

4. FINANCING OF HIGHER EDUCATION IN NEPAL

Introduction

The apparent success of planned development and bipolarization of economies eased the financing of development activities through increased competition in external aid. The economies grew at a rapid pace since the post-World War II. The inflow of the external aid enticed developing countries to expand access to higher education. In fact, the financial ease brought heyday throughout the world in financing higher education as education was considered a critical factor in socio-economic development. But the heyday for financing higher education prevailing prior to the mid-1970s was over. The oil crises and the consequent low economic growth together with shifts in policy priorities to basic health and education, poverty alleviation and the recent environmental concern have led to inter- and intra- sectoral reallocation of the financial resource. Consequently, higher education has been facing financial squeeze all over the world. The scarcity in public financing of it has brought paucity in investment in physical infrastructure (buildings and furnishing, laboratories, equipment, and books and journals), and low level of recurrent spending on the teaching quality improvements (such as educational materials, research, training, etc.) The rising costs of these vital inputs together with the need of acquiring new educational technology-software as well as hardware-have put an additional financial strain on the resource-poor, tertiary education sub-sector.

Besides, the societal aspirations for more access to higher education have been increasing in recent years, fueled by economic liberalization and political democratization. The rising societal concern in higher education, especially for white-collar jobs instead of blue-collar ones, has caused a rapid increase in enrolment there. Furthermore, the job scarcity or waiting for lucrative job opportunity (e.g. in Sri Lanka) has fueled the enrolment growth in social sciences and liberal education. Also, the creation of additional courses, leading to an increase in the higher education cycle, in order to contain pressure on the labour market to a certain extent, has swelled the student community in higher education. All these factors have led to aggravating the current policy dilemma.

Formally, the higher education cycle in Nepal spans six years. Students enroll in higher education two years earlier than their counterparts elsewhere. However, the waiting period is longer and takes about two more years. It involves the economic cost of earnings forgone and the social inconvenience, leading to the comparative advantage of going abroad, especially to India, to graduate earlier. This tendency has increased in recent years due to quality deterioration and time-escalation in higher education within the country. It has drained away the scarce financial resource abroad.

Global, Regional and National Education Efforts

Though human resource development through education is a means to promote human welfare, education throughout the world has been facing financial crisis. The advanced industrial countries changed their higher education system from the elite-based system to the mass-based one in the 1960s, leading to increased spending while the developing countries are still struggling to promote it. The global experiences are:

- a. rapid expansion in higher education enrolment;
- b. pressure for an improved quality in the education (as the quality of higher education has a direct influence on the school-level students in terms of teacher input and family environment);
- c. broadening of student's access to higher education through increased enrolment and reduction in wastage (dropout and repetition);
- d. scarcity of public financing, leading to paucity in investment in physical infrastructure;
- e. falling tendency in unit expenditure all over the world; and
- f. the unit expenditure in low income countries being one-sixth of the unit expenditure in high income countries.

The PEE/GDP Ratio: The Effort

The government priority and financial affordability do influence the level of public spending on higher education. Though higher education enjoyed favorable financing in the 1950s and 1960s and the 1970s, the oil crises and the consequent economic recession led to the financial squeeze in higher education in the 1980s (in its share in GDP). Four phenomena are observed regarding the financing of higher education:

1. The developing countries have allocated less funds (4%) to education compared to the advanced industrial countries (5%), i.e. low PEE/GDP ratio.
2. The Asian countries have allocated less finance to education compared to others.
3. A declining global tendency in higher education financing is observed.
4. Nepal allocates the least proportion of public expenditure to education (low PEE/GDP ratio).

The PEE/TPE Ratio: The Priority

Education, especially higher education, has got low priority throughout the world in recent years. Three features are observed in the world:

1. Less finance is allocated to education, especially to higher education, by governments.
2. The East Asian countries, except China, have allocated reasonable public resources to education made possible by the rapid economic growth.

3. The South Asian Countries have given priority to primary education and health, and poverty alleviation in rural areas. Thus, higher education gets less finance. Nepal is not an exception to this phenomenon.

Public Contribution to Education

The public contribution to education was sizable and it has increased in the world, except in Asia where it had a declining tendency. There is a positive relationship between per capita economic growth and financing of education.

Higher Education Enrolment and Private Sector

The gross enrolment ratio (GER) is low in South Asia compared to elsewhere. The increased income level leads to a high GER, except in China. The higher education enrolment has been increasing in the world, except in Japan with the high GER of 50 percent. The majority of the Asian countries have experienced a rapid growth in enrolment. But Bangladesh and India have the lowest enrolment growth rates. Except in Latin America, Thailand and Nepal, the private sector plays a crucial role in the provision of higher education. The distance higher education also exists in Korea, which is relatively cheap as it taxes the least in educational physical infrastructure and operating expenditure.

The Cost Recovery in Public Higher Education

The unit recurrent cost of public higher education in Korea and Thailand ranges from US\$170 to \$190 while it is around US\$ 500 in China. It was US\$ 140 in Nepal in 1988. On the other hand, the student-teacher ratio ranges from about 6 to 29 in the Asian developing countries and about 10 to 22 in the advanced industrial countries.

