CHAPTER SIX

FACULTY MATTERS

"It is not the strongest of the species that survive, not the most intelligent, but the one most responsive to change"

*Charles Darwin
(1809-1882)*

CHAPTER SIX

FACULTY MATTERS

The pun in the title is intended. Faculty matters a great deal! Faculty members and their academic stature constitute the core calibre of the IIT system. It is their intellectual value that drives output. The IITs over the years have been able to attract a number of bright faculty members. They have in turn contributed to building and sustaining the IIT brand. Their stature and work have contributed significantly to the name and fame that the IITs have acquired. The important place of faculty members in the scheme of IIT human resources, besides that of the students and the graduates, deserves to be emphasized far more than what has been done. Some of the IIT faculty members of the earlier years have moved out of the IIT system and migrated to institutions abroad or to high positions within the country.

The questions to raise are the following: Do recent data suggest a continuation of the past trend of inducting star faculty? Is the faculty strength increasing? What does the current faculty profile in terms of age or discipline point to? The data pertaining to the faculty are presented first and the Committee's observations and recommendations follow.

6.1 FACULTY STRENGTH IN IITs DURING 1999-2003

Figure 6.1 shows the total IIT faculty strength in the period 1999-2003. It is clear that the total strength has not increased much during the recent years. The total strength of faculty in all the IITs in 2002-03 (2375) was 27% less than their total sanctioned strength (3263). It is also observed that more than 80 Professors have retired since 2000-01 (7% drop). New recruitments at Associate and Assistant Professor levels have just about managed to plug this gap. The quality of younger faculty attracted to IITs needs a closer study.

The faculty mix (in Figure 6.1) suggests that the IITs have an inverted pyramid structure (more Professors compared to Assistant Professors). The number of (Professors + Associate Professors) is about 2.5 - 2.9 times the number of Assistant Professors at an aggregate level. While this suggests a greater fraction of experience, and is perhaps inevitable in a mature system, the outputs should be commensurate with the greater number of senior staff. Whether this is so is not clear from the output data, as pointed out subsequently in this chapter.

In Chapter 7 (Section 7.4.1), it has been suggested that a balance between science, engineering and inter-disciplinary faculty strength is desirable. With increasing emphasis being placed on science-based engineering, there is a case for renewed attention to the faculty mix from this viewpoint.
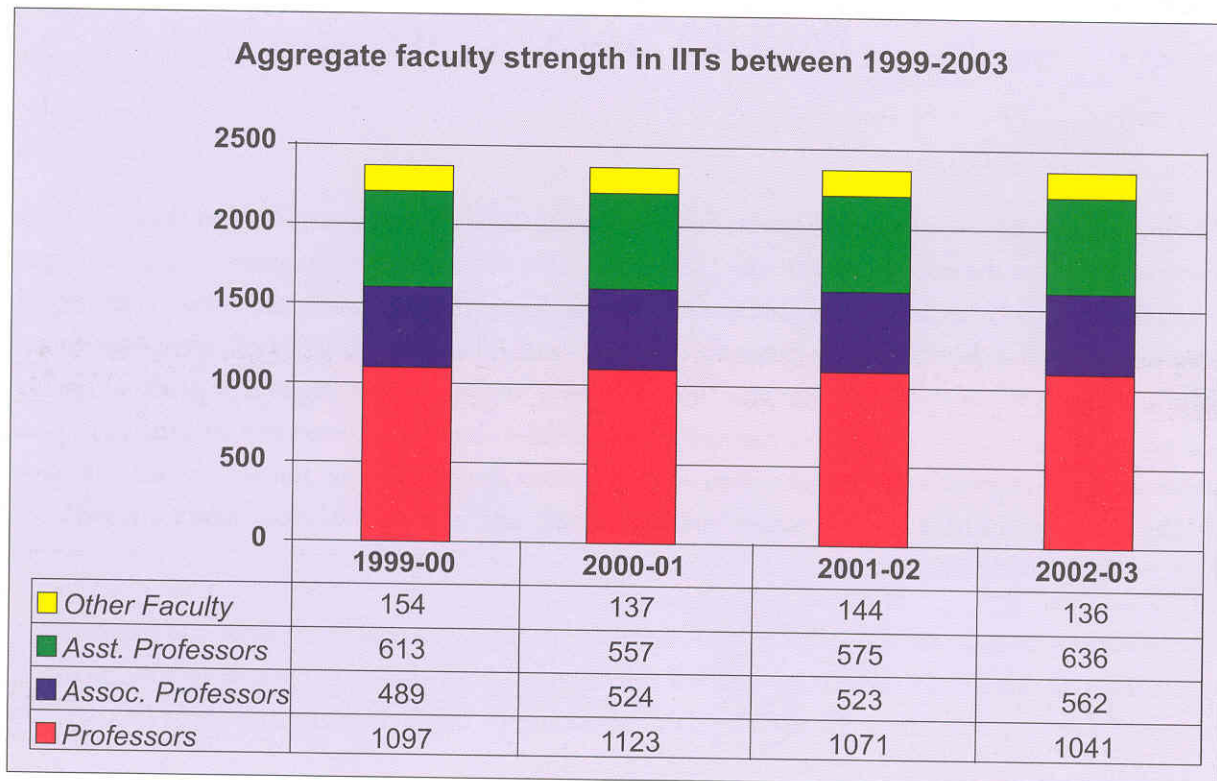
Aggregate faculty strength in IITs between 1999-2003

