Council of Architecture

PERSPECTIVE PLAN FOR GROWTH OF ARCHITECTURAL EDUCATION

AUGUST 2020

Approved & Adopted by the Council of Architecture

PRESIDENT'S MESSAGE

Dear Colleagues,

Greetings,

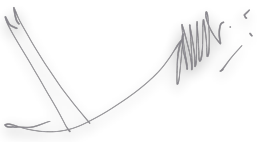
During the mid 2000's there was an increased opening up of architectural colleges as the demand increased and by 2016 there were substantial number of colleges. However in due course of time, it was realised that the overall quality of education is not rising to the level it should be. Apart from many issues, Institutes are not able to maintain Council's minimum standards of Architectural education, resulting in falling of standards. To add to the situation, the graduating architects found dismal opportunities of employment and gradually the admissions into architecture as a stream started dwindling. It appeared prima-facie that mushrooming of institutions without a defined policy and absence of a road map could be one of the reasons for the malady. Council was concerned over this situation and decided to address this. As a first step, in the year 2019, Council constituted a committee headed by Dr. Kavita Daryani Rao, Vice-Chancellor, JNAFAU, Hyderabad, with Ars. Pushkar Kanvinde, Ex-Principal BKPS Pune and practising Architect, Bansansingh Thangkiew, Chief Architect, Meghalaya and Shyam Kishore Singh, Practising Architect and Ex-Council member, Patna as members to look into this issue. The committee was to suggest future course of action and frame a policy. The report has been has been updated and adopted by the Council and shall come into effect from academic year 2021-22 onwards. Henceforth opening up of new colleges, additional intake, restoration of intake and new additional courses would be governed by this policy.

This is the 1st part of an extended road map for Growth of Architectural education and upgradation of it, in our country. Work on the second part is underway and shall be shared shortly.

This policy may be good for use for the next 10 years and as economy grows and situation changes, a new policy may be made subsequently. I sincerely thank all the committee members who worked hard to compile this report and all the supporting administrative staff at the council who helped in the compilation.

With warm wishes,

Sincerely,



HABEEB KHAN

20.8.2020

PERSPECTIVE PLAN :

GROWTH OF ARCHITECTURAL EDUCATION-1

CONTENTS

PERSPECTIVE PLAN :

GROWTH OF ARCHITECTURAL EDUCATION-1

1.0 Preamble

It was observed that there was a spurt of growth in the number of architecture colleges in India, especially after 2012, and that this growth was concentrated in some regions. This was seen as a response to increased demand for admissions into architectural colleges from students as the awareness of this profession grew, along with the perception that there were possible job opportunities in this expanding sector. This increased demand was also due to growing GDP and per capita incomes across the country, and a resultant impact on the construction and building industry. One of the other reasons is that there was saturation in the number of engineering and management colleges and educational societies began to look at architecture colleges for their own growth.

However, it was also observed over the next few years, that some of these architectural institutions were closing down and that there were substantial vacancies compared to the total sanctioned seats. Architects and academicians alike have also noted with concern the falling standards in the colleges, which has been mostly ascribed to shortage of faculty in the colleges. Against this backdrop, the Council of Architecture felt the need to prepare a 'Perspective Plan' for growth of Architectural Education, one purpose of which could be the basis for a policy for permitting/ granting approval to new institutions in various regions of the country. The objective of this exercise was to understand the demand for architects and thus architectural colleges, with a view to improve the delivery of education to the students, to make it more effective and indirectly for the betterment of the architectural profession as a whole. This is one part of an extended study being undertaken.

1.1 Criteria for Assessing Demand

For preparation of this report, the following aspects were considered:

i) Population of the various States and Union Territories in the country
ii) Demand for admission into architectural institutions
iii) Availability of teaching faculty members
iv) Current state of overall economy

Each of the above parameters was analysed with regard to impact on number of Architectural Institutions and required seats for admission into these Institutions. This Report is prepared with a perspective view

approximately for the next ten years, till 2030. This was thought to be the most appropriate time frame as there would be changes in society and economy. The Royal Institute of British Architects *Think Tank Building Futures*, in their report "The Future for Architects?" as early as 2011, notes the death of mid-size practices, dearth of work in offices and looks at long-term possible changes in the profession. One of the main issues highlighted is that the term 'architect' might become restrictive and that architects might soon be engaged in diverse activities such as lighting design, product design, urban design and many more. This has become a reality already even in India. As such, keeping in mind the changing landscape of the profession, a longer time frame was not thought appropriate.

2.0 Population

2.1 Population and Architects

The demographic data of States and Union Territories was taken as a starting point, as one of the main criteria for arriving at an appropriate number of architects required and thus, the architectural institutions in that region. As such, the population data for the States and Union Territories was examined, and the ratio of inhabitants to architects was calculated. This initial analysis gave a broad picture and also an understanding of the regional imbalances, which had been observed.

Preliminary analysis gave a divergent set of figures for the various States. Very few States and Union Territories such as Chandigarh, Delhi and Goa had low ratios, approximately between 1:1500~2500. (Architect:Inhabitants) Another group of States such as Kerala, Karnataka, Puducherry and Maharashtra could be seen as having somewhat higher ratios ranging between 1:4000~15000. The other States had extremely high ratios which went up from 1:25000~200000. This last extreme ratio was observed in Bihar, which has been a backward state in terms of economic development. (Graph 1)

These figures largely compare poorly with availability of architects in more developed countries. While there is no empirical study available, a rough estimate in a report covering some countries, suggests a variation ranging between 1 architect for every 414 and 40,000 inhabitants. (for Italy and China respectively; the estimate covered mostly developed countries) A more systematic study conducted in 2004 was limited to 27 countries, which also did not include India.

The ratio of inhabitants to available B.Arch. seats in the States/Union Territories was also analysed. This figure ranges from 13,626 in Haryana to more than 4 lakhs in Assam, with the average being 53,348. (Table 1 and Graph 2)

State	Population	Architects	Colleges	Seats	Popn.per Arch	Popn.per B.Arch. seat
A.& N. Islands	4,19,978	32	0	0	13,124	No College
Andhra Pradesh	5,28,83,163	1,109	9	400	47,685	1,32,208
Arunachal Pradesh	15,28,296	54	0	0	28,302	No College
Assam	3,45,86,234	565	2	70	61,215	4,94,089
Bihar	11,94,61,013	592	1	40	2,01,792	29,86,525
Chandigarh	11,26,705	730	1	40	1,543	28,168
Chhattisgarh	2,85,66,990	730	4	262	39,133	1,09,034
D.& Nagar Haveli	3,78,979	17	0	0	22,293	No College
Daman & Diu	2,20,084	24	0	0	9,170	No College
Delhi	1,83,45,784	8,552	6	502	2,145	36,545
Goa	15,42,750	724	1	40	2,131	38,569
Gujarat	6,39,07,200	4,832	34	1,660	13,226	38,498
Haryana	2,73,88,008	3,244	25	2,010	8,443	13,626
Himachal Pradesh	73,16,708	426	3	140	17,175	52,262
Jammu & Kashmir	1,36,35,010	297	3	120	45,909	1,13,625
Jharkhand	3,73,29,128	423	2	80	88,249	4,66,614
Karnataka	6,61,65,886	6,339	41	2,770	10,438	23,887
Kerala	3,53,30,888	4,127	35	1,713	8,561	20,625
Lakshadweep	71,218	3	0	0	23,739	No College
Madhya Pradesh	8,23,42,793	2,256	14	670	36,499	1,22,900
Maharashtra	12,08,37,347	24,929	103	5,787	4,847	20,881
Manipur	30,08,546	97	0	0	31,016	No College
Meghalaya	32,76,323	105	1	40	31,203	81,908
Mizoram	12,05,974	76	1	40	15,868	30,149
Nagaland	21,89,297	42	0	0	52,126	No College
Odisha	4,54,29,399	853	9	290	53,258	1,56,653
Puducherry	13,75,592	158	1	40	8,706	34,390

Punjab	2,96,11,935	1,659	14	752	17,849	39,378
Rajasthan	7,82,30,816	1,843	15	698	42,448	1,12,079
Sikkim	6,71,720	65	0	0	10,334	No College
Tamil Nadu	7,64,81,545	8,048	76	4,140	9,503	18,474
Telangana	3,84,72,769	3,135	14	835	12,272	46,075
Tripura	40,57,847	34	0	0	1,19,348	No College
Uttar Pradesh	22,89,59,599	5,969	36	1,534	38,358	1,49,257
Uttarakhand	1,10,90,425	651	5	170	17,036	65,238
West Bengal	9,76,94,960	2,035	7	264	48,007	3,70,057
Total	**1,335,140,909**	**84,775**	**463**	**25,107**	**15,749**	**53,178**

Table 1. Population in States and Union Territories and Number of Architects and Colleges

Note: i) Population data is taken from Unique Identification Authority of India estimates for 2018
ii) Data of Number of Colleges and Seats is the latest current information available with Council of Architecture

