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# REFORMS AT THE INSTITUTE OF ENGINEERING



TRIBHUVAN UNIVERSITY  
NEPAL

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## **REFORMS AT THE INSTITUTE OF ENGINEERING TRIBHUVAN UNIVERSITY, NEPAL**

### **Abstract**

This paper traces the path of successful reform in higher education as experienced by Nepal's Institute of Engineering (IOE) at Tribhuvan University. IOE faced tough challenges common to public institutions of higher education in developing countries: insufficient funds, constrained student access, and low-quality academic programs. Beginning in the mid-eighties, IOE embarked on a series of reforms, with far-reaching implications not only for itself but also for Nepal's entire education system. IOE is today widely regarded as a model for higher education reform, even attracting interest from academic institutions abroad. Key to success was an approach marked by persistence, incremental change, and wide stakeholder inclusion. This paper explores: (1) how education reforms at IOE progressively built on each other over time; (2) how one particular reform—cost-sharing—was successfully introduced in a highly resistant environment; and (3) what lessons can be learned from IOE's experience.

## **REFORMS AT THE INSTITUTE OF ENGINEERING TRIBHUVAN UNIVERSITY, NEPAL**

### **Introduction**

Established in 1959, Nepal's Tribhuvan University (TU) maintains nine faculties currently distributed across 61 public campuses<sup>1</sup> and 177 affiliated private campuses throughout the country. TU's nearly 200,000 students account for over 95% of higher education enrollment in Nepal; it was the only university in Nepal until 1985. The Institute of Engineering (IOE) is one of the faculties of TU and offers academic programs at four campuses. Total student enrollment at IOE is just over 4,000, with 120 students at the Master's and Ph.D. levels, 1,300 at the Bachelor's level, and 2,700 at the Technician level.

IOE began in 1943 as the engineering division of the Technical School in Kathmandu. In 1951, the division was converted to an engineering school and named the Nepal Engineering Institute in 1966. In 1972, this Institute (now the Pulchowk campus) and the Technical Training Institute, established in 1965 (and now the Thapathali campus), were brought under the TU umbrella to form the Institute of Engineering. In 1983 and 1984, respectively, Eastern Region and Western Region campuses were established under IOE.

The year 1979 marked an unhappy turning point for TU. Violent student protests spilled beyond university grounds into the public arena, posing a threat to the political system of "partyless" democracy under King Birendra. Guided by the King, significant concessions were made to appease the students. These concessions hurt IOE's academic environment. The semester system was replaced with an annual system. Under student pressure, reexaminations were held regularly, unpopular tutors were changed frequently, and homework assignments were reduced or eliminated. Faculty and administrative staff became demoralized and fearful of the students; faculty absenteeism increased, as did the disruptive activities of students; the academic calendar became elusive as courses lasted well beyond planned timetables; and the admissions system suffered as the entrance test was abolished and students began to dictate admissions policy. Not surprisingly, teaching and learning levels were modest and student retention rates were low.

### **1. TWO-PHASED REFORM: 1986 - PRESENT**

#### **The Genesis of Reforms: Establishment of Fair Admissions**

Following the 1979 protests, IOE's engineering faculty—many of whom had come from highly regarded international institutions during the seventies—could not tolerate the deterioration of the academic setting. The young and enthusiastic faculty members, each of whom aspired to develop IOE into a reputable institution like the ones from which they had come, created a climate conducive to reform.

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<sup>1</sup> Known as constituent campuses, which are publicly financed.

In 1985, IOE ended backdoor admissions marked by nepotism and political wrangling and created a fair and transparent system based on merit. This bold step meant standing up against political and societal norms and paying a price in terms of a long delay in the start of the Engineering Education Project<sup>2</sup> (EEP). However, student moral support allowed this seemingly impossible reform to succeed.

It became evident that the admissions policy reform yielded far more dividends than costs. A fair admissions system enabled IOE to enroll the best students and to produce internationally recognized high-quality graduates. The reform also boosted the morale of the institute as a whole and its management team in particular. It established the credibility of the administration and provided an impetus for broader academic reforms—such as improvements in the university’s entrance examination system—which could not have taken place without this initial step.

In a society characterized by deep-rooted corruption, nepotism, and favoritism, many did not initially believe reports of fair admission practices at IOE; even after 16 years of untainted admissions, skeptics remain. Nevertheless, except for the few who benefited from backdoor admissions, IOE’s fair admissions practice is admired by Nepalese society in general and is a jewel in the institution’s crown.