The partial or recurrent cost recovery from fees in Asia is around 30 percent in the public higher education. It is the highest in Korea (46%) and the lowest in Bangladesh (0.1%). The medium partial cost recovery rates exist in Indonesia (19%) and the Philippines (15%).

The state bears sizable financial burden in all the Asian countries. Yet, the state subsidy has been quite high in Bangladesh and China.

Return to Higher Education

The social rate of return to higher education is 13 percent for developing countries, including those in Africa and Asia. It is about 21 percent for a Bachelor degree-holder in Nepal. However, the private rate of return (24 percent in developing countries as a whole) exceeds the social one, leading to the public pressure for increased enrolment in it, and the consequent increased financial burden to the State. The gap between these rates indicate the extent of the State subsidy, which is the highest in Africa (by 19 percentage points) and low in Asia (by 5 percentage points).

The rates of return differ among the fields of study. Internationally, the social rates of return are high (12-13%) in economics, engineering, law and medicine.

Enrolment Structure and Growth

The total students enrolled in T.U. during 1975-1993 stood at 1.07 million. The total enrolment, inclusive of the below certificate level, in this period increased from 21 thousands in 1975 to 104 thousand in 1993, resulting to a growth rate of about 9 percent a year. The enrolment in the past was highly concentrated in humanities and social sciences (HASS: 39%) and management (24%), together which accounted for almost two-thirds of T.U. enrolment. The enrolment shares in HASS and management have an increasing tendency; and others have a declining trends, implying an increased enrolment concentration in social sciences and liberal education. At present, the enrolments are confined to HASS (42%), management (25%) and science and technology (12%), education (9%) and law (7%), totalling 95.4 percent of T.U. enrolment. It indicates that four technical institutes--engineering, medicine, agriculture and animal sciences, and forestry, enroll just 4.6 percent of the total. Their share in the total enrolment has fallen. They had enrolled about 9 percent in the past. The proportion of girl enrolment is low (23% in 1993); and it has the declining tendency with an increase in the level of higher education. The prevailing practice of the mechanism of allowing private appearance in the examination is close to the low cost distance education.

Furthermore, the certificate level enrolment had a lion's share of 63 percent in the past and was 60 percent in 1993. Once the certificate level is phased out, the financial analysis will have to be confined to the 40 percent enrolment with about 41,500 students in 1993.

Another aspect of enrolment structure is the shares of below the certificate level in the total enrolment in institutes and faculties. The enrolment below the certificate level in T.U. stood at a mere 2.8 percent in the past and was a meager 0.8 percent in 1993. In the past, the enrolment below the certificate level was confined to HASS (30%), medicine (28%), education (28%) and engineering (11%), and agriculture and animal sciences (4%). In 1993, the enrolment below the certificate level was 61 percent in HASS, 30 percent in medicine and 9 percent in engineering, indicating the declining tendency of this level of enrolment in the university. The phasing out of this level would mean a realignment in educational investment elsewhere.

Also, the enrolment in the certificate level is basically confined to social sciences, inclusive of liberal education, and management, followed by the institute of science and technology. The phasing out of this level would mean reallocation of the financial burden elsewhere so as to enable the university in the development of higher education.

The total enrolment in the university increased by 7.2 percent per year during 1970-1994 (9% between 1975 - 1993). However, the growth rates differ among different periods (Table 4.1). The enrolments in the technical institutes, except that in

engineering, declined in recent years while education, followed by management, registered rapid enrolment growth rates of 13 percent and 10 percent, respectively.

Table 4.1: Annual (Compound) Growth Rates in Enrolment in Tribhuvan University for Selected Years

SN	Institute/Faculty	1975-93	1977-93	1985-93	1990-93
1.	Agriculture	2.68	1.76	-7.21	-25.05
2.	Forestry	5.49	8.14	6.78	-0.82
3.	Engineering	5.71	3.00	-0.40	4.34
4.	Medicine	1.49	-0.78	3.60	-0.29
5.	Science and Technology	9.22	11.81	4.21	9.36
6.	Education	5.15	4.47	13.23	13.64
7.	Law	19.91	16.37	7.42	8.89
8.	Management	11.91	13.81	9.89	12.88
9.	Social Sciences	9.24	11.45	9.01	8.29
	Total	9.15	10.19	8.13	9.34

The wastage of the student time is high in higher education. The dropout rate is, for instance, around 20 percent; and the repetition rate is about 68 percent for the undergraduate cycle of four years. The dropout in the graduate level (based on central departments, Kirtipur) was 32 percent-10 percent in science and 40 percent in other faculties. The production of graduates declined from 29 percent of enrolment in the Fifth Plan (1975-89) to 16 percent in the Sixth Plan (180-85) The situation has hardly improved in recent years.