	1999-00	2000-01	2001-02	2002-03
Other Faculty	154	137	144	136
Asst. Professors	613	557	575	636
Assoc. Professors	489	524	523	562
Professors	1097	1123	1071	1041

Figure 6.1: Aggregate faculty strength in IITs between 1999-2003

Faculty strength in individual IITs (2002-03)

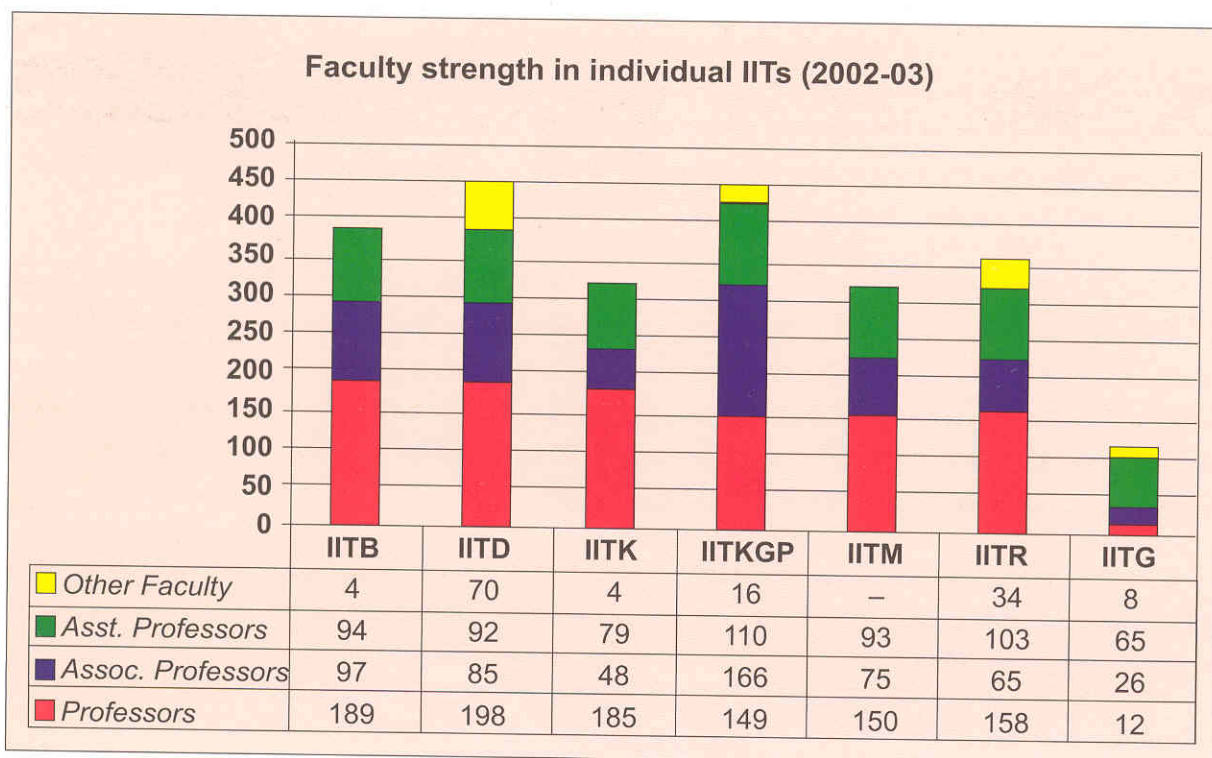|	IITB	IITD	IITK	IITKGP	IITM	IITR	IITG
Other Faculty	4	70	4	16	–	34	8
Asst. Professors	94	92	79	110	93	103	65
Assoc. Professors	97	85	48	166	75	65	26
Professors	189	198	185	149	150	158	12

Figure 6.2: Faculty strength in individual IITs (2002-03)

The faculty strength in individual IITs is shown in Figure 6.2.

- IITD has the highest number of faculty while IITK has the lowest number (among the older IITs).

- IITKGP has a relatively large number of Associate Professors, while IITR has relatively more number of Assistant Professors.

- IITD has a large number of 'other faculty' suggesting flexibility in hiring 'other faculty'.