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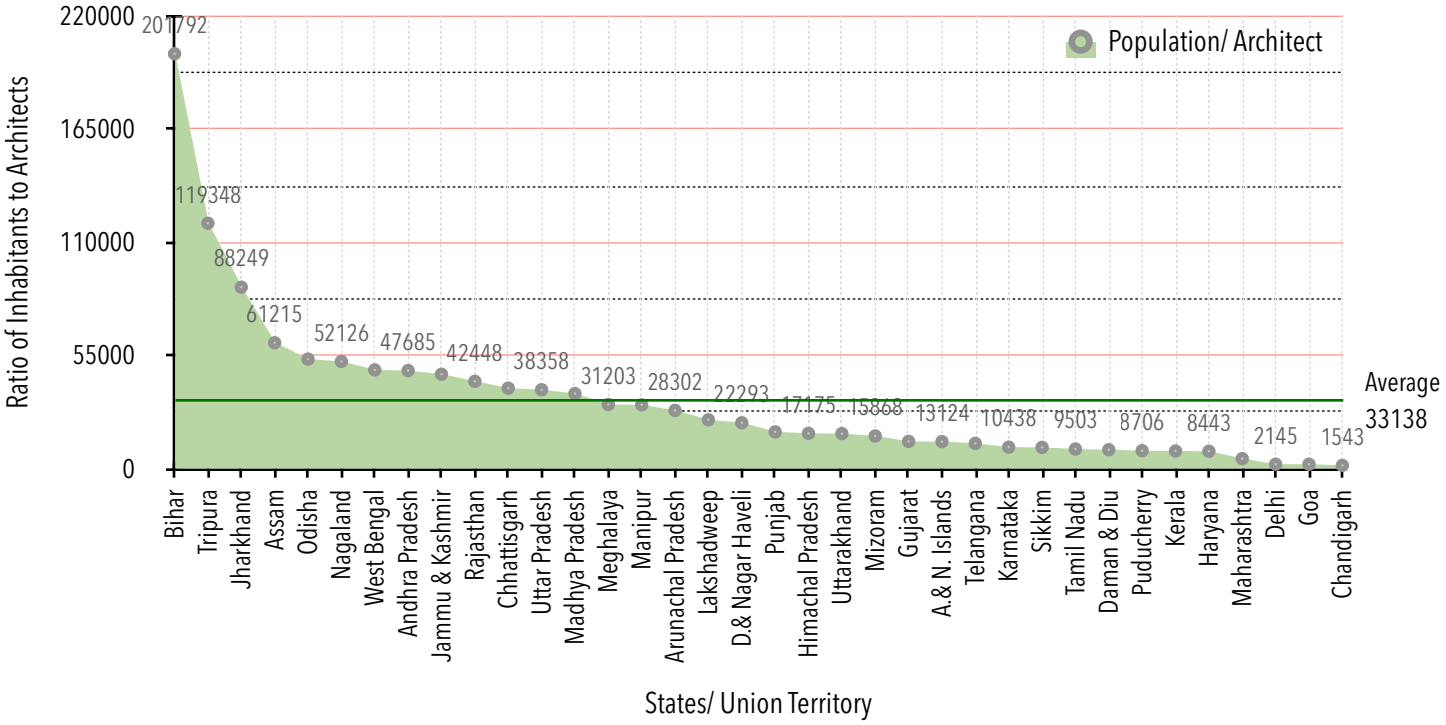
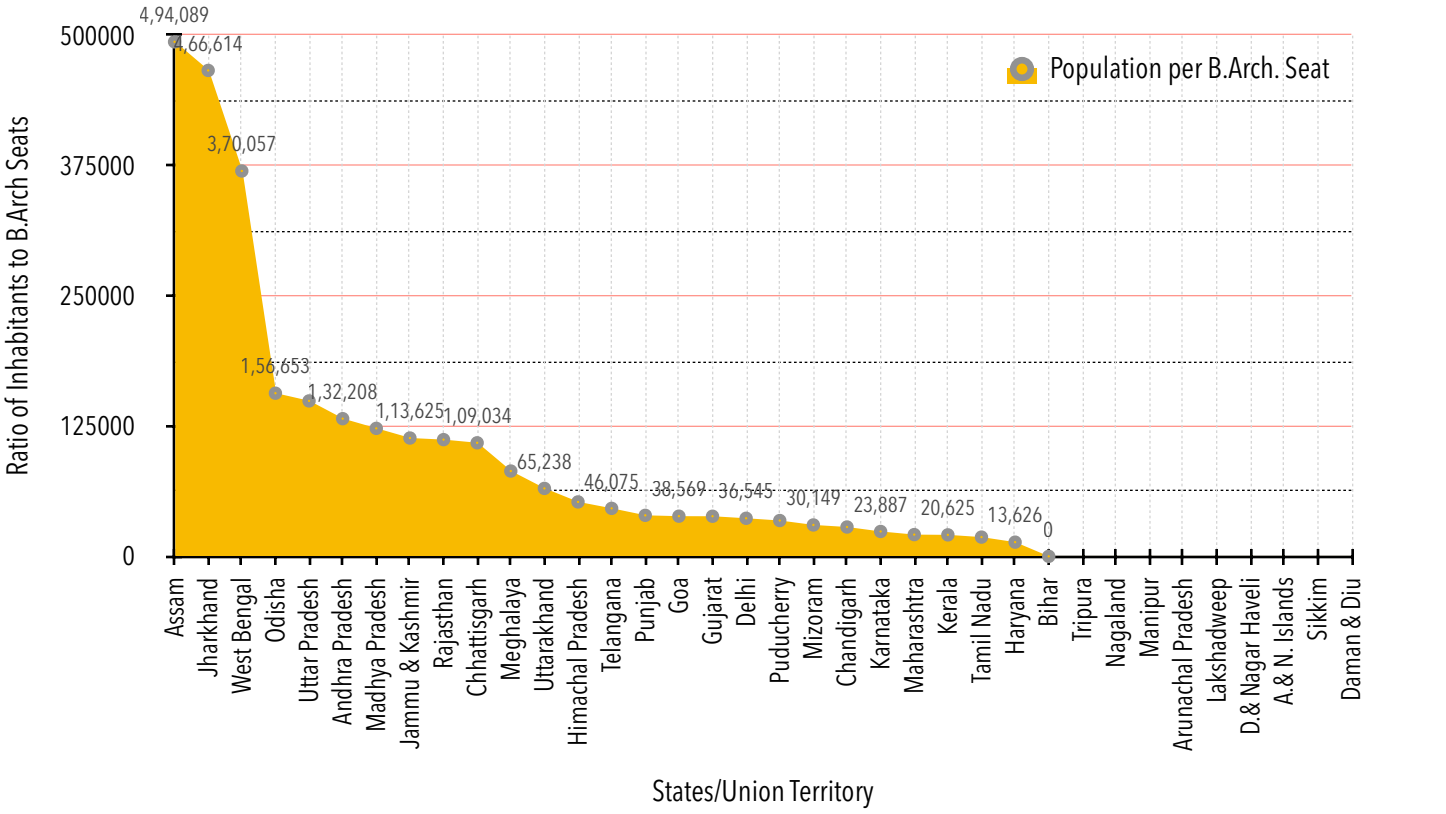


Graph 1: Ratio of Inhabitants to Architects



Graph 2: Population per B. Arch. seat in States & Union Territories

2.2 Geographic Distribution of Architectural Institutions

The map on Page 9 shows the location of all Architectural Institutions in India. This map helps to visualize the clustering and concentration of colleges in some States and would be helpful in identifying areas of too many as well as too few colleges. It would help in identifying Districts for prioritisation in locating colleges.

The percentage of urban population in each State was initially analysed, but ultimately not considered as the colleges are often located in the rural hinterland and in adjoining States, while catering to demand for admission from the urban population. As such if an analysis of locations in Urban/Rural areas is done, the figures could be misleading. An example of this is Delhi, where there are only four to five colleges located in the City of Delhi, but there are several more in the surrounding NCR region, such as in Sonepat, Greater Noida, Gurgaon, etc., which cater to the admission demand from Delhi.

The main observation is that the provision of seats in the various regions of the country is that it is quite imbalanced. (Table 1 and Graph 2) Some States have availability of seats much higher than the average of 1 seat per 53,178 inhabitants, while others had no colleges or far below the average. While some Eastern States had a low number of architectural institutions, others like Karnataka, Maharashtra and Tamil Nadu had very high numbers of Institutions offering architectural education. Very low number of Institutions was observed in West Bengal, Odisha and Uttarakhand. There are no colleges in most of the North-Eastern States, and Union Territories.

It was further observed that each State has its own policy for geographic reservation of seats, based on the districts under jurisdiction of the University and this also creates some imbalances.

3.0 Demand for admission into architectural institutions

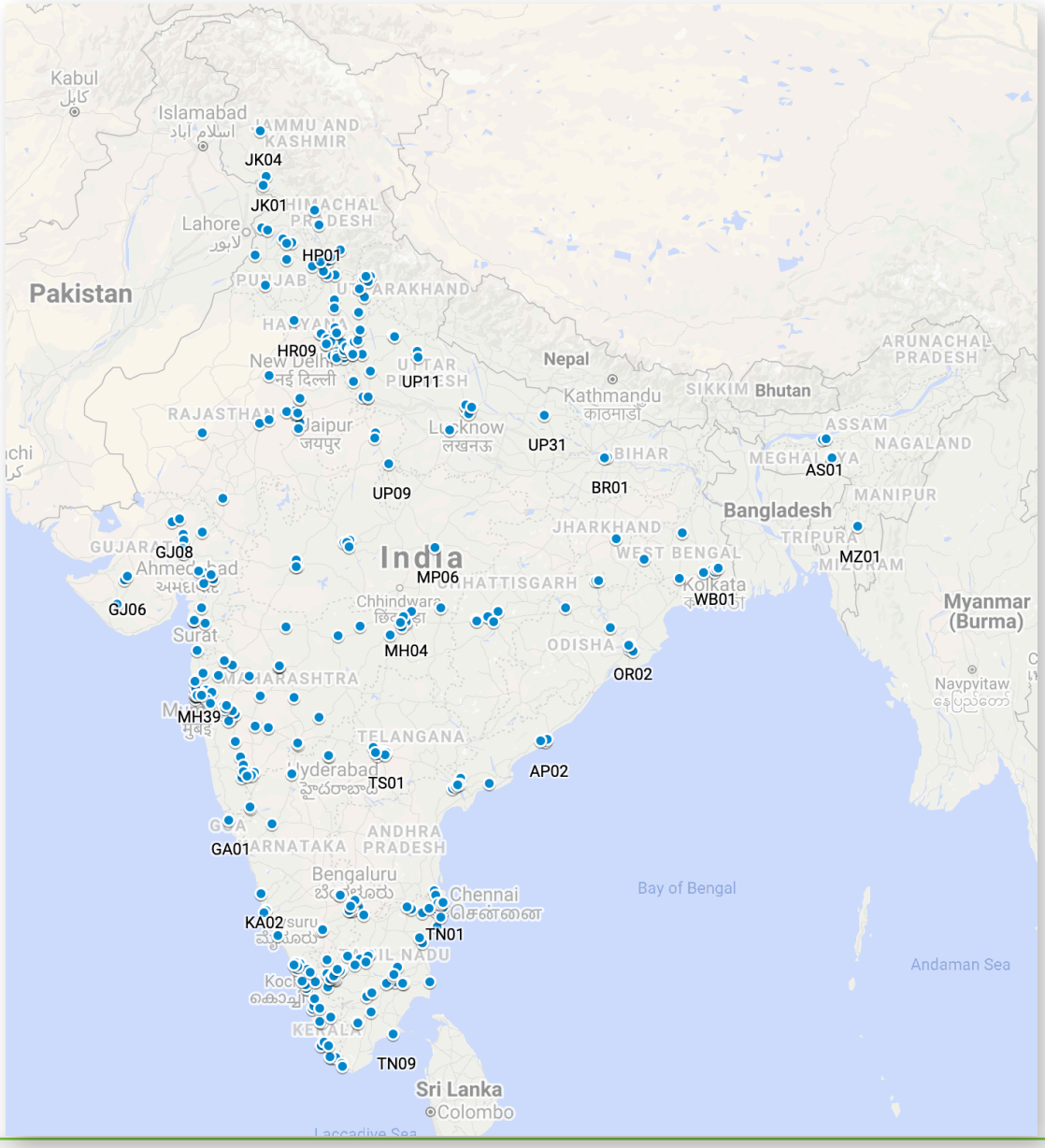
The demand for admission into architectural Institutions was assessed by looking at the numbers of colleges, candidates who had applied for admission through NATA and also at the enrolment data, from 2011 onwards. The number of colleges grew from 137 in 2006 to 553 in 2017. 75 of these Colleges had to shut down for various reasons and the actual number of colleges now in July 2020 stand at 465 and the total number of seats is around 22000. (Year wise information about closure is not available)

It is also seen that many of the colleges which closed were in the States of Karnataka, Maharashtra and Tamil Nadu and all of these have the highest number of colleges.

3.1 Demand Assessment

The major spurt in growth of Institutions can be seen in the year 2011-2012 and 2015-16. While the number of colleges has been growing steadily, as can be seen in Table 2 and Graph 3, the year-wise availability of number of seats provides a better indication of the trend, and in this data, a plateau effect can be seen from the year 2015. (Graph 4)

Map Showing Location of all Architectural Institutions in India (Ref: Table 2)



AY	No.	NI	UI	AP	TC	RD	PP	PC	TS	E	V	SV
2006-07	127	10							6385	NA		
2007-08	141	4							6627	NA		
2008-09	148	7							6359	5783	576	9.06
2009-10	173	25							8242	7462	780	9.46
2010-11	200	27							10121	9586	535	5.29
2011-12	260	60	20064	25355		23617	81.92	16436	15151	11466	3685	24.32
2012-13	327	67	25839	31332		29512	70.41	18193	19825	13137	6688	33.74
2103-14	362	35	37774	43130		40137	68.42	25845	20589	16329	4260	20.69
2014-15	414	52	39511	45638		38100	75.58	29861	23741	17529	6212	26.17
2015-16	478	64	45467	54688	45467	45445	63.16	28715	24423	18492	5931	24.28
2016-17	511	33	74938				41.08	30783	24737	17372	7365	29.77
2017-18	533	22	42098		37246		65.89	24540	24868			
2018-19	553	20							24177	NA		

Table 2: Number of Institutions, NATA Applicants and Enrolments from Academic Year 2006-07

INDEX

AY	**Academic year**
No.	**Number of Institutions**
NI	**New Institions**
UI	**Unique candidates**
AP	**Appointments**
TC	**Tests Conducted**
RD	**Results Declared**
PP	**% passed**
PC	**Passed Candidates**
TS	**Total Seats**
E	**Enrolments**
V	**Vacancies**
SV	**%age of seats vacant**

YEAR	NO. OF INSTITUTIONS	NEW INSTITUTIONS APPROVED	INSTITUTIONS CLOSED/PUT ON ZERO INTAKE/RESTORED	TOTAL NUMBER
2006-07	127	10	0	137
2007-08	137	4	2	139
2008-09	139	7	13	133
2009-10	133	25	6	152
2010-11	152	27	-7	186
2011-12	186	60	12	234
2012-13	234	67	-1	302
2013-14	302	35	0	337
2014-15	337	52	10	379
2015-16	379	64	20	423
2016-17	423	33	-2	458
2017-18	458	22	12	468
2018-19	468	20	11	477
2019-20	477	15	29	463