Public Financing of Higher Education

Though the public financing of higher education in Nepal in real terms had a high growth rate (7.4% a year) during 1975-1985, it has a low growth rate of 0.7 percent a year in recent years (during 1985-1993). During 1985-1994 the government financing of the T.U. in real terms has a low growth rate of 0.6 percent a year as it increased from Rs. 308.30 million in 1985 to Rs. 326.60 million in 1994. In 1993, the government grant for education was 0.51 percent of GDP and to Tribhuvan University 0.31 percent. Thus, the government has put the higher education to the non-priority area.

The education sector has got relatively less foreign aid. The foreign aid in Tribhuvan University is confined to the four technical institutes, benefiting only a few. The non-technical education was highly under-financed in the past. The paucity of

finance in non-technical institutes/faculties where the bulk of the enrolment is concentrated has resulted in the low level of investments in physical facilities, books and journals, and inadequate maintenance of the existing physical facilities.

Structure and Growth of Expenditure

a. Total Expenditure

In aggregate, the university spent Rs. 3,282 per student a year in the past 16 years. It allotted 20 percent expenditure on capital creation. In real terms, the total expenditure was Rs. 164.07 million in 1977 and increased to Rs. 277.80 million in 1993, leading to a growth rate of 3.1 percent a year. It amounted to Rs. 710.50 million in 1993 at current prices.

Four technical institutes with 9.2 percent of the total enrolment absorbed 35 percent of the total expenditure of T.U. during 1977-1993. The bulk of the share went to medicine (15.4% in total). The production of medical manpower is cost-intensive as it entails the provision of costly practical facility (e.g. hospital). In recent years, the proportion of T.U.'s total spending to these institutes (with the share of 4.6 percent in T.U. enrolment in 1993) increased from 38 percent in 1993 to almost 47 percent in 1994. It indicates the concentration of expenditure on them in recent years due to heavy foreign aid financing (89% of their combined total expenditure). But they cater to a limited number of students.

b. Capital Expenditure

Historical per student real capital expenditure stood at Rs. 642. The unit capital expenditure at current prices was Rs. 363 in 1993. However, the share of capital expenditure declined over the years and was a mere 5.3 percent in 1993 (it was 36 percent in 1977). In fact, the university had allotted 18 percent expenditure on capital in 1981 under the regular programme. In 1991, it just spent a mere 2.1 percent on it. It means that the university has not been able to investment much on it as the per student real capital expenditure was just Rs. 142 in 1993 (at 1985 prices). However, the level of real capital expenditure is quite low.

Another aspect of the capital expenditure is its concentration in the four technical institutes. In 1993, they accounted for about 97 percent of the university's total capital expenditure, implying a meager amount being allotted to other institutes and faculties.

However, the university, in general, has not been able to expand the teaching infrastructure (class rooms, laboratories, equipment, etc.) since 1980 due to these financial constraints.

c. Recurrent Expenditure

The recurrent expenditure averaged 80 percent of the total expenditure in the past. In recent years, its share has gone up to 95 percent in 1993. Its share in the total expenditure increased from 74 percent in 1977 to over 90 percent in 1986. The real recurrent expenditure increased by 4 percent a year during 1977-1993. The per student real recurrent expenditure averaged Rs. 2,710 in the past and stood at Rs. 1,898 in

1993. In fact, it declined over the years - from Rs. 2,554 in 1977 to Rs. 2,070 in 1990. It indicates the low level of the recurrent expenditure.

The share of salary in it has an increasing trend - it was 58 percent in 1977; 75 percent in 1990 and 84 percent in 1993. The salary for teachers accounted for 71 percent of the total salary. The share of salary in the total expenditure is, however, identical with the developing countries as a whole. But the salary level is unsustainable for decent livelihood. But the shares of maintenance and teaching quality on the recurrent expenditure has declining trends. The university, which spent 12 percent of the total expenditure on academic affairs (teaching quality improvement) in 1977, incurred a mere 5 percent in 1993 under the regular programme (exclusive of foreign aid). Similarly, it spent less and less on student scholarships. Moreover, the allocation to maintenance and teaching quality improvements was meager in the past.

The unit recurrent expenditure is the highest in medicine (Rs. 46,100) and the lowest in management (Rs. 1,390). The high unit recurrent cost in medicine is, to a certain extent, because of the pay rise of doctors since the mid-1980s.

Table 4.2: Real Unit Expenditures in Tribhuvan University by Institute and Broad Category