#### **The First Phase of Reforms: 1986 - 1994**

The success of fair admissions set the tone for further reform. The first phase of reforms did not start with a coordinated plan or blueprint but was rather an aggregation of various uncoordinated efforts originating from a strong desire to improve IOE. This first phase included:

- regularly-held classes
- introduction of and adherence to an academic calendar
- reintroduction of a semester system
- improvement in the administration of examinations
- improvement in student discipline
- improvement in dormitory management
- contracting out telephone network maintenance
- introduction of student fee increases

#### *Regularly-held Classes*

Absenteeism from classes on the part of both faculty and students was widespread until the mid-1980s. The administration was unable to curb the high absenteeism rates, which were generally accepted. The introduction of academic counseling for students, discussions with teachers, administrative measures for noncompliant teachers, and class

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<sup>2</sup> Assisted by the World Bank and Swiss and Canadian governments, this project was identified in 1983 and became effective in 1989.

monitoring procedures all helped to improve the rate of regularly-held classes from approximately 50% of all classes held to 90%.

### *Academic Calendar*

Prior to the reform there was no academic calendar and the academic year typically extended beyond twelve months. Dates for the opening of an academic year and for final examinations were subject to negotiation between faculty and students. On many occasions, students prolonged the academic session by amending the calendar or by resetting the examination schedule. Agreed-upon dates were often changed at the last minute. The lack of an enforced academic calendar led to virtual chaos in the planning and implementation of academic programs. It took four years of persistent discussions with students and faculty to synchronize all academic programs and establish a fixed calendar.

### *The Semester System*

After a 7-year hiatus, the semester system was reintroduced in 1986 despite some student resistance. The initial difficulties with the reintroduction of the system were overcome after discussions among faculty and students. IOE made a further move toward strengthening the semester system by introducing a continuous assessment system<sup>3</sup>.

### *Administration of Examinations*

In 1987—until which time the Office of the Controller of Examinations was the sole authority designated to administer examinations for all of TU's campuses—IOE argued the case for administering its own examinations in the interests of increased efficiency. It thus became the first faculty at TU to take over this function from the Controller's Office; this responsibility was later fully delegated to three other technical faculties. IOE's ability to administer its own examinations helped enforce adherence to the academic calendar; enhanced the validity of examinations through the enforcement of strict discipline in the examination halls; introduced an additional session of remedial examinations to improve completion rates; and improved efficiency in processing examination results.

### *Student Discipline*

At the beginning of the reform period, administrators and faculty alike operated in an environment of fear created by politically powerful students. It was not uncommon for administrators to protect themselves from students by making various compromises. Learning to re-establish faculty authority with students necessitated assiduous efforts. The gradual improvement of the campus academic environment was a major facilitator in this painstaking process as students began to recognize the importance of working with faculty to achieve their academic goals. At present, the campus climate at IOE differs from that at most of TU's other campuses—demonstrated by the regular operation of

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<sup>3</sup> In a continuous assessment system students are evaluated based not only on final examinations but also on class work.

campus during the Holi Festival (when other TU campuses are closed), restraint from wall painting and minimum class disturbance during student elections, and respectful relationships between faculty and students.

#### *Dormitory Management*

The number of dormitory places did not come close to meeting the heavy student demand for them. IOE's administration had little voice in dormitory allocations, largely controlled by students and influenced by political affiliations, favoritism, and nepotism. In 1986, IOE took control of its own dormitories in what was a significant victory for the administration, illustrating that even unruly students could be brought around through serious dialogue with the student community. A related milestone was the transfer of university-run dining services to a private contractor, resulting in lower costs and improved operations.

#### *Telephone Maintenance Services Outsourcing*

Facilities management was an ongoing problem at IOE. As a first step, the maintenance of the campus' internal telephone network was contracted out to a private party. This arrangement has to date continued to work successfully.

#### *Student Fee Increase*

Student fees have been and continue to be a politically sensitive issue. The mere discussion of additional contributions from students often met with strong resistance, evidenced in the last two extremely modest TU fee revisions in 1972 and 1991. Under such adverse circumstances, IOE successfully negotiated with students, in 1993, the introduction of a student contribution to the Campus Development Fund, the Campus Maintenance Fund and the Dormitory Development Fund, payable at the time of admission.

#### **The Second Phase of Reforms: 1995 - Present**

The second phase of reforms was based on the solid foundation established during the first phase. A relatively clear conceptual framework was in place before the start of the second phase, although a "master plan" never existed. Education reforms being often the result of socio-political compromises across diverse stakeholders with conflicting interests, the final results were in many cases different from those earlier envisioned. The major achievements of the second phase of reforms were as follows:

- formation of the Advisory Council
- decentralization at the university level
- strengthening of academic regulations
- expansion of the academic program
- increased international cooperation
- increased quality of academic programs

- diversification of services
- decentralization within the faculty
- bridging the private/public divide
- introduction of cost recovery initiatives

### *Advisory Council*

The second phase of reforms started with the formation of a body representing all of IOE's stakeholders in the form of an Advisory Council. This step reflected important lessons learned during the first phase of reforms, that: (i) the process of education reform extends beyond campus boundaries, involving not only students, faculty, staff, and managers but also representatives from the government, community, and corporate sector; and (ii) in many developing countries, leaders of educational institutions are often targeted as scapegoats by students and even by faculty and staff frustrated and angry with the government. Not always strong or administratively powerful enough to withstand the—sometimes violent—pressures they face, these leaders could be forced to compromise academic interests (such as the abolition of the semester system in 1979 and the virtual fee freeze).