Table 6.1: Faculty shortage in IITs as of 2002-03

	IITB	IITD	IITK	IITKGP	IITM	IITR	IITG
Sanctioned Strength	425	624	406	510	443	575	280
Total Faculty (incl others)	384	445	316	441	318	360	111
Faculty Shortage	10%	29%	22%	14%	28%	37%	60%

The number of faculty positions that have remained unfilled is significant and averages 127 per IIT (~27% of the average sanctioned strength - Table 6.1). The number of vacant positions in IITB is least at 41 (10% of its sanctioned strength) and is highest in IITD at 179. The recently established IITG is yet to fill 169 positions (i.e., 60% of its sanctioned strength); the location may have proven to be a drawback in this case.

Table 6.2: Age profile of IIT faculty as of 2002-03

	IITB	IITD	IITK	IITKGP	IITM	IITR	IITG
Professors	51	56	52	54	55	56	54
Associate Professors	42	48	40	45	48	49	42
Assistant Professors	36	33	36	40	40	44	38

Table 6.2 shows the age profile (average age in each case) of faculty across the IITs. Most of the IITs have similar faculty profile in terms of age. (IITD has somewhat younger Assistant Professors compared to the other IITs). Notably,

- **Most of the Professors in IITD, IITM, IITKGP and IITR would retire in the next 5-6 years.**

- **The number of faculty members below the age of 35 years is a low fraction of the total faculty strength.**

6.2 FACULTY OUTPUT

The outputs per faculty are an important indication of the performance of the IITs. The aggregate performance of IITs has not changed significantly in recent years, although there are subtle differences in performance across IITs. These are represented in Table 6.3.

Table 6.3: Output of IIT faculty on key parameters in 2002-03

	IITB	IITD	IITK	IITKGP	IITM	IITR
Ph.D. output per faculty	0.19	0.19	0.12	0.24	0.15	0.19
Patents per faculty (cumulative)	0.05	0.05	0.15	0.04	0.01	0.01
Publications per faculty	1.50	1.69	1.53	1.54	1.23	1.03
Awards per faculty	0.09	0.09	0.16	0.11	0.09	NA
Grants & consultancy per faculty (Rs. Lakh)	8.1	8.5	9.5	13.3	5.5	6.14

As pointed out (Table 6.1), the average faculty shortage per IIT is 127 (about 27% of the sanctioned strength). Filling these vacancies may not by itself provide the solution for enhancing the research output per faculty. This is the inference one draws from the fact that available data do not suggest a strong correlation between increase in faculty strength and research output in terms of publications per faculty. This is surprising because one would normally expect large strength to not only reduce faculty workload, but also provide a critical mass to spur research. One reason for this may be that the number of high calibre research students is not sufficiently large.