Institute/Faculty	1977	1980	1985	1990	1993	1993 prices
A. Capital Expenditure						
1. Technical Institutes	12,427	5,333	19,186	850	398	1,017
1.1 Agriculture	34,049	10,698	3,060	1,434	82	209
1.2 Forestry	10,354	2,926	56,994	92	485	1,238
1.3 Engineering	836	5,481	10,615	105	211	538
1.4 Medicine	4,470	2,226	6,075	1,769	814	2,081
2. Science and Technology	2,725	1,317	340	78	211	541
3. Law	953	500	79	25	91	232
4. Education	673	287	108	38	97	249
5. Management	618	458	102	23	60	152
6. Humanities & Social Sc.	823	221	88	36	74	189
7. T.U.	2,750	860	1,188	225	142	363
Recurrent Expenditure						
1. Technical Institutes	7,150	7,585	13,233	9,759	15,741	40,250
1.1 Agriculture	8,986	6,025	7,301	5,839	14,942	38,205
1.2 Forestry	9,248	9,830	16,447	3,352	11,028	28,199
1.3 Engineering	4,569	5,857	7,465	4,867	7,872	20,128
1.4 Medicine	5,797	8,627	21,720	24,977	29,123	74,467
						(46,100)
2. Science and Technology	6,486	4,112	2,914	2,476	2,556	6,538
3. Law	2,459	1,270	1,095	689	830	2,124
4. Education	3,846	3,047	5,543	1,663	1,808	4,620
5. Management	2,056	1,181	1,196	736	544	1,390
6. Humanities	2,445	1,459	1,974	979	1,196	3,057
7. T.U.	4,832	3,511	3,531	2,069	2,554	6,479

* Figure in the parentheses is the unit cost after adjusting for hospital operation.

Internal Revenue Generation

The total real revenue amounts to Rs. 447 per student in 1993 (Rs. 1,144.31 at current prices), which covered 16.6 percent of the total real expenditure and 17.5 percent of the recurrent expenditure in that year. The real fee revenue per student in that year was Rs. 334 (Rs. 854 at current prices) and the real non-fee revenue per student amounted to Rs. 113 (Rs. 290 at current prices). The university earns Rs. 104 per student from examination fee. However, the analysis by institute or faculty shows the low level of both fees and non-fees.

The share of fee revenue in the total internal revenue has a declining trend and formed about 75 percent in 1993. The revenue from tuition formed around 65 percent in 1978, 51 percent in 1991, and 52 percent in 1993. The next important fee revenue is the examination fee, which accounted for 31 percent in total fee revenue in 1993. The registration fee is the third crucial revenue with 4.4 percent share in the total fee revenue. Besides, the user charge from the teaching hospital contributes a sizable proportion in total revenue - 17 percent in 1993. However, the university gets a meager revenue from the four technical institutes. The proportion of revenue to total expenditure averaged 6.4 percent during 1991-1995 and that of the fee revenue to recurrent expenditure was 3.1 percent.

Financing of the University

The university had covered about 11 percent of its expenditure from internal revenue in 1978, which contributed to 13 percent in it in 1990. However, in 1993 the university financed 20 percent of its total expenditure from internal sources. Thus, the dependence on external sources of financing has been high in it.

Foreign aid has also played a crucial role in the creation of physical infrastructure and manpower development. Its share in university financing was, for instance, 28 percent in 1985 and declined to 12 percent in 1993. However, most of the foreign aid has gone to the four technical institutes as they shared almost all the foreign aid. Foreign aid plays a vital role in their financing. It finances 90 percent of the total expenditure of the technical institutes and 94 percent of their capital expenditure. Besides, the foreign aid also covers 78 percent of their recurrent expenditure.

Cost Recovery in T.U.

Cost recovery was quite low in the past with 8 percent during the 1980s. It went up to 20 percent in 1993. The fee revenue contributes about 75 percent in it. It means that the financial resource gap in T.U. is still wide, calling for additional efforts to augment internal revenue through increases in fees and other user charges.

Internal Efficiency

The student-teacher ratio and the unit recurrent costs are taken as proxies to gauge internal efficiency in the university. The increased student-teacher ratio, the indicator of the scale of economies, and falling unit recurrent cost indicate an increase in internal efficiency. However, the latter phenomena is basically the outcome of

under-financing. Thus, little improvement has occurred in internal efficiency in the university. The high repetition and dropout rates indicate rather low as well as falling internal efficiency. Underfinancing in non-technical education has contributed to this phenomenon.

Private Costs of Higher Education

The total private cost to a student is Rs. 3,820 per annum at 1993 prices, in which the direct private cost (fees) is just 21.50 percent.

Local Resource Mobilization

Limited efforts were made to mobilize resources locally since the introduction of the National Education System Plan in 1973. Prior to that, the private-sector had played a crucial role in running private campuses (colleges). Nevertheless, evidence exists in the past in local resource mobilisation. For instance, ten campuses outside Kathmandu had mobilized about Rs. 7.14 million during 1989-1991. Some campuses in recent years have used certain portion of their land for commercial purposes. Thus, it is possible to mobilize resources locally through decentralization.