The need for wide discussion of the concept of an advisory body was clear. The TU Rules then in place did not provide for the creation of such a body, and a similar initiative by one of IOE's campuses during the first phase of reform had been blocked by management, which perceived it as a threat. Intensive discussions with administrators, faculty, staff, and students were thus held, with the reform presented as a means to further the academic accomplishments of the faculty and to generally advance the career prospects of faculty, staff, and students. The broad stakeholder consultation was so successful that it became the approach taken in all subsequent discussions and public debates held during this phase of reforms. Open discussions often helped to significantly enhance the reform plan because a wide range of suggestions and implementation modalities were brought to the table to address complicated problems. Such discussions also built broad-based ownership and solid support of the reforms in a changing and uncertain socio-political environment.

After extensive debate, the terms of reference and composition of the Advisory Council were agreed. The first business on the agenda for the newly formed Council was the adoption of its responsibilities, determined to be the formulation of policies for the faculty consistent with existing legal provisions; a review of the faculty's annual report; and the provision of appropriate directives to the Dean.

Because the Council was established as an ad hoc body, the Dean's delegation of authority to the Council was its legal basis for existence and its decisions became legally binding only upon endorsement by the Dean. The Dean thus, paradoxically, had authority over a body charged with guiding and evaluating him and his administration. Perceived, however, to have good intentions and no hidden agenda, the leadership was able to foster an atmosphere of trust with the stakeholders.

The Advisory Council played a vital role throughout the reform process. The Council was relatively large, comprising 35 members, to assure the broadest possible representation of stakeholders. All Council meetings were open to the public and policy proposals to be adopted by the Council were circulated in public at least 15 days in advance of the meeting. All former deans were ex-officio members of the Council, to assure continuity of policies and access to a wealth of experience. Student, faculty, and staff union representatives served on the Council, which gave it political clout. Finally, executive matters were deliberately kept outside the purview of the Council because such decisions could create a rift within the Council. The management took full responsibility for its executive decisions while not making policy decisions on its own and abiding by all of the Council's policy decisions.

#### *Decentralization at the University Level*

By the mid-1990s, TU's centralized organization was leading to the virtual stagnation, if not degradation, of the university system. Sixty-one of the 230 campuses spread across the country were governed by the central administration, which conducted all faculty and staff recruitment and promotions, leaving faculties virtually no role in such decisions. Faculties were similarly unable to retain any savings from budget allocations, determine fiscal priorities for the campus, accept any grants or endowments until approved by the central authority, or take any disciplinary action against students and staff. Notwithstanding a broad national consensus that greater autonomy for faculties and campuses was essential for academic growth and vitality, the university made little effort toward decentralization because its faculties were presumed not to be mature enough to judiciously exercise greater authority.

The successful implementation of IOE's reforms demonstrated the capability of TU faculties to effectively manage their own affairs. With support from the IDA-assisted Higher Education Project, in 1998 the university adopted the Decentralization Rules, which created management councils based on the model of IOE's Advisory Council. The implementation of the rules was a major breakthrough, holding great promise. IOE was the first faculty permitted to operate under the Decentralization Rules. The major responsibilities delegated to IOE included budget management, restructuring of redundant positions, and wide decision-making authority covering poorly performing staff and faculty; sabbatical leave for faculty; disciplinary action against students; grants and endowments from national and international agencies; development and implementation of a performance evaluation system; and student fees.

#### *Strengthening Academic Regulations*

The academic calendar implemented during the first reform phase did not specify dates for the announcement of examination results, due both to the lengthy grading process and administrative inefficiency. In 1998, IOE succeeded in determining the dates on which examination results would be posted and in strictly adhering to them, marking the full-fledged implementation of an academic calendar at IOE.

The academic regulations at TU used to allow students to be promoted without passing any of their subjects and to take remedial examinations an unlimited number of times. In 1996, IOE adopted regulations severely limiting liberal promotions and opportunities for remedial examinations, to further strengthen its academic standing. In spite of strong resistance from student unions, these policies were successfully implemented, yielding high dividends in the form of significantly higher student pass rates.

### *Expansion of Academic Programs*

In 1998, IOE started a Bachelor's degree program in Computer Engineering—the first course for which the Institute relied solely on its own financial resources and knowledge. This initiative signaled IOE's academic and administrative maturity, rooted in the awareness that it had an obligation to meet the demands of the country and could not wait for the typical five- to seven-year gestation period for a new program. In 2000, IOE started a Bachelor's degree program in Agricultural Engineering, again relying on its own resources. The heavy investment in Technician and Bachelor's degree programs enabled IOE to reach new academic heights, as the programs prepared fertile intellectual ground for the establishment of upper level degrees.

