

Cluster System to be Implemented in Telangana State

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Abstract

Higher Education department will implement a cluster system in nine autonomous degree colleges in Hyderabad. To start with, the system will be taken up for the second year degree students in identified colleges. Cluster system will facilitate mobility of students and faculty from one institution to another. For instance, a bachelor of arts in history, economics and political science student of one institution can pursue a psychology or mass communication course offered by another institution or vice-versa. The Telangana State Higher Education is all set to embrace the provisions of the New Education Policy 2020 (NEP-2020) mooted series of reforms. To begin with, the Telangana State Council of Higher Education (TSCHE) has decided to study implementing the cluster universities model. The TSCHE officials said that the model brings six conventional state universities together. In turn, the universities which have expertise will extend their cooperation to other universities within the cluster on how to improve standards in the sister university in the cluster. Further, both will exchange resources, faculty, research and development. Besides, students can also choose subjects from different universities within the cluster, leading to a credit transfer among the universities within the cluster. A similar model is being studied to implement the cluster of colleges which will exchange the expertise and use their existing infrastructure with each other. For implementing this model, the University Grants Commission (UGC) provide matching grants. This would help in the liberalization of the study areas for the students not only to pursue courses from across different schools within the universities in an interdisciplinary mode but also, to study some other university or college and earn credits for the same.

Keywords: Cluster; Concept; Resource sharing; Academic partnership; UGC; SSA; GER; AISHE; NEP.

Introduction

Telangana is one of the states in India performing moderately in educational development. The state of Telangana had overcome its burden of history in terms of educational backwardness that witnessed in the region during the Nizam regime in the pre-independence period and neglected state of all levels of education for a long period in the united Andhra Pradesh. However, the progress in school

education during the last three decades following the DPEP and SSA is remarkable. Aligning with that subsequently higher education in the state also made a remarkable progress during the last two decades. The gross enrolment ratio (GER) of higher education in the state at 36% in 2019-20 is 10 percentage points higher than the national average. Such a performance of the state is facilitated by availability of higher education institutions especially the number of colleges. Telangana

stands second highest among Indian states in terms of HEIs available per lakh college age (18-23 years) population in the state. However, unless certain intricate issues and challenges persisting in the state higher education system are resolved the impending progress may be jeopardised. The size of institutions in terms of enrolment is found to be very small; the average enrolment per college is around 526 which is one of the lowest among Indian states. Very high number of colleges in the affiliating system and without NAAC accreditation is resulting in burden on the affiliating universities in regulating them and complying with delivering quality education. In this regard, especially in the context of NEP 2020, the state higher education system needs to be reconfigured by overhauling the existing structure.

The new system, on a pilot project, will be introduced in Osmania University College for Women, Koti, Nizam College, Government City College, Government Degree College for Women, Begumpet, Raja Bahadur Venkat Rama Reddy Women's College, St. Ann's College for Women, St. Francis College for Women, Bhavan's Degree College, Sainikpuri, and Loyola Academy.

What is the cluster system?

It is the grouping of two or more degree colleges that are geographically closer without displacing their advantage of resources including human, physical and financial. The idea is to offer quality education besides access and more career opportunities to students for pursuing their higher education. This new system will be executed between the institutions through an agreement

How do students benefit?

The cluster system, which will be multidisciplinary in approach, allows students to opt for courses that are not being offered in their college but available in other institutions within the cluster. This will help in the mobility of students from one institution to another institution. For example, a BA History, Economics and Political Science student of one institution can pursue a Psychology or Mass Communication course being offered by another institution or vice-versa. However, students will be allowed to choose only one course while the core ones remain the same. Also, on completion of the course, requisite credits will be transferred to the students. Initially, this will be introduced for second year degree students.

Exchange of faculty members

The system will also facilitate the exchange of faculty members between the degree colleges. This means that a Physical Science faculty of one institution can teach in another institution.

Sharing of resources

By clustering the colleges, the institutions can pool and share their resources like the library, infrastructure, best practices, and other human resources. For example, students of an institution can get access to a rich collection of books and laboratory facilities available in another institution.

Which colleges will be under the cluster system?