Projections of Financial Requirements

The projections of financial requirements are based on two basic premises - a) introduction of Three-Year Bachelor programme in non-technical institutes/faculties, and b) phasing out of the Proficiency Certificate levels. The enrolment scenarios are developed in terms of the Proficiency Certificate Level phase out by 2001/02 or by 2006/07. Thus, the unregulated enrolment projections contain two scenarios - Scenario I with the Proficiency Certificate Level phase out by 2001/02; and Scenario II with the Proficiency Certificate Level phase out by 2006/07. The liberalization of higher education through decentralization and regionalization would mean increased private sector involvement in higher education. Regulated enrolment allows for the possibility of promotion of self-financing mechanism elsewhere. Besides, the limited absorptive capacity under the resource-constrained Tribhuvan University would entail regulation of enrolment. These two factors together with the Proficiency Certificate Level phase out are considered for projecting the regulated enrolment in the university and they lead to two scenarios - Scenario III with the Proficiency Certificate Level phase out by 2001/02; and Scenario IV with the Proficiency Certificate Level phase out by 2006/07. They provide the enrolment base that is used to estimate financial requirements and resource gaps under alternative policy options. However, the projections here use regulated enrolment with the second alternatives for Proficiency Certificate Level phase out. This scenario is used here as it is considered to be the likely one. However, an overview of the financial situation under different scenarios with two policy options - Option 1 and Option 4 - are given in Annex 1 and 2. Two policy options are used for the estimation of financial requirements for 1996/97, 2001/02 and 2006/07 and they are:

Policy Option 1

- a. phase out of Proficiency Certificate Level by 2001/02
- b. tuition constant

- c. tuition waiver to 20 percent students
- d. constant unit recurrent cost

The policy option 1 is not tenable as it is conservative in a situation of financial constraint.

Policy Option 4

- a. phase out of Proficiency Certificate Level by 2006/07
- b. tuition increase by 10 percent
- c. tuition waiver to 10 percent students
- d. decrease in unit recurrent cost (except in four technical institutes, and science and technology where it is constant).

The parameter (d) in policy option 4 is not applied to the institute of science and technology as the saving in unit cost will be used for quality improvements and increased maintenance allocation. This policy option 4 is used as it is compatible with scenario 4.

Enrolment Projections

The projections of enrolment based on the historical growth rate are not used. The regulated enrolment projections are used and the projections by institute/faculty are given in Table A5 (Appendix) of the main report. The projected total enrolment in the university under the phasing out of the Proficiency Certificate Level by 2001/02 will be 106,233 in 1997; 125,555 in 2002; and 197,153 in 2007 (Table 4.3). But this scenario is not used. The likely scenario will be the complete phase out of the Proficiency Certificate Level by 2006/07. It means that the total enrolment in the university will be 138,199 in 1997; 177,349 in 2002; and 197,153 in 2007.

Table 4.3: Projection of Tribhuvan University Total Regulated Enrolments under Alternative Phasing out of Certificate Level

(in Number)

Year	Phase out of Certificate Level by	
	2001/02	2006/07
1992/93	103,840	103,840
1996/97	106,233	138,199
2001/02	125,555	177,349
2006/07	197,153	197,153

Projections of Expenditure

The projections of both revenue and expenditure are at 1993 prices. First, the projection of the financial requirements and resource gap (expenditure minus internal

revenue) is made for the Eighth Plan (1993-1997). This is an unregulated scenario as it prevails at present. The government grants and the total expenditures for the first three years are based on budgets of the university (Table 4.4). The government grants for the rest of two years are based on the university's share in GDP (0.31%), which is projected to grow by 5 percent a year. The internal revenues for the plan period, except that for 1993, are based on the unit revenue. The projected expenditure requirement for the Eighth Plan will be Rs. 5,087 million, in which the internal revenue will contribute 12.40 percent; and the external financing will have to meet 87.60 percent, in which the government grant will cover 54.30 percent. It means that the rest i.e. 33.30 percent - will be the additional financial needs of university. Thus, the policy implications of it will be increased burden sharing by the government together with additional efforts of the university to generate more resources through better pricing of its services. The priority would have been to raise the fee levels as the internal revenue projection is based on the existing fee structure.

Table 4.4: Projections of GDP and Total Financial Requirements of Tribhuvan University During 1993-1997

(Rs in million at 1993 prices)

Year	GDP	HMG grant to T.U.	T.U. total expenditure	T.U. internal revenue	Resource Gap
1993	164,634	509.5	710.5	118.82	591.68
1994	172,866	547.8	964.8	122.67	842.13
1995	181,510	493.2	1082.3	126.33	955.97
1996	190,584	590.8	1136.4	130.14	1,006.26
1997	200,114	620.4	1193.2	134.04	1,059.16
Eighth plan (1993-1997)	909,708	2761.7	5087.2	632.00	4,455.20

Note: 1. The government (HMG) grants to T.U. for 1993, 1994 and 1995 are based on T.U. budgets and the rest are projections based on the T.U. share in GDP (.31%).