IOE launched its first Master's degree program, in Urban Planning, in 1996, with only nominal support from the Norwegian Council for Universities for Research and Development (NUFU)—a departure from the earlier practice of starting new academic programs with substantial donor funding and foreign technical assistance. Government support was limited to sanctioning a few new staff positions, which took place well after the program's launch. This program also received some technical assistance from the faculty of the School of Planning and Architecture in New Delhi. The implementation of the Master's program was financially sustainable because of the introduction of cost recovery reforms, discussed in the second part of this paper. Other Master's degree programs including Structural Engineering, Environmental Engineering, and Water Resources Engineering, followed the lead of Urban Planning. While the first three programs started with token assistance from the NUFU, the fourth relied exclusively on local resources and expertise.

The introduction of Master's degree programs was a major academic achievement for IOE. It upgraded its image from that of an institution focused primarily on the dissemination of knowledge to one contributing to knowledge creation and advancement. The initiation of a Ph.D. program in 1997 further strengthened IOE's image.

### *International Cooperation*

IOE entered into cooperative partnerships with many universities worldwide, crucial to elevating its reputation internationally. Major collaborating partners are the Indian Institute of Technology, Kanpur and the School of Planning and Architecture, New Delhi in India, Osaka Sangyo University in Japan, Ball State University in the United States, and Norwegian State University of Science and Technology in Norway.

### *Quality*

IOE also introduced extensive use of external examiners for the evaluation of its Master's degree programs. Examiners have mostly been from the Indian Institute of Technology (Kanpur, New Delhi, and Bombay), and the School of Planning and Architecture in New Delhi. The quality of Master's degree programs has subsequently been rated highly by the external examiners.

The quality of Bachelor's degree programs has received consistently high ratings, nationally and internationally. IOE graduates have been outperforming graduates from other universities in securing government positions in Nepal while being also widely accepted for postgraduate programs in reputable universities elsewhere. Nepal relies solely on IOE for engineering technicians, and feedback from industries indicates that IOE technicians meet employers' work performance expectations.

### *Diversification of Services*

The following units (some created before the second phase of reforms) were created by IOE to deliver various services to public and private agencies:

- Institute of Engineering Consultancy Services
- Soil and Materials Testing Laboratory
- Continuing Education Division
- Research and Training Units
- Center for Applied Research and Development
- Center for Energy Studies
- Center of Information Technology

In addition, IOE became a shareholder of a private company, Hydrolab Pvt. Ltd., which offers services for hydraulic model testing.

### *Decentralization within IOE*

Prior to reform, the little authority enjoyed by IOE was concentrated in the hands of the Dean and Campus Chiefs. This arrangement severely limited faculty and staff initiative and posed challenges for accountability. In case of a crisis, campus faculty and staff often worked at odds with the campus leadership, weakening the effectiveness of the Dean and Campus Chiefs and consequently hurting the entire institution.

Strengthening campus leadership by transferring power to Department Heads was a major step toward reforming IOE. The Departments gained the authority to generate resources—through consultancy services, short-term training, and research and development services—and to use such income for the benefit of their respective units. The Departments were also able to spend part of the earnings from full-fee programs.

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<sup>4</sup> Some of them were created before the second phase of reforms.

Many IOE achievements have resulted from the decentralization of authority, which unburdened the Dean and Campus Chiefs, enhanced the credibility of examinations, and empowered the faculty.

### *Bridging the Public/Private Divide*

In spite of government funding, Nepal's public sector services have generally lagged behind those offered by the private sector. This gap has had far-reaching social consequences in terms of the segregation between students from low- and high-income families, with public institutions catering to the poor, and private institutions, to the rich. Such a differential in education further widens the gap between rich and poor.

IOE's reforms have helped mitigate this divide. Differential fees have ensured access for financially weaker students while still maintaining quality programs that help to attract full-fee paying students. Access to significant private resources from full-fee paying students has provided IOE with an adequate resource base to successfully compete with the private sector—allowing it in engineering education, for example, to maintain a rare public sector lead.

## **2. COST-SHARING REFORMS: A CLOSER LOOK**

### **Context**

By the mid-1990s, it became evident that IOE needed to gain access to increased funding or else face serious deterioration. The IOE repair and maintenance budget for the 1994-95 fiscal year was only approximately Rs. 400,000 (US\$8,000), in comparison with an estimated need of around Rs. 10 million (\$200,000). Similarly, the Rs. 1 million budget for instructional materials—the equivalent of \$8 per student per year—was grossly inadequate for a meaningful implementation of the academic programs. Laboratory classes were frequently cancelled because of a lack of supplies, while the choice of project work was severely restricted by funding constraints. IOE's meager research budget, approximately 0.1% of its expenditures, restricted faculty development as well as potential contributions by the institution to national technological development. Insufficient budgetary resources, which, moreover, had been consistently declining for a number of years with no turnaround in sight, put at risk the long-term sustainability of IOE.