On a pilot project, nine autonomous degree colleges in the city will be in this new system. The colleges include Osmania University College for Women, Koti, Nizam College, Government City College, Government Degree College for Women, Begumpet, Raja Bahadur Venkat Rama Reddy Women's College, St. Ann's College for Women, St. Francis College for Women, Bhavan's Degree College, Sainikpuri, and Loyola Academy. The colleges were asked to study and prepare a report within 15 days on how courses and resources could be shared besides preparing a timetable for offering courses between the institutions.

Monitoring

As all the colleges are under Osmania University, the university will be monitoring the implementation of the cluster system while the Telangana State Council of Higher Education will guide the colleges. Single stream institutions and multidisciplinary institutions with poor enrolment, due to lack of employment oriented, innovative multidisciplinary courses and lack of financial resources to maintain and manage the institutions can improve enrolment by becoming members of cluster and by offering multidisciplinary programmes. The clustering of colleges may help in securing good grades in NAAC accreditation. Transforming all HEIs into large multidisciplinary institutions, the existing colleges operating in the same campus or in close proximity can form a cluster. This will ensure that colleges with poor enrolment and fewer resources can offer multidisciplinary programmes and can have access to better facilities for the benefit of all. The cluster colleges shall aim at making the courses more dynamic through collaboration with other

universities, prestigious government institutions and reputed industrial houses and also avail of the courses offered in the online and ODL mode. In the case of private colleges forming a cluster, the trust, or society, or company which runs the college must be charitable and not for profit bodies.

Structure of Higher Education Institutions in Telangana

There are 24 universities and 2041 colleges along

with 541 standalone institutions listed in the state of Telangana active for the year 2019-20, according to the latest information of Ministry of Education, Government of India source (AISHE). Of the total number of colleges with general and various specializations (general/degree colleges, engineering, medical/nursing etc.), 221 colleges are under the state government management. Of the 221 total colleges managed by the state government departments, 123 are degree colleges offering largely general types of courses.

Table 1: Colleges in Telangana by Discipline and Management, 2019

Discipline	Management				Total
	Central Govt	State Govt	Pvt Aided	Pvt. Unaided	
General	1	179	60	851	1091
Arts and/or Science	1	5	3	8	17
Commerce	0	1	3	18	22
Management	0	1	3	87	91
Hotel & Tourism Management	0	0	1	29	30
Education/Teacher Education	1	6	10	204	221
Law	0	0	1	17	18
Architecture	0	0	1	8	9
Computer Application	0	1	1	10	12
Engineering & Technology	0	0	7	187	194
Medical-Allopathy	1	9	2	17	29
Medical-Ayurveda / Homeo	0	4	0	4	8
Medical-Dental	0	1	2	9	12
Medical-Others	1	3	0	9	13
Medical-Nursing	0	7	6	71	84
Paramedical	1	1	1	10	13
Medical-Pharmacy	0	1	3	105	109
Medical-Physiotherapy	0	0	4	17	21
Oriental Learning	0	0	8	1	9
Sports/Yoga/Physical Education	0	1	0	10	11
Others	0	1	1	3	5
Total	6	221	117	1675	2019

Note: Total number of colleges are as reported in AISHE.

Source: College Directory, AISHE, Ministry of Education, Govt. of India.

Large number of standalone professional colleges functioning with discipline specific educational courses and programmes (engineering, management, medical, nursing, law, education etc.) is one of the issues with the higher education institutions in the state (see Table 1). Of the total number of colleges almost half of them are standalone professional colleges with discipline

specific programmes. To be specific they are not multidisciplinary institutions.

Another structural anomaly of higher education system in the state is small size of HEIs in terms of enrolment (Table 1 and Fig. 1). More than two-thirds of the HEIs in the state have enrolment size of less than 500, nearly 87 per cent of institutions have enrolment less than 1000 (Table 2). Less than two

percent of total HEIs in the state have enrolment above 3000, less than five percent of institutions have enrolment more than 2000. Due to small size

of enrolment witnessed in majority of HEIs in the state, the average enrolment per college (525) in the state is one of the lowest in the country (Fig. 2).

