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EDUCATIONAL ECOSYSTEM OF ARCHITECTURE IN INDIA : A REVIEW

PART 1

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ABSTRACT

Formally trained architects in India participate in building habitation for less than 10 per cent of the population. Most architecture created through the involvement of architects produces segregation and discrimination towards certain classes, castes and genders. This study is concerned with the role of formal architectural education in addressing the habitation question and issues of spatial justice. Towards this, a review of the educational ecosystem for architecture has been undertaken. This ecosystem includes institutions, universities, regulatory bodies, journals, events, awards and offices. The study also briefly looks at cases of habitation making for the remaining 90 per cent who do not get served by trained architects.

Currently, architectural institutions are intensely regulated and resource starved, with no capacity to interrogate architectural methods or to produce new knowledge. They train architects in orthographic projections; basic construction, quantification, estimation and specification; planning of spaces based on functional logistics; and stylistic thinking in history. There is no theoretical basis for understanding space, its production, its experience and its role in shaping behaviour. Environmental and affordability issues are approached with a technological orientation, with cultural dimensions seldom being considered. Good humanities and social science courses are absent from the syllabi of most institutions. The pedagogy has no orientation in addressing the population at large. The process of building taught in institutions is linear, starting from a client, a clear site, a design brief, its conceptual interpretation by the architect, detailed drawings, approvals, working drawings for contractors, site supervision and handing over the site. On the other hand, habitation making processes in slums, villages, urban villages, urban peripheries, inner-city areas and second cities (the 90 per cent population) do not follow a linear process. They are made incrementally through expansions, improvements, upgrades, repairs and retrofitting, and are mobilised slowly over time as and when the need arises and resources permit. Architects are not trained in this process. However, the habitation dominant amongst the masses is usually of low quality in terms of spatial planning and perpetuates discrimination and segregation.

The educational ecosystem for architecture has historically evolved to produce an institutionalisation that is made to feed the formal building industry dominated by the elite and by real estate developers. Here, spatial culture creates exclusive and privatised spaces that perpetuate differences: using expensive material and mechanical devices to create comfort and resolve environmental issues; producing an identity for the owners; and maximising floor space. From our review, it is apparent that this ecosystem is structurally, institutionally and pedagogically insufficient to produce a relevant spatial culture, spatial justice or cultural sustainability. While it is structurally located within a political economy where education is a money-making enterprise, it is institutionally geared to reduce academia to educational organisations and pedagogically oriented to prepare students for a building industry of a certain kind.

While 90 per cent of the population does not get served by trained architects, there has also been a 500 per cent rise in the number of graduates in the past 10 years. This can be an opportunity for addressing the habitation and spatial justice questions, but will need a multi-pronged approach to reorient the ecosystem

in which: institutions become academic spaces promoting research and experimentation where students grow with the interrogations of the institution; pedagogy becomes multidisciplinary, collaborative and reinforced with orientations in humanities and theory; regulatory bodies create enabling environments providing resource and support to institutions; validating organisations become watchdogs, archives and ethical barometers; and architectural offices equip students with skills required for practice. The study found that despite the odds, architectural institutions have been innovating and striving to create relevance. Their efforts will remain key for the overhaul of the ecosystem and they will have to steer the process of change.

CHAPTER 1: CRISES AND CONCERNS

The Contexts

As we were closing this report,[1] state university affiliated architectural institutions across India seemed to be facing one of their biggest crises: a sharp decrease in students applying for architecture. The architectural education community was very quick at blaming the government for the long bureaucratic admission processes. This must be true because many private universities offering architecture and other professional courses offered admissions much faster. Anxious families chose to take whatever came their way first as there was always an uncertainty with state admission processes. However, this decline in demand for architectural education was sensed by the Council of Architecture (COA), the apex body for architectural education, much in advance. As a response, the council conducted additional exams and lowered the eligibility grade for admissions. In our own institution, we asked several prospective students and their parents if they were considering other programmes as well. Most of them responded in positive, saying that the architecture course was long and expensive and once students graduate, they are made to work in exploitative conditions with very little pay. *"Other courses have better scope"*, they said. The purpose of education seemed to be about making graduates capable of earning good money for their living and architectural education appeared to be not doing well enough in that.

A couple of years ago, on 17 March 2020, the Supreme Court of India ruled that unlike doctors and lawyers who need to get registered under relevant laws to practise, one is not required to have a professional degree and to be registered under the Architects Act to undertake the "practice of architecture and its cognate activities" (Chandrachud, 2020). In the same judgement, the court has articulated the activities under the practice of architecture as:

> (i) Taking instructions from clients and preparing designs; (ii) Site evaluation and analysis; (iii) Site design and development; (iv) Structural design; (v) Design of sanitary, plumbing, sewage, drainage, and water supply structures; (vi) Design and structural integration of electrical and communications systems; (vii) Incorporation of heating, air-conditioning, ventilation and other mechanical systems including fire detection and prevention systems; and (viii) Periodic inspection and evaluation of construction work.

The court further stated that

> these activities are undertaken by architects but are also carried out by architects in concert with a range of other actors including draughtspersons, builders, engineers and designers. If the legislature were to impose an absolute prohibition against unregistered individuals from practising architecture there would be considerable confusion as to what activities formed the practice of architecture and what did not.

[1] This study would not have been possible without the institutional location, support and solidarities at the School of Environment and Architecture (SEA). We would like to thank all our colleagues at SEA, including the trustees, co-teachers and staff. We would also like to thank Poonam Batra, Prof. of Education, Co-Investigator, TESF; Aromar Revi, Director, IIHS; and Amir Bazaz, Sr. Lead, Practice, IIHS, Bengaluru; for their patient intellectual companionship through this project.

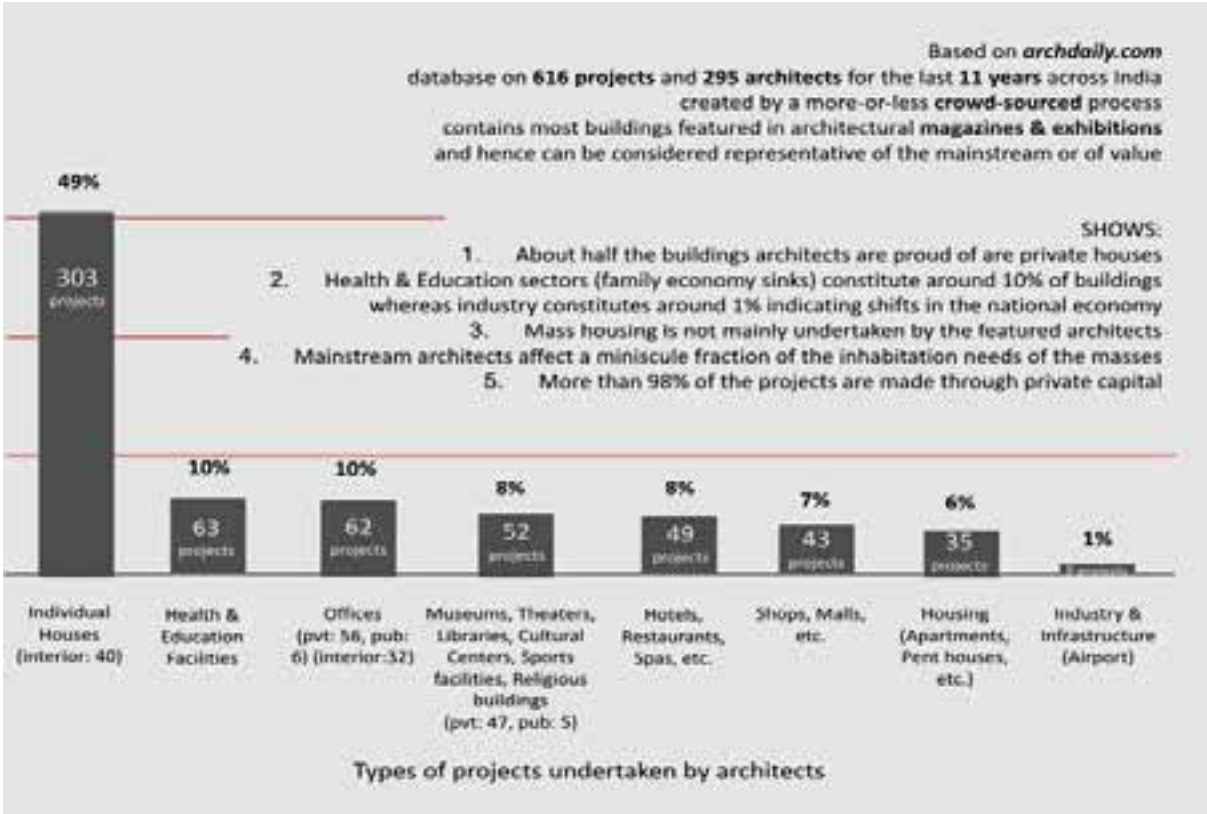
Figure 1.1: Percentage of population who get architectural services from trained architects

Source: The authors

While architects were being dislodged from having a pivotal position in the construction industry, there were two aspects to this judgement: first, that the practice of architecture was assumed to be about aiding the construction of buildings; and second, that there appeared to be a confusion about what architects actually did, as engineers, draftspersons, masons, carpenters, plumbers and so on were actually involved in the building making process. Perhaps this confusion was also one of the causes for lesser interest in the discipline of architecture amongst young people. Often, architects themselves do not know their exact scope of work. They stand in for engineers, carpenters, masons, environmentalists, biologists and even social scientists. As the building industry tightened its grip on the architectural discipline, architecture seems to have become more and more about the production of buildings and its logistics. The key expertise of an architect—the understanding and production of space—seems to have taken a backseat. Architectural education seems to have followed this trajectory and lost focus, thereby leading to them thinking that architectural expertise is replaceable with engineering or such other competence.