IOE's appeal to the central administration for additional funding was not granted as it was already receiving a relatively substantial share of TU's overstretched budget. Government assistance for higher education was also in short supply. Expenditures for higher education in the government's education budget had declined from about 45% in 1978 to 18% in 1995 largely due to the higher priority accorded to primary education. Moreover, the government's Eighth Five Year Plan (1992-93 to 1996-97) stated that universities should aim at becoming financially self-sustainable. In this context, the only realistic way for IOE to address the funding problem was through internal resource

generation. The challenge was daunting because the gap between the available resources and the needs was significant.

Although various public policy documents encouraged higher education institutions to develop and diversify their funding sources, the Government had never publicly called for student fee increases, wary of the political consequences of a fee increase at TU. Previous TU administrations also avoided this issue, fearing political backlash from students. Consequently, tuition fees at TU had decreased in real terms over 30 years, resulting in virtually free education at TU—about \$1 a month—and a deterioration in education quality.

To protect the Institute's future, IOE's management boldly launched open deliberations with students, faculty, and administrative staff on student fee increases. The initial discussions on fee increments took place in a peaceful environment, benefiting from IOE's now established reputation for successful academic reform. The Advisory Council played a vital role in the complex reform process, entrusted with policy formulation and monitoring, from the outset, of IOE activities.

### **Paving the Way for Reform**

In 1995, IOE conducted a study on its long-term funding needs and held public debates with IOE's stakeholders to address the challenging issue of cost-sharing. The study and debates yielded important information:

- Bachelor's degree students at IOE paid \$20 per year, in comparison with over \$1,000 for comparable programs at private institutions
- students at IOE paid \$3 per year for housing and utilities, while the market rate for comparable facilities was around \$100
- rather than tuition costs, it was living costs plus instructional materials for students, at around \$500 per year, and lost opportunity costs that constituted the access barriers for financially weak students
- "free" public schools in urban areas actually charged a one-time up-front annual fee of over \$20
- the coaching classes that students enrolled in, to prepare for IOE's entrance examination, cost over \$50 per month
- IOE students who attended private high schools paid on average \$300 per year
- the recurrent cost per student in a Bachelor's degree program was around \$400 per year
- 35% of students enrolled in Bachelor's degree programs received stipends larger than their fees and 20% of the students received tuition fee waivers
- relatively few students from poor families were able to access higher education

IOE subsequently explored potential income-generating sources, including an increase in tuition fees; the introduction of “full-fee-paying” students<sup>5</sup> and “sponsored” students<sup>6</sup>; consulting services, continuing education, and research and development services; and renting/leasing real estate. It also assessed the potential to free up resources by withdrawing subsidies for non-academic services such as dormitories. These analyses showed that the tuition fees and savings/income from withdrawal of subsidies had relatively higher potential than other sources of income generation. There was also broad agreement that the use of earnings from consulting services, continuing education, and research and development services for cross-subsidizing students would discourage such activities and that those earnings would be better used for faculty and staff career development, and research and development activities.

The analysis of potential income sources showed that the funding gap could not be met meaningfully without additional resources from student fees. In this context, the students preferred the introduction of corporate-sponsored programs over an increase in fees but previous experience suggested that sponsors ranked their students (nominees) according to job performance rather than academic standing—which resulted in an increase in the number of students with low academic achievement. Therefore, on academic grounds, the faculty insisted on the selection of sponsored students based only on academic merit—a stand that substantially reduced the potential for income from such students and that gave rise, eventually, to the idea of a self-sponsored program. Self-sponsored, or full-fee-paying, students would be charged market fees comparable to those charged by private institutions.

The concept of a self-sponsored or full-fee program was radical in creating an advantage for students who could pay for it. This concept became the focus of intense debate among stakeholders within and outside IOE. The perceived advantages and disadvantages of a full-fee program are presented below.

#### *Potential Advantages of a Full-Fee Program*

A full-fee program can:

- help mobilize the resources needed to provide a quality education on a sustainable basis regardless of the level of public support (which affects the availability of tuition subsidies)
- allow public institutions to sustain quality programs, thereby attracting wealthy students who might otherwise attend private institutions
- help expand and diversify academic programs according to market demands

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<sup>5</sup> Students who bear the full cost of the academic program. Any student consenting to pay the full fee and meeting the minimum academic requirements for admission is to be selected on a competitive basis for admission.

<sup>6</sup> Students who are sponsored by external agencies for academic programs under an agreement with IOE. Such students are to meet minimum academic requirements but may not need to compete with other students for admission.