TABLE: STATISTICS OF INSTITUTIONS

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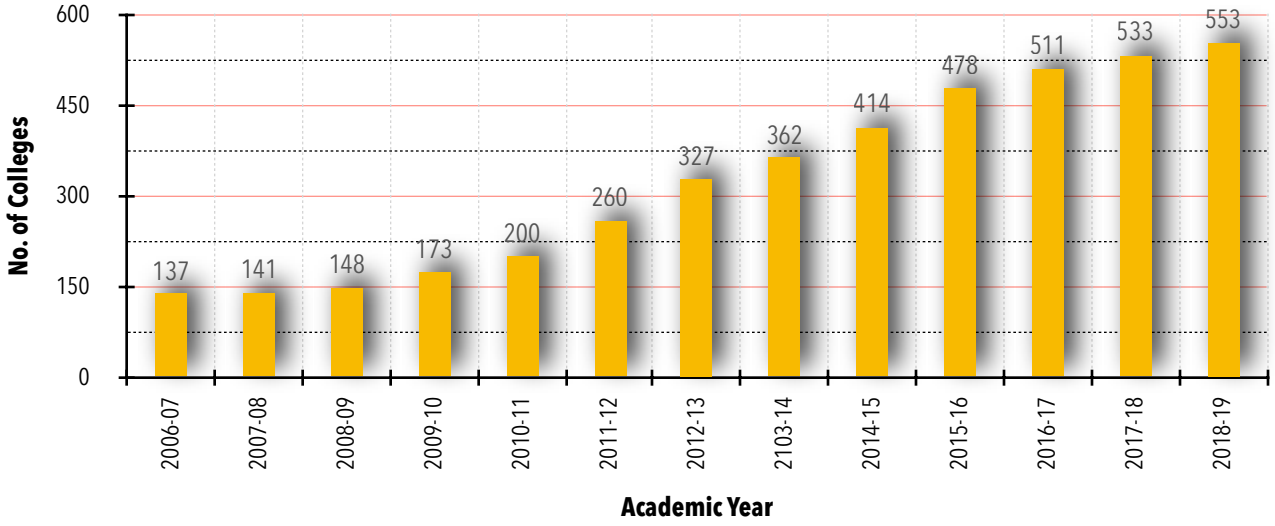
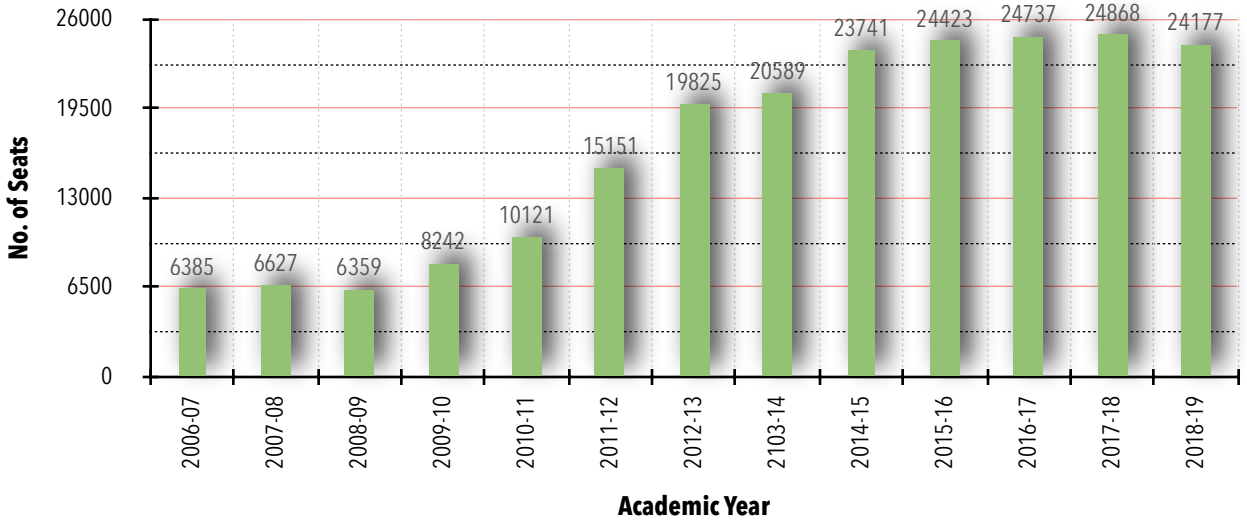


Graph 3: Growth in Number of Colleges since Academic Year 2006-07



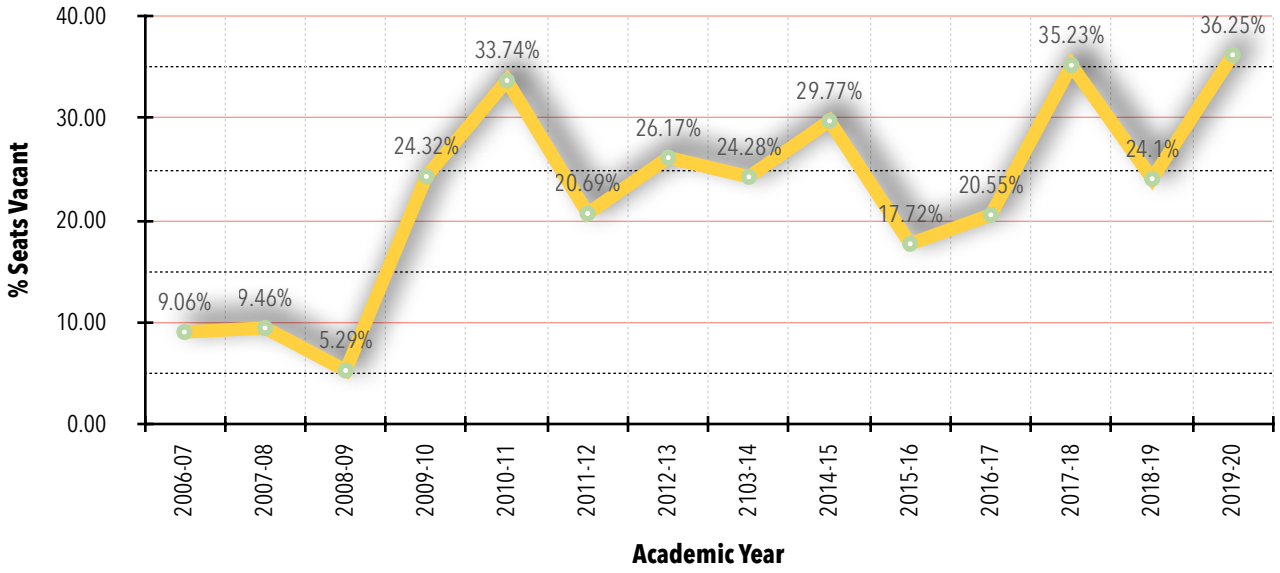
Graph 4: Growth in Number of B.Arch. Seats since Academic Year 2006-07

3.2 Enrolment and Vacancies

While it is observed that the number of students actually applying for NATA increased substantially to about double between the years 2011-12 and 2017-18, these did not result in a corresponding increase in the actual

number of enrolments. The number of applicants increased by about 100%, but enrolment increased only by about 50%. The number of enrolments also decreased from about 57% of those who applied for admission in 2011-12 to about 40% in 2017-18.

The overall percentage of vacant seats is fairly high. This was only about 10% in 2011, and has increased and held at about 30% since then. Vacant seats in colleges are seen as a major cause of concern as this does not indicate a healthy institution. Large vacancy rates, to an extent of almost 30%, creates an economic pressure on the institution and usually results in hiring less faculty members, or part-time teachers, who do not give sufficient time to the institution, or who do not have an academic inclination. This compromise is seen as one of the major reasons for deterioration in overall architectural educational standards. It is also an indication that institutions are finding it difficult to sustain themselves economically, in some areas.



Graph 5: Percentage of Seats Vacant from Academic Year 2006-07

The Joint Entrance Exam (JEE) Paper 2 (Architecture) is conducted nation-wide and students qualifying in this examination are also now eligible for admission into any of the colleges. This year (Academic Year 2019-20) 1,69,757 candidates registered for the examination, but data regarding the actual admissions through this route are not available for past years. By all accounts, it appears that NATA eligibility is the qualifying exam in a large majority of the total admissions.

It must also be noted that apart from completing the five-year Bachelor of Architecture program, there is another route for qualifying as an architect in India. The Indian Institute of Architects (IIA) offers qualification recognized as equivalent to B.Arch., which can be secured by taking examinations in three parts. This offers a path for qualifying professionally to those with Diploma qualification, and who have been working at junior levels in architectural practices. While this alternative route has been open for several years now, the Council office has recorded that there were only 2423 registrations through this path to date.

4.0 Availability of teaching faculty members

The data regarding number of teachers actually available in the Colleges in the various cadres was not available to the Committee. The observations regarding number of teachers is based on the collective findings of Committee members while inspecting colleges, and interaction with other architects and academicians.

4.1 Shortage of teachers

The number of architectural institutions has been increasing and academicians and practicing architects alike have observed with concern the falling standards in teaching quality, especially in some of these new colleges. Common observation is that it is difficult to get teachers with postgraduate and research qualifications, especially those having an academic inclination and aptitude for teaching. This has resulted in a peculiar situation with either understaffed colleges, or situations where teachers are not able to give sufficient time to the institution.

Although reliable data on post-graduate courses in Architecture was not available, the Committee referred to the information available in the Report of the All India Survey of Higher Education (AISHE) for 2017-18. This data is limited because it only includes information on the colleges which actually responded to the survey. This number is only 169 out of the total 478. The data indicates that there are almost 2,494 candidates enrolled for Masters in Architecture and another 881 in M. Planning. The total pass outs in 2017-18 were 944 for PG and 23 for PhD. While this data is far from being complete, it can be taken as indicative of the total volumes or numbers, and it appears reasonable to assume that the better Institutions offering higher learning in architecture at the post graduate level would have responded to the survey. Assuming again that all these qualified candidates would not be interested in academics, it appears to be a fairly small pool of architects from which teachers could be available for joining as full-time faculty members in the institutions.

4.2 Estimate of Faculty Members required

The number of practicing architects in the region is another factor which needs to be considered, as the teaching faculty members are likely to be drawn from them. The number of architects registered in the last two years is 9,629 and 13,912 for 2017 and 2018 respectively. Also, it must be kept in mind that these figures are likely to include registrations of architects who have passed out some time back but are only now coming forward to register in response to the recent drive and more stringent policy of CoA regarding registrations. Assuming that about 10% of these would be interested in a full-time teaching job, it imposes restrictions on the growth of new colleges.

The current sanctioned intake in the entire country is now almost 25,000 seats (for 2018-19), which means that there will soon be 1,25,000 students enrolled in all five years of study in Bachelor of Architecture programmes in the country. It may be seen that at a ratio of 1:10, nearly a total 12,500 faculty members are required who are properly qualified and are trained in teaching learning techniques.

5.0 Current status of overall economy

5.1 International status

It is commonly understood that with rise in economic indicators like GDP, per capita incomes and Human Development Index, there would be improvement in lifestyles which would result in a higher demand for better housing, workplaces and commercial buildings, and therefore for more architects. The latest figures (Sept. 2018) for Human Development Index shows that while India still ranks quite low at 130 out of 189 countries in the UNDP rankings, there has been substantial progress over a period of last two decades and it is now in the medium human development category. While the Index is driven by indicators such as health, education and income, they reflect overall growth of a country that could possibly lead to sustained growth in economy.