2. GDP is projected to grow by 5 percent a year.

Second, the following projections of the financial requirements and resource gaps are made for selected years under different scenarios and two alternative policy options for both unregulated and regulated enrolments. The cost estimates are separately done for capital and recurrent ones (Annexes 1 and 2). The recurrent expenditure is the product of the unit recurrent cost and the enrolment of a given year. The focus of the analysis is on the recurrent expenditure. For the projection of the capital expenditure in the non-technical faculties, the annual growth rates of 5 percent and 2 percent are used for unregulated and regulated enrolments, respectively. It is 7 percent growth rate for the four technical institutes. The historical unit capital expenditure is used for science and technology as a basis; and the capital requirement is the product of this with the enrolment level of a given year. The creation of physical

infrastructure has already been done in the four technical institutes. To compensate for the lag in investment in the Institute of Science and Technology in the past, especially in the 1980s, the historical unit capital expenditure, higher figure compared to that of 1993, has been used together with the saving arising out of teacher transfer and no replacement of retired teachers. These specific allowances would allow the leeway of an increased provision for the addition of infrastructure in the institute. Besides, the presumed growth rate provides annualized expenditure on capital items that have a varying economic life of 3 to 30 years. Thus, the projection of capital expenditure, based on the financially squeezed situation and regulated enrolment, is enough for moderate improvement in infrastructure in the university. This approach will compensate the past inadequate investment in the institute.

Under the unregulated scenarios (Scenarios 1 and 2 with Options 1 and 4 for each), the financial requirements will be Rs. 584 million to Rs. 611 million in 1996/97, Rs. 738 million to Rs. 856 million in 2001/02, and Rs. 1,178 million to Rs. 2,339 million in 2006/07. The Scenario 1 with Option 4 yields high cost recovery of over 20 percent beyond 2000 A.D. But the unregulated enrolment will mean very high financial gap ranging from Rs. 550 million in 1996/97 to over Rs. 2,000 million in 2006/07. Thus, it is not tenable.

The regulated enrolment scenario will be acceptable as it allows improvement in cost recovery. The Scenario 3 with the Proficiency Certificate Level phase out by 2002, (with policy option 4) leads to higher cost recovery, which will be around 16 percent in 1996/97, 19 percent in 2001/02 and 28 percent in 2006/07. Since the complete phase out of the Proficiency Certificate Level by 2002 is considered not feasible, its late phase out, i.e. by 2007, is considered here. Thus, under the Scenario 4 with the policy Option 4 the cost recovery rates will improve from 17 percent in 1977 to 21 percent in 2002 and 27 percent in 2007. Nevertheless, it is obvious that the cost recovery is still low, implying the policy option of further increase in user charges-fees and non- fees.

The regulated enrolment with the Proficiency Certificate Level phase out by 2007 will lead to a 5 percent growth in enrolment during a decade beyond 1997 (Table 4.5). The financial requirements in the university under the regular programme will be Rs. 926 million in 1997, Rs. 1,010 million in 2002, and Rs. 1,040 million in 2007. It will mean an increase in total real expenditure by 1.2 percent a year. The capital expenditure requirements will be Rs. 86.10 million in 1997, Rs. 102.70 million in 2002, and Rs. 95.30 million in 2007. The requirements of the recurrent expenditure will be Rs. 840.10 million in 1997, Rs. 907.50 million in 2002, and Rs. 944.70 million in 2007.

Projections of Internal Revenue

The revenue loss through the Proficiency Certificate Level phase out is inbuilt in the projection of internal revenues. The internal revenue generation (under Scenario 4 with 10 percent fee increase and tuition waiver to 10 percent students) will be Rs. 141 million in 1997, Rs. 192 million in 2002 and Rs. 253 million in 2007.

Table 4.5: Projections of Tribhuvan University Financial Requirements Under Regular Programme for Selected Years (regulated enrolment with phasing out of Certificate level by 2006/07 with policy option 4)

(Rs in million at 1993 prices)

Year	Total enrolment	Total expenditure			Internal revenue	
		Institutes	Other	Total	Fee	Total
1996/97	138,199	693.5	232.7	926.2	105.0	140.7
2001/02	177,349	756.4	253.8	1,010.2	143.0	191.6
2006/07	197,153	778.7	261.3	1,040.0	188.9	253.1

Financial Resource Gap and Cost Recovery

The financial resource gap under the above situation in the university will be Rs. 786 million in 1997, Rs. 819 million in 2002 and Rs. 787 million in 2007. The total cost recovery rates (internal revenue to total expenditure) will be 15 percent in 1997, 19 percent in 2002 and 24 percent in 2007. The partial recovery rates (the ratio of internal revenue to recurrent expenditure) will be 16.8 percent in 1997, 21.2 percent in 2002, and 26.8 percent in 2007. Such a rate of cost recovery will mean limited improvement in the financial situation up to 2002, entailing an early effort to raise fee revenue through an increase in the fee levels by more than 10 percent, at least, in alternate year from 1995 onward.

Challenges

The following are the major challenges facing the university.

1. The university has been in the financial squeeze, leading to inadequate financing on:
 - a. teaching quality, including inadequate manpower development through further training and seminar. It is especially so in non-technical institutes and faculties.
 - b. poor maintenance of physical facilities, including educational equipment.
 - c. lack of adequate physical facilities in non-technical institutes/faculties.
 - d. lack of qualified administrative personnel.
 - e. inadequate salary, enticing the staff for moonlighting and braindrain.

This financial squeeze has, thus, led to the wastage of physical and human resources.