One of the key premises for this study is that formally trained architects in India participate in building habitation for a minuscule proportion of the population. Though there is no systematic study of this claim, architecture journals and magazines showcasing architecture in India provide a useful reference. While these journals typically include institutional projects and second houses for the elite, mass housing generally remains out of their coverage. Even when it does, this features as advertisements for large

Figure 1.2: Types of projects undertaken by architects



Source: The authors

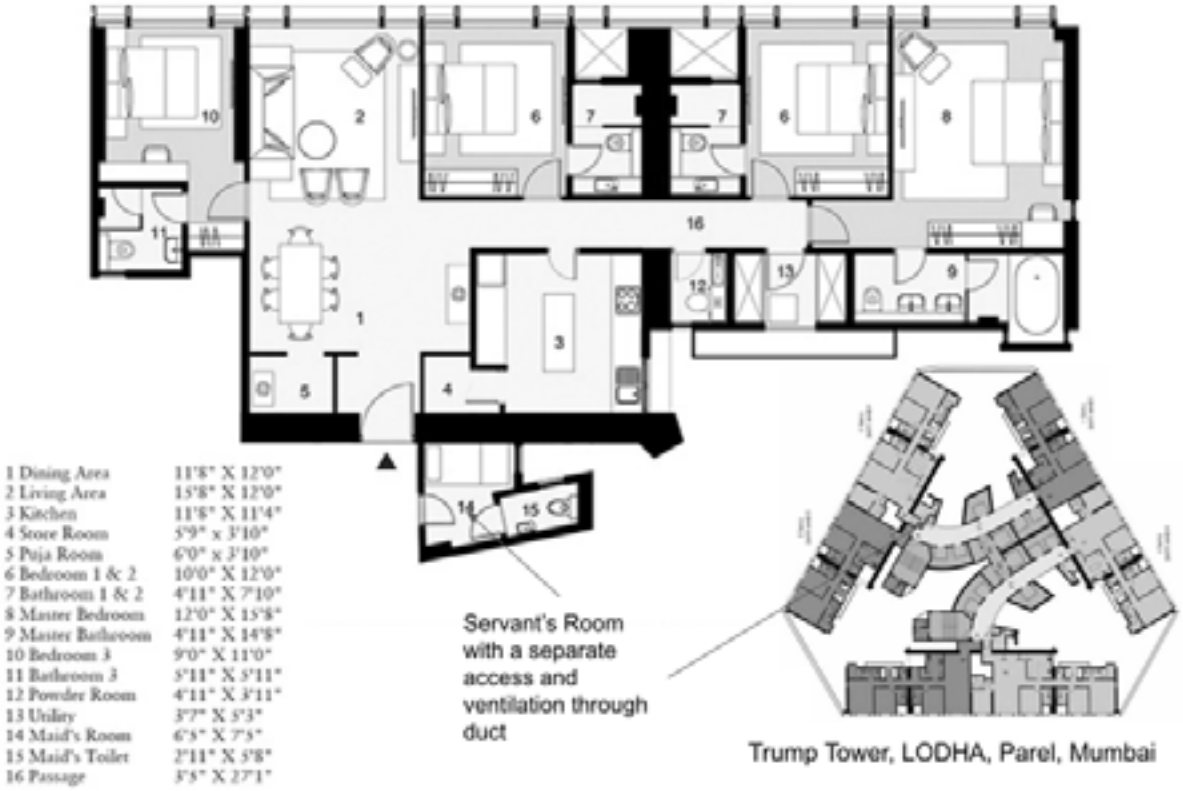
luxury apartments, usually in urban areas. It is as if the entire rural population, which is about 70 per cent of the total population, does not avail the services of formally trained architects. Out of the 30 per cent of the population living in urban areas, 35 per cent live in slums, which also do not get services from architects. A large proportion of the population in urban areas lives in self-built houses built through small contractors and others in urban villages, informally subdivided lands, site and service layouts, resettlement areas and so forth. A significant number also live in densely populated inner-city areas. In Mumbai itself, both of these account for about 30 per cent of the urban population. These are also not served by architects. Hence, it appears that architects provide their services to only 5–10 per cent of the entire population. Even when architects are involved in the delivering of mass housing for socially and economically weaker sections, the quality of design does not become central to the project. Instead, the imperatives of building and land finances are what shape these projects.

Why is it necessary for formally educated architects to get involved in the production of habitation for a larger population? There are five issues here. First, one could say that the large number of people who are not served by architects depend on small contractors, carpenters, masons and so on to provide habitation. Without systematic and rigorous academic interrogation, the habitation produced by them may also replicate the discrimination and segregation consolidated through centuries of class, caste and gender differences. Second, the architectural education and profession is controlled by a central government act, the core tenet of which is service to the people of the country and not only to a select few who can afford their services. Third, irrespective of their intentions, architects affect the lives of

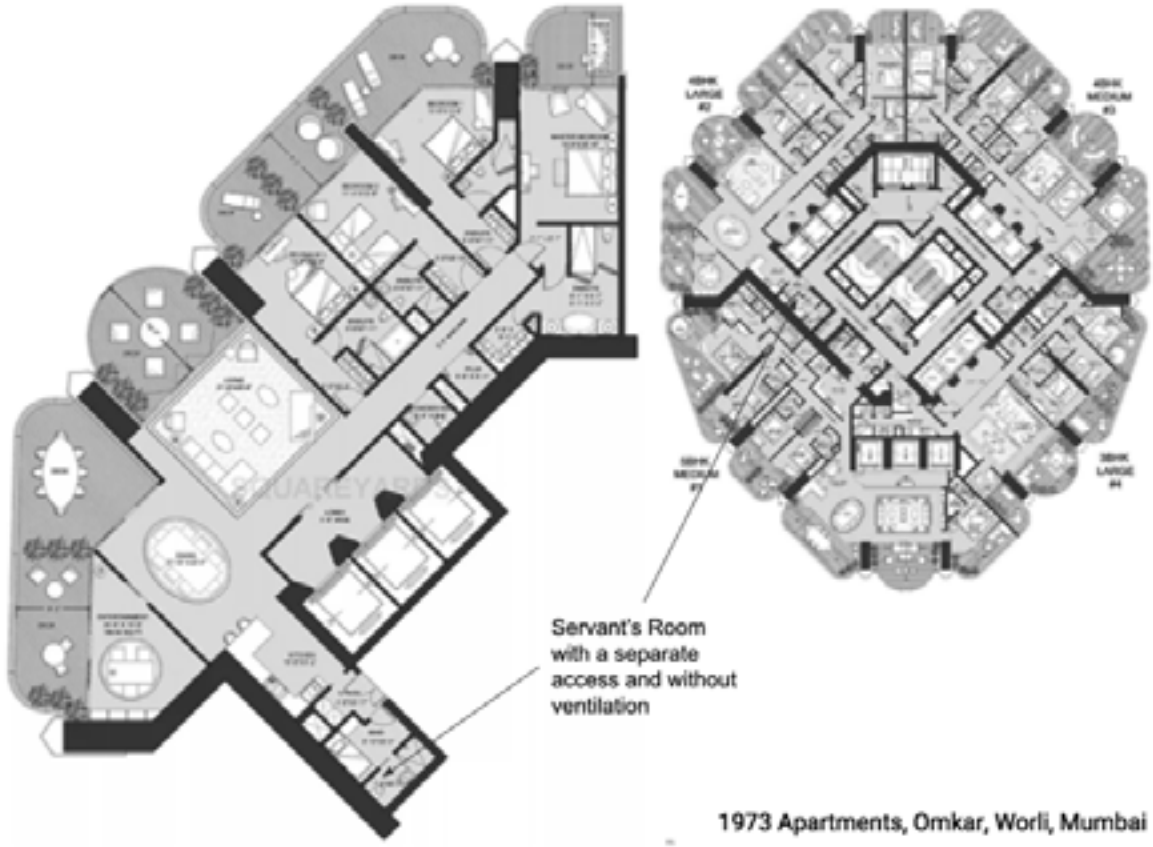
people and other species beyond the ones who pay them; hence, inevitably the problems of society and the environment become their problems. Fourth, it is in the interest of the discipline, profession and institutions that formally educated architects become useful to the population of the country if they want to be relevant and sustain themselves. Fifth, the expertise and agency of formally trained architects is extremely important to achieve sustainable futures as the current production of habitation is either trapped within highly unsustainable delivery by resource intensive developers or through substandard delivery by way of informal processes that often build at the cost of environmental sustainability as priorities lie in sustaining one's home and livelihood.

Most projects undertaken by architects today are single family houses or second houses.[2] When mass housing is undertaken by a few architects (mainly in large cities), they are of two kinds: middle-class and upper-middle-class housing, and housing for the poor through various schemes and provisions made by the government. Middle-class and upper-middle-class housing usually perpetuate extremely privatised and provisioned living conditions, along with maintaining extremely feudal spatial segregation and discrimination. For example, while there are multiple spacious, well-ventilated bedrooms for upper-class family members in the most lavishly designed apartments, these houses also have tiny, unventilated, dingy rooms for servants and their families, usually with separate accesses and toilets.

Figure 1.3: New luxury houses in Mumbai with tiny "servants' rooms" without ventilation



[2] archdaily.com has a good database of projects from the last decade across India created by a crowdsourced process and contains most buildings featured in architecture magazines and exhibitions and hence can be considered representative of the mainstream or of value. The database shows that about half the buildings architects produce are private houses; health and education sectors constitute around 10 per cent of buildings; and industry constitutes around 1 per cent. Mass housing is largely not undertaken by architects. Mainstream architects affect a minuscule fraction of the inhabitation needs of the masses and more than 98 per cent of the projects are made through private capital. The database was accessed on 13 April 2022.