- lead to the cross-subsidization of regular students, some of whom are poor, by full-fee paying students
- contribute to more efficient public institutions by reducing the cost per full-fee-paying student (because of economies of scale)
- force public institutions to compete with private institutions, which helps to improve the quality and efficiency of both private and public institutions
- encourage in-house initiatives for program expansion

### *Potential Shortcomings of a Full-Fee Program*

At the same time, a full-fee program is subject to some shortcomings in that it can:

- compromise academic equity because financially affluent students are able to compete for admission to both the regular and full-fee programs, whereas financially weak students are limited only to the regular programs
- cause social tension between the full-fee-paying and regular students
- eventually lead to the reduction of regular seats
- lead to the reduction of public grants (the funding gap may consequently never be bridged)
- result in the provision of relatively better facilities to full-fee-paying students

The potential shortcomings of the full-fee system called for a number of safeguards. First, the provision of monetary assistance to financially disadvantaged students and a policy ensuring the retention or increase of regular seats was essential to mitigate concerns about IOE becoming the exclusive domain of the wealthy. Second, public funding needed to be linked to the number of regular seats maintained at IOE, in order to prevent the loss of disproportionate levels of government support. Finally, it was essential to quickly set out clear policies to ensure equal treatment for both categories of students and to prevent full-fee-paying students' access to subsidies dedicated for regular students (such as subsidized housing).<sup>7</sup>

A full-fee program can contribute substantially to the development of a resource-starved public institution provided that appropriate measures for mitigating its potential shortcomings are initiated in a timely fashion. While most stakeholders agreed on the potential advantages of full-fee programs, many of them, especially students, were skeptical about the scope for mitigating all of their shortcomings. Agreeing that such an arrangement could exclude low-income students, the administration offered to utilize already available funds for tuition fee waivers and stipends for these students.

Numerous meetings and forums were held to debate the merits of the full-fee program and the increase in student fees at IOE. Such meetings involved the Advisory Council;

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<sup>7</sup> A part of the proceeds from full-fee programs was allocated for financial assistance to poor students. But the assistance system was not properly developed. Funding of IOE based on number of regular students was not agreed upon. The TU/Government has been decreasing funding in spite of increase in number of regular students. The regular and full-fee students are treated equally according to a clearly articulated policy. Also full-fee students can not access subsidies for regular students.

student unions; teachers' unions and administrative staff unions; the general student body; student groups affiliated with various political parties; TU central management; politicians; workshops on IOE's future; and workshops on IOE's finance and maintenance plans.

The following conclusions were drawn from these discussions:

- student fees constituted the most important source of funding
- substantial increases in fees and charges for non-academic services were possible without compromising academic equity
- there was limited scope for resource generation from sponsored programs without compromising the institute academically
- the full-fee program had enormous potential for resource generation
- the full-fee program needed to be supplemented by targeted financial support for needy students
- additional income generation could produce tangible improvements in the quality of education

Following these discussions, a landmark decision delegating tuition-setting authority to IOE led to far-reaching cost recovery reforms. An IOE request to TU's Executive Council, to increase IOE tuition fees, was denied because TU had never increased fees in only a single faculty—and was unprepared, at the same time, to risk student unrest by increasing fees across the university. But after negotiations, the Executive Council agreed to delegate tuition-setting authority to the Dean of IOE, who then became the only official within the TU system with authority to set fees. This arrangement permitted IOE to retain the income generated from fee increments, the only restriction being that such revenues not be used to increase faculty and staff salaries.

### **The First Step: Compromise**

In 1996, following more than a year of debate, IOE's management proposed a series of cost-sharing measures. Students strongly resisted this new proposal because they did not want to lose the privileges they had been receiving and were still concerned about being adversely impacted by the fee increases. Moreover, students were strongly influenced by national political groups who without exception called for universal access to higher education, regardless of economic status.

The students wanted to defer implementation of the proposed reforms by one year, eager to explore the possibility of getting additional funding for IOE from the government. This first step, after some confrontation between IOE management and students, ended in a formal compromise between management and the Free Students' Union, which represented IOE students and student groups in IOE affiliated to various political groups. The compromise focused on Bachelor's- and Technician-level programs: students and administration would jointly try to find more options for reducing the funding gap. The administration agreed to postpone fee increases and the introduction of the full-fee program by a year. And as a gesture of goodwill, students agreed to a general security

deposit of Rs. 1,000, refundable upon completion of the program, and to an increase in library and laboratory fees.

In addition, the students did not object to the implementation of Master's degree programs based on full cost recovery. The fees at TU at the Master's degree level were then US\$20 per student per year. The new structure at IOE would charge US\$280 per student per year for 6 regular students; US\$3,360 per student per year for 6-10 students sponsored by external agencies; and US\$1,280 per student per year for self-sponsored students<sup>8</sup>. These fees were designed to recover the full operating cost of the program, whose quality they were to help maintain. Further, the regular fee was affordable for students, many of whom were already employed, enabling the selection of high-caliber students regardless of their economic status.

This compromise was a great achievement with respect to the financing of higher education because it was the first time in the history of Nepal that students signed an agreement with the administration on fee increases.

### **Moving Forward: Persistence**

The intensity of the debate around cost-sharing subsided following the compromise. However, the efforts to secure additional funding for IOE did not bear fruit. The management was left with no option but to propose an increased cost-sharing package. By the time this package was proposed, the management had created a broad base of support with the public as well as with faculty, staff, and students. This long-term process resulted in frank and cordial relationships between management and students and between management and staff/faculty. There emerged a general acceptance of the principle of cost-sharing by all of IOE's constituents. Stakeholders were well-informed and had time to digest the reform concept and political groups had ample exposure to the issue.