Table 2: HEIs in Telangana by their Size of Enrolment, 2018-19

Enrolment		Number of HEIs			Percentage			
Size of HEIs	Total	Universities	Colleges	SAIs	Total	Universities	Colleges	SAIs
1	2	3	4	5	6	7	8	9
Zero	23	0	18	5	0.9	0	0.9	1.2
< 50	145	0	80	65	6	0	4	15.2
50-100	332	0	188	144	13.6	0	9.5	33.7
100-200	522	0	440	82	21.4	0	22.2	19.2
200-500	708	0	634	74	29.1	0	31.9	17.3
500-1000	383	4	344	35	15.7	17.4	17.3	8.2
1000-1500	142	4	124	14	5.8	17.4	6.2	3.3
1500-2000	67	2	59	6	2.8	8.7	3	1.4
2000-3000	58	3	53	2	2.4	13	2.7	0.5
3000-5000	42	4	38	0	1.7	17.4	1.9	0
5000-10000	9	2	7	0	0.4	8.7	0.4	0
> 10000	4	4	0	0	0.2	17.4	0	0

Note: SAIs – Stand Alone Institutions.

Source: AISHE 2018-19, Institutional Level data.

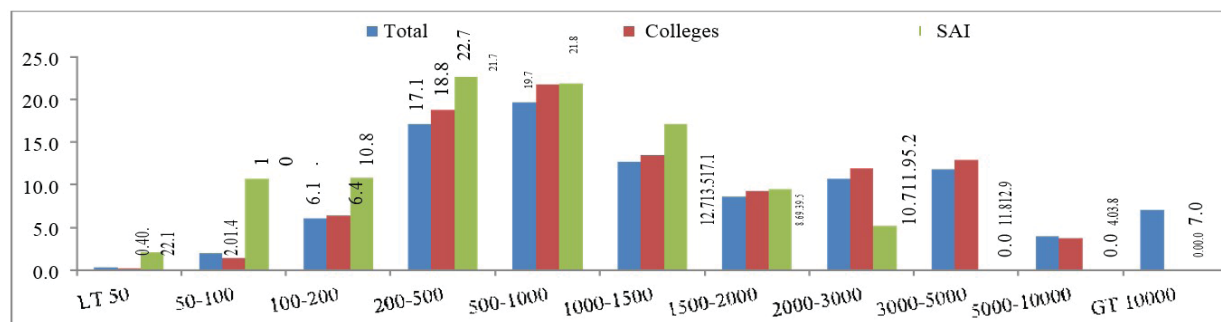


Fig. 1: Share (%) of Enrolment by Size of Enrolment in Telangana, 2018-19

Source: AISHE 2018-19, Institutional-Level data.

Institutions with less than 500 enrolments, account for one quarter of the total enrolment of HEIs in the state (Fig. 1). Those institutions having enrolment less than 1000, account for 45% of the total enrolment. The institutions with enrolment more than 2000 account for one-third of total enrolment. The contribution of large size HEIs (enrolment > 2000) to total enrolment (33.5%) in the state is seven times higher than their percentage in total number of institutions (4.6%). The contribution of small-size HEIs (enrolment < 500) to total enrolment educational demands of a few and, a very few HEIs in the state are serving educational demands of larger section.

Some of the districts like Hyderabad may require formation of three to four clusters, some other districts like Rangareddy, Sangareddy, Siddipet, Nagarkurnool and Nizamabad may have two clusters (Table 3). Colleges in many other districts would have one district level cluster but only one or two colleges existed in few other districts like Asifabad, Narayanpet, Yadadri and Jangaon may have to be part of clusters in the neighbouring districts. After the districts reorganisation their number has increased to 33. Some of the erstwhile districts are reorganised into multiple new districts. Here, formation of clusters for the smaller districts and those with a very few number of colleges

