Report Prepared

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Foreword

The process of accreditation is now in full swing all over the country – in the last few months an average of about 100 institutions have been assessed every month. Now in the tenth year of its existence, the NAAC has, since its inception, accredited over 2201 institutions.

The increased awareness among all stakeholders of higher education about the benefits of accreditation and the proactive steps taken by many state governments in coordination with the NAAC for ensuring accreditation have resulted in the record number of 1038 institutions being accredited in the last academic year.

The process of accreditation is just one step, but a significant one in the march towards quality - a point of institutional introspection (the self-study report) and external evaluation (the peer team visit and report). The NAAC realizes that to fulfill its mandate of assuring the quality of higher education in India, it has to go beyond the mere conduct of the process of accreditation.

After accreditation, what? The stakeholders in higher education, especially the governments and the institutions, cannot rest complacently after accreditation is over. For guiding stakeholders in the process of ensuring and enhancing quality, the NAAC decided to analyse, quantitatively and qualitatively, the peer team reports state-wise, after 15% of the institutions in any state have been accredited. The quantitative analysis highlights the general standards of higher education in various categories of institutions in a state, taking into account the ratings given by the NAAC to the accredited institutions. The qualitative analysis brings out the important commendations and recommendations in the peer team reports. The commendations can help the governments and the institutions understand the reasons for the high quality of some institutions and, perhaps, implement similar measures in institutions where improvement is required. The recommendations, if implemented, would go a long way towards improving the quality of educational provisions.

The present report is an analysis of the peer team reports of institutions that underwent the process of accreditation in the state of Maharashtra. Maharashtra has the largest number of accredited institutions in the country now -15 universities and 848 colleges- a remarkable achievement with a large measure of the credit going to the proactive state government. The report is rich with data that should help all stakeholders, especially the government and the institutions, in their quest for quality in higher education.

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Abbreviations

A - Arts
A & A - Assessment and Accreditation
AFMC - Armed Forces Medical College
AICTE - All India Council for Technical Education
ATKT - Allowed To Keep Term
BCUD - Board of College and University Development
C - Commerce
CA - Curricular Aspects
CAS - Centre for Advanced Studies
CET - Common Entrance Test
CSIR - Council for Scientific and Industrial Research
GATE - Graduate Aptitude Test in Engineering
H - History
HEI - Higher Education Institution
HP - Healthy Practices
HSC - Higher Education Certificate
IAS - Indian Administrative Services
ICHR - Indian Council of Historical Research
ICSSR - Indian Council of Social Science Research
IL - Infrastructure and Learning
IQAC - Internal Quality Assurance Cell
ISRO - Indian Space Research Organisation
ITI - Industrial Training Institutes
MCI - Medical Council of India
MCVC - Minimum Competency Vocational Course
MoU - Memorandum of Understanding
MPSC - Maharashtra Public Service Commission
NAAC - National Assessment and Accreditation Council
NCC - National Cadet Corps
NCTE - National Council for Teacher Education
NGO - Non-Governmental Organisation
NSS - National Service Scheme
OHP - Overhead Projector
OM - Organisational Management
PTR - Peer Team Report
QAC - Quality Assurance Cell
R&D - Research and Development
RCE - Research, Consultancy and Extension
S - Science

SSC - Secondary School Certificate
SSP - Student Support and Progression
SSR - Self Study Report
TLE - Teaching-Learning and Evaluation
UG - Under Graduate
UGC - University Grants Commission
UK- United Kingdom
UPSC - Union Public Service Commission
USA - United States of America

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1. Introduction

After the reorganisation of states on linguistic basis, a bilingual state consisting of Maharashtra and Gujarat was formed in 1956. However, due to public resistance and movement the bilingual state was divided into two separate states of Gujarat and Maharashtra on 1 May 1960. The geographical area of Maharashtra is 308000 sq. km., which is 9.4% of the country's total area of 32,87,000 sq. km. The population of the state has grown from 3.9554 crores in 1961 to 9.6752 crores in 2001. The break-up of the population in lakhs is given below.

Male	503	Rural	557
Female	464	Urban	410
Total (in lakhs)	967	**Total**	967

The literacy rate of the state is 77.3 percent, while that for the country is 65.4 percent. The language of the state is Marathi.

The status of primary and secondary education is given below.

	Primary	**Secondary**
Number of Schools	34594	2468
Enrolment (1960-61) in '000	4178	858
Number of Schools	66369	15649
Enrolment (2000-01) in '000	12065	9630

Out of the 96,30,000 secondary school going students, about 14 lakhs appear for the Xth level Secondary School Certificate (SSC) examination, of which about 9.5 lakh students pass SSC. Of these 9.5 lakh students, the majority go to the XIth class of the Higher Secondary Certificate (HSC) course, in the arts, science or commerce stream, taught in junior colleges attached to either the degree colleges or the secondary schools. The remaining students opt for vocational trade courses like (a) certificate-level courses in Industrial Training Institutes (ITI), or, (b) 3-year diploma courses in technical education, which are available in polytechnic institutions. Some students opt for agricultural programmes (certificate or diploma level) or the + 2 level higher secondary Minimum Competency Vocational Course (MCVC). Some take up vocational or other programmes of open universities. Some youth enter the world of employment.

As per the National Education Policy (1986), the government of Maharashtra has made conscientious efforts to divert students passing SSC and HSC examinations into vocational/technical education and several avenues have been made available to them both at the +2 and +3 stages.

In spite of all these efforts, there continues to be a large demand for the traditional arts, science and commerce degree-level programmes. The demand for degree-level technical, medical, agricultural and educational programmes is also continuously growing. As a result, the government was forced to give permission to start various types of degree-level colleges. However, due to dwindling financial resources available for higher education, the government decided to change its funding policy.

2. Funding and Status of Higher Education in Maharashtra

Till 1982, the state of Maharashtra had two types of higher educational institutions, namely, government institutions - fully funded by the government, and institutions managed by private educational societies receiving grant-in-aid as 100 percent salary grant, and 15 percent of salary expenditure as non-salary grant for colleges with science as one of the faculties and 12 percent for arts/commerce colleges.

In 1982, the government took a decision to permit private managements to start new professional colleges on a self-financing basis, without any grant-in-aid. As a result several colleges of engineering, medicine and teacher-education, etc. were started with permission from relevant national-level bodies like the All India Council for Technical Education (AICTE) and Medical Council of India (MCI), the state government and the affiliating university. The fees for the courses were regulated by the state government. For arts, science and commerce courses the state government has the final control of granting permission with partial grant-in-aid. As per this policy, a new college would receive no grant for three years, would receive 25% grant in the fourth year, and, thereafter, the grant would increase by 25% every year, so that the college would become fully aided in the seventh year. After 2000, the government changed its policy and decided to permit new colleges only on a permanently non-grant basis.

As per the above three policies for arts, science and commerce education, the state has 873 grantable, 222 partially grantable and 224 permanently non-grantable arts, science and commerce colleges.

In the grantable colleges, the government previously used to take responsibility for the salaries of the staff employed for newly started courses. It decided to permit new courses only on a self-financing basis with no commitment of any government grant.

As a result of the above changes in policies, the number of educational institutions grew substantially in the last four decades; especially in the last two decades, there has been a phenomenal growth in the number of private self-financing institutions.

The state has the following categories of universities:

- 9 traditional affiliating universities offering arts, science, commerce and professional education;
- 12 deemed universities; (6 each in Mumbai and Pune)
- 4 agricultural universities at Akola, Rahuri, Dapoli and Parbhani;
- 1 animal and fisheries sciences university at Nagpur;
- 1 health sciences university at Nasik;
- 1 technological (campus) university at Lonere;
- 1 Sanskrit Vidyapeth at Ramtek; and
- 1 Maharashtra Open University at Nasik.

The statistical information about various institutions is listed below.

Table 1: Higher education institutions (Number and Enrolment)

	1960-61	**2002-03**
Institutions	211	1786
Enrolment (in '000)	110	1035

Table 2: Number and capacity of colleges/institutions in 2000-01

	No. of Institutions	**Capacity**
Professional		
Teacher Education	155	16000
Law	70	10000
Medical		
Allopathic: Graduate	34	3664
P.G.	17	977
Ayurvedic: Graduate	57	2640
P.G.	19	260
Homeopathic: Graduate	42	2760
P.G.	6	99
Unani: Graduate	6	290
P.G.	1	4
Dental: Graduate	18	1280
P.G.	5	52
Technical		
Engineering:		
Diploma	184	33270

	Graduate	149*	46000*
	P.G.	32	2076
Architecture:	Graduate	31	1277
	P.G.	2	32
Management		84	5960
Hotel Mgt. & Catering Tech.:			
	Degree	8	420
	Diploma	68	3920
Pharmacy:	Degree	51	2500
	P.G.	9	148
Industrial Training Institutions		613	92384
Agriculture:	Certificate	209*	1800*
	Diploma		15000*
	Degree P.G.	59*	6400*
Animal/Fisheries Sciences			
	Degree	6*	600*
Non-professional			
Arts/Science/Commerce		1319*	8 lakhs*
Grantable		873	
Partially-grantable		222	
Permanently non-grantable		224	

* Data of year 2003

From the above data it can be seen that the state of Maharashtra has 613 ITI level institutions that provide certificate-level vocational courses in different trades to nearly 1 lakh students, 184 polytechnic level institutions which provide diplomas in technical education (of the Maharashtra government Department of Technical Education) with a capacity of 33270 students. The state has also made provisions for various agricultural courses at the certificate level, with an intake of 1800 students for gardeners programme, 15000 for various diploma-level programmes and 6400 for degree-level programmes in the subjects such as agriculture, horticulture, forestry, fishery and agricultural engineering. These programmes are conducted through 24 government and 34 private agricultural colleges and 28 government and 181 private agricultural schools**,** attached to the four agricultural universities, and also through the centres of the Yashwantrao Chavan Maharashtra Open University (YCMOU).

The number of degree-level institutions attached to these universities offering general and professional degree courses is nearly 2000, with an enrolment of about 10 lakhs. Of

these all the medical colleges are under the jurisdiction of the Maharashtra University of Medical Science, Nasik established in 1998 at Nasik and all agricultural colleges are attached to the 4 agricultural universities. Some of the medical colleges, some colleges of technical education, some pharmacy, management, arts, science and commerce colleges are under the jurisdiction of different deemed universities in the state. The rest of the 1741 colleges are affiliated to the 9 universities in the state.