In such an environment, the management decisively recommended increasing tuition fees by 250%, increasing dormitory fees by 200%, increasing security deposits, and allowing for full-fee-paying students. While the management anticipated a strong student reaction to these measures, it was also confident of having established a resilience and capacity within the institution to cope with student reactions.

IOE's proposal, however, led to violent conflict between management and students. Over 38 days of violent student protests, senior IOE officials were locked up in their offices, campus property was vandalized, and some staff were physically harassed. Examinations were suspended and the campus and its dormitories were closed indefinitely. Police were required to take over campus security and at one point intervened to stop students from entering the campus, arresting about 50 students.

With this confrontation, higher education financing became for the first time a prominent issue in Nepalese society. The protests received wide press coverage, as both

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<sup>8</sup> This refers to enrollment figures of a Master's degree program.

management and students engaged the media in articles, interviews, and press conferences. Higher education financing also became a topic of discussion in Nepal's Parliament.

Negotiations continued throughout the protests (barring one interruption), with sustained support from key constituents. Faculty and staff support for the reform continued; TU's central authority and the Minister of Education provided behind-the-scenes support; and political parties and central-level student organizations also got involved in the stand-off. IOE's management continued to function from outside the campus.

In August 1997, a historic agreement was reached between IOE's management and the United Students' Struggle Committee comprising the Free Students' Union and other student groups affiliated with various political parties. The most salient features of the agreement were as follows:

- a 135% tuition fee increase for new students and an 85% increase for returning students
- a 200% dormitory fee increase
- an increase in security deposits
- the introduction of a group of 24 full-fee-paying students on a trial basis
- the allocation of 4% of the fees from the full-fee program for scholarships to poor students
- a minimum 15% ongoing annual fee increase
- an agreement that students would reserve the right of moral protest but would not engage in physical violence

### **Consequences of Cost-Sharing Reforms**

The agreement to revise fees on a regular basis was a turning point in the history of higher education funding in Nepal. The agreement overcame the psychological and socio-political barriers to cost recovery. Following fee increases at IOE, other campuses increased fees as well. Since the agreement, IOE has been increasing fees every year without any protests.

Certain special features of the full-fee program led to its general acceptance. First, the subsidization of regular students by the more affluent full-fee-paying students garnered support from those stakeholders who were concerned about the access gap between the rich and the poor. Second, the introduction of the full-fee program did not lead to a decrease in the number of regular students as some had feared but actually helped to increase this number by better utilizing campus facilities.

**Improved income generation.** The introduction of the full-fee program tremendously boosted the income of IOE, resulting in a cost recovery increase from 5% in 1995 to 50% in 2000. At the Master's degree level, the full-fee program now subsidizes about 40% of the regular seats. These initiatives have drastically changed the course of development of IOE, which currently faces few financial problems.

**Increased enrollment.** The number of full-fee students has increased significantly at IOE since 1997. This initiative was instrumental in increasing overall enrollments at the Bachelor's degree level from about 200 students in 1995 to over 400 in 2000. Similarly, enrollments in the Technician program increased from 576 in 1995 to over 700 during the same period.

**Expanded course offerings.** In addition to the creation of more seats, course offerings have been expanded and diversified. Bachelor's degree programs in Computer Engineering and Agricultural Engineering were introduced without any additional support from the government or donors because of the success of the reforms. Seven Master's degree programs were started with no additional investments in physical facilities. Without introduction of cost-sharing reforms, these developments could not have taken place. The success in the reforms has developed a confidence in IOE for developing new programs without external support.

**Increased responsiveness to market demand.** Another important initiative of IOE was to move closer to market realities and differentiate the value of various programs based on market demand. In 2000, the fees for Bachelor's degrees in Computer Engineering and Electronics Engineering were increased, reflecting the relatively greater demand for these programs.

**Greater accountability to students.** Beyond the financial benefits, the cost-sharing reforms have helped make IOE more accountable to students, which in turn has helped to improve the quality of the programs. For example, in 2000, the Asian Institute of Technology in Bangkok ranked IOE graduates the third best among applicants for its post-graduate degrees. In addition, the reforms have enabled IOE to provide incentives for improved faculty and staff performance.

**Increased acceptance of cost-sharing.** The IOE reforms have helped to develop a positive attitude toward cost-sharing in higher education. Students are now willing to consider fee revisions provided they are linked with quality improvement. Similar programs have been introduced at other TU campuses. As a result of the widespread acceptance of this concept, in 1998 the High-Level National Education Commission recommended the adoption of this model in all higher education institutions.