Table 3: District wise Public HEIs in Telangana State

District	GDCs	WDCs	Teachers Education	Medical & Nursing	Others	Total
Adilabad	3	3	1	2	1	9
Bhadradi Kothagudem	5	4	1	–	–	10
Hyderabad	11	1	1	9	2	24
Jagtial	4	1	–	–	1	6
Jangaon	1	1	–	–	1	3
Jayashankar Bhupalpally	2	2	–	–	1	3
Jogulamba Gadwal	3	–	–	–	–	3
Kamareddy	4	1	–	–	–	6
Karimnagar	5	2	–	–	1	7
Khammam	5	2	–	–	–	8
Kumaram Bheem Asifabad	1	1	–	–	–	2
Mahabubabad	4	2	–	–	–	7
Mahabubnagar	3	2	1	1	–	9
Mancherial	4	–	–	–	–	5
Medak	3	2	–	–	–	6
Medchal	2	–	–	1	–	10
Mulugu	2	–	–	–	1	4
Nagarkurnool	7	3	–	–	–	9
Nalgonda	6	2	1	2	–	11
Narayanpet	1	–	–	–	–	1
Nirmal	2	1	–	–	1	4
Nizamabad	7	4	–	1	–	11
Peddapally	3	–	–	–	–	4
Rajanna Sircilla	2	2	–	1	–	5
Rangareddy	5	6	–	3	–	9
Sangareddy	7	2	–	1	–	8
Siddipet	7	2	–	1	–	10
Suryapet	2	1	–	1	–	4
Vikarabad	2	1	–	–	–	3
Wanaparthy	4	1	–	–	–	5
Warangal Rural	3	1	–	2	2	3
Warangal Urban	3	2	1	1	–	8
Yadadhri Bhongir	2	1	–	–	–	3
Total	125	54	6	26	13	221

Notes: 1. HEIs - Higher Education Institutions (Colleges; GDCs – Government Degrees Colleges; WDC – Social/Tribal/BC/Minority Welfare Residential Degrees Colleges; 2. After reconciliation of the two lists of colleges namely: one, **Colleges Directory of AISHE (2019)**,



Source: RSEPPG Research Team.

- Facilities in individual colleges can be put to optimum utilization for the overall benefit of students in the cluster. This will also ensure that the expenditure on separate resources is curtailed and a common pool can benefit all the students.
- Through the clusters, restructured degree programmes with skill courses, internships and community service, among others, will become easier and will increase the students' job oriented skills.
- The existing colleges will continue to function as per prevailing norms.
- There will be no change in the recruitment, appointment, allowances, service rules and pension schemes of the teaching and non teaching staff of the colleges.
- The State governments will continue to provide the same funds to government aided colleges as they had been doing before the cluster formation.

composition:

For cluster of government colleges:

1. Highly reputed person from government, academic, industry or public administration. (nominated by the State government)
2. Commissioner or director of HE or his or her nominee Director
3. Vice-Chancellor of the affiliating university or nominee Director
4. Principals from the cluster of colleges (Two) Directors
5. Academicians as external experts, as nominated by the Board (Two) Directors
6. One expert from the Industry, as nominated by the Board Director
7. One principal from the cluster of colleges, as nominated by the government Director and Head of Cluster college

The Board of Directors shall be reconstituted every three years.

For cluster of private colleges:

1. One representative from the management Chairperson
2. Highly reputed persons from government, academic, industry or Director public administration (nominated by the management)

3. Three representatives from the management Director
4. Nominee of the State Government Director
5. Vice-Chancellor of the affiliating university or nominee Director
6. Principals from the cluster of colleges (Two) Director
7. Academicians as external experts, as nominated by the Board (Two) Director
8. One expert from the industry, as nominated by the Board Director
9. One principal from the cluster of colleges, as nominated by the government Director and Head of Cluster college

The Board of Directors shall be reconstituted every three years. Composition of the Academic Council:

1. The Director nominated at no. 7 (Govt. Colleges) and 9 (Pvt. Colleges) above will be the Chairperson
2. Principals of all the colleges in the cluster
3. Heads of departments - 5
4. Senior faculty members - 3 (one to be nominated as Member Secretary by the Director and Head of Cluster College)
5. Not less than four experts and/or academicians from outside the cluster of colleges representing such areas as Industry, Commerce, Law, Education, Medicine, Engineering, Sciences as nominated by the Board of Directors.