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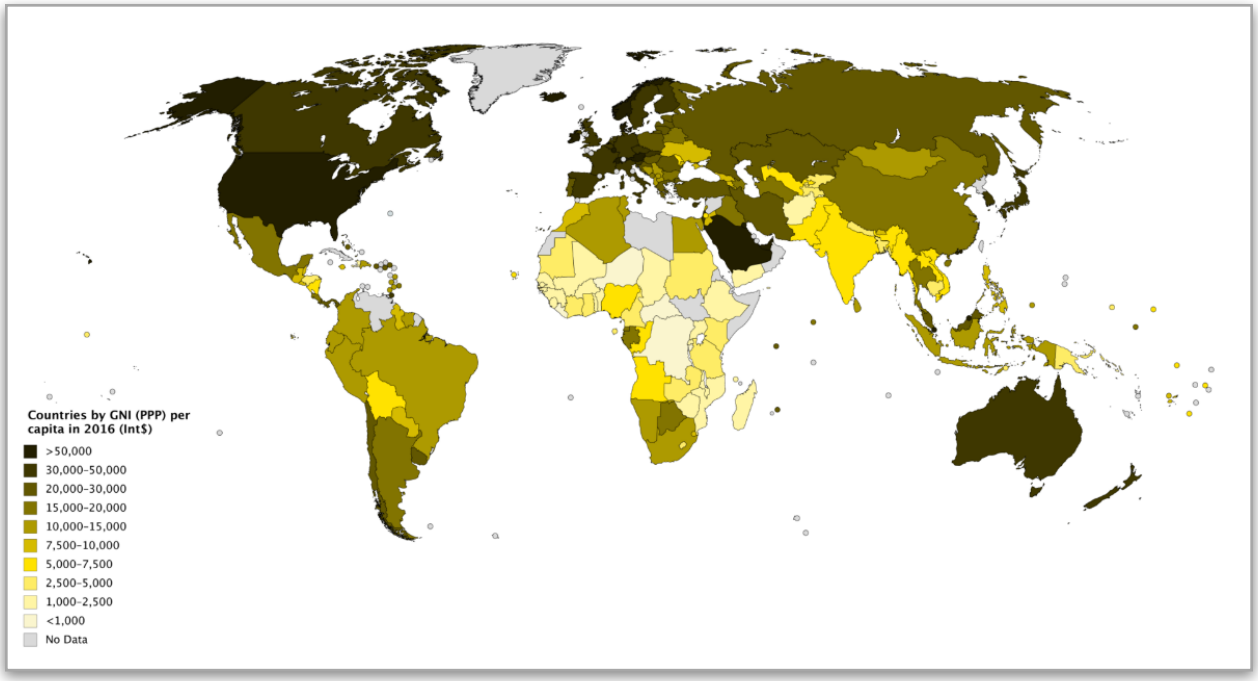

> 50,000	5,000–10,000
35,000–50,000	2,000–5,000
20,000–35,000	< 2,000
10,000–20,000	No data

Figure 1: Countries by GDP (PPP) per capita (In$) in 2017 according to the IMF

5.2 Growth in Economy

Looking at the GDP (PPP) per capita figures, it is seen that India stands in the mid-range at 5,000-10,000$ in 2017 (as per International Monetary Fund) There has been gradual improvement in overall economy and this has had a positive impact on the construction industry, which has shown a positive trend in 2018, according to Global Data. Investment in transport infrastructure, energy and housing projects has helped drive growth of the sector. In an expanding economy, it is important to understand how much of this expansion would be in the construction sector, as there are other growth sectors like alternative energy, health care and information technology.

India is expected to be among the fastest growing construction markets, with a high growth rate, with major targets till 2030, along with US, UK, China and Indonesia. Housing demand is expected to lead the sector, as per an independent report. India, along with China, has been considered as one of the largest emerging economies of the world. While projected growth rates of the two countries are comparable, India has been lagging behind

mainly in Industries and also in overall GDP per capita. There is sufficient scope for growth in the near future, provided there is an appropriate broader policy framework.

5.3 Inequalities in the States and Union Territories

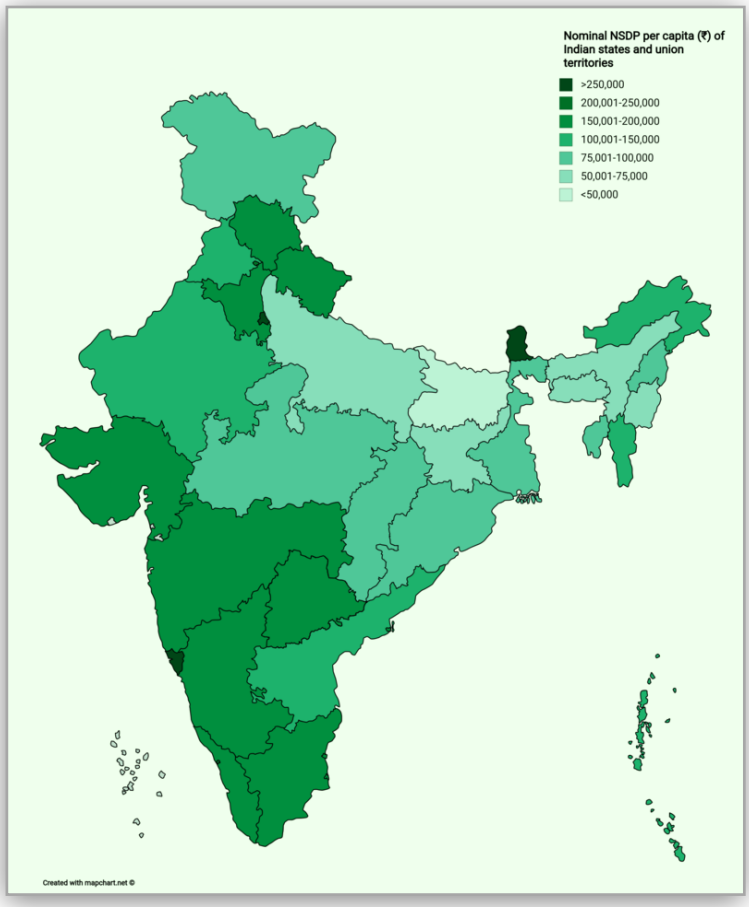

Figure 2: Indian states and union territories by NSDP (nominal) per capita (INR)

A comparison of the Net State Domestic Product of the States of India shows the disparity and inequality within the country. The NSDP varies from less than Rs. 50,000 in some States to more than Rs. 2,50,000 in others. Broadly it is seen that Western and Southern States like Gujarat, Maharashtra, Karnataka etc. along with Delhi and surrounding areas are placed higher than the Eastern and Central States like Bihar, Odisha and Uttar Pradesh. The Inequality Index still remains high within India. This could account for the concentration of architecture colleges in some States. An examination of the data for growth rates shows that some of the States have started growing at higher rates than the national average of 6.7%. These States are Bihar at 11.3%, followed by Andhra Pradesh, Gujarat, Telangana, Karnataka, West Bengal, Tamil Nadu, Maharashtra, Madhya

Pradesh, Rajasthan, Odisha and Chhattisgarh. It is possible that increased demand may be seen in these States in the near future. Capacity building in terms of teacher training may be taken up in these areas.

NITI Aayog has identified that the construction sector has immense potential to generate employment and took several initiatives to revive it in 2016. Amitabh Kant, CEO, Niti Aayog, stated in 2014 that the construction and housing sector has "huge potential to change things if we want to realise the dream of New India by 2022". It is anticipated that 50% of India's population will live in cities by 2050 as a result of growing aspirations and opportunities in urban areas. This will exponentially impact the demand for basic services and housing in cities. With this in mind, the "Housing for All" initiative under Pradhan Mantri Awas Yojana (Urban) was launched in June, 2015. For the current demand itself an investment of INR 6 trillion or more would be required. In addition to the direct impact on the economy, it will also have a multiplier effect on all the allied sectors, besides boosting employment opportunities and flow of knowledge and skills, including architects.

5.4 Future Growth

It is expected that to meet the huge demand in a short period of time there will be a need for state of art construction technologies, for building almost 10 million houses by 2022. The emphasis would be on innovative technologies and achieving the Sustainable Development Goals (SDGs) as laid out by the United Nations (UN). Thus, the emphasis is on accelerating construction of affordable housing and sustainability. This has implications on developing skills in these specific areas as it a huge challenge that needs to be addressed in the near future.

5.5 Comparison with other countries

There are no systematic studies indicating number of architects in various countries, but the available information shows that there is a widely divergent figure for the ratio of architects to inhabitants in various countries, and broadly it appears to be based on the position of the country on the growth curve of development. An approximate estimate in 2014 at the Venice Architecture Biennale shows the number of architects in 36 countries. These figures do not take into account non-registered architects and the ratio of non-registered to registered architects is also open and debatable.

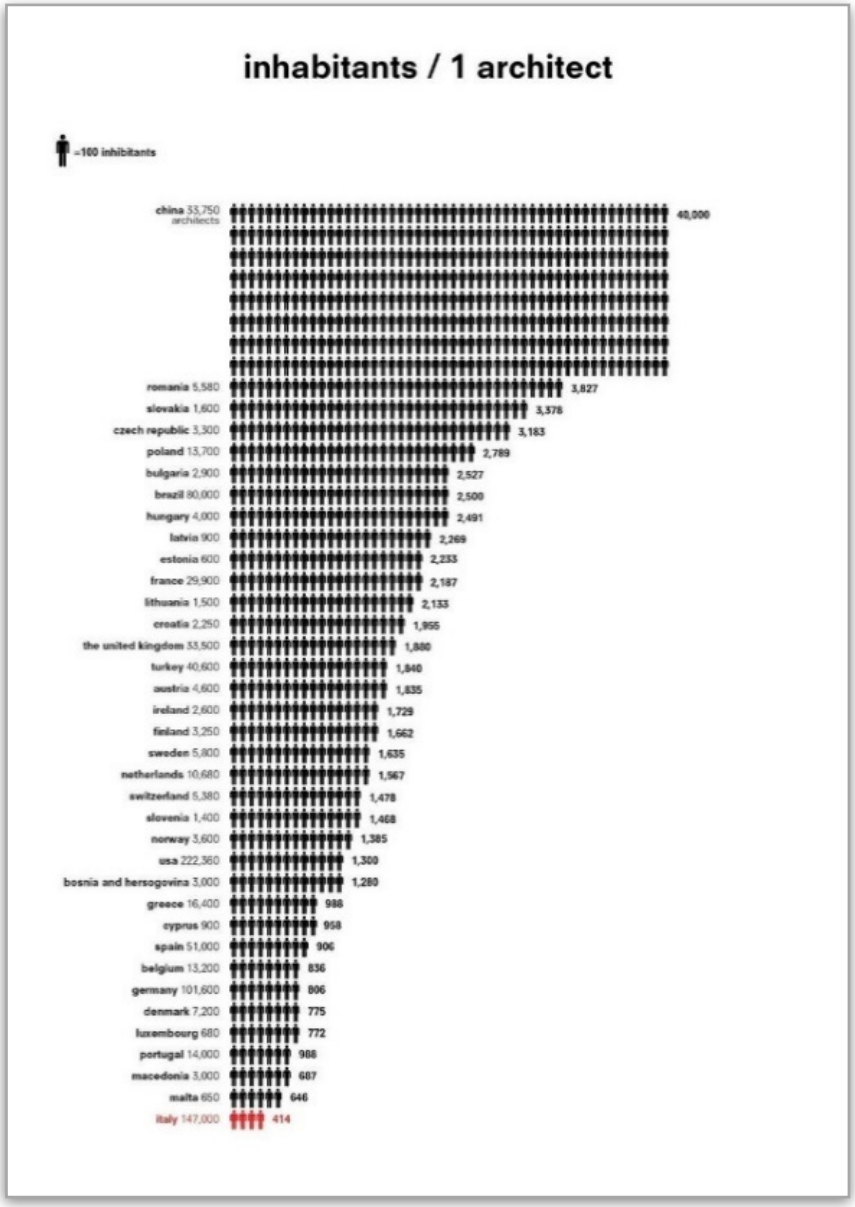

Figure 3: Number of architects per inhabitant in 36 countries of the world Monditalia Twitter Page, https://twitter.com/monditalia(Venice Architecture Biennale, 2014)

However, what is striking is the wide range in these figures. For example, there is one architect per 414 inhabitants in Italy, one for every 1300 in the USA and one for every 1880 in the United Kingdom. The lowest ratio is for China which shows there is one architect per 40,000 inhabitants. These figures seem to indicate that there are more number of architects in the developed countries, especially which have a rich background of architecture and culture.

This can also be roughly linked to the GDP and the per capita income of the countries. The building and construction industry also depends on the state of the overall economy. It was felt that this factor should be borne in mind while recommending or trying to predict an appropriate ratio of architects to the population. It has been approximately estimated that only 2 in every 100 buildings constructed are actually designed by architects. Of the remaining, a few building plans are drawn out by engineers, diploma holders and draftsmen and the remaining are constructed/planned by masons or the owners without any advice from fully qualified architects. Therefore, it is clear that only high-income sections of society would have the involvement and advantage of architect designed spaces.