2. Overstaffing in both teaching and administration arising out of the non-provision of research assistants, political expediency of extension of campuses, and job creation in them.
3. Programme addition without adequate financial support, leading to underfinancing of activities, and arbitrariness in financial allocation.
4. Low internal efficiency: high repetition and failure rates.
5. Very low unit revenue due to low fee levels and inadequate user charges for housing, utilities and other services. This has led to low cost recovery.
6. Weak information base constraining rigorous analysis of the structure of enrolments, revenues and expenditures.

Projections

Enrolments in T.U. are projected with regulation and phasing out of the PCL. The regulation and the phase out will allow the provision of the regional development of higher education with the assumption of increased private sector participation. The provision of regulated enrolment allows the possibility of the promotion of self-financing mechanism elsewhere. The late phase out of the PCL level, i.e. by 2006/07 has been considered tenable. Under this, the total enrolment in T.U. will increase from 103,840 in 1993, to 138,199 in 1997, 177,249 in 2002, and to 197,153 in 2007. The total financial requirement to T.U. will be Rs. 926.20 million in 1997, Rs. 1,010 million in 2002, and Rs. 1,040.30 million in 2007. This scenario presumes effective and efficient allocation as well as use of resources.

The total capital expenditure requirement in T.U. will be Rs. 86.10 million in 1997, Rs. 102.70 million in 2002, and Rs. 95.30 million in 2007. The infrastructural provisions exist in the four technical institutes; and provisions are made for increased infrastructure in general science (IST). Besides, the expenditure on capital goods with the varying economic life, say 3 to 30 years, is an annualized one. Thus, the amount of capital expenditure would be enough for a moderate improvement in infrastructure under the situation of improved resource allocation and utilization.

The total recurrent expenditure requirement will be Rs. 840.10 million in 1997, Rs. 907.50 million in 2002, and Rs. 944.70 million in 2007. The projection is based on the environment of the financial squeeze and is, thus, a moderate one and is based on the presumption of efficient resource allocation and utilization.

The total internal revenue will be Rs. 141 million in 1997, Rs. 192 million in 2002, and Rs. 253 million in 2007. The revenue lows through the PCL phase out is inbuilt in the level of internal revenue generation.

The (recurrent) cost recovery rate will be 17 % in 1997, 21 % in 2001 and 27 % in 2007.

The above projection provides moderately improved teaching quality as well as facilities in the university. Since the projected internal revenue provides limited scope for the increased allocation for teaching quality, physical facilities, and adequate remuneration to manpower to contain moonlighting and brain drain, it would be pragmatic to have both efficient resource use as well as an increase in the level of expenditure. For the latter strategy, the university should increase fees and other user charges further together with the mobilization of external financing.

Recommendations

The following are the strategies recommended to policy makers:

Resource mobilization

1. The tuition waiver should be reduced immediately, say by 1995, to 10 percent students. Then it ought to be further reduced to 5 percent students.
2. The fee levels ought to be increased by 10 percent either every alternate year or by 5 percent every year from 1996 onward. The latter strategy will yield more revenue with less cost of political resistance.
3. The cost recovery should be partial, i.e. the recurrent one only. The cost recovery rate should be as follows:
 - a. 30-50 percent in humanities and social sciences (excluding economics), and education.
 - b. 50-70 percent in engineering, general science, forestry and agriculture.
 - c. above 70 percent in economics, law, management and medicine.

This strategy should be related to 1-2 above.

4. User charge

The user charges other than fees should also be raised gradually. The user charges for accommodation (hostel and staff quarters) and for the consumption of public utilities (e.g. electricity, water, telephone and so on) needs to be raised by 5 percent every year.

5. Consultancy, Training and Seminar

The university should vigorously promote consultancy and training and seminar services in an institutionalized way. The research centres should be mobilized with the provision of greater autonomy. Such a measure means a decentralized management mechanism.

6. Sales of Selective Publications

The university should pursue the strategy of the selective promotion of sales of publications. It ought to encourage the publication of research works. Besides, it needs to initiate the publication of standard textbooks with (net) profit margins of 2-3 percent. This strategy will benefit consumers of the publications, too.

7. Commercial Use of Some Assets

The university ought to allow campuses to use some of their assets (e.g. land, auditorium, etc.) for commercial use. However, it should not infringe on the educational environment. Besides, the concerned campus ought to be allowed to use the generated revenue for its own development. The central authority will have to monitor it, however.

8. Deposit Mobilization

The deposit mobilization is a potentially viable option to contain the financial squeeze. The increased deposits from students for library, laboratory, hostels and recreation in particular should be initiated by the university. Such deposits would have to be put to funds for the concerned activities that would allow to increase the supply of services for educational quality.

9. Local Resource Mobilization

In addition to raising fees and deposits, the university should encourage individual campuses to mobilize local resources and allow them to use the resources themselves. Yet it would have to monitor the efforts. Besides, the university need to endeavor to acquire more donations and endowments at the central as well as local levels. The transparency of local participation is needed for increased private sector participation. Evidences abound in legacy in the form of Amrit Science College and Shankar Dev College.