Composition of the Finance Committee:

1. The Director nominated at no. 7 (Govt. Colleges) and 9 (Pvt. Colleges) above will be the Chairperson
2. Nominee of the Board of Directors
3. Finance officer of the affiliating university
4. The senior-most teacher of the college (nominated by the Director)

The Board of Directors provides overall direction and coordination of the cluster of colleges. The Academic Council works closely with the departments to develop new programmes and a research agenda and review the progress of research.

a) Approval process

The norms and standards set by the concerned regulatory bodies as applicable are: the duration of the programme, intake, eligibility, admission

procedure, fees, curricula and programme implementation; assessment and evaluation; staff and faculty, qualification, infrastructural facilities and instructional facilities.

Proposals by institutions to offer the multidisciplinary programme in a cluster mode are to be approved by the statutory bodies of a university in accordance with the regulations and/or guidelines set by the regulatory bodies concerned.

Consolidation of cluster of colleges

The member colleges in a cluster will continue to function as affiliated colleges under the university in the initial phase with the Board of Directors, Academic Council, Finance Committee and Curriculum Development Committee governing the academic, financial and administrative matters. During this phase, the member colleges may share their resources to offer multidisciplinary programmes and guide student research projects. After the initial years, the affiliating university may affiliate the cluster of colleges as a single unit. During this transformation phase, the cluster may pass through graded autonomy before developing into an autonomous degree granting cluster of college. With appropriate accreditations, autonomous degree granting colleges can further evolve into RUs or TUs university, if they so aspire.

b) Operational requirements

The institution shall have to enter into a written MoU with its partner institution(s) for collaboration. The MoU must categorically include the purposes and related provisions of collaboration, nature and extent of relationship among partnering institutions and the modalities for the functioning of the cluster.

- To avoid scheduling clashes, the timetable must be set in consultation with partner institutions in a manner that students associated with different programmes can easily register for courses without having to deal with any timetable clashes for the semesters they are attending.
- An action plan is needed to upgrade academic facilities and infrastructures, including technology enabled and assisted learning ecosystem, in each identified HEI, which will include: video based classes, infrastructure for blended and online learning modes; other academic infrastructure such as library and laboratories; infrastructure for the differently abled students; facilities and infrastructure for faculty; facilities and infrastructure for

promoting sports and wellness and the arts.

- The information related to collaborative programmes to be disclosed in the mandatory public disclosure and it has to be part of the Institutional Development Plan (IDP) of the collaborating institutions.
- The academic requirements and other details of the programme (s) of study offered under the collaborative arrangements shall be made public by displaying prominently on the collaborating institutions' websites before such programmes are scheduled to commence.
- Curriculum Development Committee needs to be constituted with its members having a blend of experience in industry, academia and professional associations, to revise and review curricula within the broad framework for course components as suggested by the UGC and the concerned Statutory Councils.
- The course tuition fee charged to the students should only pertain to the courses taught by the HEI.

Merger of HEIs

a) Merger of institutions under the same management Institutions functioning under same managements may merge to put the academic and physical resources to optimal use and to offer multidisciplinary education. The managing trust or society of the institutions should submit an undertaking to the effect that the institutions under its management will merge in accordance to the rules of the State government, affiliating university and/or the regulatory body.

b) Merger of institutions run by different managements

A private institution desirous of merging with a single stream institution/multidisciplinary institution of another registered society or trust, may apply, with the approval of the affiliating university, to the society or trust of the institution to be merged with and become a part of it as per the procedure of the Societies Registration Act or Trust Act, as the case may be.

Adding New Departments

The Policy on 'Holistic and Multidisciplinary Education' underlines pulling of courses and resources from a variety of disciplines and providing flexibility to students to choose courses and pathways such that holistic individual development takes place in intellectual, aesthetic, social, physical, emotional and moral dimensions

and that 21st century skills/ competencies (including social and life skills) of critical thinking, problem solving, communication, leadership, team work, mastery of curricula across fields, increase in social and moral awareness and creativity and innovation are fully developed and put to practice. The teaching learning has to be linked to life, community and the world of work, including the environment across all disciplines/ fields of study, including STEM education.

The NEP 2020 visualizes establishment of one Education Department in colleges/ universities/ HEIs to contribute to multidisciplinary and holistic education and to contribute to research and development in these areas.

Section 15 of NEP 2020 underlines three purposes:

Guidelines for Transforming Higher Education Institutions (HEIs) into Multidisciplinary Institutions

- To conduct cutting-edge research in various aspects of education,
- To support the actualization of all teacher education in multidisciplinary institutions and
- To contribute to multidisciplinary and holistic higher education across disciplines.