Table 3: The university-wise accreditation status of colleges (As on 16th September 2004)

Name of the University	Total No. of Colleges	No. of Colleges who have Submitted the Self-Study Report (SSR)	No. of Accredited Colleges
Mumbai University	262	165	153
S.N.D.T Women's University	20	14	14
Pune University	253	163	151
*Shivaji University	222	160	142
Nagpur University	312	107	95
Amravati University	227	93	68
Dr. Babasaheb Ambedkar Marathwada University	172	79	78
Swami Ramnarayan Teerth Marathwada University	152	60	48
North Maharashtra University	121	59	48
Total	**1741**	**900**	**797**

(*The government of Maharashtra has recently established a new affiliating university named Solapur University separating colleges of Solapur district affiliated to Shivaji University)

Out of the 1741 colleges, about 1060 colleges are more than five years old and are eligible for the NAAC accreditation process. Of these 1060 colleges 900 have submitted their self-study reports to the NAAC, of which the accreditation process of 797 colleges has been completed, till 16th September 2004. Thus, Maharashtra state has the largest number of accredited universities (15) and colleges (797), in India. Seventy-six percent of its eligible colleges and almost 100 percent of its eligible universities are accredited. Out of the 2021 institutions accredited by the NAAC all over the country till 16th September 2004, as many as 812 institutions (40%) are from the state of

Maharashtra alone. This was possible due to several initiatives taken by the government of Maharashtra.

3. Laudable Initiatives

The process of assessment and accreditation (A/A) was voluntary, till the year 2001, and only about 100 institutions in the entire country were accredited up to this period. The effects of globalisation, privatisation and liberalisation had started becoming visible in the field of higher education, and everyone concerned had realised the importance of quality assurance in the context of the global competition. In this context, the University Grants Commission (UGC), made the process of A/A mandatory.

The state of Maharashtra is a progressive state in the field of higher education. The government of Maharashtra realised the importance of quality assurance in the context of global competition in higher education and decided to accelerate the process of A/A in the state. A government resolution was passed in this respect, and a Central Controlling Committee was formed under the chairmanship of the Education Minister for Higher and Technical Education. The committee included all the Vice-chancellors of the various universities, the Secretary, Higher and Technical Education, the Director of Higher Education, a few educationists and principals. In addition, a working group, under the chairmanship of Dr. Janardan Waghmare, was formed for the improvement of quality in higher education and for accelerating the process of A/A. The government also set up a Quality Assurance Cell (QAC) to co-ordinate the work of different committees formed for this purpose, and also to act as a link between these committees and the UGC, NAAC and the state government.

The QAC was established on 08 January 2002 when only 6 universities and 8 colleges from this state were accredited. The NAAC agreed to bear the expenditure on two posts in the QAC and also to give some financial assistance. The QAC organised several workshops in different parts of Maharashtra to enlighten the concerned colleges and universities in respect of the process of A/A and the self-study reports. Several regional sub-committees were formed for this purpose.

These sub-committees encouraged all the colleges in general and the colleges in remote rural areas in particular. These workshops were mostly organised at the state, district or taluk levels. A national-level workshop was organised between 14 and 16 April 2002 at Baba Atomic Research Centre (BARC), Mumbai, for training the members of the peer teams. A national convention of all accredited institutions of the country was organised between 28 and 30 March 2003 in Mumbai. All the above activities were conducted as per the decisions taken in the five meetings of the central working groups held between January 2002 and July 2003.

The other major actions initiated during these meetings were:

1) Decision regarding the criteria for the lead college on similar lines as per the guidelines of the Karnataka government;
2) Request of the state government to the UGC to permit the colleges to incur the NAAC expenditure from the UGC Development grant, which was accepted by the UGC;
3) Organisation in Madras University of a workshop on autonomous colleges for principals of selected colleges from Maharashtra;
4) Organisation of a workshop for about 400 principals from all over Maharashtra, in Pune University, for training regarding the A/A process. Also organisation of various such workshops in different colleges;
5) Request made to the NAAC, to organise the visit of every peer team to a group of three colleges during one visit, so as to reduce the burden of expenditure on each college, which was accepted by the NAAC;
6) A manual in Marathi, giving guidance for the submission of the self-study to facilitate colleges from rural areas to prepare their SSRs;

Following these initiatives, nearly 350 colleges submitted their SSRs before the first deadline date of 30 September 2003. Extension of this deadline to 31 December 2003, further enabled another 550 colleges to submit their reports by March 2004. Besides the above initiatives taken by the Quality Assurance Cell, the universities in Maharashtra and the state government took several steps for improvement of quality in higher education.

3.1 Initiatives by the Universities

The 1974 Universities Act was replaced by the 1994 Maharashtra Universities Act. This act underwent some major amendments in the year 2000. Some of the salient features were as follows:

1) Provision of co-option of experts in subjects from industries, financial institutions, etc. on the boards of studies.
2) Formation of a Board of Examinations, with provision for appointment of Controller of Examinations as its executive head, and also provision for co-option of an Evaluation Expert as a member of the board, to enable suggestion and implementation of examination reforms.
3) Re-organisation of the Board of University Teaching and Research for co-ordination and improvement of standards and quality of research.
4) Curtailment of the size of all bodies of the universities for effective functioning.
5) Formation of a Board of College and University Development Council for proper planning and development of colleges.

These features helped the universities of Maharashtra to improve the academic atmosphere in the university campus as well as in the affiliated colleges. Other steps taken by the UGC and the universities also need a mention here.

3.2. Steps for Improvement of the Academic Atmosphere

1) The UGC had stipulated the condition that the minimum number of teaching days should be 180. However, the colleges were not able to meet this requirement due to long vacations of about 16 weeks and also because of the wastage of several days due to improper planning of examination. The UGC and government intervention during the implementation of the fifth Pay Commission pay-scales enabled the reduction of vacations and enabled the universities to frame an academic calendar with minimum 180 teaching days.
2) The state government also issued a circular making mandatory for all college teachers a minimum attendance of five-and-a-half hours on the campus, as stipulated in the UGC guidelines, so that the faculty would be available to the students for guidance.
3) Effective steps were taken by the universities, to prevent teachers from associating themselves with coaching classes or private tuitions.
4) Steps were taken for the maintenance of self-appraisal reports of teaching staff, and also for the appraisal of teaching staff by students.
5) Meetings of vice-chancellors and principals were organized for the implementation of autonomy for institutions in the state. As a result, most of the universities adopted the model statutes for autonomy.

Besides these efforts for quality improvement, the government made special efforts to propagate education for women and also for rural and tribal areas. The norms of student strength and infrastructure were relaxed for such colleges. Education for girls was made free up to the + 2 stage.

All these initiatives contributed to high degree of quality awareness in the state.

4. Materials and Methods

The analysis presented in this report is both quantitative and qualitative. It is based on the peer team reports (PTRs) and the criterion-wise and overall scores and grades of the 15 universities and 797 colleges assessed and accredited up to 16 September 2004. Two of these institutions were accredited under the old system based on ten criteria, 24 institutions were accredited under the star-grading system and the remaining vast majority of 786 institutions have been accredited under the present 9-point scale system based on six criteria for colleges of education and seven criteria for other colleges.

Since almost all institutions have been accredited on the basis of seven criteria, there is uniformity in the qualitative analysis of institutions.

However, for quantitative analysis, there is a marked difference in the scores under the star system, and the 9-point system. As far as possible, due care has been taken of this difference for meaningful comparison.
It is presumed that there is no inter-peer team variation in the scores and the PTRs, and that the commendations, recommendations and concerns mentioned in the PTRs truly reflect the overall contents of the duly validated self-study reports.

5. Clusters of Institutions Analysed

Table 4: Distribution of accredited higher education institutions in Maharashtra

[1] Universities	**Total**	**Traditional**	**Deemed**				
	15	**9**	**6**				
[2] Professional Colleges	**Total**	**Education /Physical Education**	**Law**	**Engineering.**	**Medical**	**Management**	**Social Work**
	80	**36** (inclusive of 4 government colleges)	**19**	**5**	**3**	**7**	**10**
[3] Other Colleges as per Faculty:	**Total**	**Government**	**Private**				
A. Three-Faculty Colleges	**302**	**3**	**299**				
B. Two-Faculty Colleges	**270**						
Arts and Science	32	1	31				
Arts and Commerce	229		229				
Arts and Home Science	3		3				
Science and Commerce	5		5				
Commerce and Management	1		1				
C. Single-Faculty Colleges	**145**						
Arts	53		53				
Science	35	3	32				
Commerce	50	1	49				
Home Science	5		5				
Fine Arts	1		1				
Information Technology	1		1				
All Institutions Together	**812**						

Table 4 above presents the data on the distribution of different types of institutions assessed and accredited in Maharashtra, up to 16 September 2004. Out of the 812

institutions assessed, 15 are universities and 797 are colleges. In spite of several initiatives taken by the government, the Chancellor and the UGC, for promoting autonomy for the colleges, only two colleges have been granted autonomy.

As such, no separate classification is made for this category. Also, the number of government colleges in the state is only 25, which again is negligible, as compared to the private colleges. Out of the 25 government colleges, only 12 have been accredited so far, out of which 4 colleges of education have been included in the category of professional colleges.

Out of the 812 institutions, 15 (1.84%) are universities. Of the remaining 797 colleges, 80 (10.03%) are professional colleges, 302 (37.89%) are three-faculty colleges, 270 (33.87%) are two-faculty colleges, and 145 (18.19%) are single-faculty colleges.

Also, out of the 797 institutions, 398 (49.93%) are urban colleges, and 414 (51.94%) are rural/semi-urban colleges. Of the total institutions, 62 (7.78%) are women's colleges.

5.1 Analysis of the Overall Scores

Out of the 812 accredited institutions, including universities and colleges, the cluster of deemed universities has scored better than that of the traditional universities. Secondly, among the professional colleges, the clusters as per the descending order of their average scores are: Medical > Education > Management > Engineering > Law > Social work. Among the non-professional colleges, namely, arts, science and commerce colleges, the descending order as per average scores is: three-faculty > single-faculty > two-faculty.

Also, among all single-faculty institutions, the clusters as per the descending order of their average scores are: Commerce > Science > Home Science > Arts. The single-faculty fine arts college and the information technology college have scored better than all other colleges. However, they are not considered for comparison, as these are clusters with only one college each. In the case of two-faculty colleges, the clusters as per the descending order of their average scores are: Arts and Home Science > Arts and Science > Science and Commerce > Commerce and Management > Arts and Commerce.