Source: Adapted by the authors from world-architects.com (above) and Omkar 1973 Worli Mumbai Blog (below)

On the other hand, resettlement and rehabilitation of slum dwellers usually shift them to the outskirts of cities. In cases of in situ slum rehabilitation as well, the housing schemes designed are extremely uninhabitable because of very high densities packed into very small neighbourhoods with tiny houses, absence of open spaces, lack of light and ventilation with poor construction and infrastructure, where such lapses are built into the legislation. In a slum, on the other hand, though the houses are small, there is often access to space outside where life is lived. The form of a slum enables intense sharing of resources and sustains a community. Moreover, the slum location provides for social and economic networks. In slum rehabilitation sites and resettlement colonies, small apartments in 5–14-storeyed blocks are packed together along a common corridor. Here, buildings are packed close to each other as relaxed by-laws allow the reduction of distance between buildings meant to ensure adequate light and ventilation and to maximise profits. This is a spatiality (the location and the form of rehabilitation sites and in situ developments) which produces spatial injustice in the form of segregation and discrimination. Studies of slum rehabilitation sites have established that they produce significant "loss of socio-physical liveability" (Sarkar & Bardhan, 2020). Such spatialities are characteristic of megacities, where complex interweaving of urbanisation patterns, concentrated wealth in cities, and inegalitarian city design and planning create dynamic inequalities for the marginalised.

From the above discussion, one can identify four prominent crises and concerns. First, architectural education has been hijacked by the building construction industry and has thereby shifted the agenda of pedagogy from the production of space to the production of buildings and training students in building making logistics. Since this is also the focus of many other disciplines, architects can be made

Figure 1.4: Slum redevelopment in Mumbai (blocks of 14 storeys with 3 m distance between them)

Source: The authors

dispensable in the building making process. Second, since the building making process involves many actors, architects are increasingly being trained in building making logistics and the production of space does not seem to be important. The scope and abilities of the architect is unclear to those who find the role of the architect redundant. This has reduced the demand for architectural education and further threatened the existence of many institutions. Third, most of the country's population does not avail services from trained architects. As this makes architects further dispensable, architecture is not considered an essential service that threatens lives and property. Therefore, policymakers do not find it attractive, important or interesting to engage with the discipline of architecture. Fourth, architects seem to be producing spaces that are highly discriminatory and which bring about segregations.

The Study and its Aims

This study was undertaken with the intent to strengthen architectural education such that it is able to address the habitation questions in the country. This would involve building unique capacities in architects in the area of production of space and liberating architecture from the clutches of the mainstream building industry so as to engage with the larger population and bring about dignity in their habitation conditions. This would automatically bring in relevance and demand to the discipline as it will then be involved with the masses. Within the framework of the Sustainable Development Goals (SDG), this study aims at responding to SDG 11 on sustainable cities and communities.

We work with the hypothesis that the educational ecosystem is not geared towards providing architectural services for a large proportion of the population, and if architectural education is reconfigured, then such an access would be possible. This hypothesis provides the core objective of the proposed research: to assess the educational ecosystem of architecture towards identifying issues that become impediments to mass access to architectural services.

The Educational Ecosystem for Architecture in India

This study is concerned with the undergraduate education of architecture in the country as it is the defining qualification to be called an architect in India as per the Architects Act, 1972. The ecosystem for this education in architecture consists of the following actors:

1. Four hundred and six architecture colleges across the country with their managements, teachers and students, which are directly connected to architectural education. (At the beginning of this study in February 2022, there were 480 colleges listed by the COA. In the next academic year, the council listed 406 colleges. The list with 480 schools has been considered in this study.)
2. Two hundred state and private universities and their boards of studies, which set syllabi, control evaluations, monitor methods and so on.
3. Regulating bodies that include: the COA in India, which is the apex body that sets agendas, provides direction for contents and methods, sets entry criteria, and regulates infrastructure and teaching capacities in colleges; and state agencies like state technical boards, fee regulating authorities and admission regulating authorities that control and regulate admissions, fees and other factors.
4. Validating organisations that include magazines, journals and awards.
5. Architectural offices as they not only get involved in training (which accounts for one-tenth of the education), but also are instrumental in shaping what is taught.

Theoretical Orientations

In his essay titled "The Architecture of the Urban Object", Bill Hillier (1989) writes,

> Human societies order their spatial milieu in order to construct a spatial culture, that is, a distinctive way of ordering space so as to produce and reproduce not actual social relationships (the essential error of modernist architectural determinism) but the principles of ordering social relationships. (p. 6)

Hillier identifies two things in this essay that are important to us: first, the role of spatiality (configuration of space through form) in shaping life (human relationships, practices, experiences, behaviour and meaning); and second, the idea of spatial culture as having a dialectic relationship with life, with both producing the other. In a conference note, Andri Gerber (2012) defines spatial culture as

> a spatial expression of a society and its culture. This can be set at the level of architectural culture, but also on a more abstract, intangible and spatial level. Spatial culture can be both the result of random and uncontrollable processes, as well as the expression of a more or less conscious design will.

Deriving from Hillier and Gerber, and for our purposes, spatial culture refers to all aspects included in the imagining, production, form and consequences of spatiality. "Spatality" here is a specific configuration of space. This configuration has a relationship with human experience and behaviour and produces a specific life and vice-versa. Spatiality, therefore, is a specific expression of a specific society. For example, a segregated idea of community produces a temple that has segregated spaces for different castes. Such a temple further reinforces segregation in society. Every (geographic and

temporal) society has its own spatial culture. Spatial culture not only has to do with the specific forms, types, or patterns of spatiality, but also with contexts, modes, methods and mechanics of imagining/ producing such spatiality along with the experiences and relationships the spatiality creates.

To understand the relationship between spatial culture and architectural education, a brief survey of formal architectural education is necessary. We can identify five phases in formal architectural education in India. The first phase was when the British set up an apprenticeship course in architecture within the Sir JJ School of Art in the late 1890s, where students were trained in orthographic methods of drawing, along with some knowledge of standard construction for the purposes of drawing and supervision. The second phase was in the 1920s and 1930s, when the identity question gained prominence and was worked out through the histories and discourses around architectural styles. This was due to the efforts of British architects, including those heading the Department of Architecture at the Sir JJ School of Art, who argued for buildings in the "Indian style" to be built in India. Here, historical buildings were classified into different styles and architects were to choose from a palette of styles to design their own. They could also follow styles that emerged in the West during different periods or even marry two or more styles to produce buildings. In the third phase after Independence, Nehru's modernity agenda shaped architectural education and students were trained in the "modern style" of designing buildings. American and European architects also designed several buildings in India, which had a tremendous impact on architectural thinking and pedagogy. Moreover, several Indians, who studied architecture in Europe and America returned to India with a modernist orientation in architecture.

After Independence, the School of Planning and Architecture (SPA) was established in Delhi. It was oriented towards planning and design of public buildings for modern institutions. Along with this, architecture departments within Regional Engineering Colleges and Indian Institutes of Technology (IITs) were also established. In these institutes, the orientation was largely around technological aspects of building making. The establishment of the Centre for Environment Planning and Technology (now known as CEPT University) inaugurated the fourth phase, where an interest around regional issues resolved within a modernistic framework became central in architectural thinking. Ideas around local ways of habitat making, local material, local construction and logics of spaces and form amongst native communities, albeit with modern ideas of reconfiguring spaces and embracing new technologies, began shaping the imagination and design of architects. They were particularly motivated by the ideas of critical regionalism espoused by Liane Lefaivre and Alexander Tzonis, and later popularised by Kenneth Frampton (Frampton, 1983; Lefaivre & Tzonis 2003). The fifth phase, which is the current phase, seems to be largely shaped by logistics of professional efficiency for large projects, environmental and affordability issues resolved through technological solutions, and technological advancements in internet-based work cultures, information system management, and computational logistics.

From the above trajectory, one can derive that the spatial culture promoted by formally trained architects in India has been largely shaped by orthographic methods, standard construction, technological dimensions of making buildings, identity questions resolved through stylistic discourses in architecture or discourses around regionalisms of different kind and logistical compulsions of

efficiency along with specific discourses on environment, affordability and technology. There is largely an absence of concern regarding questions of mass inhabitations and of caste, class and gender-based difference in architectural education, policy and practice. This is evident in the current spatial cultures perpetuated by formally trained architects in the design of spaces of inhabitation.

The concept of spatial justice has been coined and popularised by Edward Soja. According to Soja (2009), "spatial justice refers to an intentional and focused emphasis on the spatial or geographical aspects of justice.... This involves the fair and equitable distribution in space of socially valued resources and the opportunities to use them".

However, as discussed earlier, formally trained architects seem to have impacted only a small portion of habitation production in the country and therefore have a marginal impact in the production of spatial culture. Spatial cultures that are dominant amongst the masses perpetuate discrimination and segregation consolidated through centuries of class, caste and gender differences. Here, again, issues of spatial justice are a big question. Moreover, these habitations are often poor due to low-quality construction, planning and infrastructure that affect the dignity of life.

Spatial justice also folds in the idea of "spatial economy", which refers to the economic possibilities and relationships generated/altered by a certain spatiality. In the example of the slum above, a house in a slum is an extension of the street. This relationship with the street makes productive activities and work possible.

Figure 1.5: Slum house as an extension of the street

Source: The authors

When a family from such a house is moved into an apartment, such work is no longer possible. The slum houses (and other houses which are built by people) are usually critiqued for three reasons: for being unsafe and vulnerable to environmental forces; for being unable to provide security for the household living within it against evictions and other threats; and for having insufficient space for the inhabitants to have a personal life. It is, however, interesting to observe that these three orientations around safety, security and the personal have become an obsession towards permanence, property and privacy. These three ideas appear to be dominating the contemporary architectural impulses. One of the contentions in this paper is that it is these three ideas that have made architecture disconnected with the logics of society and made it culturally unsustainable. Though not defined very accurately, there is a significant amount of literature that uses the term cultural sustainability (Soini & Birkland, 2014). The idea of "culture" for this study is a wider idea that considers the dimensions of economy, social relationships, practices and objects. Cultural sustainability would then refer to concepts of development that are sensitive to cultures. This would also liberate the idea of sustainability, which seems to be currently under a technocratic hijack of environmental scientists. In many ways, cultural sustainability is about the recognition of historic value created by communities, including wealth and logics and opposed to the violence of displacement.