Section 15.6 of NEP 2020 talks of Education Departments developing a range of experts in education (including subject areas); and Section 15.9 stipulates that all Ph.D scholars across disciplines shall have to take up courses from Education Departments relating to curriculum design, pedagogy, education areas, communication and writing so that they develop competencies relating to these areas too, as also that they may take up teaching as a career in the future.

The 'Education Departments' (or Departments of Education/ Schools of Education) are visualized as instruments toward:

- Contributing to multidisciplinary across disciplines of study in a HEI;
- Benefitting from the multidiscipline environment of the HEI for its own programmes;
- Contributing to multidisciplinary teaching-learning (curriculum, pedagogy, technology-enabled blended learning, assessment and evaluation etc.) as visualized in the NEP 2020 and develop specialized experts in these areas.

At present, there are three structural arrangements and areas of work that Education Departments in universities and/ or colleges serve:

i. One, offer of 'Education' programmes (MA Education and Ph.D) as broad discipline and research oriented programme, with wide coverage of educational planning and organisation in the country and to address education as a distinct (but multidisciplinary) area of study.

ii. Two, offer of teacher education programmes (M.Ed., B.Ed., Diploma in Elementary Education, Art Education, Physical Education, Pre-School Education, Integrated Teacher Education and Ph.D.) for pre-service and in-service 'training/ professional development' of teachers and teacher educators.

iii. Three, besides the above, there are Education Departments in various undergraduate colleges (eg in states of Odisha, Jammu, Kashmir, north-east states, West Bengal, some colleges in the University of Delhi, etc) which offer general and honours programmes in the discipline of 'Education', combining largely various interdisciplinary areas relating to education, education as a distinct field of study and in some cases some school practice teaching. The visualization of 'Multidisciplinary' in higher education under NEP 2020 is concerned with improving the 'pedagogy' of teaching learning, 'research' in the pedagogy of teaching learning and development of multidisciplinary and interdisciplinary understanding of students and graduates (by pulling courses from other disciplines). The same objective is also largely addressed by the Teaching Learning Centres (TLCs) and Centres for Excellence in Curriculum and Pedagogy under the same PMMMNMTT scheme. The Inter University Centres for Teacher Education (IUCTE) under PMMMNMTT caters to research and development (R & D) needs of teacher education in the country.

a) In stand alone Teacher Education Institutes (TEIs):

All existing stand alone TEIs must aim to become multidisciplinary HEIs. This will bring about a major transformation in the preparation of appropriately qualified teachers by ensuring high quality training and exposure to teacher trainees for multidisciplinary education. Because teacher education requires multidisciplinary inputs, all programmes for the initial preparation of professionally trained teachers will be moved into multi-disciplinary HEIs in a phased manner. Currently, most TEIs are stand alone institutions. This has led to the intellectual and professional

isolation of teacher education and their faculty from the rest of the disciplines.

b) Education Departments in Multidisciplinary HEIs

Multidisciplinary universities and multidisciplinary colleges must also aim to establish departments in education, which aside from carrying out teaching and research, can also offer four year integrated programmes, in collaboration with other departments such as Psychology, Philosophy, Sociology, Neuroscience, Indian languages, Arts, History, Literature, Science and Mathematics.

Accordingly, the following are to be considered further:

- i. What will be the structural arrangement for such multidisciplinary departments?
- ii. What programmes and functions will such departments undertake?
- iii. What linkages will they have within the HEI, across HEIs and across all 'Education/ Teacher Education' institutions/ departments/ schools in the country?
- iv. In what way will these Education Departments contribute to the implementation of NEP- 2020, especially in respect of: curriculum and pedagogy (including multidisciplinary and holistic education), technology enabled blended learning, skilling and employability, social and life and happiness skills, cutting edge research in all areas of education, teacher and teacher educator professional development and strategic policy organisation management of the education system in the country.