The relationships between faculty mix and publications per faculty (Figure 6.3) and research grants and consultancy revenues per faculty (Figure 6.4) have been examined. A correlation is observed between the proportion of Associate Professors and the publications per faculty and revenue realization per faculty (it may be noted that the data set is limited to the last four years).
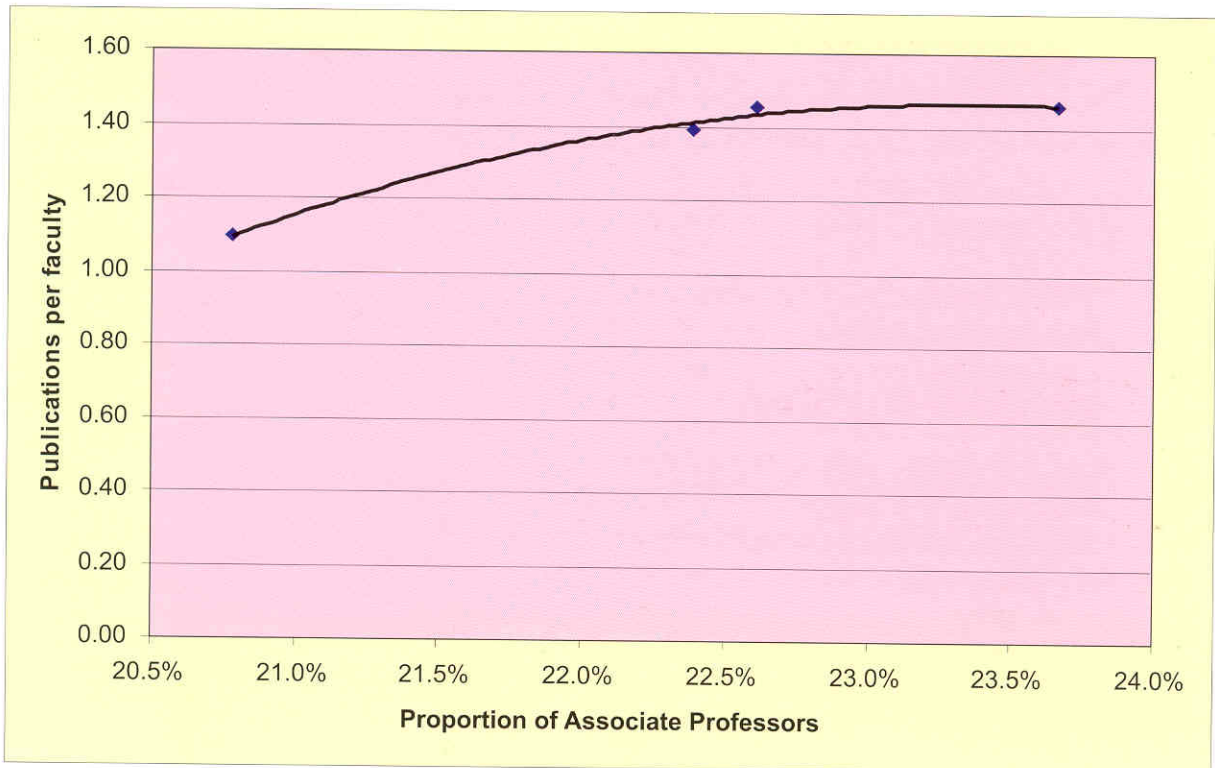
Figure 6.3: Correlation between the proportion of Associate Professors and publications per faculty (Subject to correction as the data set is limited)
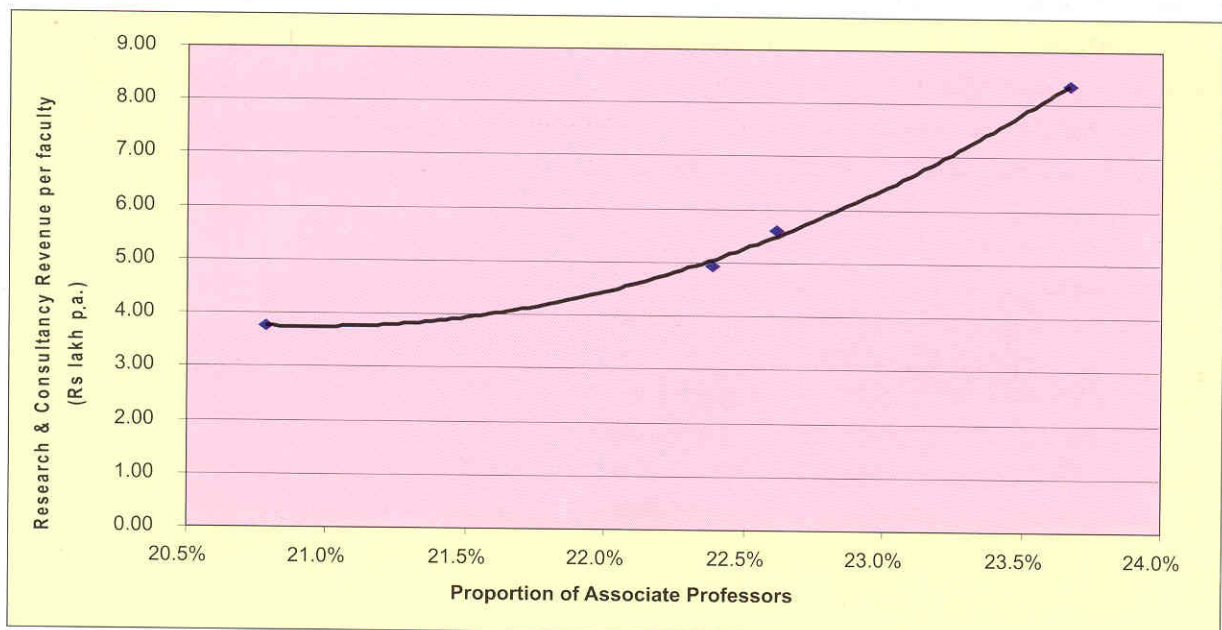

Figure 6.4: Correlation between the proportion of Associate Professors and revenue realisation (Subject to correction as the data set is limited)

However, the correlation with Professors or Assistant Professors is weak. Poor correlation between proportion of Assistant Professors and revenue realization is understandable since they are fresh to the system and may be preoccupied with teaching. But, why is the correlation with Professors weak?

In addition, factors such as lack of critical mass of star faculty (this is not to say that star faculty are totally absent), inadequate faculty initiation grants (about 2% of faculty gets this grant and the sum is not substantial), and physical infrastructure may be limiting larger academic output. More importantly, a system of incentives for good performers is not in place.

6.3   RECOMMENDATIONS

The Committee has deliberated on the questions arising out of the data presented above and has had the benefit of the views of leading academics. Based on these discussions, the Committee has strongly felt that certain improvements are essential in the processes for

(i) Fresh recruitment of faculty

(ii) Assessment of faculty performance for awarding incentives & for promotion

The recommendations in regard to the above are given in the next section. Since faculty matters are so critical for the academic health and robustness of the IITs, the Committee has proposed the setting up of a Human Resource Unit (HR Unit). The recommendations for a HR Unit are made in a separate section. The Committee has recommended further in regard to the age of retirement of the faculty and their scheme of pension.