Table 5: Overall average scores and standard deviations of different clusters of institutions

	No. of Institutions	**Average**	**Std. Deviation**

[1] All Institutions Together	812	73.15	
[2] Only Universities (All)	15	78.07	
A. Traditional Universities	9	73.24	4.95
B. Deemed Universities	6	85.32	7.37
[3] Only Professional Colleges (All)	80	76.22	
A. Education/Physical Education	36	80.50	7.10
B. Law	19	71.21	9.88
C. Engineering	5	73.67	5.24
D. Medical	3	83.08	8.52
E. Management	7	74.10	7.20
F. Social Work	10	71.10	10.56
[4] Other Colleges as per Faculty	-		
A. Three-Faculty Colleges	302	75.13	
(1) Government	3	83.55	4.55
(2) Pvt./ Self-Fin./Aided	299	75.01	7.02
B. Two-Faculty Colleges (All)	270	70.32	
(1) Arts and Science	32	74.52	7.00
(2) Arts and Home Science	3	74.80	3.56
(3) Arts and Commerce	229	69.61	7.10
(4) Science and Commerce	5	73.31	8.93
(5) Commerce and Management	1	71.30	0.00
C. Single-Faculty Colleges (All)	145	72.12	
(1) Arts	53	67.48	6.64
(2) Science	35	72.49	8.06
(3) Home Science	5	71.38	10.47
(4) Commerce	50	76.61	7.49
(5) Fine Arts	1	80.30	0.00
(6) Information Technology	1	76.75	0.00
[5] Women's Colleges	62	73.50	7.56
[6] Urban Colleges	398	76.41	7.49
[7] Rural Colleges	414	70.03	7.08
**** Colleges Accredited under the Old System**			
1) Single-Faculty - H. Sc. – Private	1		
2) Three-Faculty - Private	1		

Table 6: z-values of different types of colleges in Maharashtra

Types of Colleges	Professional Colleges	Single-Faculty Colleges	Two-Faculty Colleges
Single-Faculty Colleges	3.323*		
Two-Faculty Colleges	5.268*	2.194*	
Three-Faculty Colleges	0.9945	3.776*	8.013*

The average score of women's colleges (73.50) is slightly more than the average score for all the institutions (73.15). The average score of urban colleges (76.41) is much

higher than that of rural colleges (70.03). The standard deviation is the highest for colleges of social work, following that the clusters as per the descending order of standard deviation scores are: Home Science > Law > Science and Commerce > Medical > Science > Commerce > Management > Arts > Arts and Commerce > Education > Arts and Science > Engineering > Arts and Home Science. If the standard deviation is high for a cluster of colleges, it suggests that for that cluster there will be some colleges scoring very high scores and some very low scores as compared to the average score for that cluster.

Table 6 gives the large sample test standard normal values for testing equality of means. The *z*-values are significantly high for the mean score of three-faculty colleges when tested with each of two-faculty or of single-faculty colleges. We can say that the mean score of three-faculty colleges is greater than that of single-faculty and two-faculty colleges. We can also say that the mean score for single-faculty colleges is greater than that of two-faculty colleges.

5.2 Distribution of Institutions in relation to the Accreditation Status

Table 7: Percentage distribution of institutions according to the accreditation status

	Old System	**5 *******	**4 ******	**3 *****	**2 ****	**A++**	**A+**	**A**	**B++**	**B+**	**B**	**C++**	**C+**	**C**
Universities														
Traditional		3	2		1					2	1			
Deemed		1				1	1	1	1	1				
Professional Colleges		2					6	9	15	19	14	2	9	4
Other Colleges														
01. Arts/Science/Commerce	1	2	4	1			2	29	58	79	70	35	15	6
02. Arts/Science			1					2	8	9	5	3	4	
03. Arts/Commerce			1					3	16	38	66	52	31	22
04. Arts/Home Science										3				
05. Science/Commerce								1		1	2		1	
06. Commerce/Management											1			
07. Arts									1	7	14	12	11	8

08. Science		1	2	1				1	8	6	5	5	4	2
09. Commerce				1			1	7	12	9	12	7		1
10. Home Science	1									3				1
11. Fine Arts									1					
12. Information Technology										1				
Total	2	9	10	3	1	1	10	53	120	178	190	116	75	44
% of Total	**0.25**	**1.11**	**1.23**	**0.37**	**0.12**	**0.12**	**1.23**	**6.53**	**14.78**	**21.92**	**23.40**	**14.29**	**9.24**	**5.42**

From Table 7, it is evident that of the 812 institutions, only 2 institutions (0.25%) have been accredited under the old system; 23 institutions (2.83%) under the star system and 787 institutions (96.92%) under the present 9-point scale system.

Out of the 9 traditional universities, 6 have been assessed under the star system. The score under the star system has generally remained in the range of 55 to 80%. As a result, the average score for the traditional universities has remained between 71.8 and 76.8%.

Out of the 6 deemed universities, 5 have been assessed under the 9-point scale system and only 1 under the star system. The range of marks in the 9-point scale system is 55-96%. The Indira Gandhi Institution of Development and Research, Mumbai, a deemed university, is perhaps the only university in the country that has secured the A++ grade, with a score of 95.15%. On the whole, the average score for deemed universities is in the range 75.15-95.15%, which is higher than the range for traditional universities.

In the professional colleges' category, only 2 institutions have been assessed under the star system and the remaining 78 under the 9-point scale system. The range of marks is 57.06-92.03. Five of the six professional colleges placed in the A+ category are colleges of education and one is a law college.

In the non-professional colleges' category, among the three-faculty colleges, two have secured the A+ grade with an average score of 91.35, 29 colleges have secured the A grade with an average score of 86.20, and 58 have secured B++ with an average score of 81.62.

Among the two-faculty colleges with different combinations of arts and science, arts and commerce, science and commerce, etc., the average score is highest for arts and science (87.10) followed by arts and commerce (86.47), then science and commerce (86.3) and the lowest average score is for arts and commerce (56.39) colleges.

The number of institutions graded as B is the highest (190), followed by institutions graded B+ (178). The total number of institutions in the range of average scores of 70 to 80, including the 4-star and some 5-star institutions, is 385, which is almost 47% of the total number of institutions.

Only one deemed university has been placed in the A++ grade, 10 colleges in the A+ grade, of which 5 are colleges of education, 53 in the A grade and 120 in the B++ grade. Thus, almost 23% of the total number of institutions have secured more than 80 marks.

In the star system, only 1 institution is placed in the 2-star and 3-star grade. Also, the total number of institutions securing C, C+ and C++ grades is 235. Thus, almost 29% of the institutions are in the lower range of scores of 55 to 70.

From the above observations it can be interpreted that the distribution of accredited institutions in Maharashtra according to the scores and grades obtained is a normal distribution.

5.3 Overall scores as related to the accredited status of the various institutions

Table 8 represents the data on the average percentile overall scores of the various institutions in relation to the status of accreditation.

Table 8: Distribution of colleges as per overall average percentage and standard deviation secured

	5***	**4 ******	**3 ***	**2 **	**A++**	**A+**	**A**	**B++**	**B+**	**B**	**C++**	**C+**	**C**
Universities													
Traditional Universities	76.80	70.68		62.70					76.40	71.80			
	2.47	0.81		0.00					1.91	0.00			
Deemed Universities	81.25				95.15	91.90	86.25	82.25	75.10				
	0.00				0.00	0.00	0.00	0.00	0.00				
Professional Colleges	77.34					92.03	86.35	81.45	77.16	71.94	66.55	62.03	57.06
	2.95					1.07	1.47	1.01	1.34	1.16	1.48	1.06	1.74
Other Colleges													
Three-Faculty Colleges													
Arts/Science/Commerce	77.10	72.27	65.30			91.35	86.20	81.62	76.52	71.93	66.93	62.61	56.32
	2.76	1.64	0.00			0.28	0.96	1.44	1.19	1.23	1.60	1.04	1.32
Two-Faculty Colleges													

Arts/Science		71.50					87.10	81.36	75.19	71.65	67.85	62.20	
		3.84					1.27	1.12	2.52	1.39	1.03	0.93	
Arts/Commerce		75.55					86.47	81.58	76.48	71.73	67.18	62.15	56.39
		0.00					1.46	1.58	1.04	1.13	1.39	1.29	1.13
Arts/Home Science									74.80				
									3.56				
Science/Commerce							86.30		76.50	70.88	62.00		
							0.00		0.00	0.18	0.00		
Commerce/Management										71.30			
										0.00			
Arts								82.05	76.57	71.81	67.50	62.45	57.02
								0.00	1.37	1.20	1.22	1.43	1.56
Science	75.40	70.18	65.00				85.80	81.93	76.54	72.25	66.52	62.25	56.63
	0.00	0.04	0.00				0.00	1.06	1.55	1.38	1.36	1.60	1.59
Commerce			65.75			92.25	86.39	81.74	77.33	72.23	67.01		55.00
			0.00			0.00	1.02	1.16	1.03	1.11	1.07		0.00
Home Science									76.58				55.75
									1.23				0.00
Fine Arts								80.30					
								0.00					
Information Technology									76.75				
									0.00				
Women's Colleges			65.30				86.26	81.75	76.26	71.99	67.61	63.29	57.27
			0.00				1.43	1.94	2.16	0.68	1.43	1.06	2.05

Among single-faculty colleges only one commerce-faculty college has secured the highest A+ grade with 92.25 marks. The lowest score (55) is also for a commerce college. On the whole the overall average score for 50 single-faculty commerce colleges is highest among that category (76.61) barring the solitary exception of one IT college (76.75) and one fine arts college (80.30).

The range of scores for commerce-faculty colleges is 55 to 92 followed by 56 to 85 for science colleges and 56 to 82 for arts colleges.

In the women's college category, there are 62 colleges with an average score of 73.50 and standard deviation of 7.56. The range of average score is from 55 to 86.26.

Table 9 gives the percentile distribution of institutions within a cluster, in the descending order of overall score averages.

Table 9: Descending order of averages shown in Table 8 as a percentage of total institutions in a particular cluster

Universities	**Averages and their percentage**										
Traditional	76.80	76.40	71.80	70.68	62.70						
%	33.33	22.22	11.11	22.22	11.11						
Deemed	95.15	91.90	86.25	82.25	81.25	75.10					
%	16.67	16.67	16.67	16.67	16.67	16.67					
Professional Colleges	92.03	86.35	81.45	77.34	77.16	71.94	66.55	62.03	57.06		
%	7.50	11.25	18.75	2.50	23.75	17.50	2.50	11.25	5.00		
Other Colleges											
Three-Faculty											
Arts/Science/Commerce	91.35	86.23	81.64	77.10	76.51	72.27	71.98	66.84	65.30	62.49	56.38
%	0.66	9.60	19.54	0.66	25.83	1.66	23.18	11.59	0.33	4.97	1.99
Two-Faculty											
1. Arts/Science	87.10	81.36	75.19	71.65	71.50	67.85	62.20				
%	6.25	25.00	31.25	15.63	3.13	9.38	9.38				
2. Arts/Commerce	86.47	81.58	76.48	75.55	71.73	67.18	62.15	56.39			
%	1.31	6.99	16.59	0.44	28.82	22.71	13.54	9.61			
3. Arts/Home Science	74.80										
4. Science/Commerce	86.30	76.50	70.88	62.00							
%	20.00	20.00	40.00	20.00							
Commerce//Management.	71.30										
Single-Faculty											
1. Arts	82.05	76.57	71.81	67.50	62.45	57.02					
%	1.89	13.21	26.42	22.64	20.75	15.09					
2. Science	85.8	81.93	76.54	75.4	72.25	70.18	66.52	65.0	62.25	56.63	
%	2.86	22.86	17.14	2.86	14.29	5.71	14.29	2.86	11.43	5.71	
3. Commerce	92.25	86.39	81.74	77.33	72.23	67.01	65.75	55			
%	2.00	14.00	24.00	18.00	24.00	14.00	2.00	2.00			
4. Home Science	76.58	55.75									
%	75.00	25.00									
5. Fine Arts	80.30										
6. Information Technology	76.75										
Women's Colleges	86.26	81.75	76.26	71.99	67.61	65.30	63.29	57.27			
%	6.45	16.13	30.65	17.74	11.29	1.61	11.29	4.84			