I. Structural Arrangement

Considering the large number of universities and colleges, it may not be feasible to open education departments in all institutions in one go. Therefore, an attempt should be made to open Education Departments in select multidisciplinary universities and colleges. Subsequently, other universities and colleges may be taken up in a phased manner for the purpose. Further, these, along with the existing Education Departments in universities and colleges, should be involved in the implementation of NEP 2020 — the already existing Education Departments may be upgraded to play a strategic role in the implementation of NEP 2020 and the planned Departments need to take initiative to supplement the national and institutional initiatives toward its implementation. The existing Education Departments may do hand holding to guide the

new Departments of Education. The norms and standards followed by UGC should be applicable to these selected institutions. The existing as well as planned Education Departments may preferably be named as 'School of Education' in universities and as 'Department of Education' in colleges. More stress should be given to linkage of their courses and programmes to the job market, national and regional development needs and needs of life and the community.

II. Functions and Programmes

The Education Departments need to go beyond contributing to the value of design and delivery of 'education/teacher education' to include the strategic planning and organization and management of education. While the Education Department itself will be multidisciplinary, it will function in tandem with other disciplines contributing further toward multidisciplinary and interdisciplinarity. There should be multi-units or centres or special groups in each Education Department, especially in areas of policy studies in education, educational studies (i.e. foundations of education), equity and inclusion, educational leadership and governance, special needs education, comparative and international education, interdisciplinary research, besides the areas which directly contribute to enriching the other disciplines, like curriculum and pedagogy (especially interdisciplinary pedagogy), teaching learning including technology enabled learning and blended learning, assessment and evaluation, language and education, etc. The existing Education Departments need to be relooked at/ re-examined so as to revamp their functions and programmes they are supposed to take a lead role in the implementation of NEP 2020 (resource development, training and research). The Education Departments are to primarily offer the following programmes and undertake the following functions:

- Design, development and offer of certificates, diplomas, degrees and add-on/ skill based courses relating to the area of study of 'Education' and in specialized areas of Curriculum and Pedagogy, Educational Technology/Technology Enabled Learning (TEL), Assessment and Evaluation, Special Needs Education, Educational Planning and Management and Leadership, Educational and Vocational Guidance and Counselling, YogSkiksha, among others so as to develop specialized experts in these areas for operation of education structure and function in the country, as also developing

experts in specialized areas for other departments/ disciplines. There could be 'general' areas as well as 'specific' areas of intervention. These could address a range of levels starting from pre-school education up to higher education. These areas of study should be linked to skilling and employability in respective sectors. While courses from these programmes (including online courses) can be taken up by other departments/ disciplines (under 'holistic and multidisciplinary education'), the programmes of Education Department can also take up courses from a variety of disciplines, including online courses. In addition, all departments, irrespective of disciplines, should ensure that the Ph.D. scholars take training in teaching/education/ pedagogy/ writing related to their chosen Ph.D. subject during their doctoral period. Ph.D. scholars may also be assigned 4-6 hours per week of teaching/ research assistantship for conducting tutorial or lab work and evaluations in order to gain additional experience along with their research work.

- Conduct cutting edge research, develop digital and other professional development resources, collate best practices and undertake continuing professional development and scholarship of teaching and learning in above noted and emerging areas of higher education, including MOOCs, OERs, micro-credentials, machine learning, blended learning, social technologies and teaching learning assessment, etc. They will promote team/ network of teaching and research, by borrowing expertise from other departments in the institution; and adopt a clearing house approach for implementing collaborative/ multidisciplinary research programmes. They will generate good practices in various areas of educational application and contribute to facilitate educational policy formulation and implementation. The activities and outputs of TLCs and CECs under PMMMNMTT should be taken into consideration so that linkage between Education Departments and these centres can be maintained.

- It will be left to the Education Departments to take a considered view and keeping in view the infrastructural and human resource positions, to offer both in-service programmes and pre-service ITE programmes as per laid down procedures and norms. There are two models which could be considered for this one is the existing NCERT/ RIE model of integration and the other could be a collaborative (across disciplines with education as nodal) model of integration. The offer of teacher education programmes should be guided by the demand and supply studies conducted by any designated agency and/ or the regulator NCTE. For

offer of integrated teacher education programmes (which need to be distinct for pre-school, elementary, secondary and senior secondary), structural and functional changes in the school sector as stipulated in NEP 2020 should be taken into account