In regard to the above two key issues related to the faculty, the Committee feels that the best practice in our own country is prevalent in the Indian Institute of Science. The Committee is happy to note that no new practice need be invented and the IITs would do well to adopt the IISc methodology. An analysis in this regard is presented below.

6.3.1   Faculty Induction

For recruiting new faculty members, the IISc practices a considerably more flexible system than the IITs. Advertisements for the required positions are available all the time electronically via their website. Applications are solicited and collated all through the year. As and when a reasonable number of appropriately meritorious applications becomes available, an expert committee is quickly put together for selection. Those freshly inducted are provided substantial initiation grants.

A comparison of the IIT and IISc practices is presented in Table 6.4

Table 6.4: Fresh induction of faculty

IIT STATUTE	IIT PRACTICE	IISc PRACTICE
All posts to be advertised. *Internal and external candidates are selected after interview by a Committee specified.* *For post of Deputy Director, Professor and others - the Selection Committee shall consist of Director, one nominee of the Visitor (not necessary for posts lower than that of Professor), two nominees of the Board, one being an expert other than a Board Member, one expert nominated by the Senate other than a member of the Senate and Head of the Department concerned (only for posts lower than Professor).*	Presently rolling advertisement posted on the website. Applications solicited throughout the year. The rest of the procedure for selection of candidates to be recruited to IIT is as per the present statutes.	Rolling advertisement posted on the website. Applications solicited throughout the year. Once adequate number of good applicants are gathered, a Committee of Professors (CoP) of Department concerned examines the cases and forwards to their Division Chairman its recommendations along with a list of experts to be invited to interview the candidates. The Divisional Chairman finalises the list of experts and the candidates to be interviewed. As a tradition, the Divisional Chairman keeps the other Chairmen apprised on all such recruitment matters. (there are 6 Divisional Chairmen and they meet once every week). The Divisional Chairman then forwards the material to the Director. The Director chairs the Interview and Selection Committee. The other members are Associate Director, the Divisional Chairman, the Head of the Department and 2 experts. Candidates from abroad can be considered *in absentia.* Information on selected candidates is placed before the Council by the Director. The Council of IISc appoints the persons selected. The above procedure is followed in respect of Assistant Professors. Most of the recruitment takes place at this level. In case of Professors, no interviews are held and the Director sends out an invitation to the persons identified by the Institute and approved by the Council. Identification of the potential Professors is done by a process involving consultation by the Committee of Professors, the Head of the Department, the Divisional Chairman and the Director. The Director also consults eminent experts in the field in the country, sometimes abroad, on the suitability of the identified candidate. The recommendation of the Director is placed before the IISc Council. Once approved by the Council, Director invites the candidate selected. Selection of Associate Professors may follow either of the procedures described above for selection of Assistant Professors, i.e, by an interview route or the one for Professors, i.e., by invitation after elaborate consultation.

Observations:

At IISc, interview is only for Assistant Professors, and even that can be skipped if an outstanding candidate has been identified and is accepted by the Selection Committee. The constitution of the Interviewing/Selection Committee is considerably simplified and decentralised. (It may be noted that a Visitor's nominee is not mandated). On the other hand at IITs, Committee constitution is highly structured as per the present Statute. The IISc system facilitates speedy action on positioning candidates.

Recommendation:

(i)   IISc system may be adopted by the IITs as IITs also enjoy a high stature in the country.

(ii) For this recommendation to be implemented, the IIT statutes need to be urgently amended to enable the recruitment process in vogue at IISc to be adopted by the IITs.

6.3.2   Faculty Assessment for Promotion

As in the case of induction, so also for assessment and promotion, the exercise in IISc is carried out at regular intervals through the year. The practice at IISc has proved very effective in providing the necessary motivation for faculty to excel in research as well as in extension. A comparison of the IIT and IISc practices is presented in Table 6.5 (please see next page).