Table 10: Percentage frequency of institutions in descending order of overall score intervals

	> 80	80-75	75-70	70-65	65-60	< 60
Universities						
Traditional Universities		55.56	33.33		11.11	
Deemed Universities	83.33	16.67				
Professional Colleges	37.50	25.00	17.50	3.75	11.25	5.00
Other Colleges						
Three-Faculty						
Arts/Science/Commerce	30.10	27.09	25.75	12.04	5.02	
Two-Faculty						
1. Arts/Science	31.25	21.88	28.13	9.38	9.38	
2. Arts/Commerce	8.30	17.03	28.82	22.71	13.54	9.61
3. Arts/Home Science		66.67	33.33			
4. Science/Commerce	20.00	20.00	40.00		20.00	
5. Commerce/Management			100.00			
Single-Faculty						
1. Arts	1.89	11.32	28.30	22.64	20.75	15.09
2. Science	25.71	20.00	20.00	14.29	14.29	5.71
3. Commerce	40.00	18.00	24.00	16.00		2.00
4. Home Science		75.00				25.00
5. Fine Arts	100.00					
6. Information Technology		100.00				
Women's Colleges	22.58	30.65	17.74	12.90	11.29	4.84

5.4 Interpretations of the Tables

These tables reveal that 55% of the traditional universities have scored more than 76.40 and all the deemed universities have scored more than 75.

In the professional colleges' category, 23.75% of the colleges have an average score of 77.16 and 63 percent of the institutions have scores more than 75.

The performance of non-professional colleges shows considerable variation. For three-faculty colleges the maximum percentage of institutions have a score of 76.51 and 30 percent of the institutions have scored more than 80 whereas in the category of single-faculty commerce colleges, the maximum percentage of institutions have an average score of 81 and nearly 40 percent of the commerce colleges have scores more than 80.

More than 22 percent of women's colleges have scores more than 80 and 70 percent have scores more than 70.

Table 11: Number of government and private institutions as per status of accreditation

	Old System	5 *****	4 ****	3 ***	2 **	A++	A+	A	B++	B+	B	C++	C+	C	TC
Government	0	0	0	0			1	4	4	1	2	0	0	0	
Private	2	5	9	3			8	48	119	171	186	115	75	44	
TOTAL	2	5	9	3	0	0	9	52	123	172	188	115	75	44	

Table 11 shows a comparison of government and private colleges.

Almost all the higher educational institutions in Maharashtra are run by private managements and hardly one percent of the institutions are managed by the government. All the 12 accredited government colleges have scored more than 70, whereas in the private college category 75 percent of the colleges have scored more than 70.

6. Quantitative Criterion-wise Analysis

The seven criteria evolved by the NAAC for measuring the quality of higher educational institutions offer a good framework for the multi-dimensional growth of universities as well as colleges. While deciding the weightages for different types of institutions, due care has been taken. Since universities are largely concerned with the framing of curricula, greater weightage (15) is given for this criterion for universities than for colleges (10). Similarly, since research is mainly carried out in the universities, the weightage for this criterion for universities is higher (15) as against that for affiliated colleges (5). Again, for all types of institutions, the criterion Teaching-Learning and Evaluation gets the maximum weightage. The NAAC has considered 3 categories of institutions and prepared different weightage charts accordingly. However, for the state of Maharashtra, the category of autonomous colleges is almost non-existent; hence the following table gives the criterion-wise weightages for only two categories.

Table 12: NAAC's Criteria for Assessment and Weightages

Criterion	University	Affiliated Colleges
Curricular Aspects	15	10
Teaching-Learning and Evaluation	25	40
Research, Consultancy and Extension	15	5

Infrastructure and Learning Resources	15	15
Student Support and Progression	10	10
Organisation and Management	10	10
Healthy Practices	10	10

6.1 Criterion-wise Scores of Universities

The criterion-wise score averages and the standard deviations of nine traditional universities and six deemed universities are presented in Table 13.

Table 13: Criterion-wise score averages and the standard deviations of nine traditional universities and six deemed universities

	Criterion	Traditional Universities (9)		Deemed Universities (6)	
		Average	Standard Deviation	Average	Standard Deviation
I.	Curricular Aspects	72.33	5.74	83.50	7.94
II.	Teaching-Learning and Evaluation	74.44	4.42	85.67	6.80
III.	Research, Consultancy and Extension	72.78	6.92	87.33	7.55
IV.	Infrastructure and Learning Resources	74.00	9.59	87.50	7.15
V.	Student Support and Progression	71.33	6.63	83.00	9.82
VI.	Organisation and Management	75.22	5.61	84.00	9.59
VII.	Healthy Practices	71.44	4.48	84.50	9.54
	Overall Score	73.08	6.20	85.07	8.34

Six of the nine traditional universities have been graded by the star method and five of the six deemed universities have been graded by the 9-point scale method. The scores in the star method have been in the range of 55 to 80 and the scores in the 9-point scale methods are in the range of 55 to 96. As a result the overall scores and the criterion-wise scores in the star method are lower than in the 9-point scale method. Also in both types of universities, both methods of gradations are used. As such it is difficult to find a scaling (multiplier) factor to make a comparison. However a comparison within the groups is possible.

The two types of universities have scored differently for the different criteria. For traditional universities, the highest score is for Organisational Management (OM) followed by the scores for Teaching-Learning and Evaluation (TLE), Infrastructure and Learning (IL) Resources, Research Consultancy and Extension (RCE), Curricular Aspects (CA), Healthy Practices (HP), and Student Support and Progression (SSP). For the deemed universities the highest score is for Infrastructure (IL) followed by the scores for Research (RCE), Teaching (TLE), HP, OM, CA and SSP.

For traditional universities, the standard deviation is highest for Infrastructure (IL) and is lowest for Teaching-Learning (TLE). This shows that there are likely to be large differences in the infrastructure and learning resources in traditional universities,

whereas the low standard deviation for TLE suggests less variation among the teachers' learning and evaluation methodologies and practices. For deemed universities the standard deviation is highest for student support (SSP) and lowest for TLE. This suggests larger variation in student support and progression and a smaller variation in TLE in various deemed universities. Also for the deemed universities, the standard deviation is generally higher for all the criteria than the corresponding criterion-wise standard deviation for the traditional universities. This suggests that criterion-wise there is more deviation from the mean in the deemed universities than in the traditional universities.

Performance-wise, 5 of the 9 traditional universities have been placed above the 4-star level whereas 5 of the 6 deemed universities have been placed in the top categories. The same fact is revealed in the criterion-wise scores also. The highest A++ grade secured by one deemed university and the overall criterion-wise better performance by the majority of deemed universities may mean that the quality level for smaller and compact units can be higher.

The percentile distribution of the universities based on the range of criterion-wise scores is given in Table 14.

Table 14: Distribution of universities (%) in different ranges of each criterion score

Criterion	Type of University	> 80	80-75	75-70	70-65	65-60	< 60
I	Traditional	11.11	11.11	44.44	11.11	11.11	11.11
	Deemed	66.67		33.33			
II	Traditional	22.22	11.11	33.33	33.33		
	Deemed	83.33	16.67				
III	Traditional	11.11	11.11	33.33	22.22	22.22	
	Deemed	83.33	16.67				
IV	Traditional	33.33	11.11	22.22	11.11	11.11	11.11
	Deemed	100.00					
V	Traditional	11.11	11.11	44.44		33.33	
	Deemed	66.67		16.67	16.67		
VI	Traditional	33.33	22.22	22.22	11.11	11.11	
	Deemed	83.33		16.67			
VII	Traditional			55.56	22.22	22.22	

	Deemed	83.33		16.67			

In the traditional universities' category, for criteria I, II, III, V and VII the maximum percentage of universities have scores in the range 70 to 75.

For deemed universities for all the seven criteria the maximum percentage of universities have scores more than 80.

6.2 Criterion-wise Scores of Professional Colleges

Table 15: Criterion-wise scores of professional colleges - average and standard deviation

	Criterion	**Average**	**Standard Deviation**
I.	Curricular Aspects	72.11	8.71
II.	Teaching-Learning and Evaluation	74.81	8.77
III.	Research, Consultancy and Extension	66.16	13.09
IV.	Infrastructure and Learning Resources	71.87	11.20
V.	Student Support and Progression	72.16	9.49
VI.	Organisation and Management	73.78	9.40
VII.	Healthy Practices	69.08	16.35
	Overall Score	**72.98**	**8.26**

From the above table for professional colleges it can be seen that the average scores for most of the criteria are more or less similar with the highest score 74.81 for Criterion II (TLE). However Criteria III and VII have low average scores of 66 and 69 respectively. Also for the Criterion HP the standard deviation is very high which suggests a wide deviation from the mean score. This means that some professional colleges are very strong and others are very weak in the area of HP. Also it is observed that the standard deviations are high for most of the seven criteria. This means that there is a wide deviation from the mean in each of the criterion-wise scores for professional colleges.