It has been observed that even in some developed countries, like USA for example, very few buildings are custom designed by architects, as a majority of house plans are chosen from ready-made catalogue designs. However, these type designs, usually prepared by real estate developers and builders for mass construction, are initially designed by architects. While these may be built repetitively, they do require changes based on sites and preferences in various regions and do generate some demand in a limited way for architects.

The number of architects needed in a country has been a cause of concern in several economies, as noted by Baker in 2018, in a report where he elaborates on the situation in architectural offices in the US. The workload fluctuates with the current state of construction activity and architectural offices are either trying to cope with excess work pressure on their staff in times of construction boom, or are overstaffed in recession periods. A similar pattern is seen in India too in cycles of economic boom and recession. Baker also notes that related professionals like interior designers and landscape architects may see a higher demand comparatively.

6.0 Recommendations

The approach for preparing recommendations was arrived at by first chalking out a rough figure indicating the number of inhabitants for which one architect is needed. As shown in the first section of this report for the current ratio of inhabitants to architects in India, there is a wide disparity from one State to another and the extreme ends of these ratios are 1:1543 (Chandigarh) at one end and 1:201792 (Bihar) at the other. Keeping this information in mind it was felt that a pragmatic figure of 1:9000 could be the approximate target for the next few years, possibly up till one decade.

Overall a difficulty in recruiting sufficient number of full-time teaching faculty and vacancy rates in existing institutions indicate a need to proceed cautiously in most regions for addition of new colleges.

6.1 Categorisation of States

A simple population projection was done for the year 2030 assuming a growth of 10%, based on Census and other Government projections of approximately 11%. For this projected population the average ratio of architects to inhabitants of 1:9000 was used to calculate and arrive at an appropriate number of architects required in each State for the year 2030. Further it was assumed that this number of architects may be achieved in 10 years from now. Based on these assumptions the need for new Institutions and number of seats in every State was estimated. The final figure that emerged from these calculations was used to categorise the State into one of the four following categories:

Categoryof State/Union Territory	Description
I	New colleges are needed and should be encouraged to grow in the area
II	New colleges may be permitted but on a less priority basis. Applications for new institutions may be considered where the college proposes a clear Vision and Mission and understanding of how it can contribute to the growth and development of architecture in the region
III	Very low priority for growth and may need to be controlled
IV	Regions which need not be considered at this moment as there is not enough demand along with others factors

Table 3: Categories of States/UTs for Policy of adding new Institutions/Seats

Table 3: Categories of States and UTs for Addition of Architectural Institutions/Seats											
States / Union Territory	Population	Architects	Colleges	Seats	Population/ Architect	Projected Population	No. of Architects required at 1:9000	Shortfall of Architects	No. required per year (Assuming 10 years to add this number)	Extra Seats Needed	Category
Arunachal Pradesh	1528296	54	0	0	28302	1681126	187	133	13.3	13	I
Assam	34586234	565	2	70	61215	38044857	4227	3662	366.2	296	I
Bihar	119461013	592	1	0	201792	131407114	14601	14009	1400.9	1361	I
Jharkhand	37329128	423	2	80	88249	41062041	4562	4139	413.9	334	I
Manipur	3008546	97	0	0	31016	3309401	368	271	27.1	27	I
Mizoram	1205974	76	1	40	15868	1326571	147	71	7.1	Nil	I

Nagaland	2189297	42	0	40	52126	2408227	268	226	22.6	23	**I**
Odisha	45429399	853	9	290	53258	49972339	5552	4699	469.9	180	**I**
Sikkim	671720	65	0	0	10334	738892	82	17	1.7	2	**I**
Tripura	4057847	34	0	0	119348	4463632	496	462	46.2	46	**I**
West Bengal	97694960	2035	7	264	48007	107464456	11940	9905	990.5	727	**I**
Andhra Pradesh	52883163	1109	10	400	47685	58171479	6463	5354	535.4	135	**II**
Madhya Pradesh	82342793	2256	13	670	36499	90577072	10064	7808	780.8	111	**II**
Rajasthan	78230816	1843	16	698	42448	86053898	9562	7719	771.9	74	**II**
Uttar Pradesh	228959599	5969	38	1534	38358	251855559	27984	22015	2201.5	667	**II**
Chandigarh	1126705	730	1	40	1543	1239376	138	Nil	Nil	Nil	**III**
Chhattisgarh	28566990	730	6	262	39133	31423689	3492	2762	276.2	14	**III**
Delhi	18345784	8552	6	502	2145	20180362	2242	Nil	Nil	Nil	**III**
Goa	1542750	724	1	40	2131	1697025	189	Nil	Nil	Nil	**III**
Gujarat	63907200	4832	35	1660	13226	70297920	7811	2979	297.9	Nil	**III**
Haryana	27388008	3244	28	2010	8443	30126809	3347	103	10.3	Nil	**III**
Himachal Pradesh	7316708	426	5	140	17175	8048379	894	468	46.8	Nil	**III**
Jammu & Kashmir	13635010	297	3	120	45909	14998511	1667	1370	137	17	**III**
Karnataka	66165886	6339	42	2770	10438	72782475	8087	1748	174.8	Nil	**III**
Kerala	35330888	4127	36	1713	8561	38863977	4318	191	19.1	Nil	**III**
Maharashtra	120837347	24929	96	5787	4847	132921082	14769	Nil	Nil	Nil	**III**
Meghalaya	3276323	105	1	40	31203	3603955	400	295	29.5	Nil	**III**
Puducherry	1375592	158	1	40	8706	1513151	168	10	1	Nil	**III**
Punjab	29611935	1659	15	752	17849	32573129	3619	1960	196	Nil	**III**
Tamil Nadu	76481545	8048	81	4140	9503	84129700	9348	1300	130	Nil	**III**
Telangana	38472769	3135	14	835	12272	42320046	4702	1567	156.7	Nil	**III**
Uttarakhand	11090425	651	6	170	17036	12199468	1355	704	70.4	Nil	**III**
A.& N.Islands	419978	32	0	0	13124	461976	51	19	1.9	2	**IV**
D.&N.Haveli	378979	17	0	0	22293	416877	46	29	2.9	3	**IV**
Daman & Diu	220084	24	0	0	9170	242092	27	3	0.3	0	**IV**
Lakshadweep	71218	3	0	0	23739	78340	9	6	0.6	1	**IV**
Total	**1335140909**	**84775**	**476**	**25107**	**15749**	**1468655000**	**163184**	**78409**	**7841**		

Note: Population projections are taken at 10%, based roughly on various Government reports.

6.2 Appropriate Geographic Location of Institutions

It can be seen that there are 16 States/UTs falling in Categories I and II, indicating shortage of institutions and the remaining are all in III and IV, indicating saturation levels. The geographic imbalances are quite clear.

It was strongly felt that there must be an architectural institution in every region. Currently there are many States particularly in the North Eastern region and the Union Territories which have no colleges at all. India is a very vast country and every region and State has its own climate, topography, culture and architectural tradition. As such it is believed that it would be more relevant for students to be trained in their own regions rather than going to another institution located far away and rooted in a completely different context. It is therefore proposed to encourage every State to have at least have one architectural institution where there is presently no such college, for example in Bihar and some of the North-East. It is suggested that the Council of Architecture may initiate a dialogue with State/Central Governments of these areas to set up architectural colleges in existing educational campuses.

In such regions, it is suggested that a period of five years can be given to attain all the norms and standards for the college, as an incentive for establishing the college. Some financial relaxations can also be extended where institutions need to be established. This would have to be judiciously done by an appropriate committee.

There are only few colleges in Tier II cities and architectural colleges may be permitted in them, based on population, number of architects available, the catchment area and growth rates. In fact, these cities may be on the verge of witnessing growth, as metros and large urban centres become saturated with education infrastructure. It is also felt that emerging growth centres must be identified and focused on, to bring the benefit of planned development to these cities, which otherwise grow haphazardly. The presence of an architectural institution in such areas may well work to help in supplying qualified people to design the buildings and urban areas, and also in better architectural landscape for the city.

It was observed that every University has its limited territorial jurisdiction to some Districts in the State and that admission is limited only to students who belong to that area. While scrutinizing applications for new colleges, this factor may also be considered and priority can be given to Districts which are not covered by the existing colleges.

It would be interesting to further analyse the State-wise demand to arrive at suitable location of colleges in the near future. In fact, a Google form was designed and circulated to colleges for information on the catchment areas of their students, but information was not available.

6.3 Fostering Research and Development

The Committee also recommends that certain institutions, such as all Government institutions, including State and Central Government, aided colleges, institutions of national importance and centres of excellence can all be treated as a separate group for spelling out requirements for infrastructure, qualifications for teachers etc. They can act as mentors and lead the way in teaching-learning techniques for other institutions to follow. This would also encourage and foster research in the field, as research is in the nascent stage in architecture and built environment, especially in India. As the Council norms do not mandate a research degree for teaching positions in colleges, it is imperative that these institutions and their role should be viewed differently.

In addition to this, thrust areas may be identified and appropriate skill development planned, such as the following. Each of these may be selected judiciously according to the demographic and development profile of that area and that this list is only indicative and not exhaustive:

i) Affordable Housing
ii) Sustainable Development
iii) Environment Sensitive Building
iv) Landscape Architecture
v) Interior Design
vi) User Interface Design
vii) Parametric modelling
viii) Lighting Design
ix) Public Space DesigN
x) Interdisciplinary research and pedagogical innovations etc.

Architectural institutions need to develop suitable curriculum in thrust areas and build capacity for the changes that are likely to take place.

It is important to conduct faculty development programs to have trained teachers who are familiar with teaching-learning methods and techniques, to improve and maintain standards of architectural education. The Council may plan and initiate various modules for architects who are interested in teaching and research, to

create a pool of trained teacher architects. This could be taken up in collaboration with institutions which are centres of excellence and research centres.

6.4 Building Awareness of Role of Architects

The Council can plan long term initiatives to improve the understanding of the role of architects in society. These programs can be planned as one day workshops and could be taken up in various large and small urban centres. They could improve the awareness of architecture as a professional in society and the ways in which buildings and their performance can be enhanced with the involvement of architects at the planning and design stage. These workshops could be conducted for various stakeholders such as laymen, government officials from various departments, school children and senior executives in private organisations.

Awareness about the scope of the profession could be built by bringing out publications on the role of architects, how to select an architect and such topics. The Council and Indian Institute of Architects can take the lead and involve colleges in this exercise.

6.5 Diversity in Academic Programs

The Council may consider recommending award of B.Sc. (Architecture) at the end of Stage I (three years) for those candidates who do not want to complete the five-year professional program. Students completing this program may find opportunities in the areas of manufacturing building materials, or could be permitted to work as developers, builders, project managers etc. as these professions require some technical knowledge. It may be appropriate to consider introducing three-year degree programs in Architecture in smaller cities and rural areas. This may be appropriate in Tier II cities, where there may not yet be a demand for a full-fledged five-year program in Architecture.

It is also a concern that with a single department in a college, the architectural institutions are expensive to run and operate, in comparison with engineering colleges which typically have at least four departments. Permitting the introduction of B.Sc. programmes in Architecture, and similar degree programs in Interior Design, Fine Arts, Animation, Product Design, Urban Planning etc. under the same umbrella may result in a good synergy while at the same time giving an economy of scale to the operation of the college. These courses, while not under the purview of the Council, are inter-related disciplines and offer opportunities for growth to the institutions in emerging fields. In areas where there are no architectural colleges, existing institutions can be assessed for possibility of sharing facilities and infrastructure.

As stated above, the role of architects has been limited to the high and upper middle sectors of society. A strategy to engage them to a greater extent in the anticipated boom in the construction sector is required, and for this it is essential to understand the typology of buildings that would come up in the next spurt of development, and take up skill development accordingly.

The Committee is of the opinion that Architecture Department could be included under the umbrella of existing Fine Arts Colleges and also where there are courses in other Design fields as mentioned above. Growth of specialized institutions in creative fields and built environment need encouragement and this may be taken up for consideration.