Table 6.5: Assessment of faculty for promotion

IIT STATUTE	IIT PRACTICE*	IISc PRACTICE**
All posts at the institute shall normally be filled by advertisement but the Board shall have the power to decide on the recommendation of the Director that a particular post be filled by invitation or by promotion from amongst the members of the staff of the Institute *Selection by an Interview Committee consisting of (i) Director; (ii) One nominee of the Visitor (only for the post of Professor); (iii) & (iv) Two nominees of the Board, one of whom is to be an expert from outside the Board; (v) One expert (who should be outside the Senate) nominated by the Senate; (vi) Head of the Department (only for the post of Assistant Professor).* *Where a post is to be filled on contract basis or by invitation, the Chairman of the Board may at his discretion constitute such ad hoc committees as circumstances may require.*	It is not common for a Director to recommend that a particular post be filled by promotion as allowed by the Statute. IIT Faculty have to apply against an open advertisement and seek the next level position: (minimum number of years in the lower post is not a statutory condition). Selection is by an Interview Committee chaired by the Chairman of the Board constituting an adhoc Committee to invite a person to occupy a regular post in an IIT is uncommon, although provided for in the Statute. This provision has been made use of for appointing visiting faculty and named Chairs.	IISc has a standing Promotions and Assessment Committee (PAC) whose Chairman is Chairman, IISc Council and consists of, in addition to the Director and the concerned Divisional Chairman, eminent experts from outside the Institute. Assessment is based on the candidate's achievements in his major area of endeavour, which may be research only, development work only or a combination of both. Contribution to teaching, student training, consultancy and Institute's work are also considered. The PAC meets at least 4 times a year, each time prior to the Council meeting, to consider cases coming up for promotion. No personal interviews are held. Six years standing is required for an Assistant Professor or Associate Professor to be promoted to the next step. (An individual can request or be recognised for assessment earlier if he/she claims or is seen to have exceptional achievements. So also an individual can request to be assessed later (this has happened quite frequently). For assessment, CV, full list of publications and reprints of papers, his accomplishments in the different areas of work (indicated in para 1 above) are to be submitted by the individual faculty member along with a list of 6 experts in all from India and abroad. The Committee of Professors (CoP) of the Department considers, adds further names of 8-10 experts and forwards the material to the Divisional Office. The Divisional Chairman finalises the list of 6-8 referees, of which at least two are from the candidate's list and about one half of the referees is from outside India. A healthy tradition is for the Divisional Chairman to consult the other Divisional Chairmen on all such matters (There are 6 Divisional Chairmen in all and they meet once every week). The Divisional Chairman concerned sends CV, publications etc to the expert referees soliciting their professional opinion regarding the suitability of the candidate for promotion. At least 6 referee responses are ensured to enable the Divisional Chairman to go forward with his consolidation of the candidate's case for promotion. The Divisional Chairman obtains a Report of the Department's Committee of Professors (CoP), consults the Committee of Divisional Chairmen and the Director before the case is placed before the PAC. It is the PAC which examines the material including letters from the referees and decides to promote the individual or defer his case for promotion. The Divisional Chairman makes an oral presentation of the candidate's case to enable the PAC to arrive at a decision.

Observations:

➤ ** IISc system has proved to be an effective system, effective in demanding from the faculty a respectable research output. PAC expert members have been all along of such standing and the selected referees have been of such stature that faculty members have always positively felt the pressure of their expectations. The process ensures collective judgement of several peers. These features have, as has generally been acknowledged by senior academics in the country, contributed in no small measure to the excellent research (creative endeavour) atmosphere in IISc.

➤ * Although the IIT regulation is based on the commendable principle that their faculty have to, for their elevation, compete with the outsiders, in actual practice it has not displayed the same positive impact as the IISc system. Generally, IIT faculty do not have to face severe competition from the external candidates. The promotion Committee being chaired by the Director of the same IIT, although in principle is a desirable feature, is not the same as the PAC of IISc being chaired by the Chairman of IISc Council with the Director being only a member. If the Director is also the Chairman, there is the possibility of local pressures being built up, which may not happen but which certainly provides room for such perception.

Recommendations:

For assessment and promotion of IIT faculty, a model akin to IISc system is recommended, as described below:

(i) A minimum period of 6 years in the case of promotion of an Assistant Professor and a minimum period of 5 years in the case of promotion of an Associate Professor is recommended. *This minimum duration may be reviewed from time to time and lower residence period may be seriously considered as times demand.* In any case, an Assistant Professor/Associate Professor with exceptional achievement can request on his own or be invited by the Institute for an assessment earlier. Also, an individual can request to be assessed later than the period mentioned above.

(ii) Assessment to be based on the candidate's submission of CV with his record of teaching, research and any other contribution such as industry related development along with his suggestion of a panel of 3 to 5 referees from India and 3 to 5 referees from overseas. The Committee of Professors, Chaired by the Head of the Department, to scrutinise the candidate's papers and, if satisfied, forwards the same to their respective Dean along with a further list of possible referees from India and abroad. It would be a good tradition for the Dean concerned to apprise the Committee of Deans on all such faculty matters. The Dean concerned then finalises the list of referees and moves to obtain the reports from the referees. When the case is complete with about 3 referee reports from India and about 3 referee reports from overseas (at least 6 in all), the Dean puts up the case to the Director. It has to be emphasized that the choice of referees is crucial in obtaining balanced and unbiased views.

(iii) A PAC (Promotion and Assessment Committee) has to be constituted by each IIT with its Chairman, BOG as Chairman, PAC. PAC for the IITs may comprise 6 to 8 experts representing expertise in the disciplines relevant to the IIT concerned. If such senior experts are members of the BOG, which could very well be in a few cases, the same experts could be in the PAC. Chairman, BOG may invite one, two or more experts to the PAC meeting specially and solely for consideration of the promotions, in case he feels that the available experts in the PAC are not sufficient for doing justice to the consideration of the technical speciality of any given candidate(s). The PAC meeting could be held the same day or the day preceding the BOG meeting in order to minimize the burden of time on the Chairman, BOG and the experts.