10. Student Loans

Though the student loan that is generally given for tuition and living is a potential cost recovery source (2), the repayment is low. It has a high default rate and high administrative cost. Thus, it is not viable here due to weak administrative mechanism.

11. Rationale for State Financing

The government is the major consumer of services of the products of higher education. It needs high-level manpower in the general civil service and technical ministries such as agriculture, education, forestry, health, transportation and so on. Besides, it needs school teachers, too. The phasing out of the PCL would not lead to the corresponding shift of university teachers. It means that the university needs to produce more post graduates, especially in science, mathematics, statistics, and English language, and so on. It implies that the government should have optimum use of existing educational infrastructure and it should shoulder additional burden of investing on physical facilities. That is possible to the government through the provision of additional finance to the university as it is the best alternative with least additional cost.

Besides, development also depends on the level of educational attainment of its labour force (e.g. Germany, U.K. Korea, Taiwan, France, Russia, USA, Japan, etc.). In fact, students with limited financial affordability enroll in the public university, and, thus, it can contribute to the promotion of social justice. The governments elsewhere contribute sizable proportion of funds to public higher education, too. All these factors entail a pragmatic burden sharing in financing of T.U. by the government.

12. Foreign Aid

The university should endeavor to acquire increased foreign aid in the form of grants and loans. It would be preferable to go to multilateral donors. In fact, the university has moved in this direction. Besides, the possibility of joint venture should be explored in specific areas such as medicine, agriculture and forestry where diversity abounds for wide spectrumed education.

Increased Financial Allocation

The university should allocated more finance on the following areas:

1. Teaching quality

The university should increase finance for teaching quality on both capital as well as current accounts. It should allocate more funds for educational materials, research and training as well as seminars, publications and so on.

2. Adequate Provision for Maintenance

The present level of financial allocation is quite inadequate for maintenance. Thus, the financial allocation should be increased for it.

3. Provision of Financial Incentives

The present pay scales are quite inadequate for a sustained living to the staff of the university. Thus, it is necessary to increase salaries of the staff.

4. Physical Facilities

The university should initiate selectively the creation of physical facilities. It should first do so in general science and management, and so on.

Institutional Reform

The institutional reform should be pursued in the following areas:

1. Budgeting

The budgeting should be programme-based and should reflect the revenue as well as expenditure by level, institute and faculty. Efforts need to be made to provide cost and revenue information by level of tertiary education.

2. Strengthen Information Base

The information-base should be strengthened to have better and timely information flow regarding enrolment, revenue, expenditure and teaching load. The information should reflect all the institutes, faculties, centres, and central office, including the controller of examinations.

3. Monitoring

The university should institutionalize the monitoring mechanism that should include general administration, too. The Planning Division should undertake this activity.

4. Decentralization

Tribhuvan University's top management should allow campuses to function freely regarding enrolment, financial management and local resource mobilization. The university should monitor and make their functioning transparent to the public.

5. Calendar of Academic Operations

Tribhuvan University should improve calendar of academic operations. They should introduce refresher courses prior to the operation of the regular classes.

Internal Efficiency and Resource Utilization

The following measures should be taken to increase internal efficiency:

1. Improvement in financial management:

- a. Programme-based budgeting: The traditional method should be replaced by programme-based budgeting.
- b. Improvement in accounting system: The revenue and expenditure, including foreign aid, should be maintained by institute. The revenue collection should be made more effective.
- c. Institutionalization of monitoring of activities, including the teaching load and use of resources to promote their optimal use.
- d. The training for financial management, including accounting, needs to be given to the staff.

2. Overstaffing:

As staff salary and benefits consume 83 percent of its regular budget, TU should introduce rigorous work load norms for teachers. Creation of senior academic posts should be based on verifiable programme needs and job definitions. The retired staff should not be replaced. The voluntary retirement policy has to be initiated in the university with caution, however.

3. Improvement in curricula and teaching methods: Improvements in curricula and teaching methods should be pursued continuously.

4. Improvement in General Administration:

The general administration is weak, and inefficient that has to be rectified. The training is crucial for this.

These measures will promote optimal use of resources in the future.

Role of the University Grants Commission

The UGC should allocate financial grants to higher education. Since the state should shoulder major share in financing of public higher education, the UGC should continue to the present share of financing to T.U., that is 70 % of its fund. For alleviating the financial constraint of T.U., it would be preferable to opt for 80 percent of its grants to T.U. The higher education outside the TU system is just evolving. So the above strategy for the UGC would be pragmatic. However, it would be pertinent to know how UGCs elsewhere function. For this an in-depth study should be made in the immediate future.

Regionalisation and Decentralization

The regulated enrolment takes into account the regional development of universities. The phasing out of the PCL also takes care of decentralization. Besides, the latter issue is tackled above.

Further Empirical Research Works

Further empirical research works are needed on the following issues:

- a. how to make internal financial system efficient, especially on budgeting, accounting and resource allocation.
- b. functioning of private higher education systems.
- c. private and public rates of return of higher education.