7.0 Conclusion

The Council may take further necessary action on this report to take forward the recommendations made herein. Towards this end, it may seek approval of the required authorities in the interest of maintaining quality in the institutions offering architectural education.

It is also suggested that the Council should create a database of all institutions, teaching faculty, NATA/JEE applicants in different cadres, location, so that reports can be easily generated and utilized for decision making.

It is also suggested that a specially constituted committee should be constantly monitoring not only the location of new colleges and addition of seats in existing ones, but also involve in identifying emerging areas, suggesting capacity building measures for these, and also suitable direction of curriculum design in various regions.

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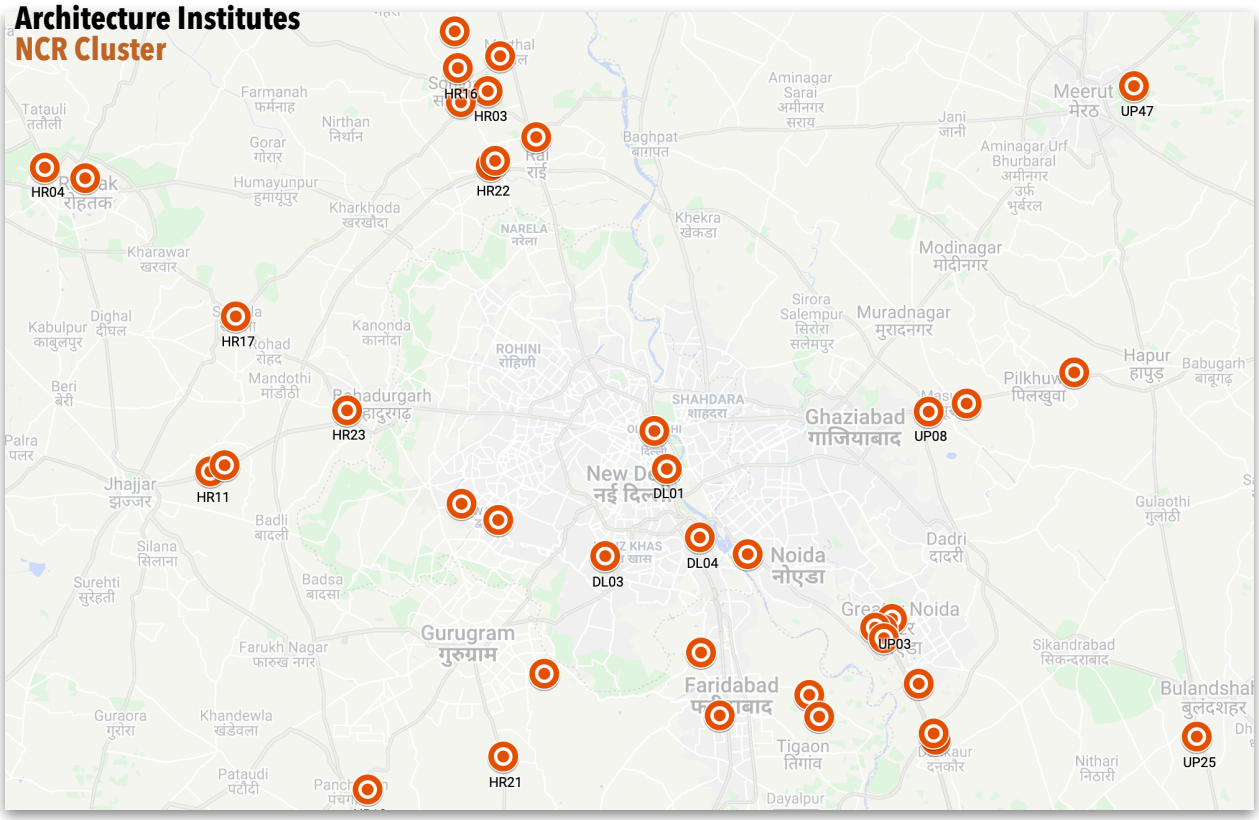
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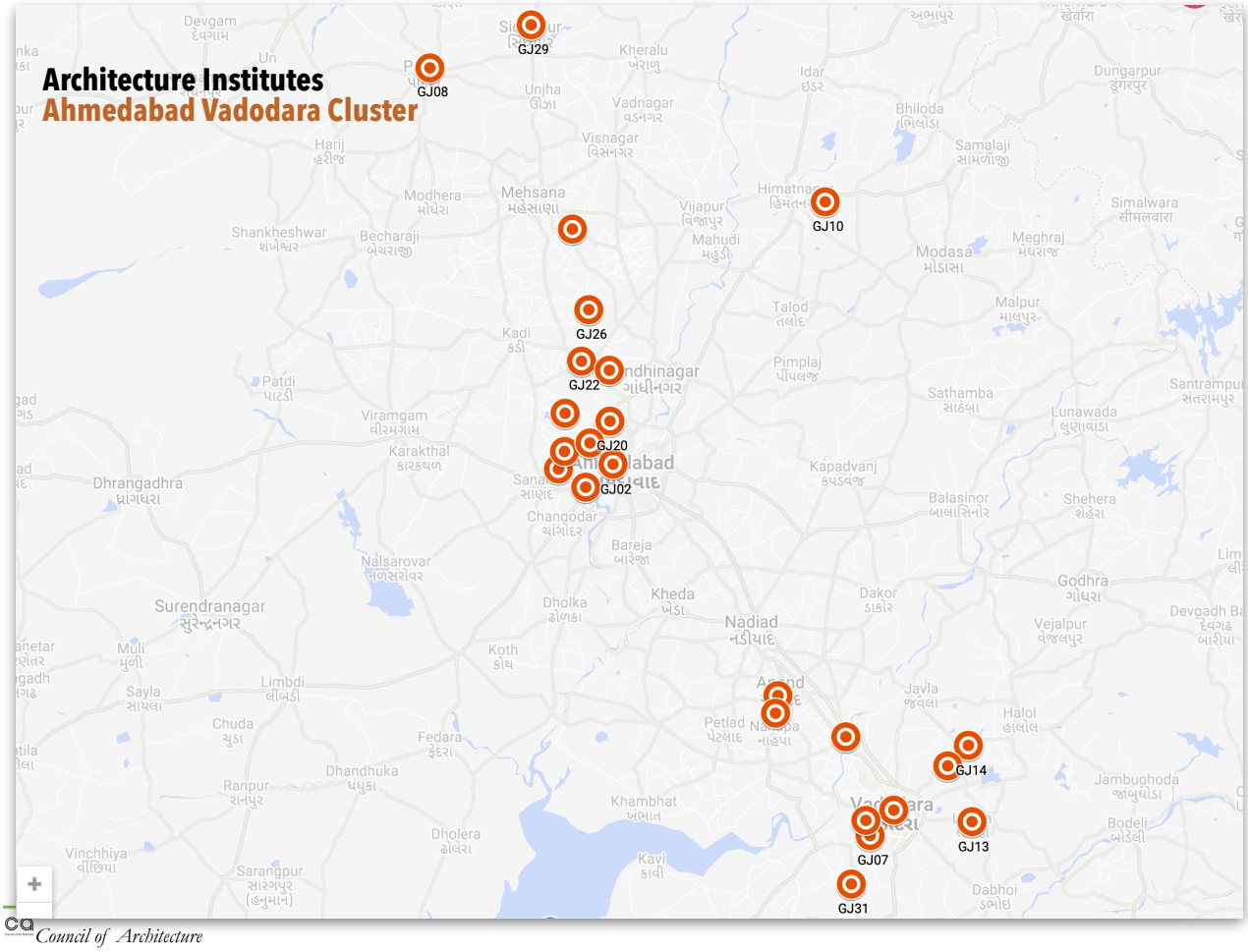
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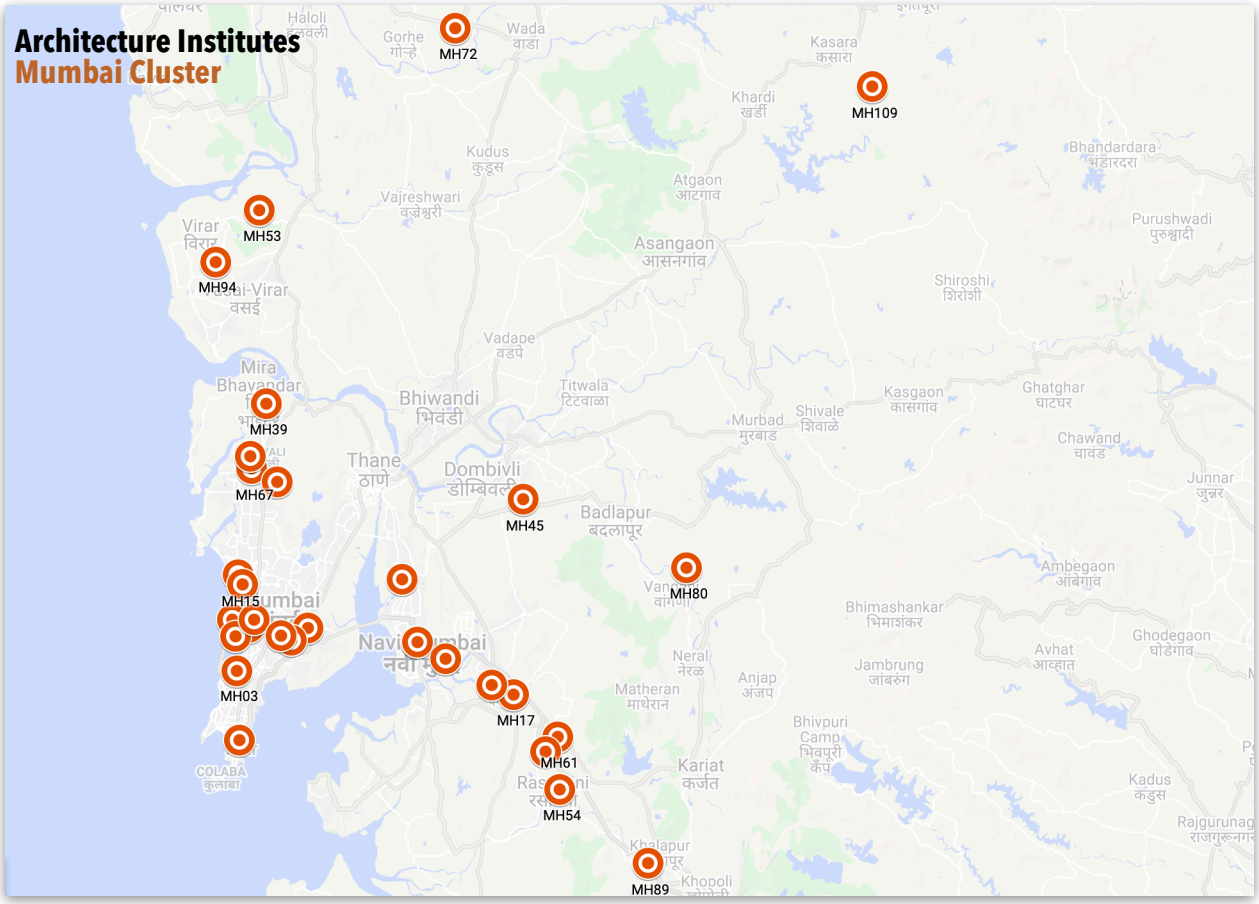
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Badlapur
Ambegaon
Bhimashankar