6.3 Criterion-wise Scores of Non-professional Colleges

Table 16: Criterion-wise scores of non-professional colleges of various faculties - average and standard deviation

Criterion		Arts/ Science/ Commerce	Arts/ Science	Arts/Commerce	Arts/Home Science	Science/ Commerce	Commerce/ Management	Arts	Science	Commerce	Home Science	Fine Arts	Information Technology
I. Curricular Aspects	Average	74.14	73.39	69.41	72.00	69.40	72.00	66.504	70.69	75.08	68.75	80	80
	Standard Deviation	7.29	7.72	7.94	5.29	11.91	0.00	7.7534	10.45	8.655	12.5	0.00	0.00
II. Teaching-Learning and Evaluation	Average	76.62	76.21	71.71	77.00	76.20	70.00	69.693	74.74	78.1	75.50	87	75
	Standard Deviation	7.74	7.75	7.93	5.20	9.20	0.00	7.1547	8.139	7.644	7.14	0.00	0.00
III. Research, Consultancy and Extension	Average	69.53	68.85	61.59	67.67	66.00	60.00	61.215	70.00	67.38	62.50	75	65
	Standard Deviation	11.73	9.85	12.94	9.29	13.87	0.00	13.624	11.86	12.68	18.48	0.00	0.00
IV. Infrastructure and Learning Resources	Average	74.49	73.70	67.77	74.33	75.00	72.00	63.693	71.13	76.1	70.00	75	80
	Standard Deviation	9.64	10.24	10.32	5.51	10	0.00	10.713	12.37	10.7	13.54	0.00	0.00
V. Student Support and Progression	Average	74.22	72.27	68.99	75.67	67.20	76.00	67.215	70.46	77.28	69.25	80	80
	Standard Deviation	8.13	8.79	8.31	3.06	12.91	0.00	8.9231	8.903	9.181	13.50	0.00	0.00
VI. Organisation and Management	Average	75.82	75.97	70.12	77.00	78.20	77.00	68.561	72.29	77.8	71.25	70	70
	Standard Deviation	8.23	7.67	8.37	3.46	6.98	0.00	9.1718	8.302	8.961	8.54	0.00	0.00
VII. Healthy Practices	Average	73.63	73.58	67.37	70.00	68.00	70.00	65.913	68.83	75.02	66.25	75	85
	Standard	10.36	8.01	12.65	8.00	13.038	0.00	13.79	15.14	10	14.36	0.00	0.00

	Deviation												
	Final Average	**75.13**	**74.52**	**69.61**	**74.80**	**73.31**	**71.30**	**67.48**	**72.49**	**76.61**	**71.38**	**80.30**	**76.75**
	Final Standard Deviation	**7.04**	**7.00**	**7.10**	**3.56**	**8.93**	**0.00**	**6.64**	**8.06**	**7.49**	**10.47**	**0.00**	**0.00**

While making the criterion-wise comparative study, three clusters, namely, commerce/management, fine arts and information technology, which represented only one college, are not considered.

Abbreviations used: Arts – A, Commerce – C, Science – S, Home Science – Hs, Management – M

For the first criterion: Curricular Aspects:
The single-faculty commerce college cluster has the highest score (75.08) followed by three-faculty ACS colleges (74.14), two-faculty AS colleges (73.44) and the single-faculty arts college cluster (66.50).

For the second criterion: Teaching-Learning and Evaluation:
The order of scores is C (78.17) > Ahs (77) > ACS (76.62) > AS (76.21) > CS (76.20) > Hs (75.5) > S (74.7) > AC (71.71) > CM (70) > A (69.69).

For the third criterion: Research, Consultancy and Extension
The scores in order are S (70) > ACS (69.53) > C (67.38) > AS (68.85) > Ahs (67.67) > C (67.38) > CS (66) > AC (62.43) > A (61.2). It appears that colleges with science faculty have better research activity.

For the remaining four criteria, the single-faculty commerce college cluster gets the maximum score, the single-faculty arts college cluster gets the minimum score for Criteria IV and V, the AC college cluster gets the lowest score for Criterion VI and the CS cluster is lowest for Criterion VII.

Among these clusters of arts, science, commerce colleges, the overall average is highest for Criterion II (TLE). The scores for the remaining criteria are in the order: VI (OM) > V (SSP) > IV (ILS) > I (CA) > VII (HP) > III (RC).

6.4 Criterion-wise Scores of Particular Clusters

Table 17 gives a comparison of the criterion-wise scores and overall scores of the clusters of women's colleges, urban colleges and rural/semi-urban colleges. Table 18

gives the standard normal *z* values for large sample tests for the hypothesis of equality of means.

Table 17: Criterion-wise scores: average and standard deviation of some clusters of colleges in Maharashtra

Cluster		Criterion I	Criterion II	Criterion III	Criterion IV	Criterion V	Criterion VI	Criterion VII	Overall %
Women's Colleges	Average	72.42	76.35	67.92	70.00	72.98	73.75	69.05	73.50
	Standard Deviation	7.67	7.46	11.81	11.44	9.59	8.65	16.41	7.56
Urban Colleges	Average	75.04	78.29	69.55	75.63	75.37	76.89	71.65	76.41
	Standard Deviation	8.02	7.77	12.32	10.16	9.04	8.74	17.74	7.49
Rural/Semi-urban Colleges	Average	69.56	71.76	62.99	68.56	69.29	71.01	66.79	70.03
	Standard Deviation	7.84	7.91	12.76	10.78	8.39	8.71	14.68	7.08

Table 18: z-values of different types of colleges in Maharashtra

Type of College	Rural Colleges	Women's Colleges
Urban Colleges	12.461**	2.823*
Rural Colleges		3.399**

z-value is significant (>1.96) at 5 percent level of significance.
z-value is significant (>2.58) at 1 percent level of significance.

From the above table we observe that:

There is a significant difference between the overall average scores of urban colleges and rural colleges.

There is a significant difference between the overall average scores of urban colleges and women's colleges.

Comparing the criterion-wise average scores it can be concluded that the average criterion-wise scores for urban colleges are greater than the corresponding criterion-wise average scores of rural colleges for all the seven criteria. A similar comparison reveals that there is a significant difference in the criterion-wise average scores of women's colleges and the corresponding scores of urban colleges for all the seven criteria.

6.5 Criterion-wise Scores of University Clusters

Table 19: Criterion-wise Scores of University Clusters

Name of University	No. of Colleges		Criterion I	Criterion II	Criterion III	Criterion IV	Criterion V	Criterion VI	Criterion VII	Overall %
University of Mumbai	**153**	**Mean**	73.90	76.92	67.68	73.76	73.76	75.33	67.38	75.39
		Standard Deviation	10.48	11.08	13.77	12.72	11.25	11.46	23.11	8.52
		Coefficient of Variation (%)	14.17	14.41	20.34	17.24	15.26	15.21	34.30	
University of Pune	**151**	**Mean**	73.60	76.55	69.18	74.44	74.04	76.03	72.72	74.95
		Standard Deviation	8.27	7.55	12.27	10.22	9.73	8.91	10.87	7.63
		Coefficient of Variation (%)	11.23	9.87	17.74	13.73	13.14	11.71	14.95	
Shivaji University (Kolhapur)	**142**	**Mean**	70.95	74.33	65.09	70.53	71.78	73.79	68.97	72.30
		Standard Deviation	7.77	6.94	11.63	10.86	7.60	7.83	15.41	6.19
		Coefficient of Variation (%)	10.96	9.33	17.87	15.40	10.59	10.61	22.35	
Nagpur University	**95**	**Mean**	69.63	71.51	61.81	68.95	69.06	70.52	64.58	69.65
		Standard Deviation	8.38	8.89	14.88	11.37	10.17	9.60	17.24	8.63
		Coefficient of Variation (%)	12.03	12.43	24.07	16.49	14.73	13.61	26.70	

Dr. Ambedkar University (Aurangabad)	**78**	**Mean**	71.98	72.54	61.84	68.83	70.39	72.29	66.33	70.88
		Standard Deviation	7.65	8.11	14.04	12.43	8.59	8.84	17.63	7.45
		Coefficient of Variation (%)	10.62	11.18	22.70	18.06	12.20	12.23	26.59	
North Maharashtra University (Jalgaon)	**48**	**Mean**	72.00	73.19	65.71	69.92	72.17	71.94	70.11	71.84
		Standard Deviation	8.37	8.25	12.97	10.54	8.71	8.77	13.43	7.58
		Coefficient of Variation (%)	11.63	11.28	19.74	15.08	12.06	12.18	19.16	
Swami Ramanand Teerth University (Nanded)	**48**	**Mean**	72.33	76.25	70.58	73.48	71.60	73.46	70.98	74.02
		Standard Deviation	8.04	9.72	12.39	9.48	9.33	9.60	13.86	8.31
		Coefficient of Variation (%)	11.12	12.74	17.55	12.90	13.03	13.07	19.53	
S.N.D.T. Women's University (Mumbai)	**14**	**Mean**	78.08	80.77	70.38	76.23	76.15	77.23	68.33	78.10
		Standard Deviation	8.55	7.85	13.30	9.08	8.39	9.22	22.29	7.20
		Coefficient of Variation (%)	10.95	9.72	18.90	11.90	11.02	11.94	32.62	
Amravati University	**68**	**Mean**	68.85	71.94	65.22	69.81	69.87	71.78	70.50	70.61
		Standard Deviation	7.89	7.63	10.82	9.78	7.90	7.87	8.17	6.69
		Coefficient of Variation (%)	11.46	10.60	16.59	14.00	11.30	10.96	11.59	
TOTAL	**797**									

From the above table it is observed that except for SNDT University the sample sizes are large for the remaining eight universities. As such the large sample normal test is used for testing hypothesis of equality of mean scores of these 8 universities.

A simple comparison of the overall average scores for colleges under the nine university zones shows the following descending order of average scores.

S.N.D.T. > Mumbai > Pune > Swami Ramanandteerth > Shivaji > North Maharashtra > Dr. Ambedkar > Amravati > Nagpur

It may be noted that the university-wise order of scores for Criterion II (TLE) is also the same as above.

The order of scores for the remaining criteria also is more or less the same as the above except in the Criterion Healthy Practices for which the order is Pune > Swami Ramanandteerth > Amravati > North Maharashtra > Shivaji > S.N.D.T. > Mumbai > Dr. Ambedkar > Nagpur.

Table 20: z-values of colleges under different universities in Maharashtra

Name of University	**University of Pune**	**Shivaji University (Kolhapur)**	**Nagpur University**	**Dr. Ambedkar University (Aurangabad)**	**Amravati University**	**North Maharashtra University (Jalgaon)**	**S Rama Un**
University of Mumbai	0.475	3.588**	5.116**	4.145**	4.492**	2.746*	
University of Pune		3.276**	4.902**	3.887**	4.251**	2.476*	
Shivaji University (Kolhapur)			2.583*	1.434	1.755	0.379	
Nagpur University				1.001	0.799	1.556	
Dr. Ambedkar University (Aurangabad)					0.231	0.695	
Amravati University						0.904	

North Maharashtra University (Jalgaon)							

Table 20 gives the standard normal z-value for testing the hypothesis that the overall average score of one university is equal to that of another university.

High values of z marked by * in the above table show that there is a significant difference in the average scores of the colleges under those pairs of universities.

Low values of z (< 1.96) show that there is no significant difference in the average scores of the colleges under those pairs of universities.

7. Qualitative Analysis of Institutional Commendations and Recommendations

In the concluding part of the peer team report, the peer team draws up commendations and recommendations for the institution to implement in order to improve the quality of the various aspects of its functioning. The qualitative analysis of the peer team reports involves a study of all the commendations and recommendations of all the peer team reports of the institutions that underwent the process of accreditation.

7.1 Commendations

The salient commendations, as denoted in peer team reports are classified under the seven criteria against which institutional performance is evaluated for accreditation.

7.1.1 Universities

Curricular Aspects

- A large number of interfacial programmes of teaching like bio-informatics, energy studies, instrumentation, defense studies, health and environmental science.
- Hosts to several important national events like the Indian Science Congress, and the events conducted by the National Academy of Science, Indian Mathematics Society, etc.
- A large number of chair professorships.
- A large number of prestigious national R & D organisations on campus.
- Teaching unique, specialised and multidisciplinary subjects.
- Relative faculty autonomy and running of various autonomous courses.