The above three concepts—spatial culture, spatial justice and cultural sustainability— form the basis for our assessment of the educational ecosystem. The specific questions that arise at this point are: What kind of spatial culture is promoted through the current educational ecosystem in architecture? Does the current educational ecosystem ensure spatial justice? Does the current educational ecosystem contribute to cultural sustainability? If it does not, then what are the specific gaps in the ecosystem and how can they be addressed?

The literature on architectural education in India is limited to impressionistic notes without detailed analysis (Chandavarkar, 2018; Mazumdar, 1993; Mehta, 2006; Menon, 1998, 2000). On the other hand, the international literature on architectural education is also limited to conference proceedings (Roaf & Bairstow, 2008), surveys of architectural academia in the Western and Northern contexts (Ockman & Williamson, 2012; Pasha et al., 2020; Spiller et al., 2021) and case studies of design pedagogies (Çağlar et al., 2020; Nicol & Pilling, 2000; Sanderson & Stone, 2021).

Method and Process of Research

The purpose of this study is to identify structural, procedural, institutional and pedagogic problems with the ecosystem that does not allow it to achieve the objectives of mass habitation and spatial justice. As discussed above, currently, this ecosystem consists of the following actors:

- **Universities:** Out of the 200 universities that offer architecture courses, we reviewed the syllabi of 15 universities. The sampling criteria for these 15 universities included: universities with the largest number of affiliated institutions; universities across different geographic locations; and with different managements (i.e., central government, state government or private institutions). These 15 universities provide the framework for more than 200 schools of architecture in the country. This survey is based on material available online. The main aspects of the review were: weightage for different subject clusters (design, technology, humanities, professional practice etc.); orientation and focus of the syllabus; modes and methods of teaching (if anything specified in the syllabus); special and innovative courses, if any; evaluation frameworks, encouragement

towards producing an academic environment through supporting teacher research and practice; and relationship with the institution in terms of support, control and quality aspects.

- **Architectural institutions:** Out of 480 architecture colleges in the country that were present during the period of study, 20 were identified and contacted for a detailed study. Out of these, in-person interviews were conducted in 13 institutions that responded. The sampling criteria included: institutions across different geographic areas; institutions with different kinds of management, that is, privately-run institutions affiliated with business houses, politicians, architect groups or educational trusts as well as those managed by central and state governments; institutions with different kinds of universities (central, state and private); and institutions that the research team had easy access to and are known to be undertaking innovative teaching or have been key in shaping architectural education in the country. The study was conducted through detailed in-person interviews with the heads of these institutions and a few faculty members. The main aspects of the review were: vision, orientation, agenda and focus of the institutions; modes and methods for teaching; special aspects, innovations and experiments, if any; and student–teacher cultures, including relationships between teachers and students and support environments for teachers. At a broader level, we also undertake a cursory review of the fees structure, along with intakes and admissions across various institutions. In most of these institutions, senior students were interviewed to understand the trajectories of students after graduation, remuneration and perceptions about the institution.

- **Regulating bodies:** These included the COA and state regulatory agencies. A key person was interviewed in each of these institutions. The main aspects of the review were: understanding of main activities; roles and relationship with architectural education; ideas, vision and focus regarding education and students; current nature of relationship with architectural institutions; problems and opportunities with respect to architectural education.

- **Validating institutions:** These comprised of events, award agencies, magazines and journals. A key person was interviewed in each of these institutions. The main aspects of the review were understanding of main activities, and roles and relationship with architectural education.

- **Architectural offices:** Every year, students train with architecture firms. We sent online survey forms to more than 100 architecture firms across the country from the database of firms available with the School of Environment and Architecture (SEA), where the students have been interns. Thirty of these offices responded. The survey questions were aimed at assessing the expectations of offices from interns and graduates in terms of capacities (including orientations, knowledge and skills).

- **Discussions with pedagogues:** Around 20 pedagogues from all over the country were invited for a discussion. These also included representatives from the COA as well as from the Indian Institute of Architects. Preliminary finds were shared with these pedagogues and their responses were compiled.

This study shall look closely at each of the above-mentioned actors to understand their role in addressing the habitation question and the issues of spatial justice in the country.

CHAPTER 2: THE REVIEW

Colonial Beginnings and Post-Independence Orientations

In India, modern architectural education was introduced in the form of a draughtsmanship course in 1896 at the Sir JJ School of Art in Mumbai to prepare draughting assistants for the offices of British architects and engineers who were involved in building various kinds of government, institutional and residential buildings in the country. This course was held in the early hours of the morning and the students worked as apprentices in architectural and engineering offices through the rest of the day. The course then evolved into an Architectural Department in 1913. Then, in 1917, under the presidentship of George Wittet, a reputed British architect and consultant to the Government of Bombay, the Architectural Student Association was formed. This association was rechristened as the Bombay Architectural Association in 1922. Its new president was Claude Batley, another reputed architect of Bombay and then head of the Architectural Department. In 1923, through the efforts of Batley and the association, a five-year diploma course was established at the Department of Architecture at the Sir JJ School of Art. The association strived to obtain recognition from the Royal Institute of British Architects (RIBA) for the graduates of the department. Earlier, to be called as an architect, several exams conducted by RIBA in England were to be cleared by the students. The recognition would mean that all intermediate exams could be held at the Department of Architecture and students would have to go to England only to give their final exams. This recognition was obtained in 1925. In 1929, the association was renamed and registered as the Indian Institute of Architects (IIA).

The pedagogic agenda was to prepare architects who could make architectural drawings and supervise the construction process, as these were the two skills required for the Raj. On the other hand, British construction methods and processes of making buildings were perpetuated. While this agenda continued to remain active, British architects teaching at the Sir JJ School of Art shaped another orientation for architectural education: to develop an architecture that was local and Indian.

The primary references for educating students into Indian architecture come from three sources: James Fergusson's *History of Indian and Eastern Architecture* (1910); Swinton Jacob's *Jeypore Portfolio* (1890–1913); and Claude Batley's *The Design Development of Indian Architecture* (1934), also known as the Batley Portfolio. All these sources documented monumental architecture from largely medieval India, classifying them into religiously arranged stylistic classifications, which became the basis for theoretical orientations in architecture.

Prior to Independence, there were two other architecture institutions set up by the kings of the princely states. These were the Nizam College of Fine Arts and Architecture in Hyderabad and the Department of Architecture at the Maharaja Sayajirao University of Baroda. The histories of these two institutions continue to remain in oblivion as the narrative of the Department of Architecture at Sir JJ School of Art has been dominant. Hence, when India became independent, there were three institutions of architecture.

In 1952, in independent India, the Department of Architecture became the Sir JJ College of Architecture as a part of the University of Mumbai, severing all ties with the School of Art. After Independence, several architectural education programmes were set up largely by the state or the central governments. SPA, Delhi was started as a Department of Architecture with the Delhi Polytechnic in 1941. It was later integrated with the School of Town and Country Planning in 1955, and finally established as the School of Planning and Architecture in 1959. The Department of Architecture at the Indian Institute of Engineering Science and Technology, Shibpur is the erstwhile Bengal Engineering College (1949). Other institutions include the Department of Architecture in IIT Kharagpur (1952); the Department of Architecture in IIT Roorkee (1956); the Department of Architecture in Madras University (1957), which is now called Anna University; the Department of Architecture and Planning at the Visvesvaraya National Institute of Technology, Nagpur (1960); the Chandigarh College of Architecture, Chandigarh (1961); the Faculty of Architecture at Maulana Azad National Institute Of Technology, Bhopal (1963); the Department of Architecture, College of Engineering, Thiruvananthapuram (1964); and the Department of Architecture, University of Visvesvaraya College of Engineering, Bangalore University, Bangalore (1967). Between 1950 and 1970, three institutes were set up by private initiatives of artists and architects either independently or under the patronage of a business house: LS Raheja School of Architecture, Mumbai (1953); Academy of Architecture, Mumbai (1955) and CEPT, Ahmedabad (1962).

There were three broad orientations these institutions followed: training students to design "modern" institutions and houses in "modern" systems and styles; training students to follow standard construction and empirically based planning methods, processes and codes; and training students into ideas of identity, environment and mass habitation.

The Council of Architecture

In 1972, the Indian Parliament enacted the Architects Act,[3] defining an architect and constituting the Council of Architecture (COA) as the apex body to regulate the practice and education of architecture. Since then, the council has been the approval authority for architectural institutions. The state and central governments continued to be the dominant agency in establishing new institutions across the country until 1990. In the 1990s, numerous institutions were established by private trusts run by either developers or politicians and affiliated to state universities. From 2005 onwards, many new private universities have been established by business houses that also house departments of architecture.

The COA comprises approximately 55 members: five from the IIA, five from the educational institutions, two from the All India Council for Technical Education, two from the Institute of Engineers, one from the Institution of Surveyors, chief architects from the Public Works Department, the Ministry of Defence and the Ministry of Railways, one nominee of the central government, and one architect from each state nominated by the respective state governments. Among these, two council members are to be elected as the President and Vice President of the COA. A seven-member Executive Committee is also elected by the members, which includes the President and the Vice President. This committee deals with the day-to-day activities of the COA.