Collaboration between HEIs in student projects

NEP 2020 aims for holistic education to develop well rounded individuals. The four year undergraduate programme has been proposed for students to experience a holistic education, with the fourth year of the programme focusing on the research component. Faculty with backgrounds of different disciplines will provide the perfect opportunity in guiding students pursuing UG (hons. with research) and Master's programmes. Multidisciplinary projects can provide students with the valuable training required to assume multidisciplinary roles. Faculty from different institutions of a cluster can be encouraged to design multidisciplinary projects in areas of National priority and supervise students interested in multidisciplinary research. The institutions should work out the modalities of collaboration between them in enabling faculty members to supervise UG and PG students in research.

Most industries in the manufacturing sector in India are in the micro, small and medium category and they largely lack the capacity, in terms of R & D strengths, to face global challenges. It is important that graduates assume multidisciplinary roles. With their contribution in providing employment and to the Gross Domestic Product (GDP) they form an important part of the National economy. However, the Micro Small and Medium Enterprise (MSME) sector, in general, is characterized by very low investment in R & D and as a consequence, the research activities in the sector are always low key. The huge pool of universities and colleges employing a large number of faculty members and enrolling the huge population of students in the country if collaborate with MSME, the huge potential therein can be productively used for running an effective education system and R & D for the industry. If industry can be made to see value in investing efforts in the university eco-system, the R & D potential therein can be used to serve the needs of the country and, a lot of gains can be achieved in bringing prosperity to the nation. Similarly, students and faculty may be encouraged to undertake projects on issues that local communities face or for the welfare of local artisans and crafts persons.

Role of University and Government

1. Role of the parent university

To identify potentials of colleges and to encourage them by providing timely approval to their proposals and help to nominate representatives in various committees for the proper functioning of cluster colleges and enable collaboration between institutions.

2. Role of the State government

Given the size of our Higher Education System and the variety of HEIs with many single stream institutions, it may not be viable to introduce multidisciplinary education in all HEIs simultaneously. Therefore, for all HEIs to plan to become multidisciplinary institutions, a hub and spoke model where a certain number of HEIs will be identified as the hub institutions and transform them into multidisciplinary institutions. These 'hub' HEIs can, in turn, develop a specified number of 'spoke' institutions. Over some time, they will have a rapid multiplier effect so that by 2030 there will be at least one large multidisciplinary HEI in or near every district.

Grievance Redressal Mechanism Required for Collaborating HEIs

- Institutions entering into academic collaboration shall address matters relating to the grievances of students and legal matters relating to the collaboration.
- The Commission could, either suo moto or based on any complaint from any quarter may initiate an inquiry, including physical inspection, of the collaborative arrangements. After giving the opportunity of representation and hearing to the collaborating institutions and after being convinced that the collaborating institution(s) is/are not functioning according to the guidelines, the Commission may rescind the approval for collaboration. However, the students who have already enrolled for such courses or programmes will be permitted to continue till they acquire the requisite qualification.

Conclusion

The cluster system is an ideal system that requires a broad mind and a high level of tolerance in sharing the physical and intellectual resources of the colleges including that of self-financed colleges. The mindset and methods that will be deployed in overcoming the difficulties and constraints will decide the fate of clustering. One of the questions that arise with the cluster approach proposal is how

do they function at the ground level and also about their sustainability. However, the cluster model is a tried and tested approach for a long time. In fact, as mentioned above, in school education this approach of school management was made use of for a long time in different countries across the globe (Bray, 1987). For higher education, clustering of colleges one of the component in the RUSA scheme of Ministry of Education, Government of India. Its working and sustainability depend on the process of formation and required supporting system along with appropriate regulatory framework. Besides, from the inception it began functioning on self-financing mode and began charging the students. There are other experiments going on in other states. There are two cluster universities formed recently in Jammu and Kashmir (Govt. of J & K, 2018). Similarly, there is an experiment of cluster colleges in Kerala. The Government of Telangana state can initiate this experiment at the state level or on pilot basis with colleges of chosen district(s) or region within the state. The success of the experiment depends on the rigour of the ground level preparatory work and regulatory framework along with guidelines and procedures engaged in the clustering process. Innovative operational management system for each cluster is a key component of its success.

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