. It was reasoned that institutes must know what kind of information to provide otherwise they might be reluctant to give information even after agreeing for case study. Three institutions, IIT, Kanpur (IITK), IIT, Roorkee (IITR) and Sinhgad College of Engineering, Pune (SCE) gave prompt official confirmation for carrying out case studies. After one week of time, e-mails were sent to other institutions to seek reply to the formal letters sent. IIT Madras, Chennai (IITM) and PSG College of Technology, Coimbatore (PSGT) responded positively to the e-mails. For other institutes, the author telephoned and talked to the concerned person to get necessary approval for data collection. In spite of all these efforts, no response could be obtained from institutions that have been italicized in Table 3.3. Finally, permission for case studies was received from 11 institutions.
Table 3.3
List of Institutions Selected for the Study

<table>
<thead>
<tr>
<th>Public</th>
<th>Old</th>
<th>New</th>
</tr>
</thead>
</table>
| North  | IIT, Kanpur (1959*)  
IIT, Roorkee (1847)  
Institute of Technology, Banaras Hindu University (1919), Varanasi  
Delhi College of Engineering (1940), Delhi | |
| South  | IIT, Madras (1958)  
NIT, Tiruchirapalli (1964)  
College of Engineering, Guindy, Anna University (1974) | |
| Private | East | National Institute of Science & Technology (1996), Berhampur  
Kalinga Institute of Industrial Technology, Bhubaneswar |
| West | Sinhgad College of Engineering (1996), Pune  
Maharastra Institute of Technology (1983), Pune  
Walchand Institute of Technology (1983), Solapur | |
| North  | Thapar Institute of Engineering and Technology (1956), Patiala | Amity School of Engineering and Technology (1986), Delhi  
Galgotia College of Engineering & Technology (2000), NOIDA  
Jaypee Institute of Information Technology (2001), NOIDA |
| South  | Manipal Institute of Technology (1957), Manipal  
PSG College of Technology (1951), Coimbatore | Karunya Institute of Technology (1986), Coimbatore  
Vellore Institute of Technology (1984), Vellore |

* indicates the year of establishment of the institute.

It may be noted that though as per the criteria only eight institutes were to be included in the main study, finally 11 institutes were studied. This was because all these institutes had given approval for case studies and it was decided to include the extra 3 institutes to have more data for developing better insights.
Yin (1994) and Stake (1995) have identified six sources from where information should be collected for case studies. They are documents, archival records, interviews, direct observation, participant-observation, and physical artifacts. During the field study attempts were made to collect data from all these sources. Two trips were made to each of the institutes and a minimum of two days were spent in each institution to interview concerned senior officers and look at brochures and other documents such as annual reports, applications of concerned institutes to AICTE/ UGC for approval for new programs and accreditation etc. While the first round of visits was used to collect general information about the institute and get a feel of the institute, the second round of visits was used to ask more pointed questions and seek relevant information from various officers and faculty members. Before second round of visits, a draft case study was prepared from the information collected in the first round and it was further refined by collecting relevant information from the website of the concerned institutes. By comparing the case studies and the checklist, gaps in information were identified for each case study to aid in collecting more focused information in the second round. The first round of visit was used to collect more quantitative information while the second round of visit was used for collecting primarily qualitative data. For example, data like date of establishment, student and faculty strength, infrastructure details, and profile of the promoters were collected in the first round while in the second round of visits, qualitative information like how a particular institute was trying to manage its faculty crunch or organize its information resources were sought. Of course, in the second round a lot of missing factual data was also collected.
IITK, IITR, SCE, Thapar Institute of Engineering and Technology, Patiala (TIET) had identified a faculty member/ officer to act as the nodal person for coordinating data collection effort of the author. That arrangement helped quite a bit as initially it was difficult to know whom to approach for seeking information. These nodal persons also facilitated appointment with other faculty members/ officers. In case of Amity School of Engineering and Technology, Delhi (ASET) and National Institute of Science and Technology, Berhampur (NIST), the directors themselves acted as the nodal persons and provided the bulk of the information. All the institutions from north India were covered in one long journey and similarly all southern Indian institutes were covered in another long journey. Institutions in east and west regions were covered in two separate short journeys. Before planning the trip, nodal persons were contacted and their availability was ascertained. For interviews with other people, some appointments were fixed earlier and with others the author met them impromptu.

3.4 Foreign Institutions

To know how foreign institutions of technical institutions were carrying out their resource mobilization efforts and if Indian institutions could learn from them, a few foreign institutions, especially from USA and Australia, were studied. It was assumed that USA had an extremely matured higher education system and its institutions were quite old and had pioneered various strategies for resource mobilization. Australian universities were following the footsteps of American institutions for sometime and making higher education as one of the top earner of foreign currency for Australia. 5 top universities of USA and 3 top universities of Australia were chosen for this study. Information provided on websites was used for the study. A detailed exploration of
websites of all these 8 universities was carried out as it was assumed that websites carry latest information and no other source would be better except personal visits. Most of the websites also carried annual reports and strategy documents which provided useful information.

Top 5 universities of USA (as per engineering programs) reported by US News & World Report (http://www.usnews.com/usnews/home.htm) were Massachusetts Institute of Technology (MIT) (http://web.mit.edu/engineering/index.html), Stanford University (http://soe.stanford.edu/home/index.html), University of California–Berkeley (www.coe.berkeley.edu/), Georgia Institute of Technology (http://www.coe.gatech.edu/), University of Michigan–Ann Arbor (http://www.engin.umich.edu/). This information was collected from the website http://www.infozee.com/channels/ms/usa/top-rankings.htm.


While in case of USA universities separate information was available for college/faculty of engineering, for Australian Universities the information was available for the whole university and not separately for faculty of engineering. From these websites, information about the start date of the institutions, programs offered, innovative practices, and efforts on resource mobilization were collected.
3.5 Looking Ahead

Finally, the data collected provide a detailed picture of what the institutions are doing. The next step was to compile the information as complete case study for each institution. The next chapter presents these cases.