Teaching-Learning and Evaluation

- Dedicated staff and students, who strive for excellence.

- Application and practice orientation of the learning process.
- Full autonomy in academic matters and autonomy to some extent in financial matters that ensure that the departments design and conduct new courses as per the needs of society.
- Receipt of national and international awards for teaching and research.
- A large number of self-financing courses and need-based courses that ensure high rate of employment.
- Faculty evaluation by students, transparency in the evaluation system and regular assessment process;
- Humanistic approach in all areas of academic activity that maintains a balance between teachers' demands and needs of a developing economy.

Research, Consultancy and Extension

- Research done by teachers in spite of constraints.
- Consultancy as revenue earner as well as an important learning and development tool.
- Fruitful two-way interaction with NGOs and industry in neighbourhood with several ongoing projects in teaching and research.
- Number of national and international linkages, MOUs with foreign universities covering research and teaching.
- Several departments that are recognised and supported under the CAS and other UGC schemes.
- Number of institutes of advanced study with a large number of publications (books and bulletins).
- Mammoth projects undertaken by some institutions.

Infrastructure and Learning Resources

- Effective use of infrastructure and facilities.
- Well-stocked university library.
- Provision of computer facilities with Internet connection to teachers, researchers and students.
- Existence of campus-wide fiber optic network in some universities.
- Sprawling campus with large number of buildings constructed amidst lush green settings in many universities

Student Support and Progression

- Community service and work by National Cadet Corps (NCC)/National Service Scheme (NSS) units in shaping student personality.
- Attracting large number of students from other states and outside India - indicative of national and global integration in education.

- Field training programmes that provide visible leadership qualities and a spirit of adventure among students.
- Earn and learn scheme for weaker section students.

Organisation and Management

- Encouragement and all-round support given by the managements to the universities.
- Well-structured organizational set up prescribed by Act and statutes.
- Proper mechanism for staff welfare and Grievance Redressal.
- Perspective plans for development
- Transparency in financial matters.
- Cooperative, thrift societies of teaching, non- teaching staff.

Healthy Practices

- Good welfare schemes run by various institutions.
- Strict discipline in the institutions.
- Effective leadership and good human relationships that contribute to efficient team work.
- An atmosphere of peer culture, where peer actions and achievements inspire all.
- Work ethics of an exemplary nature in practice among the university community.

7.1.2 Professional Colleges

Curricular Aspects

- Developments guided by clear-cut goals and objectives.
- Introduction of new postgraduate programmes.
- Rigorous admission procedure.

Teaching- Learning and Evaluation

- Dedicated staff and students, who strive for excellence.
- Field work as an integral part of work curricula.
- Efforts in producing workbooks, study manuals and computer aided learning material.

Research, Consultancy and Extension

- Research work done by teachers, despite several constraints.
- Large amounts generated by some colleges through consultancy.
- Medical services through stem cell bank, eye bank, orthopaedic surgery programme etc.
- Contribution to policy developments at state and national levels.
- Community service and work done by NSS and NCC units.

Infrastructure and Learning Resources

- Effective use of infrastructure and facilities.
- Well-equipped modern laboratories.
- IT-enabled services on campus.

Student Support and Progression

- Emphasis on placement and campus interviews
- Support to students from other states.
- Interaction with alumni.

Organisation and Management

- Encouragement and support given by the management to the institutions.
- Effective leadership and good human relationships that contribute to effective team work.

Healthy Practices

- Strict discipline on campus.
- Welfare schemes run by institutions.
- Commitment to service, team spirit and constant monitoring of activities.

7.1.3 Non-professional Arts, Science, Commerce Colleges

Curricular Aspects

- Job-oriented self-financing courses (like Food Science, Dairy Science) driven by local needs and courses like Computer Science and PG courses leading to optimal use of available physical infrastructure.
- Teaching faculty serving as members of respective Boards of Studies of their universities.
- Holding university-level workshops for restructuring syllabi in various subjects.

Teaching-Learning and Evaluation

- Use of models, charts, overhead projectors (OHP), preparation of teaching plan, workbooks, remedial coaching for weaker students, intensive teaching for gifted students, formation of study circles.
- Short induction programmes for newly appointed teachers.
- Supplementing curriculum of university with certificate courses thus encouraging students to acquire useful skills.
- Mechanism of ensuring quality checks at all levels through quality circle committees.
- Self-assessment of college staff members and assessment of teachers' performances by students.

- On-the-job training for students in neighborhood industrial units.
- Monitoring the performance of students and keeping parents informed.
- Innovative approaches to the teaching-learning process such as e-group and phone-groups for assignments and projects.

Research, Consultancy and Extension

- Research work done by some teachers in spite of constraints.
- Very good industrial linkages in several institutions, used in developing vocational courses.
- Substantial leave and other benefits granted as incentives to teachers to pursue higher studies and research.
- "Staff Academy" to highlight teachers' research and extracurricular activities.
- Add-on courses in subjects such as cosmetics technology, architecture, hotel management and catering, house and interior design, home economics and biotechnology.
- Design of low-cost equipment for various practical experiments.
- Organising and supporting the Maharashtra Talent Search Examination

Infrastructure and Learning Resources

- Effective use of infrastructure and facilities.
- Well equipped sports departments that provide excellent sports facilities in several games.
- Computerisation of office work.
- Open access system in library, in-house print shop and various testing facilities.
- Computer facility and internet browsing facility.

Student Support and Progression

- Night reading facility for students in the library.
- Galaxy of high profile people in various walks of life as part of Alumni Association.
- The NSS and NCC units that contribute to personality development of students and community service.
- International linkages of certain institutions for training and students exchange programmes abroad with the USA, UK, New Zealand and Australian Universities.
- Award of internationally sponsored scholarships.
- Placement activities, career guidance workshops and vocational training.
- Remedial and bridge courses provided to weaker students to enhance their performance.
- Empowerment courses like entrepreneurship development to supplement the regular programme.

- Community-oriented programmes to promote a sense of social responsibility and civic sense among the students.
- Lectures by famous personalities and industrialists, art and culture exhibitions, cultural competitions, etc in the college.
- "Learning while earning" schemes for students, enabling economically backward students to receive higher education.

Organisation and Management

- Constant encouragement and support given by the management to the institutions.
- Proper management of financial resources and good fiscal exercise that has resulted in surplus budgets.
- Transparent decision-making and decentralized execution.
- Generous and judicious management of resources in certain institutions leading to building of a corpus fund.
- Decentralised administration in various colleges by constituting various committees.

Healthy Practices

- Effective leadership and good human relationships that contribute to efficient team work.
- Strict discipline on the campuses.
- Dedicated staff and students who strive for excellence.
- Welfare schemes run by the institution.
- Organisation of programmes on environmental pollution, blood donation, Aids awareness, physical fitness programmes for general masses and community orientation programmes.
- Several institutions gearing up for autonomy.
- Encouragement given to non-teaching staff to pursue higher education.
- Publishing in-house magazines which gives students a forum to express their creative writing potential.
- Outstanding alumni in all walks of life with covetable corporate and governmental positions.

7.1.4 Specialized Institutions

While doing analysis of accredited institutions in Maharashtra, a special mention needs to be made of various institutions, which are offering unique programmes and/or conducting research in specialized areas. Indira Gandhi Institute of Development Research [accredited at A++ level], Mumbai; Tata Institute of Social Sciences [accredited at five star level], Mumbai; Gokhale Institute of Politics and Economics [A+], Pune and Deccan College [B++], Pune are some of the Deemed to be universities

for which Peer Team Reports have given ample commendations. Colleges like Armed Forces Medical Colleges and Army Institute of Technology are some of the specialized institutions accredited by the NAAC, which form part of this analysis. They have many distinct features commended by the peer teams. However, some of these features may not find place here since this analysis focuses on the general trend.

7.2 Recommendations

The most frequently occurring and the significant recommendations are listed under each of the seven criteria for accreditation for each category of institutions. The study gives all stakeholders including the government, the public and all institutions an idea of the areas to be focused on for improving the quality of educational provisions in higher education.

7.2.1 Recommendations for Universities

Curricular Aspects

- Periodical updating and modernising of the curricula of the conventional arts, science and commerce programmes.
- Introduction of job-oriented vocational courses as per the needs of the regions.
- Introduction of distance/online education programme in the areas of excellence of the university departments to enable a large number of students get the benefit of specialist subject experts.
- Granting of autonomy to colleges in a phased manner so as to enable the colleges to frame the curriculum as per regional needs.
- Establishment of linkages with other universities/research institutions/industries for collaboration programmes.

Teaching-Learning and Evaluation

- Introduction of semester system and credit system, continuous internal assessment, project work and on-the-job training for postgraduate courses.
- Filling of the vacant posts, especially in the departments having less than the minimum required staff and creating new posts for self-financing courses.
- Special efforts to strengthen the weak departments.
- Modernisation of the science laboratories in some departments of the universities.
- Establishment of a formal mechanism for student feedback about teachers.
- Enhancement of the quality of teachers by arranging more teacher training programmes, conferences, workshops.
- Enhancement of the quality of the entire examination system.
- Development of departmental libraries.
- Greater interdepartmental and interdisciplinary interaction and interaction between university and college teachers.

- Implementation of a well-integrated plan as per the thinking of the UGC for teaching postgraduates to avoid overlapping and dilution of standards.
- Increased use of audio-visual aids for teaching

Research, Consultancy and Extension

- Greater attention to specialised departments and chairs where good research work has been done but not published.
- Minimisation of overlap among teaching, research and resource units by making efforts towards rationalisation and integration.
- More efforts for attracting international students for research.
- Greater interaction with industry, agriculture and service sectors for productive research and to seek research grants from these sectors and other external agencies.
- Increase in the opportunities of collaboration and consultancy in research.
- Establishment of linkages with the Indian Institute of Science and advanced science centres of some southern universities for collaborations.
- Research for problems pertaining to the Deccan Plateau.
- Establishment of research advisory committees for advancing the quality and relevance of research.
- Streamlining of the process of monitoring the progress of work of registered research students.
- Encouragement for focus on research and publications in humanities/ social sciences

Infrastructure and Learning Resources

- Computerisation of the library services.
- Modernisation of laboratories in some new and existing science departments.
- Creation of facilities for multimedia production of learning material like cassettes, CDs, etc.
- Establishment of a centralised instrumentation centre.
- Improvement of the facilities for sports by developing playgrounds and gymkhanas.

Student Support and Progression

- More effective functioning of the placement cell and counselling centre.
- Improvement in the transport facilities.
- Strengthening of competitive examination training centres.
- Strengthening of the alumni associations.
- Increase inthe library timings and space.
- Streamlining of the student feedback and grievance redressal mechanisms.