[3] Government of India (1972): The Architects Act, enacted by the Parliament on 31 May 1973, https://www.coa.gov.in/showfile.php?lang=1&level=1&&sublinkid=1006&lid=792 accessed on 1 June 2023

The COA prescribed the Minimum Standards of Architectural Education Regulations in 1983,[4] which regulates architectural institutions across India. These regulations were subsequently revised, updated and gazetted in 2020.[5] This document defines the eligibility criteria for entry, infrastructure resource, human resource and other logistical dimensions of architectural education. The entry-level qualification for students includes passing an entrance test along with passing exams at the 10+2 level with physics, chemistry and mathematics. There is, however, no requirement for subjects like biology, geography, history, social science and others. While this limits the base knowledge, it also puts a limitation on persons without the prescribed subjects from entering architectural education. One of the infrastructure requirements is that the managing body of the institution should have under its ownership land requirement with the potential of building 20,000 sq. feet of built-up area. This excludes all groups who are interested and capable in providing education, but do not own such land. In defining the human resources, the document prescribes that the core teachers of the institution can only be persons who are registered with the COA. This registration is automatic if one has a Bachelor of Architecture (B.Arch) degree. There are no additional exams, qualifications or processes required. According to the Architects Act of 1972, only people who are registered with the COA can use the title of an "architect". This appears to be more of a symbolic registration; a vestige of colonial and feudal systems. Such a registration is significant for practising in the building making industry as approval processes require signatures of such persons. However, if a person chooses not to use such a title, or practise in the building making industry, and hence has not registered, then they are not eligible to become a core teacher in any institution. Moreover, all experience is calculated from after the year of registration. While there is a provision for "allied" teachers in institutions from other disciplines, they are still required to hold a degree. This excludes all masons, carpenters and small contractors.

Along with the resources and logistics, the Minimum Standards also define the course structure for architectural education, dividing the courses into four types (see Table 2.1).

Table 2.1: Courses prescribed by the COA in the Minimum Standards for Architectural Education, 2020

Professional Core (50%)	**Building Sciences and Engineering (20%)**	**Electives (15%) (Suggested List)**	**Professional Ability (15%)**
Basic Design and Arts	Building Materials	Theory of Design	Professional Practice
Architectural Design	Building Construction	Vernacular Architecture	Internship / Training
Architectural Design Thesis	Applied Mechanics	Interior Design	Project Management
Architectural Graphics and Drawing	Structural Design and Systems	Building Systems and Management	Communication Skills
History of Architecture and Culture	Climatology	Art in Architecture	Computer Studio
Principles / Theory of Architecture	Building Services	Graphic and Product Design	Building Information and Modelling
Urban Design	Surveying and Levelling	Contemporary Architecture	Digital Graphics and Art

[4] Government of India (1983): Minimum Standards for Architectural Education, Gazette dated March 26 and 27, 1983, Government Gazette of India, New Delhi *https://www.coa.gov.in/showfile.php?lang=1&level=1&sublinkid=278&lid=151* accessed on 1 June 2023.

[5] Government of India (2020): Minimum Standards for Architectural Education, Gazette No: CG-DL-E-11082020-221073 dated August 11, 2020, Government Gazette of India, New Delhi *https://www.coa.gov.in/showfile.php?lang=1&level=1&sublinkid=748&lid=599* accessed on 1 June 2023.

Professional Core (50%)	**Building Sciences and Engineering (20%)**	**Electives (15%) (Suggested List)**	**Professional Ability (15%)**
Settlements Planning	Acoustics	Architectural Journalism	Entrepreneurship Skills
Housing	Environmental Lab	Disaster Management	Foreign Language
Specifications, Cost Estimation and Budgeting	Environmental Sciences	Sustainable Cities and Communities	Dissertation / Seminar / Research Methodology
Landscape Design		Green Buildings and Rating	
Carpentry and Model Making		Building Performance and Compliance	
Site Planning		Architecture of South East Asia	
		Design with Steel	
		Design with Glass	
		Furniture Design	
		Appropriate Bldg. Technology	
		Earthquake Resistant Architecture	
		Architectural Conservation	
		Art Appreciation	
		Other courses (5%)	
Each course weighs 3.8%	Each course weighs 2%	Each course weighs 0.5%	Each course weighs 1.5%

Source: Minimum Standards for Architectural Education, 2020 by Council of Architecture in India

These courses can also be reorganised according to discipline (see Table 2.2).

Table 2.2: Reorganisation of courses prescribed by the COA into categories of design, technology, humanities and professional logistics

DESIGN	TECHNOLOGY	HUMANITIES	PROFESSIONAL LOGISTICS
Basic Design and Arts (3.8)	Building Materials (2)	Architecture of South East Asia (0.5)	Professional Practice (1.5)
Architectural Design (3.8)	Building Construction (2)	Principals / Theory of Architecture (3.8)	Internship / Training (1.5)
Architectural Design Thesis (3.8)	Applied Mechanics (2)	Theory of Design (0.5)	Communication Skills (1.5)
Urban Design (3.8)	Structural Design and Systems (2)	History of Architecture and Culture (3.8)	Entrepreneurship Skills (1.5)
Settlements Planning (3.8)	Climatology (2)	Art in Architecture (0.5)	
Housing (3.8)	Building Services (2)	Contemporary Architecture (0.5)	
Landscape Design (3.8)	Surveying and Levelling (2)	Architectural Journalism (0.5)	
Site Planning (3.8)	Acoustics (2)	Art Appreciation (0.5)	
Graphic and Product Design (0.5)	Arch. Graphics and Drawing (3.8)	Other courses (1.25%)	
Vernacular Architecture (0.5)	Environmental Sciences (2)	Foreign Language (1.5)	
Sustainable Cities and Communities (0.5)	Specifications, Estimation and Budgeting (3.8)	Dissertation / Seminar / Research Methodology (1.5)	
Interior Design (0.5)	Carpentry and Model Making (3.8)		
Architectural Conservation (0.5)	Environmental Lab (2)		
Other courses (1.25%)	Appropriate Building Technology (0.5)		
Furniture Design (0.5)	Earthquake Architecture (0.5)		
	Design with Steel (0.5)		
	Design with Glass (0.5)		
	Disaster Management (0.5)		
	Green Building and Rating (0.5)		

DESIGN	TECHNOLOGY	HUMANITIES	PROFESSIONAL LOGISTICS
	Building Systems and Management (0.5)		
	Building Performance and Compliance (0.5)		
	Other courses (1.25%)		
	Computer Studio (1.5)		
	Building Information and Modelling (1.5)		
	Digital Graphics and Art (1.5)		
	Project Management (1.5)		
35%	**43%**	**15%**	**6%**

Source: The authors

When reorganised, there appears to be a clear bias towards technological courses. Humanities courses seem to be limited to history, architectural theory, art and methods, and account for only 15 per cent in the COA-prescribed syllabus.

In an interview conducted for this project, the President of the COA[6] was very clear about orienting education in architecture towards making graduates *"office- and practices-ready products"*. He spoke about how currently, educational institutions do not train students in practices like financial management, office administration, bookkeeping and so on. He also spoke about how current academics are not practitioners, but are rather engaged in esoteric research and writing of papers that do not impact the profession in any way. He expressed the disconnect between pedagogy and practice, that students are not being trained for the requirements of the current market. He expressed the need for pedagogy to be abreast of new technologies and production systems that the market demands. He further spoke about the new educational initiatives of the COA. These included creating awards for thesis, supporting research projects, initiating training programmes, creating a platform for book sharing and reforming the approval system, where the quality of pedagogy would take centre stage, as against the resources which were so far the primary considerations.

State Government Agencies

In many states, state government agencies regulate three critical aspects of architectural education: admissions, fee fixation and student scholarships for private self-financed institutions affiliated with state universities. These agencies act as the arms of the Higher Education Department and the Department of Technical Education. They become conduits for implementing state and central government policies. Usually, student reservation policies and scholarship schemes are implemented through these agencie

[6] Interview conducted with Habib Khan, President of the Council of Architecture (COA) on 5 November 2022 at the COA office, New Delhi.

Box 2.1: State agencies in Maharashtra controlling architectural education

Maharashtra has the highest number of architectural institutions and a robust bureaucracy to handle technical education at the state level. The admission process of state government owned and affiliated institutions starts with institutions registering with the Directorate of Technical Education (DTE) and their Common Entrance Test Cell (CET). They must fill forms and submit the necessary approvals and affiliation letters, along with information about fees, scholarships and internships. The DTE announces the available seats for that academic year along with reservation details.

The DTE then invites applications for admissions from the students, scrutinises their documents and puts up a merit list, based on which the admission rounds are conducted. Many certificates are required for admissions, including the architecture entrance exam marksheet (National Aptitude Test for Architecture [NATA] and Joint Entrance Exam [JEE]), marksheets of Class 10 and Class 12, domicile certificate, and caste and caste validity certificates, among others. Prospective students are asked to give their preference of institutions online. Thereafter, a series of Centralised Admission Process (CAP) rounds are conducted. After each CAP round, the student gets an option to go to the institute to freeze the admission and secure the seat by payment of fees, or to defer the admission and wait for the next admission round to secure the seat in an institute that they had greater preference for. The individual institutions are also expected to verify the documents submitted by the applicants, get the admission forms filled, collect their original documents and certificates, collect fees, and upload the details of the candidate on the CET portal to confirm the admission of the reporting candidate. Each academic year, there are about three to four CAP rounds after which the vacant seats, if any, are filled through the vacancy round by individual institutions. For the vacancy rounds, individual institutions are expected to put up a merit list based on the DTE merit score. At the end of all the rounds, individual institutions are expected to upload the entire admission data on the portal before the cut-off date. Before the cut-off date, candidates can switch and move between schools of their choice; however, after the cut-off date, their fees are forfeited.

Fifteen days after the admission rounds, each institute is required to report to the DTE for a hearing where the Joint Director checks the protocols, documents and process of admission followed. All the original documents, along with a file of documentation—which includes several details such as documentation of the process followed for admissions, Internal Complaints Committee reports and case statuses, tree plantation status, National Service Scheme activity report, National Assessment and Accreditation Council report, and status, approvals and affiliation letters—is checked by a DTE officer. The admission process with the DTE and the State CET Cell closes with the approval of the merit list by the Joint Director. The admission confirmation stage is when the DTE checks if the policies directed by the state have been followed by the institutions.

The approved merit list is further forwarded by the individual institutes to the Eligibility and Enrolment Department of Mumbai University (MU) and the Admissions Regulatory Authority (ARA), who conduct another round of screening of student documents along with basic scrutiny of completion of tasks by individual schools for paper evaluations, conducting of viva voce and so on. This is where the

university makes sure that its policies are followed by the institutions. The students list of individual colleges is thus approved by the DTE, ARA and MU. The MU then issues them a permanent registration number (PRN). Individual schools forward the list of admitted students to the Council of Architecture (COA) to acquire student enrolment numbers, which becomes the reference number for the issue of final registration certificate as an architect after graduation based on the degree issued by the MU.