(iv) The decision of the PAC is to be placed before the BOG for approval.

(v) In order to have a new system of assessment for promotion of faculty members on the lines suggested above, the statutes require to be amended. The Committee recommends the amendment of the Statutes for this purpose. The new Statutes may be drafted under the guidance of the Board of Governors and finally approved by the BOG for further consideration and approval of the MHRD and the Visitor.

6.3.3   Faculty Service Conditions

The economic environment in the country has become unprecedentedly favourable for investment. With almost every sector experiencing growth and a renaissance in manufacturing anticipated, the demand for highly trained technical personnel is rising like never before. In order to be able to retain the existing faculty and to attract the highly able to take up positions in the IITs, their service conditions, including pay scales and allowances, have to be urgently reviewed. One possibility is to augment the emoluments through a professional allowance. These ideas require a more in-depth discussion. Recognising that this process will necessarily take time, the Committee has proposed to recommend a few immediately implementable measures. Thus, the Committee suggests that the best performers among the IIT faculty may be retained beyond 62 years age to the age of 65. Also, in the Committee's view, the pension scheme has to be such as to encourage faculty to continue with the IIT system. (**Incentives** to those commendably productive in high quality research have been separately recommended in Chapter 7).

The suggestions, with reference to the provisions in the IIT statutes, are given in Table 6.6.

Table 6.6: Age of retirement

IIT STATUTE: Section 13 (2)	RECOMMENDATION
Subject to the provisions of the Act and the Statutes, all appointments to posts under the Institute shall ordinarily be made on probation for a period of one year after which period the appointee, if confirmed, shall continue to hold his office subject to the provisions of the Act and the Statutes, till the end of the month in which he attains the age of 60 years (now raised to 62 years). *Provided further that where it becomes necessary to re-employ any such member beyond the end of the semester or academic sessions as the case may be, the board may with the previous approval of the Visitor, re-employ any such member for a period up to three years in the first instance and up to two years thereafter and in no case exceeding the end of the academic session in which he attains the age of 65 years.* *A new scheme for retiring teachers has been ordered by the Government of India to come into effect on January 1, 2004.*	There is a serious dearth of highly experienced and well-qualified teaching staff in our educational institutions. At the present time, some of the best teachers with experience and high academic credentials among the more than 1200 engineering and technology colleges are in the IITs. In order to retain the very best among the IIT teachers, the age of retirement has to be raised from the presently fixed 62 years to 65 years for those who meet certain criteria. To make a decision on the persons to be retained beyond the age of 62 years, the Committee recommends that the Director should set up a special Committee to be chaired by the Chairman, BOG. The Director and 3 experts selected by the Director in consultation with the Chairman, BOG will be the members. The criteria for evaluation will simply be high quality performance in the core functions, namely teaching, research or development work or a combination of these. The recommendation of the Special Committee will be placed before the BOG for approval. This provision will be made applicable only to those who have attained the level of Professors. At any time, the number of Professors going up to the age of 65 years should not exceed 20% of the total number of Professors. Keeping in view that the IITs are the country's best academic institutions in engineering and technology and the essentiality of making teaching positions in the IITs as attractive as possible, the present pension scheme for faculty should be retained. Adequate medical facilities post retirement need also to be given.

6.3.4   Recommendation for creation of a HR Unit

(i)   Faculty recruitment, their retention and providing opportunities for their professional growth should occupy the highest place in the management agenda of the IITs. In order to give it the highest importance and the sharpest focus, each of the IITs should create a separate Human Resource (HR) Unit headed by a Dean.

(ii)   The Dean, selected to perform this function, should have, during the course of his tenure with the IIT, demonstrated acumen in spotting and nurturing talent and should have developed valuable contacts in the academic and related circles in India and abroad. No doubt, there will be several claimants in the IIT system to these attributes as IITs are rich in terms of quality faculty. The person selected by the Director must be the one who has shown the most inclination towards this kind of HR activity. Once so selected, the Dean may not be entrusted with other administrative duties or disturbed from this responsibility for at least 5 years as it takes quite a while to hone skills and develop an information base on eminent academic groups and leaders in a wide spectrum of disciplines of interest to the home institution.

(iii)   The HR unit should also be staffed by at least two dedicated HR professionals. They could be Associated Professors from IIT Management school (IITs have instituted courses in Management/Business who should be well versed in HR matters). If necessary, induction of one HR professional at the level of an Associate Professor may be made.