Organisation and Management

- Greater attention towards raising funds through revision of tuition/examination fee, self-financing courses, donations, etc. for universities having financial deficit.
- Initiation of steps for recruitment of staff where the strength is very less.
- Granting of autonomy to eligible colleges to reduce the administrative burden of universities.
- Computerisation to modernise administrative, library and examination work.
- Ensuring of high standards of accountability and transparency.

7.2.2 Recommendations for Professional Colleges

Education

- Strengthening of learner-centered pedagogy and inclusive education.
- Establishment of functional partnership between schools and education colleges, especially in the practice of teaching component.
- Obtaining of regular feedback from school principals and teachers on partnership programmes.
- Development of teaching aids through mutual collaboration. (These could be published in a house journal and tried out in schools)
- Exposure of students to edited lesson models in the form of CDs presented as support for introduction to theories and practices in teacher education.
- Strengthening of socialised classroom techniques, team teaching, brainstorming, field visits, seminars, workshops, micro-macro teaching and use of audio-visual techniques.
- Initiation of more action research projects.
- Operation of specialised groups in the areas of different educational services like corrective education and education for slow learners, dyslexic learners, and gifted students.
- Academic audit at the end of every year to help in improving the quality of education.
- Adherence to NCTE norms.
- Constant updating and exposure to current developments in the context of challenges faced by the changing scenario at the global level in teacher education.

Law

- Incorporation of more practical training.
- Redesigning of the teaching programmes to make them sociologically oriented.
- Focussed mission statement.
- Provision of periodic feedback from academic peers and employees on teaching programmes.

- Provision of feedback from students on the performance of teachers.
- Paying of special attention to advanced learners.
- Use of audio-visual learning material and centralised 'media' facility to enable teachers to supplement their teaching.
- Provision of separate teaching arrangements for full-time students and working students.
- Recruitment of full-time faculty and administrative staff commensurate with student strength.
- Proper balancing of full-time and visiting faculty.
- Student participation in extension programmes to provide exposure to societal problems.
- Initiation of need-based legal education courses on human rights, environmental laws and taxation laws.
- Provision of continuous evaluation as a regular feature.
- Conduction of wide-ranging short-term courses on family counselling, slum community development, adoption services, drug de-addiction counselling, working for the underprivileged, to sensitise society about social work.
- Design of course content to encompass administrative, communicative and computing skills.
- Organising of regular fieldwork, supervise conferences, seminars, workshops for faculty and students.
- Introduction of more useful electives such as family and child welfare, criminology, etc. at Bachelors and Master's level programmes and periodical revision of syllabi.
- Establishment of field action projects independently and in collaboration with NGOs that will help in testing theories taught in classrooms.

Management

- Collection of feedback from academic peers, employers and campus recruitment executives on the design, content and quality of programmes and on the strengths and weaknesses of students.
- Ensuring of greater industry-institutional linkages.
- Strengthening of linkages and networking with other institutes of national and international importance.
- Designing of need-based short-term/long-term programmes like entrepreneurship development.
- Use of innovative teaching methods, greater use of audio-visual learning material and use of computer-aided learning
- Laying of greater emphasis on faculty development programmes.

Medical

- Modernising and updating of syllabus periodically.
- Incorporation of hospital management in curriculum.
- Greater faculty participation in national and international professional organisations and faculty exchange programmes.
- Encouragement of research projects.
- Strengthening of alumni associations.
- Introduction of telemedicine facilities.
- Collaboration with other medical centres of national and international importance.
- Enhancing of intra-institutional networking and e-connectivity.
- Improvement of bed occupancy in several attached hospitals.
- Recruitment of qualified staff in private medical colleges.

Engineering

- Filling up of the vacant posts as per All India Council for Technical Education (AICTE) norms.
- Financial support and leave to teachers for improving their qualifications.
- Effective use of educational technology in classrooms.
- More consultancy work for surrounding industries.
- Good training and placement cell and computerization of the library and administrative services.

7.2.3 Recommendations for non-professional (arts, commerce, science colleges)

Curricular Aspects

- Proper definition and implementation of the mission and goals of the institutions.
- Preparation of a vision document and strategic master plan for ten years in the context of the fast-changing scenario due to globalisation, liberalisation and the information technology revolution.
- Enhancement of the curriculum options by introducing region-based job-oriented vocational subjects/UGC add-on courses at the certificate/diploma levels.
- Periodical revision of the curriculum.
- Remodelling and modernising of the conventional arts and commerce education programmes.
- Increase in the relevant PG degree and diploma courses in selected colleges of excellence as per regional needs, to cater to a cluster of colleges.
- Granting of autonomy to selected colleges.
- Wider discussions in different forums of subject teachers associations with industry participants for curriculum revision.

- Conduction of bridge courses in English for vernacular medium students, remedial coaching, and communication skills and personality development courses.
- Conduction of competitive examination preparation courses.

Teaching-Learning and Evaluation

- Addressing of the problem of reduction in the number of permanent teachers and increase in the number of contractual, clock-hour basis teaching staff, transfer of teachers and appointment of principals on a temporary basis.
- Initiation of a formal feedback mechanism from students on the performance of teachers, completion of syllabus, etc.
- Improvement of the procedure for implementation of the academic calendar and the detailed teaching plan.
- Efforts for weaker students like remedial courses, tutorial system, night-reading facility with supervised study to reduce the failure rate and increase the pass percentage.
- Greater use of multimedia facilities such as audio/video cassettes/CDs, computer aided learning, LCD projectors and centralised production of e-learning material.
- Strengthening of teaching-learning by adopting group discussions, brainstorming sessions, seminars and workshops for students.
- Establishment of an Internal Quality Assurance Cell to monitor the teaching-learning and evaluation programmes.
- Encouragement of professional development programmes for teaching and administrative staff.
- Better linkages with university departments, professional bodies, industries.
- Greater accessibility of teachers for guidance to students.
- Introduction of semester system, credit system, question banks and regular periodical tests.

Research, Consultancy and Extension

- Undertaking of more minor and major research projects.
- Greater motivation of teachers to pursue research - M.Phil., Ph.D programmes.
- Setting up of research committees to collect information about funding agencies and preparing proposals.
- Extension of consultancy services by research departments.
- Industry-institution linkages.
- Setting up of a central instrumentation facility which can be used by several institutions for research activity due to high cost of instruments.
- Starting of more research centres.
- Adjustment of teaching schedules to allow teachers to complete research.

- Undertaking of collaborative research projects with industries and also research projects of UGC, ICSSR, ICHR.
- Increase in extension activities, adoption of slums, greater interaction of urban girls with rural women.
- Introduction of research fellowships and creation of a corporate fund for research.

Infrastructure and Learning Resources

- Library computerisation, buying of more books and journals, journals through e-mail, more space and timing, night-reading during pre-examination period.
- Better maintenance of hostel buildings.
- Better coordination of junior and senior colleges.
- Provision of vehicle parking space.
- Regular maintenance of buildings.
- Provision of more computer facilities.
- Provision of internet facilities.
- Provision of auditorium facilities.
- Use of remote geographical information systems.
- Designing of a well-structured communication channel for collecting feedback from students and parents.
- Improvement of sports infrastructure, development of playgrounds.
- Raising of funds from the Sports Authority of India/UGC.
- Improvement of NCC strength.
- Provision of regular healthcare.
- Provision of a grievance redressal mechanism.
- Improvement of toilet facility.
- Establishment of women's centre.

Student Support and Progression

- Activation of placement cell.
- Establishment of chapters of past students' associations in countries where such students are in large numbers, to promote placement in those countries.
- Giving of certificates under university seal to students who are excellent in activities such as NSS, NCC, etc.
- Conduction of classes for competitive exams like IAS and Medical, Engineering entrance examinations.
- Counselling for students and outsiders.
- Provision of training for self-employment.
- Establishment of language laboratories for communication skills.
- Making of efforts to reduce drop-out rate and to increase pass percentage.
- Involvement of alumni, by strengthening alumni associations.

- Maintenance of students' progression records.
- Development of enterpreunership and on-the-job training.
- Establishment of parent-teacher association.

Organisation and Management

- Establishment of a resource mobilisation cell.
- Raising of a corpus fund.
- Endowments from organisations, banks and industries.
- A greater participation of teachers in administration and management.
- Introduction of more welfare schemes for students and staff.

8. Critical Recommendations of the Criterion-wise Analysis

Some critical criterion-wise recommendations in the PTRs to address drawbacks or lacunae observed in the institutions are listed below.

Criterion 1: Curricular Aspects

- Many institutions do not have clarity about their mission and goal. There is a need for preparation of a vision document for strategic planning.
- Colleges have almost no role in designing the curriculum, which is done by the Board of Studies/Academic Councils of the universities.
- Although universities have been revising the syllabi, there is generally considerable delay in this matter, mostly due to the unwieldy sizes of the universities. As such, timely restructuring of curricula is required.
- There is a need to introduce area-specific job-oriented courses.
- To accelerate the above processes, autonomy is recommended for select colleges, in a phased manner.

Criterion 2: Teaching-Learning and Evaluation

- There is an urgent need to fill vacant posts and reduce temporary, clock-hour basis, contractual appointments.
- A formal system for student feedback is necessary.
- Besides lecture methods, use of multimedia learning, self-learning, brainstorming, seminars, projects and self-learning processes have to be strengthened.
- On-the-job training with greater interaction with industry/service sectors may be incorporated.
- Continuous evaluation, credit system, semester system, more challenging examination system with stricter standards of passing need to be incorporated.
- More faculty development programmes for improving quality of teachers are required.

- There is a felt need to avoid transfers of college teachers in educational societies having many colleges.
- Academic calendar, teaching plan, longer stay of teachers on campus for guidance to students, etc need greater attention.
- An Internal Quality Assurance Cell to monitor the above quality assurance steps may be established.

Criterion 3: Research, Consultancy and Extension

- Research committees may be set up for more efforts to get minor, major research projects from the UGC, Council for Scientific and Industrial Research (CSIR), etc. and for resource generation.
- Greater motivation, facilities like adjustment of timetable, study leave for teachers. etc. need to be considered. Research ambience needs to be created.
- Central instrumentation facilities may be developed in different colleges, avoiding unnecessary duplication of expenses.
- Lack of research culture in many new institutions is a matter of concern.
- Better institution-industry linkages for attracting research projects and consultancy to industries is necessary.
- Extension activities need to be increased and well focused with planned objectives.

Criterion 4: Infrastructure and Learning Resources

- Modernisation of the laboratories in science departments is required.
- Computerisation of library services and administration is necessary.
- Better vehicle parking, toilets, girls' rooms, hostel, auditorium facilities and building maintenance need attention.
- Improvement of sports facilities and health centre may be considered.
- Strengths of NCC and NSS need to be increased.