### **3. LESSONS LEARNED**

Several lessons may be gleaned from IOE's experience with higher education reform:

**i) Reforms at a micro level (within a university) can help bring about sector-wide change.** Like many developing countries, the Nepalese government lacked the wherewithal to adequately finance its system of higher education, key to creating and sustaining a vibrant and high-quality environment. However, it was able to support reforms initiated from within TU. The successful initiatives undertaken by IOE yield two lessons: (i) the lack of a reform-friendly environment within the broader university

system should not preclude initiatives for reform in the sub-systems; and (ii) the wider system should support initiatives that emerge from sub-systems even if the wider system cannot adopt the proposed reforms.

**ii) Cost-sharing reforms should have government support, be carried out by a strong institution, and be preceded by other efforts to raise academic quality.** While cost-sharing reforms should be initiated and carried out by the institution that has chosen to implement them, such reforms have political ramifications and should be discussed early on with government representatives. Weak academic institutions are unlikely to introduce cost-sharing reforms but can support such reforms within their sub-systems provided the sub-system is keen on the reform and possesses adequate strength. Weak institutions could also start cost-sharing reforms not as a stand-alone initiative but as part of a broader reform plan.

**(iii) It is important that management build credibility through a steady demonstration of fairness and transparency.** The prospects for successfully introducing reforms are greatly enhanced if the management embarking on reforms possesses broad-based credibility. Students' adverse reaction to cost-sharing reform is understandable, its immediate impact being an increased financial burden for them. A management that has gained credibility—by introducing initiatives aimed at academic improvement, for example—would be better able to gain students' trust that the additional revenues would be used fairly and effectively and would not lead to withdrawal of government support.

**(iv) Winning support for reforms is crucial and requires involving stakeholders—especially students—through all stages of design and implementation.** Reforms are complicated to enact because they undermine the interests of those who benefit from the existing system. The challenge in planning and implementing cost-sharing reforms is to devise a strategy to convince each group of stakeholders that they will benefit from reform. For example, IEO won faculty and staff support for the reforms by involving them right from the beginning and convincing them that they could directly benefit from the additional revenues and increasing quality that the reforms would generate. Students were promised an increase in the number of regular seats and a stipend for financially weak students. This level of clarity, combined with the trust the students had in management, led to successful reforms. If revenues derived from cost-sharing reforms are geared toward ambiguous goals, it becomes difficult to identify and hence mobilize beneficiaries, and the constituency support for the reform is weakened.

**(v) Reforms should be introduced gradually, allowing adequate time for digesting and discussing the new concepts.** Although the rationale behind cost-sharing in higher education is sound, it is often poorly understood by the society in general and by students in particular. Extensive discussions on this issue are required prior to any formal implementation, to all time for reflection and improved understanding. At times, attention to reform only comes about in times of crisis and the warring factions tend to resist new ideas. This difficulty may be overcome by a two-stage implementation strategy as was used by IOE. Further, when introducing cost-sharing reforms, it is often easier to start

with new students. IOE, for example, introduced different degrees of cost-sharing for new and returning students as well as for undergraduate and postgraduate students.

**(vi) Reforms should focus initially on areas that do not require significant funding.** Often, funding problems are embedded within the reform process and additional funding becomes available only after the credibility of the reform has been established. Not all academic reforms need additional resources. IOE's initial reform—instituting fair admissions practices—did not rely on a surge of financial support but rather the strong will of management and faculty. In this situation, the introduction of foreign expertise and the exposure of local faculty and staff to innovative foreign systems played a role in the reform.

**(vii) Reformers need not avoid conflict but should maintain dialogue and stand their ground.** During IOE reforms, faculty and staff played a key role in working with student protestors. Student protests are better handled through negotiation than police intervention, which should be used only as a last resort.

**(viii) Assumptions can be wrong, and outcomes sometimes exceed expectations: full-fee programs became the single largest source of revenues.** Initially, it was anticipated that the principal source of revenue would be incremental tuition fees. The revenue generated from sponsored students has been significant not at the Bachelor's level but only at the Master's level. Revenues from services have been assessed to be minimal due to relatively little market demand. It was originally anticipated that real estate mobilization would yield high revenues but a more careful examination revealed that the initial investments required were prohibitively high and that this effort constituted a business venture for which IOE did not have enough expertise.

Over 15 years, IOE was transformed from an average engineering school teetering on the brink of serious decline to a robust institution steadily enhancing and diversifying its academic and research programs. This enormous change came about not under the aegis of a predetermined plan created by the government or even by IOE's management but rather through a series of piecemeal actions informed by a sense of cooperation and transparency. While the goal had always been the fortification and advancement of IOE, the means to attain this goal were equally important. IOE pressed for reforms incrementally, through ongoing negotiations across a wide range of stakeholders. Slowly building upon past achievements and taking into account the social and political forces of the day, IOE's management was able to implement carefully tailored reforms over a substantial period of time. Each reform built upon the success of preceding reforms and eventually created a climate at IOE open to change and new ideas. Even the introduction of the most controversial reform, cost-sharing, was tempered by the broad-minded environment that had already been established. As academic institutions attempt to emulate IOE's reform efforts, it is important to remember that persistence and wide stakeholder inclusion are crucial to success.











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