In the month of October, each affiliated institute is required to put together a fee proposal to the Fee Regulating Authority (FRA). This application is based on the previous year's expenditure statement and includes details of invoices and receipts for all payments, audited accounts, approvals and affiliations. This application is reviewed by the FRA to determine the fees for first-year students. This fee component is in two parts: tuition fees and development fees. The fees include operating and maintenance expenditure. The capital expenditure is expected to be undertaken by the owners of the institution. Students also have access to the authority to complain and raise grievances in case they come across unreasonable collection of fees.

Every academic year, the Social Welfare Department (SWD) supports needy students under several scholarship schemes. While the identification is largely based on caste, there are a few scholarships available for Economically Weaker Section students. The students are required to fill in the application forms on the Maharashtra Direct Benefit Transfer (MahaDBT) portal by uploading documents to support their application, such as caste certificate, caste validity certificate and income certificate. These forms are checked by the institution and then forwarded to the SWD. Every year, each institution needs to upload details of the approved fees by the FRA. This fee structure is then approved by the SWD. There are currently 14 schemes active for an affiliated college of architecture in Maharashtra. These include schemes for students from different categories of reservation. The SWD approves scholarship for individual students based on the documents. To continue the scholarship, students must maintain a fair academic record. After the approval of the scholarship, the SWD transfers the funds to the students or the institution, as per the rules of the scholarship. The receipt of complete scholarship amount usually takes about one year under normal circumstances. These are also paid in smaller instalments by the government.

Universities

At the time when this study was conducted (between February and June 2022), there were 200 universities across the country that offered B.Arch through 480 institutions. Out of these, 18 were central universities with 18 institutions of architecture including three IITs; eight National Institutes of Technology (NITs); three SPAs; and four in the states and union territories including Pondicherry University; Panjab University, Chandigarh; Mizoram University, Aizawl; and North-Eastern Hill University, Shillong. There were 122 private universities with 131 institutions. The bulk of institutions (331) were under 60 state government universities. (A detailed list of universities is provided in Annexure A and the syllabi of all universities is provided here.)

The syllabi of 15 universities were reviewed for this study (see Table 2.3). Detailed syllabi of the above universities can be found here.

Table 2.3: List of university syllabi reviewed for this study

S. No.	Name of the University	University Type	Number of Institutions	State / Union Territory
1	Anna University, Chennai	State	58	Tamil Nadu
2	Mumbai University	State	30	Maharashtra
3	Savitribai Phule Pune University, Pune	State	24	Maharashtra
4	Visvesvaraya Technological University, Belgaum	State	33	Karnataka
5	Dr. APJ Abdul Kalam Technical University, Lucknow	State	21	Uttar Pradesh
6	Calicut University, Kozhikode	State	15	Kerala
7	Jawaharlal Nehru Architecture and Fine Arts University, Hyderabad	State	13	Telangana
8	Rashtrasant Tukadoji Maharaj University, Nagpur	State	9	Maharashtra
9	Goa University, Panjim	State	1	Goa
10	School of Planning and Architecture, Delhi	Central	1	Delhi
11	Panjab University, Chandigarh	Central	1	Chandigarh
12	CEPT University, Ahmedabad	Private	1	Gujarat
13	OP Jindal Global University, Sonipat	Private	1	Haryana
14	Nitte University, Mangalore	Private	1	Karnataka
15	Navrachana University, Vadodara	Private	1	Gujarat

Source: The authors

The first seven universities in Table 2.3 hold the authority to regulate education in more than 200 institutions in the country.

Broadly classifying courses into the four categories of design, technology, humanities and professional logistics, Table 2.4 shows the distribution of courses across the above universities. (Detailed notes on the syllabi and other aspects can be found in Annexure C.)

Table 2.4: Distribution of courses in the syllabi of universities reviewed under this study

S.No.	Name of the University	Number of Courses[7]			
		Design Courses	Technology Courses	Humanities Courses	Professional Logistics Courses
1	Anna University, Chennai	15	24	8	3
2	Mumbai University	34	36	10	4
3	Savitribai Phule Pune University, Pune	17	32	6	3
4	Visvesvaraya Technological University, Belgaum	20	28	11	3
5	Dr. APJ Abdul Kalam Technical University, Lucknow	22	35	14	4
6	Calicut University, Kozhikode	16	32	8	3
7	Jawaharlal Nehru Architecture and Fine Arts University, Hyderabad	18	32	9	2
8	Rashtrasant Tukadoji Maharaj University, Nagpur	54	46	12	4
9	Goa University, Panjim	20	30	11	3
10	School of Planning and Architecture, Delhi	26	32	13	3
11	Panjab University, Chandigarh	20	48	19	2
12	CEPT University, Ahmedabad	16	28	13	2
13	OP Jindal Global University, Sonipat	20	32	24	4

[7] Table 2.4 does not factor in the credits and number of hours associated with the courses. However, from the syllabi, one can broadly conclude that the design and technology courses have higher number of credits and hours as compared to humanities and professional logistics related courses. For example, in most universities above, design and technology courses are taught for 10 and 12 hours respectively in a week, while humanities and professional logistics courses are taught for a maximum of 3 hours each.

S.No.	Name of the University	Number of Courses[7]			
		Design Courses	Technology Courses	Humanities Courses	Professional Logistics Courses
14	Nitte University, Mangalore	8	9	9	2
15	Navrachana University, Vadodara	15	27	9	3
	Number of Courses	**321**	**471**	**176**	**45**
	Percentage Distribution	**32%**	**46%**	**17%**	**4%**

Source: The authors

The design courses include architectural design, basic design, ergonomics, architectural drawing, design thesis, housing design, urban design, landscape design, interior design and more. Technology-related subjects include structural mechanics, building construction and materials, building services, construction drawing, specifications, quantification, estimation, and climatology, among others. Humanities related subjects include history of architecture, theory of design, sociology, economics and so on. Professional logistics courses include by-laws, training/internships, architectural-practice-related courses and so on. (A detailed list of courses and other information on the universities is provided in Annexure C.)

The disparity between the number of technology-related courses and humanities courses on offer is consistent across universities and within the framework of the COA.

In the case of state universities that have a large number of affiliated, self-financed institutions, the course structures are largely similar with little variation. In almost all cases, the technology courses lean towards teaching students about steel and concrete frame structures, while indigenous technologies are either not taught or are taught as peripheral subjects. The humanities courses cover stylistic histories, but do not focus on caste, class and gender discrimination or the segregation stemming from them. The design courses are usually about anthropometrics, experience and form explorations in the lower years, with exercises to design small places. As the students move into higher years, they are made to design projects of larger scale where the studio[8] imperatives are about building codes, technological management and management of large-scale logistics. The thesis-related courses are usually about designing a large project, but do not include a good course on research methods. The relationship between state universities and affiliated institutions is hierarchical and bureaucratic, where the universities appear to be having a tight hold over institutions through inspections, approvals and exam management. Moreover, the institutions do not get any support from the universities in terms of resources for pedagogy or research undertaking.

[8] Studio here is a particular form of teaching/learning which mixes acts of instruction provided as provocations, responses through a variety of media, making, information transmission, self-learning, conversation and discussions.

Box 2.2: Mumbai University's efforts in providing space to affiliated institutions

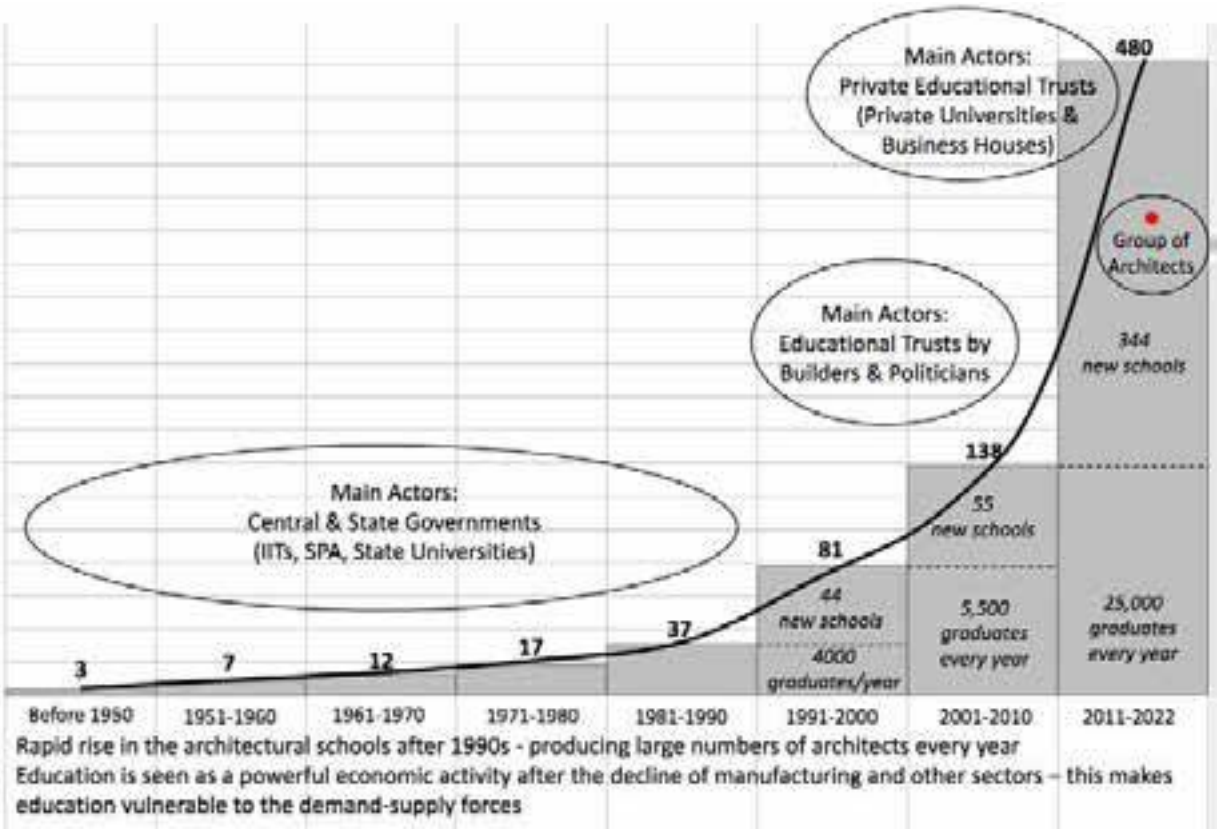
In Mumbai University, 25 per cent of the syllabus is allotted to subjects termed as "allied design" and "college projects". These are not defined, and institutions are free to develop their own courses. This provides an opportunity to institutions to articulate their orientation and develop their own focus. Moreover, the centralised exams are conducted only twice: at the end of the sixth semester and at the end of the tenth semester. This provides enough elbow room for institutions to conduct the courses. The institutions also have a say in the choice of reviewers.