(iv)   The HR Unit must develop aggressive methods for spotting outstanding performers within India and elsewhere in different disciplines and at different levels. (It is desirable that a Ph.D. from a given IIT is not inducted as a faculty at that IIT atleast for a period of 3 years). Such methods include maintaining constant contact with alumni in academics in various countries and interfacing with reputed institutions in India and overseas. The HR Unit can get an attractive brochure prepared solely to convey why IIT is an attractive destination for outstanding academics presently situated in leading institutions as well as those on the threshold of an academic career. Apart from the benefits available like the congenial environment and research facilities, the brochure should spell out such items as there being no financial limit on consultancy earnings.

(v)   The Committee recommends that a research initiation grant up to a sum of Rs. 20 lakh be made available to the fresh recruit depending on his research proposal and needs.

(vi)   The HR Unit should also arrange for senior faculty members to act as mentors for the new recruits. The unit similarly can concern itself with faculty counselling and training in various spheres including management processes where relevant.

(vii)   If an eminent person were to be located during faculty search and the person so identified is working in a frontier field in which a given IIT has interest but has not yet entered into, there should be no hesitation in building a new field of activity of interest to the IIT around such a person. This is an excellent way to nurture new areas.

(viii) At present, mobility of faculty members from one IIT to another IIT is not easy at all. A faculty member desirous of such transfer has to go through the induction process in a sister-IIT more like he were an outsider candidate. The IIT Council needs to consider this issue and provide for easier movement of a given faculty member from one IIT to another, for limited periods or on a permanent basis. Such a movement should be particularly encouraged when it helps to build a substantial strength in a particular technical field. A scheme for this purpose is urgently warranted and the IIT Council is in a position to consider and approve a proper scheme.

(ix) There are several other issues with regard to faculty such as their assessment and promotion and also providing avenues for their professional growth. The HR Unit should be able to monitor these issues and bring matters on a regular and efficient basis to the notice of the IIT authorities viz., the Director and the Board of Governors. The HR Unit could also draw attention to these authorities of the outstanding results obtained by a given faculty member in research and extension activities for their consideration for possible financial rewards.

(x) Alumni of IIT today occupy distinguished positions worldwide. HR Units should be able to establish an active interface with the academics among these Alumni and take their help in locating talented individuals. In particular, several bright Indians obtain Ph.D. degrees from some of the world's best Universities such as in US, Europe, UK, Japan and Australia. HR unit by themselves, through their nurtured contacts and with the help of the alumni, should attempt to develop a data base on such candidates. There is also value to have faculty drawn from diverse countries, and diverse academic backgrounds, as the academic set-up, content and demands are not the same in every country. The HR unit should also be on the look out for outstanding professionals in the industry. If such professionals are inclined to take up teaching and research in the IITs, their joint appointment with the IITs should be considered and brought up to the BOG for a decision.

(xi) At the present time, IITs call for applications for faculty positions strictly from Indian Nationals. There has to be a policy change in this regard. The world's best schools, especially in the U.S, have benefited from outstanding professionals drawn from countries outside their own. In this regard, IITs should be enabled to break new ground. To begin with, outstanding Indians, who may possess foreign citizenship, should be permitted to be considered for induction as IIT faculty, if found suitable. It is time now to open this door for the benefit of the IIT system.

(xii) On a case-to-case basis eminent foreign nationals, who are in a position to complement the IIT academic programmes at a distinctly higher academic level, should be considered for invitation to join the faculty for long durations of up to 5 years (short duration terms of Visiting Professors is certainly useful but does not go very far).

(xiii) Housing and such other facilities are also important. The HR Unit should be able to suggest ways by which improvements can be made in all of the areas which affect their comfortable living and efficient functioning, which will go a long way in retaining good quality manpower.

6.4. SUMMARY OF RECOMMENDATIONS

1) A system akin to that prevalent in IISc for Faculty Induction as well as Faculty Assessment and Promotion should be followed. The IIT statutes need to be urgently amended to make this happen.

2) The service conditions, including pay scales and allowances of the IIT faculty, need to be urgently reviewed in view of the prevailing demand for highly qualified technical personnel. Certain measures could be immediately implemented. The Committee suggests that the best performers among the IIT faculty may be retained beyond 62 years age to the age of 65. Also, in the Committee's view, the pension scheme and medical facilities post retirement have to be such as to encourage faculty to continue with the IIT system. (Financial incentives have been separately recommended in Chapter 7 to reward high quality research output by faculty members).

3) The Committee suggests that each of the IITs should create a separate Human Resource (HR) Unit headed by a Dean for faculty recruitment, their retention and providing opportunities for their professional growth. The HR unit must consider innovative ways of augmenting the strength of high calibre faculty. Faculty initiation grant up to Rs.20 lakh and other faculty requirements such as housing and medical services are to be attended to by the HR unit.

4) MHRD to consider making provisions for enabling IITs to induct meritorious foreign nationals to join the faculty of their institutes. To begin with, those of Indian Origin could be attracted.

5) The possibility of joint appointment with industry and other institutions needs to be also considered.