Criterion 5: Student Support and Progression

- Drop-out and failure rate in rural area colleges need to be reduced. There is a greater need for remedial and bridge courses.
- Need to conduct personality development courses, English-speaking classes for competitive examinations for preparing students for MPSC, UPSC, GATE and medical/engineering CET examinations may be considered.
- Career counselling and placement cells have to be activated.
- Special efforts for entrepreneurship development are needed in the context of the need for self-employment due to decreasing job opportunities.
- Parent-teacher and alumni associations, and grievance redressal cells need to be activated.

Criterion 6: Organisation and Management

- Greater need to mobilise resources and to raise corpus funds should be noted.
- Timely recruitment of teaching staff to fill vacant posts is necessary.
- Adequate payment of salaries to contractual, full-time and visiting faculty needs attention.
- Formal mechanisms for follow-up action on student feedback and teacher appraisal are necessary.
- Greater involvement of teachers and students in management for more transparency may be considered.
- Efforts need to be made for obtaining autonomy for colleges.

Criterion 7: Healthy Practices

- The average score for this criterion is much lower and the standard deviations are higher as compared to those of the other criteria. This shows that only some colleges are adopting many healthy practices, some of which have been mentioned in the commendations. Such healthy practices need to be emulated by others. This can be achieved through the lead colleges and a better networking of all colleges.
- Value-education-based, community-oriented activities need to be more focussed.
- Greater motivation of staff and students for suggesting and implementing innovative ideas is required.

9. Recommendations to the Various Stakeholders

Based on the criterion-wise commendations and recommendations recorded in Peer team Reports as mentioned above, an attempt is made to arrive at a set of action points for various stakeholders. The separate sets of action points are recommended to 1) Universities and Colleges, 2) Government and College Managements 3) Industry and Community and 4) NAAC

9.1 Recommendations to Universities and Colleges

1) University-wise strategic development plan may be prepared for the universities and their affiliated colleges for more relevant and quality education in the context of the creation of a knowledge society.
2) Periodical restructuring of courses and revision of curricula with introduction of need-based degree and diploma level job-oriented courses may be taken up. Feedback from students, subject teachers associations, industries, and society may be obtained before framing the syllabi of subjects.

3) Boards of Colleges and University Development Councils should ensure and monitor periodical returns of information from colleges in respect of the various teaching–learning and evaluation activities in colleges and send regular inspection committees wherever necessary.
4) Universities in Maharashtra through various committees appointed by the Chancellor as a result of the discussions in the Joint Board of Vice-Chancellors have already taken a number of steps for improvement of quality: the rules of grace marks for passing have been amended, photo copy of assessed answer papers is made available to the students for greater accountability and transparency in the process of assessing the answer papers. The rules for allowing students to keep terms (ATKT) are gradually being made stricter. However there are a number of other issues pertaining to the examination system requiring attention:
   a) Introduction of credit system at least at the postgraduate level.
   b) Stricter standards of passing.
   c) Continuous evaluation and semester examination system.
   d) More challenging question papers with limited options and a proper combination of objective, short-and long-answer questions.
5) Qualified permanent teachers in vacant posts and in posts filled on an ad hoc basis in universities and colleges should be appointed immediately and the matter should be resolved with the state government on priority basis.
6) Coordination of research activities through the Board of University Teaching and Research may be strengthened for
   a) Meaningful linkages between the colleges, university departments and industries and also for linkages with national and international bodies.
   b) Attracting more funds for minor and major research from national bodies like UGC, ICSSR, CSIR, etc. and also from international bodies.
   c) Appropriate training in research methodology, thesis writing and access to international journals, conducting surveys for identifying areas of consultancy to industries.
   d) Creating mechanism for monitoring the progress of the research work of students registered for the Ph.D. programmes.
   e) Focussed attention for completing some concrete social work projects in a time-bound period through the huge student force of the NSS.
7) Centralised production of electronic multimedia teaching-learning material may be considered.
8) Networking of universities and their affiliated colleges and also all universities and all colleges by two-way audio-video conferencing under the UGC/ISRO scheme may be initiated. This will enable the transmission of the lectures of the best of faculty in the respective subjects to teach students in the remotest areas.

9) Opening more subcentres in campuses so that facilities such as centralised library, instrumentation centre, etc. can be decentralised.
10) Universities should strengthen placement and career counselling cells.
11) Efforts should be made to reduce drop-out and failure rates by supplementing the teaching-learning in remote rural areas by exploring various means.
12) The BCUD should be made more proactive to build a liaison between colleges and universities. A permanent internal quality assurance cell (IQAC) as recommended by the NAAC should be set up and the BCUD should monitor its effective implementation in colleges and universities. Administrative autonomy and decentralisation of departments may give better results.
13) Separate board of studies for university/ PG departments may be considered.

9.2 Recommendations to Government and College Managements

1) The government may consider permitting the aided colleges and universities to fill up vacant posts on a regular basis, after properly assessing the requirements of the university/college.
2) A review may be taken of the policy of granting permission to start new arts, science and commerce colleges on permanently no-grant basis.
3) The Quality Assurance Cell (QAC) set up by the government has almost completed its work of motivating 900 out of about 1060 eligible colleges to submit their SSR and the NAAC has completed A/A work of 797 colleges and 15 universities. The QAC may be continued for the purpose of coordinating and monitoring the work of the Internal Quality Assurance Cells expected to be set up in all the universities and colleges. The QAC and the IQACs may jointly work for preparing the colleges for re-accreditation which is due for some colleges and universities and also for sustaining and improving the quality initiatives taken by the institutions for NAAC accreditation.
4) The government should accelerate the process of granting autonomy to selected colleges in a phased manner.
5) Establishing of the State Council of Higher Education proposed in the 1994 Universities Act may be considered.
6) The government of Maharashtra had accepted the financial burden of the 3-week refresher courses organised by the academic staff colleges set up by the UGC for a period of about 5 years to enable thousands of teachers complete the statutory requirement of two refresher courses within a stipulated time up to the year 2000. This was to supplement the UGC organised and financed refresher courses. The government may once again consider giving priority to these faculty development programmes.
7) The college managements may expedite actions proposed in the PTRs regarding various aspects of improving the infrastructural requirements and learning resources such as computerisation of library/offices, modernisation of

laboratories, etc. Activities like health centre, grievance redressal cell, parent-teachers association, alumni association, placement cell and counselling centres initiated by many colleges may be strengthened and improved.

8) The government may bring colleges, universities and industries together and make on-the-job training in industries possible by issuing the necessary directives.
9) College managements should establish a proper mechanism for student feedback on various aspects of teaching-learning, evaluation, curriculum, etc.
10) College managements should ensure greater participation of teachers and students in the management of the institution.
11) Steps may be taken to reduce the role of elections in academic bodies.

9.3 Recommendations to Industries and Community

1) Industrialists should cooperate with colleges for better linkages in respect of on-the-job training to students of vocational courses, use of their instrumentation facilities for research work, development of curricula and faculty exchange programmes. In general industrialists should involve themselves more effectively for improvement of the quality of college education. They should also come forward for instituting chairs in institutions and providing visiting faculty.
2) The educational societies in Maharashtra have been mostly formed by persons in public life and have great traditions of several decades. However for greater participation of all sections of society, representation may be given to more persons in public life on a coordination committee, so as to have better feedback in terms of the involvement of students for community projects. The coordination committee can also help in raising funds from the public for meeting deficits, if any.
3) The parents/alumni associations should involve themselves more actively in the activities in which the principals desire to have their support.

9.1 Recommendations to NAAC

1) Since the universities in the state of Maharashtra vary in terms of standing and quality and that large number of colleges affiliated to these universities have been accredited, it is recommended that a separate university wise analysis of peer team reports may be taken up.

2) Peer teams have found six colleges in Maharashtra not qualified for accreditation. The separate analysis of peer team reports of these institutions may be taken up.

3) Impact analysis may be done to study sustenance of various initiatives launched by HEIs in the wake of assessment and accreditation process.

10. Conclusions

The state of Maharashtra has one of the largest higher educational systems in the country with 30 universities (9 traditional, 12 deemed, 4 agricultural, 1 animal sciences, 1 health sciences, 1 technology, 1 language and 1 state open) and more than 2000 colleges with about 10 lakh regular students and about 3 lakh external or distance education students. Out of the 1060 colleges eligible for accreditation, 900 have submitted their self-study reports to the NAAC and A/A has been completed for 797 colleges. All the 15 eligible universities have been assessed and accredited. Out of the total 2021 institutions accredited in the country till September 2004, 812 (40%) are from Maharashtra. The credit for this success should go to the institutions who boldly accepted the challenge. However, this success would not have been possible without the active involvement of the Quality Assurance Cell (QAC) of the government of Maharashtra, which motivated the institutions and the NAAC which organised the visits of the peer teams to nearly 600 institutions within a short period, from January 2004 to August 2004.

The NAAC has created a revolution among the college community. All the college campuses are looking beautiful with a face-lift. The NAAC peer teams have appreciated the good work and the healthy practices followed by several institutions and mentioned them in the commendations. They have also given their recommendations and areas of concerns. As per the advice of the NAAC and of the peer team, many colleges have set up IQACs. It would be advisable for all the colleges to set up IQACs and make sincere efforts to implement the recommendations for the respective colleges. It is also advisable for all colleges to examine the commendations and healthy practices mentioned in this state-wise analysis and also available on the NAAC website, and consider the applicability of such practices.

The PTR recommendations suggest introduction of several vocational courses in colleges. Good coordination is necessary between institutions like agricultural universities, polytechnics, ITIs, etc. to avoid duplication of such courses in colleges. Both the quantitative and qualitative analyses in this report show that, on the whole, good quality higher education is offered by the universities and colleges in the state. 72% of the institutions have scored more than 70 marks, of which 8% are in the categories above A; another 15% are in the category B++ and 23% are in the category B+. Only 29% of the institutions are in the categories C, C+ and C++, most of these colleges being only 6 to 10 years old. Also the criterion-wise score is highest for the Teaching-Learning and Evaluation criterion.

The qualitative analysis also shows that various efforts for quality assurance have been made by the institutions. It is to be noted that the evaluation processes and the curricular aspects are decided by the respective universities. Various universities have taken some steps for examination reforms. Many more immediate steps need to be taken such as credit system, stricter passing standards, limited options in the question papers and continuous evaluation so that students will have to study a major part of curriculum. Otherwise in a large system even the top-grade colleges may continue to produce substandard graduates. Unless the universities modify the curricula and bring about radical reforms in the examination systems, the products of even top-class institutions may lag behind in the international arena.

Maharashtra has the largest number of accredited institutions in the country. The analysis of such a large number of peer team reports has been a challenge – the exercise is the largest of its kind undertaken so far. But it is encouraging to note that both the quantitative and qualitative analysis of the reports establish that, on the whole, so many institutions offer good quality education. Certainly, there are areas for improvement as shown in this report and as is also evident in various individual peer team reports. With the overall information in this report and specific information in the individual reports, all stakeholders can help in sustaining and enhancing quality of the system of higher education in Maharashtra.