Navi Mumbai
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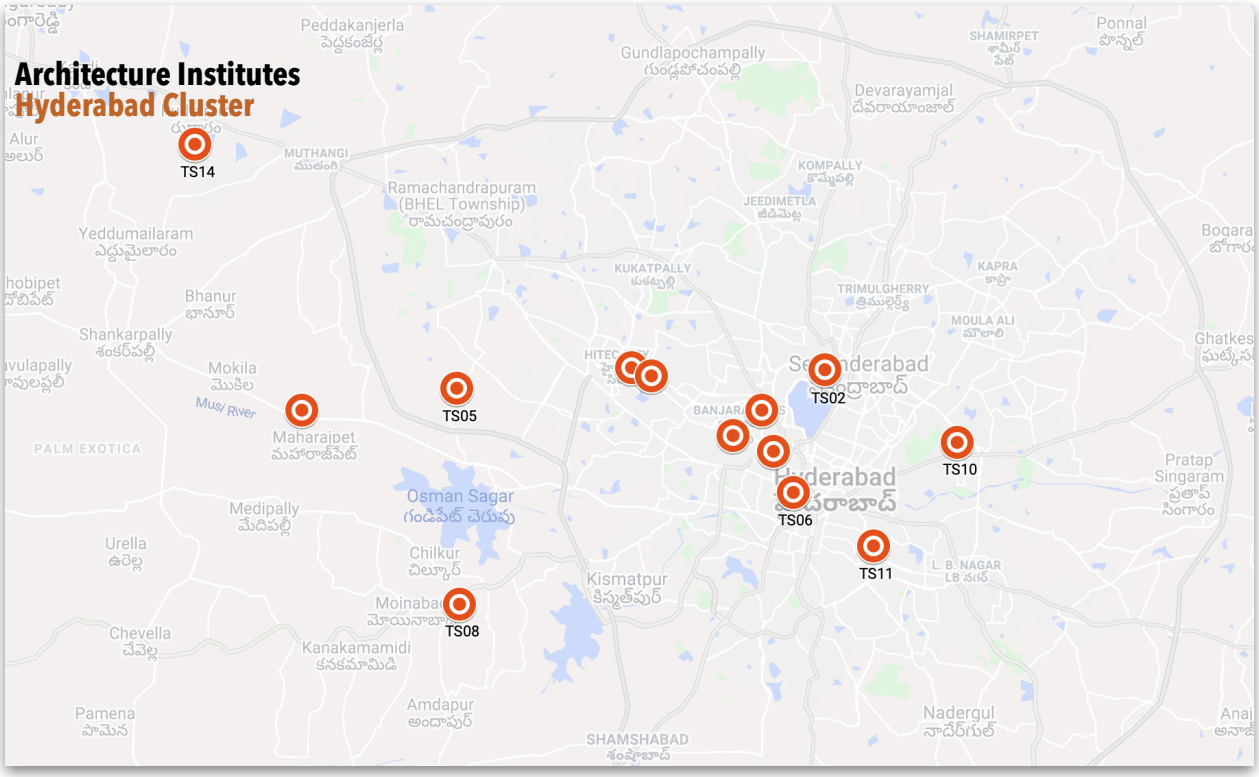
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(BHEL Township)
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TRIMULGHERRY
Bhanur
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BANJARA
PALM EXOTICA
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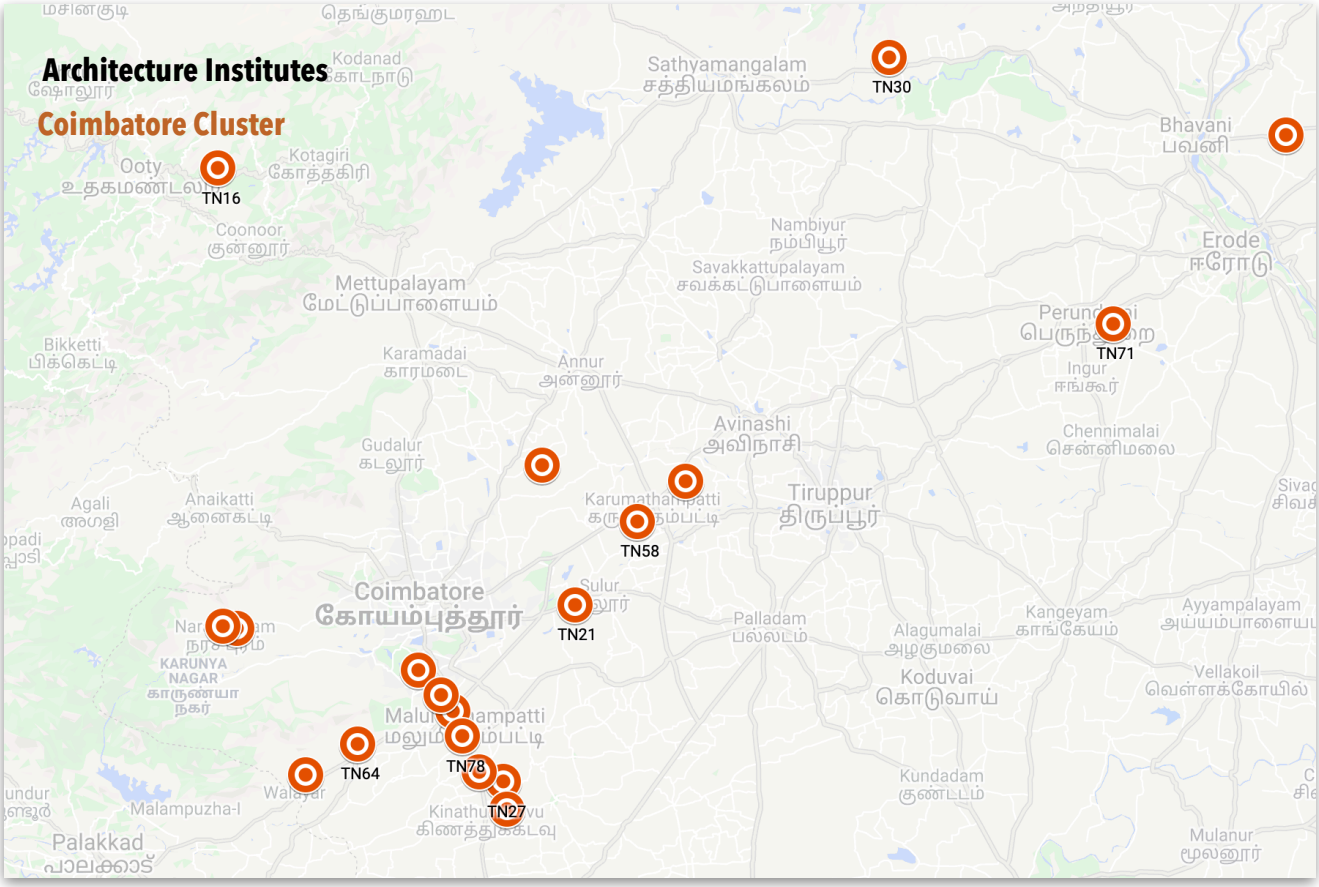
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Tiruppur
திருப்பூர்
Erode
ஈரோடு
Avinashi
அவிநாசி
Mettupalayam
மேட்டுப்பாளையம்
Sathyamangalam
சத்தியமங்கலம்
Ooty
உதகமண்டலம்
Coonoor
குன்னூர்
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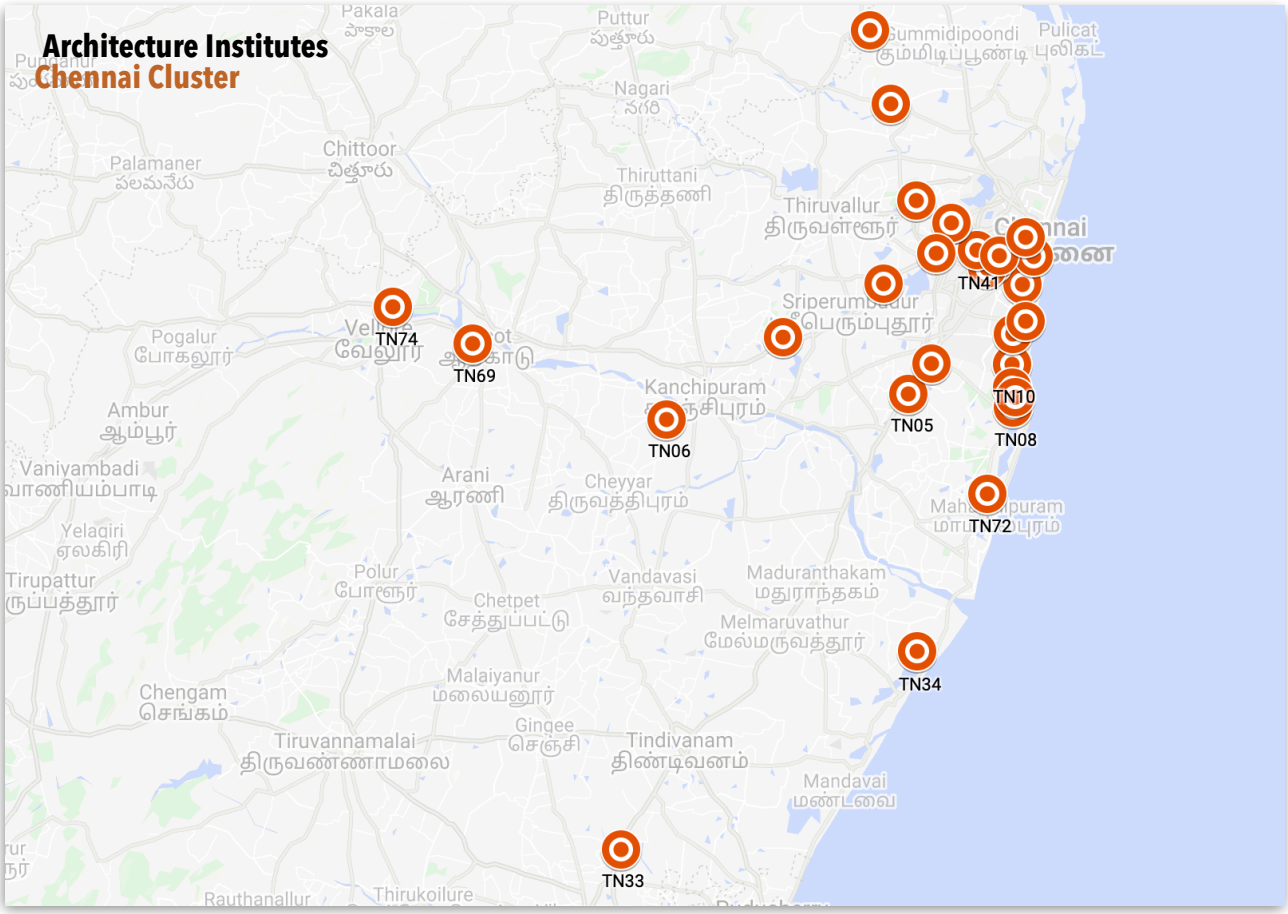
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Arani
ஆரணி
Tiruvannamalai
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Tindivanam
திண்டிவனம்
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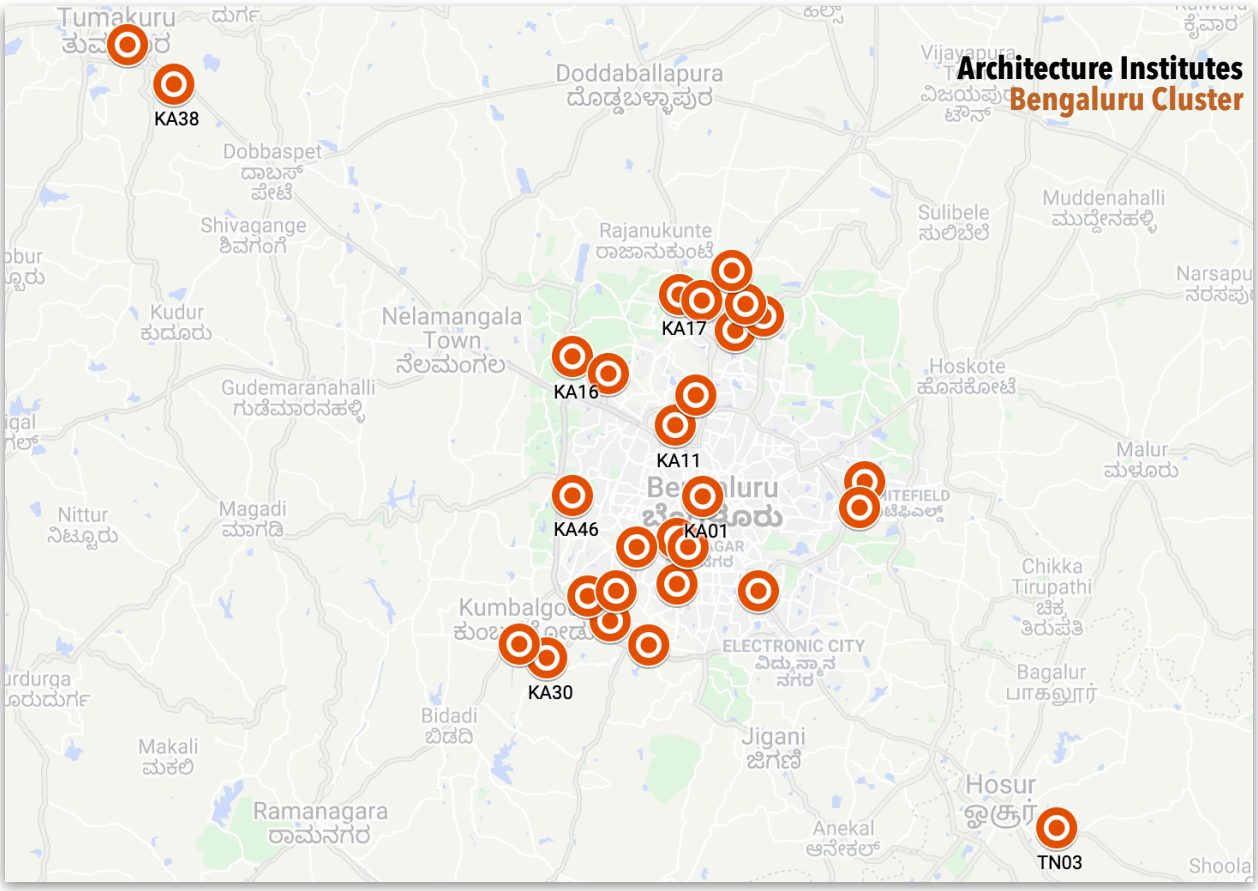
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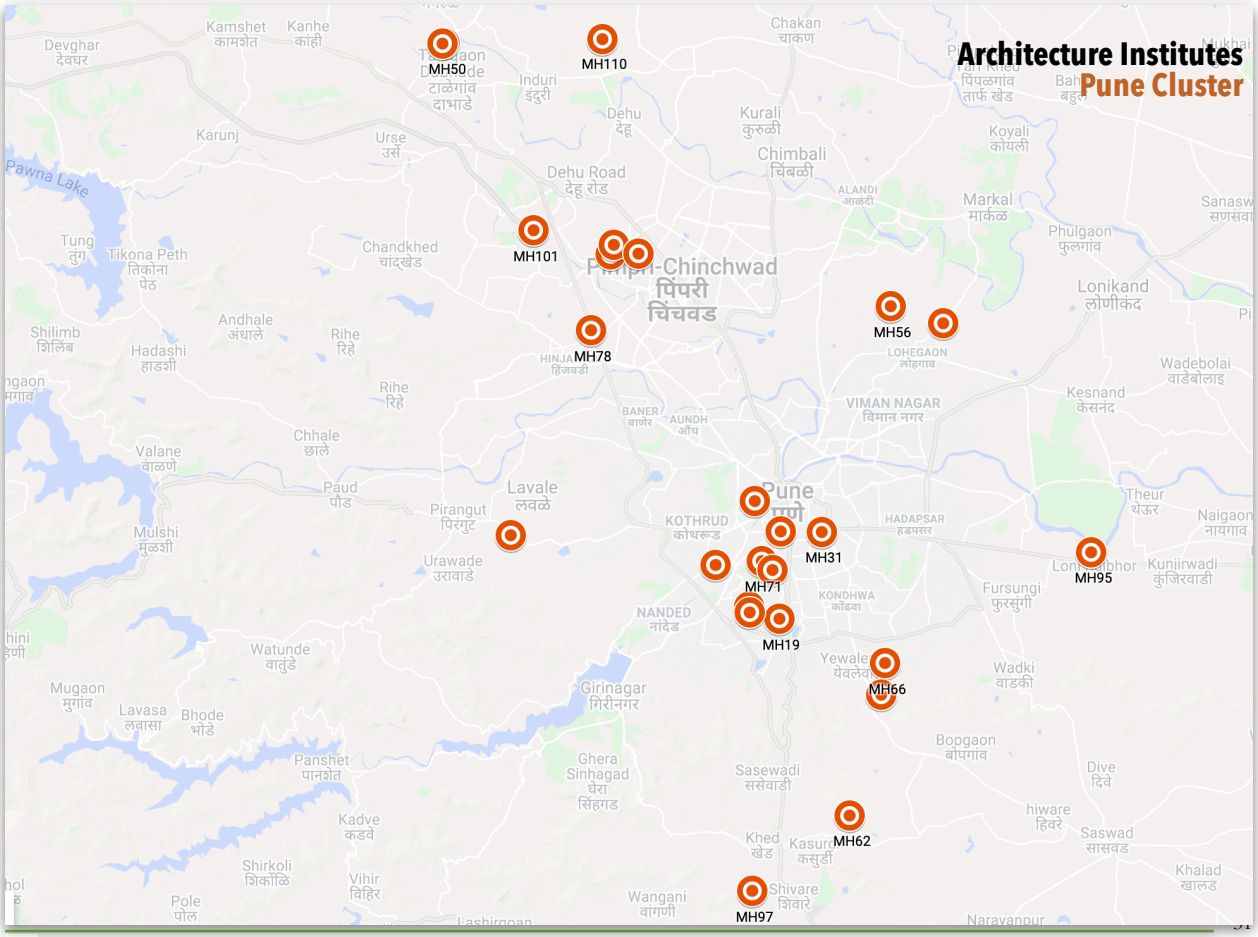
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Sasewadi
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Saswad
Shirkoli
Vihir
Wangani
Shivare
Khalad
Pole