In the case of central universities, state university departments and private university institutions, there appears to be support for faculty to conduct research. Moreover, central universities and private universities appear to have more numbers of courses in the areas of humanities and technology.

Institutions

The study is based on the COA's database, accessed in February 2022. At that time, 480 institutions were listed in the database. (A detailed list of institutions can be found in Annexure B).

Figure 2.1: Architectural institutions and students across the country



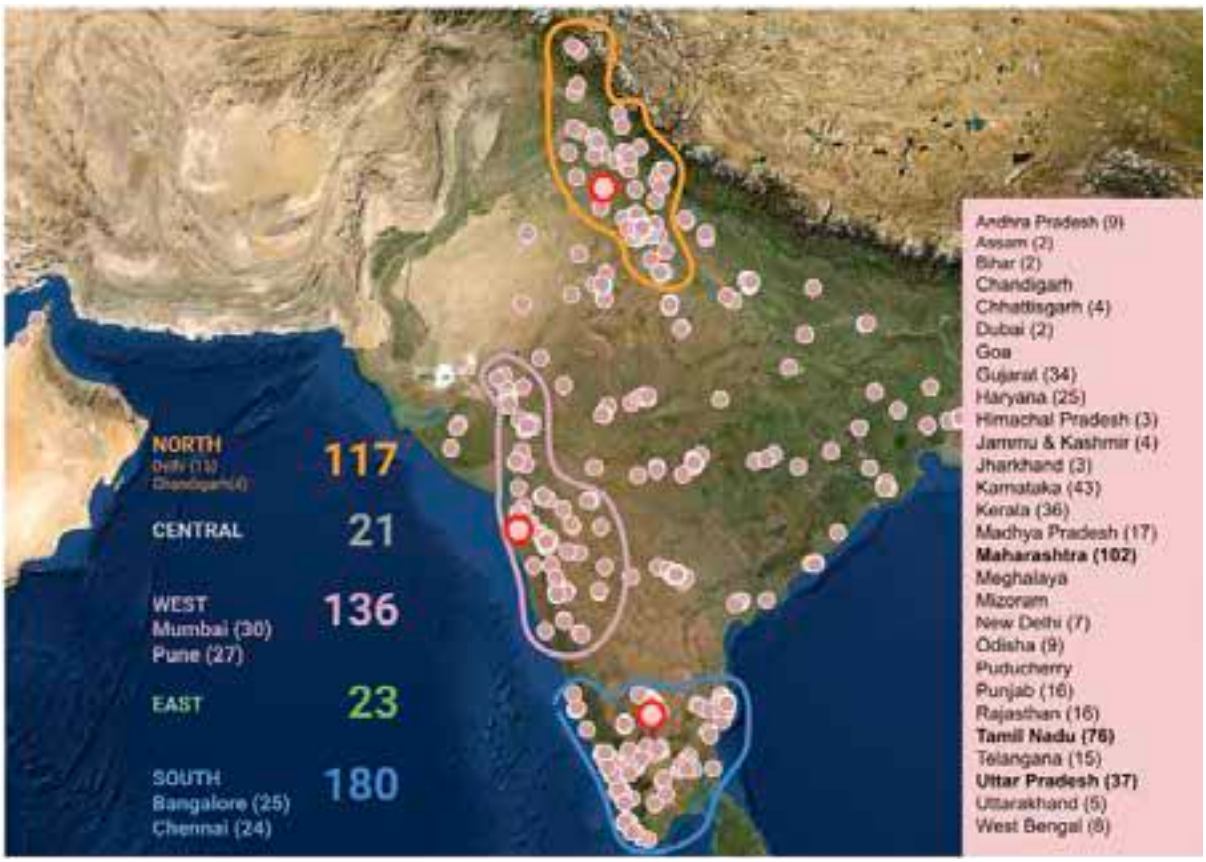
Source: The authors

There has been a tremendous rise in the number of architecture colleges since 2011. While there were 30 colleges in 1990, majority of which were by state governments, the central government and old educational trusts, by 2010, there were 92 colleges that were primarily run by educational trusts initiated by politicians or developers. By 2022, there were 419 colleges, and the new colleges were part of private universities or stand-alone colleges initiated by mainstream business houses. It is clear that architectural education has shifted from a socialist state/concerned philanthropic endeavour to a privately organised, money-making enterprise.

There is also a concentration of architecture institutions around big cities and some states. There are 136 institutions in the western part of the Mumbai–Ahmedabad–Pune region; 180 institutions in the southern part of the Chennai–Bengaluru–Thiruvananthapuram region; and 117 institutions in the northern part of the National Capital Region and Chandigarh. Central India has 21 institutions, and the eastern parts have 23.

Organisationally and managerially, there are 15 central government institutions (3%) with 780 students, 46 state government institutions (10%) with 2,084 students, 127 private university institutions (26%) with 5,950 students and 292 privately managed institutions which are affiliated to state universities (61%) with 14,370 students.

Figure 2.2: Geographic distribution of architecture institutions in India

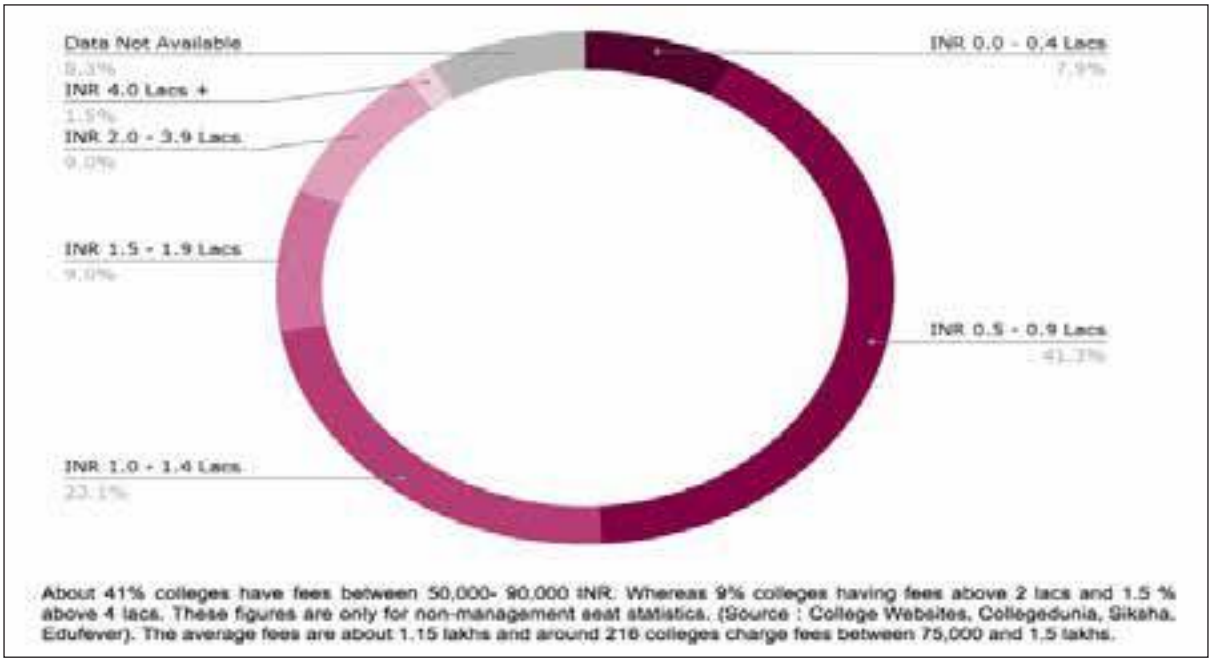


Source: The authors

In many states, the state governments have withdrawn from actively providing professional education and depend on private agencies. In many places, government seats have also decreased over the last few

years. The excessive dependence on private agencies—affiliated colleges, private universities etc.—have made education expensive. The average fees for an architecture course in India are nearly ₹1 lakh per year. Three-hundred-and-nine institutions charge fees between ₹50,000 and ₹1.5 lakh per year; 43 institutions charge fees more than ₹2 lakh per year; and 7 institutions charge fees more than ₹4 lakh per year.

Figure 2.3: Fees of architecture institutions in India



Source: The authors (collated from websites of various institutions and other online sources)

For a detailed study, 20 institutions were contacted, out of which 13 responded and detailed interviews were conducted with heads of the institution, senior and junior teachers, and senior students.[9] Details of the interviews are provided in Annexure D. See Table 2.5 for the list of thirteen institutions.