8.0 Summary & Future Policy

At the time of enacting the Architects' Act 1972 there were only 16 institutes imparting education in the field of architecture in India. From such humble beginning the number has now grown to around 465 and the number of seats available have grown from 700 to around 25000.

Somehow, this growth was not planned and the new institutions were recognised on first come first serve basis. This has led to imbalanced growth with clustering of large number of institutions in and around metropolitan cities and almost no institutions in certain parts of India. As a result, supply in certain regions has outstripped demand and seats were found going vacant in some institutions further leading to closure of institutions.

To address the situation, Council of Architecture has prepared 'Perspective plan for Architecture Education in India'. This policy for development is based on this perspective plan. The objective was to understand the demand for architects in the country, and thus the focus was on architectural colleges, in which architects are trained.

The criteria for assessing demand were:

i) Distribution of population in various States and Union Territories
ii) Demand for admission into architectural institutions
iii) Availability of qualified teaching faculty
iv) Current state of overall economy

Demand assessment took into consideration the number of candidates appearing for the National Aptitude Test in Architecture, total availability of seats, enrolments and vacancies and estimate of required faculty members was also included.

The data regarding growth in economy was studied to identify the status of the country compared to other nations, and to identify inequalities within the States. Ratio of architects to population in various countries were considered, from the available data. Factors affecting future demand such as growth of construction sector, awareness of the role of architects, etc. were also identified.

Based on the above, recommendations were prepared, assuming a pragmatic ratio of 1:9000 as the target for the next few years. A simple population projection was done for the year 2030, based on Census and

Government estimates for population growth. The policy was formulated based on recommendation of this report, as stated below.

8.1 Policy

For the purpose of processing the applications for new institutions as well as for additional seats in existing institutions the following parameters will be considered.

1. Based on number of existing institutions and their intake the states/ regions are divided into four categories as –

a. **Category I – New Colleges to be encouraged** – States: Arunachal Pradesh, Assam, Bihar, Jharkhand, Jammu, Kashmir, Ladakh, Manipur, Mizoram, Nagaland, Odisha, Sikkim, Tripura, West Bengal.

b. **Category II – New Colleges may permitted only if** the promoters are well established educational trust and come out with clear vision, mission and understanding as to how it will contribute to growth and development of architecture in the region, besides satisfying other parameters. States: Andhra Pradesh, Meghalaya, certain districts of Rajasthan, Uttar Pradesh (East, West & central), Maharashtra, Karnataka, Telangana, and Tamilnadu as mentioned in Table 8.2

c. **Category III – Very low priority.** States: Chattisgarh, Goa, Gujrat (Saurashtra and Kutch), Haryana (NCR region), Himachal Pradesh, Karnataka (other than Bangalore, Mysore regions and districts of Table 8.2), Madhya Pradesh, Maharashtra (other than Pune, Mumbai, Nagpur, Kolhapur regions and districts of Table 8.2), Puducherry, Punjab, Telangana(other than districts of Table 8.2) Uttarakhand.

d. **Category IV – No new colleges to be granted as of now.** States: Andaman and Nicobar, Chandigarh, Dadra and Nagar Haveli, Daman and Diu, Delhi, Gujrat (Other than Saurashtra and Kutch), Haryana (NCR), Karnataka (Bangalore, Mysore regions), Kerala, Lakshadweep, Maharashtra (Mumbai, Pune, Nagpur, Nashik and Kolhapur regions), all remaining districts of Rajasthan, Tamilnadu, Uttar Pradesh not mentioned in Table 8.2

2. Number of Practicing Architects in the region. – Minimum 200 architects must be in active practice within one hour travelling distance of proposed institution for each 40 seats intake.

3. Locations should preferably be in urban area of urban fringe area having population more than 5,00,000.

4. At least 1000 seats available in +2 level institutions within the district offering science stream.

5. Relaxation in location (Category) may be considered if promoted by trust/ society formed and run by architects OR having minimum 25 years existence with good financial standing, experience in running professional higher education institutions and good academic reputation.

6. Priority will be given for state/ central non-private universities to establish constituent college of architecture and colleges/institutions to be started by Union/ State government, irrespective of location (Category).

7. Any new institution will be granted initial intake of 40. Only after the first batch completes three years, application for additional intake will be considered, irrespective of it's location (category) provided such institution satisfies other criteria and also following –

a. average admissions in last three academic years is more than 80% of sanctioned intake.

b. 80% of required full time teachers' positions must be filled with majority of teachers in employment with that institution for more than 2 years and Principal in place for more than three years.

c. At least 60% students have passed in all subjects.

8. Maximum intake at first year B. Arch. shall at any point not exceed 120.

8.2 Table of Districts

The following districts in states of UP, Rajasthan, Maharashtra, Karnataka, Telangana and Tamil Nadu shall fall into category II:

Districts of Eastern Uttar Pradesh (Category II)

Ambedkar Nagar	Allahabad	Mirzapur	Varanasi
Azamgarh	Baharaich	Pratapgarh	
Ballia	Gorakhpur	Ravidasnagar	
Basti	Gonda	St. Kabir nagar	
Chandauli	Jaunpur	Siddharthnagar	
Deoria	Kushinagar	Sravasti	
Faizabad	Kaushambi	Sonbhadra	
Gazipur	Mau	Sultanpur	

Districts of Western and Central Uttar Pradesh (Category II)

Saaharanpur	Mainpuri	Pilibhit	Mahoba
Muzaffarnagar	Etawah	Lakhimpur Kheri	Lalitpur
Bagpat	Firozabad	Hardoi	Amethi
Bijnor	Jhansi	Sitapur	Chitrakoot
Jyotiba Phule nagar	Kasganj	Auraiya	Fatehpur
Badaun	Farookhabad	Banda	
Etah	Shajahanpur	Jalaun	

Districts of Rajasthan (Category II)

Bundi	Udaipur	Barmer	Karauli
Kota	Pratapgad	Jaisalmer	
Baran	Banswara	Bikaner	
Jhalavar	Dungarpur	Ganganagar	
Bhilwara	Sirohi	Hanumangarh	
Chittorgarh	Pali	Churu	
Rajsamand	Jalore	Jhunjhunun	

Maharashtra Districts (Category II)

Ratnagiri	Sindhudurg	Dhule	Beed
Gadchiroli	Parbhani	Usmanabad	

Karnataka Districts (Category II)

Uttar Kannada	Shivamogga	Koppal	Davangere	Ballari
Chitradurga	Raichur			

Telangana Districts (Category II)

Adilabad	Nirmal	Kumuram Bheem	Mancherial
Jagatial	Nizamabad	Peddapalle	Medak
Kamareddy	Jayashankar Bhupalpally	Mulugu	Narayanpet

Tamil Nadu Districts (Category II)

Thirunelveli	Thoothukodi	Ramanathapuram	Kuddalore

9.0 References

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