Table 2.5: List of institutions which were visited and where detailed interviews were conducted

S.	Name of the Institution	University	Type
1	School of Planning and Architecture (SPA), Delhi	SPA - Deemed University, New Delhi	Central university institution
2	Chandigarh College of Architecture (CCA), Chandigarh	Panjab University, Chandigarh	Central university college

[9] We are grateful to our colleagues and co-teachers from various institutions that we visited for this study: School of Planning and Architecture, Delhi (SPA), Chandigarh College of Architecture (CCA), Goa College of Architecture, Goa, Vivekanand Institute of Technology's Padmabhushan Dr. Vasantdada Patil College of Architecture, Pune (PVP), School of Environment and Architecture, Mumbai (SEA), Avani Institute of Design (AVANI), RVS Padmavathy School of Architecture, Chennai Thiruvalluvar, Seed-APJ Abdul Kalam School of Environmental Design, Kochi (SEED), Aurora-S Design Academy, Hyderabad (AURORA), RV College of Architecture, Bengaluru (RV), Nitte Institute of Architecture, Mangalore, Jindal School of Art And Architecture, Sonipat (JINDAL), and Navrachna School of Design and Architecture (NAVRACHNA). These institutions have been serious and extremely committed to the cause of architectural education. They were generous in sharing their experiences for this study.

S.	Name of the Institution	University	Type
3	Goa College of Architecture (GCA), Goa	Goa University, Panjim	State university college
4	Vivekanand Institute of Technology's Padmabhushan Dr. Vasantdada Patil College of Architecture (PVP), Pune	Savitribai Phule Pune University, Pune	State-university-affiliated private college
5	School of Environment and Architecture (SEA), Mumbai	Mumbai University	State-university-affiliated private college
6	Avani Institute of Design (AVANI), Kozhikode	Calicut University	State-university-affiliated private college
7	RVS Padmavathy School of Architecture (RVS), Chennai	Anna University, Chennai	State-university-affiliated private college
8	Seed – APJ Abdul Kalam School of Environmental Design (SEED), Kochi	Mahatma Gandhi University, Kottayam	State-university-affiliated private college
9	Aurora's Design Academy (AURORA), Hyderabad	Jawaharlal Nehru Architecture and Fine Arts University, Hyderabad	State-university-affiliated private college
10	RV College of Architecture (RV), Bengaluru	Visvesvaraya Technological University, Belgaum	State-university-affiliated private college
11	Nitte Institute of Architecture (NITTE), Mangalore	Nitte University, Mangalore	Private university
12	Jindal School of Art and Architecture (JINDAL), Sonipat	OP Jindal Global University, Sonipat	Private university
13	Navrachna School of Environmental Design and Architecture (NAVRACHNA), Vadodara	Navrachana University, Vadodara	Private university

Source: The authors

The pedagogic agenda of most schools is around developing skills, capacities, knowledge, values and orientation. These can be summarised as such:

- The primary skill sets taught in most institutions are drafting, basic construction and building systems along with quantification, estimation and working drawing preparation.

Table 2.6: What is actually taught in architectural institutions?

DESIGN (Studio- based courses)	**OUTCOMES**	**HUMANITIES (Lecture-based courses)**	**CONSTRUCTION (Studio-and lecture-based courses)**	**STRUCTURES (Lecture-based courses)**	**SERVICES (Lecture-and studio-based courses)**
Anthropometry	Furniture layouts and pavilion, gazebo, kiosk, bus stop, stage, living/dining, bedrooms	Early civilisations	Load bearing masonry: Brick, clay, timber, stone	Force system	
Cultural contexts	Multifunctional programme	Greek, Roman, Byzantine, medieval and gothic architecture	Roofing systems using timber, steel truss and concrete	Stresses and strains, bending moment and shear force, elastic stability and deflection	
Vernacular-rural contexts	Temporary shelters, pavilions, context-specific community-driven built forms like health centres/ residential spaces	Western architecture	One-way, two-way slabs, cantilever slabs, sloping RCC roof	Structural behaviour of concrete	
Technology, utilities, regulations	Urban scale projects: Museums, art galleries, theme-based hotels, transport interchanges, terminals and shopping, industrial structures/ housing projects/ campus design	Hindu architecture in India	Construction practices pertaining to RCC framing systems	Moment distribution, steel design, soil mechanics, material testing	Water supply and sanitation and their integration

DESIGN (Studio- based courses)	**OUTCOMES**	**HUMANITIES (Lecture-based courses)**	**CONSTRUCTION (Studio-and lecture-based courses)**	**STRUCTURES (Lecture-based courses)**	**SERVICES (Lecture-and studio-based courses)**
Environmental impetus	Institutional projects like facilities of higher learning college/ campus/ city markets, public spaces	Islamic and colonial	Construction technologies of complex systems; RCC and prefab	Long span structures	Electrical services + illumination + external water supply
High efficiency - performance oriented	Office/ commercial complexes, community centre, public library, housing, campus planning.	Social issues related to urbanisation	Steel, earthquake resistant, modular	High rises and advanced structures	Air conditioning and fire safety
Dynamic networks in urban contexts	Urban infill, revitalisation and renewal, adaptive reuse, urban waterfront development, transportation nodes/ interchanges, museums, performing arts centres		High-rise buildings in RCC and steel frame		Heating, ventilation, and air conditioning
			Long span structures		

Source: The authors (collated from syllabi of various institutions)

- Different institutions have different orientations to design courses. Over the years, the design projects grow in scale. Most schools have design projects related to interventions in rural areas, urban areas and mass housing. In most schools, first-year students are trained in "basic design", which does not have any systematic process; second-year students are trained in interior design; third-year students in landscape design; and fourth-year students in urban design or town planning courses. There does not seem to be any organised or systematic teaching of design

courses. Most schools mention that it is left to the teachers who teach in that year to decide on the course, orientation and methods. These schools also state that they represent a collection of the interests of the current teachers. The teachers leading the studios are usually visiting faculty.

- Mechanics of building structures are taught across all institutions, but they are usually undertaken to get through exams set by universities.

- Most schools have training in either the seventh, eighth or ninth semesters. The training programmes are not structured and are largely organised through informal mechanisms.

- Humanities subjects are largely limited to the history of architecture. However, there are efforts to orient students to social issues through various design studios and field studies. These are, however, not systematic. Some institutions have subjects like sociology and economics, but these are also not systematically taught. They are included to orient students to the social context of the country but fail to bring in students' own subjectivities and hence do not manage to sensitise them.

- Theory of design/architecture courses are among the most disorganised and are largely left to the teachers teaching them. There is no systematic course on spatial theory and production of space.

- Courses on professional practice are usually about familiarity with laws and the Architects Act. Professional logistics of setting up an office, taxation, registration, billing, fees and so on are central to the courses. However, ethics in practice is not covered.

- Environment-related courses are usually conducted in two ways: first, with a focus on local and indigenous technologies; and second, with a focus on industry-driven green technologies. Both are oriented towards environmental sustainability and in both cases, there is a high technological orientation. There is also an interest in climate change, global warming and use of sustainable materials. Issues relating to the relationship between environment and culture, cultural sustainability, environmental politics, ecological understanding of environment, environmental experience etc. are usually not included.

- Most institutions include thesis or dissertation projects in the final year. Usually, it is a design project where students are expected to find a site, articulate a project, develop a programme, design a building and resolve the same. This project may include some case study and data collection/ analysis work, which is compiled as a report. Some institutions have written papers as the thesis/ dissertation project where students are expected to undertake research on a specific topic, set up aims and objectives, review literature, decide on a methodology, undertake fieldwork/archival work, and write an analysis and conclusion. This type of research adopts processes followed in the social sciences. Most institutions struggle to define and structure the process for an "architectural thesis". The thesis topics usually come from students' interests cultivated in the previous years, ranging from designing airports to vague ideas of saving the world.

The process of architecture expected to be taught is a linear process that includes: the architect being approached by a client; supply of land documents by the client; supply of programme by the

client; conceptual design and estimation by the architect; iterations by the architect and approval of the conceptual designs by the client; detailed design preparations; involvement of consultants for structure and services; detailed specifications and quantification; detailed estimates; statutory approvals from the authorities; detailed tendering and appointment of contractor; supervising and monitoring of contractor's work and approval of payments; and finally, completion of the project and handing over.

Figure 2.4: Process of inhabitation making as taught in architecture schools

Source: The authors

Admissions in most colleges (state, central and affiliated) are through a centralised process, which usually has an in-built caste- and class-based reservation system. Private universities have their own system of intake (sometimes governed by state reservation systems). There are many repercussions due to the different forms of intake in different schools.

Central and state university/state university institutions appear to be popular primarily because of their legacy, the validation provided by government departments, location and campus provided and maintained by the government, subsidised fees, and substantial funds from the government. They tend to admit high-grading students. These high graders may not necessarily belong to economically weaker sections. Hence, in many ways, central and state government colleges subsidise the rich. State-university-affiliated colleges, on the other hand, admit the remaining students. However, there are exceptions where some private universities and state-university-affiliated institutions are also popular.

The affiliated colleges also have "management" or "offline" seats, which usually have different fees in most states. Most affiliated colleges make a significant proportion of their money to sustain themselves through these management/offline seats.

State, central and affiliated colleges in general get a diverse set of students from different classes and ethnicities. While this is a challenge for education as language and cultural differences become barriers; these are also opportunities to learn from and grow with each other. Students from diverse backgrounds and varying levels of exposure require additional capacity building courses like language courses which are often unavailable to them in the course structure.

Along with admissions, the fees are also controlled by the state departments—either universities or the Department of Higher Education/Department of Technical Education. These fees are either decided ad hoc or based on previous years' expenses.

Box 2.3: Appropriate fees and actual fees

For a school of 40 students in Mumbai, around ₹4.3 crore is required to run the institution in 2023 if all norms of the COA are to be followed. As per these norms, the approximate costs would be as follows:

- Fifteen full-time teaching staff members: ₹2.5 crore per annum (as per the 7th Pay Commission);
- Ten non-teaching staff members: ₹60 lakh per annum;
- Visiting teachers: ₹30 lakh per annum;
- Housekeeping and security staff: ₹30 lakh per annum; and
- Routine operations and maintenance (such as electricity bills, maintenance contracts etc.): ₹60 lakh per annum.

This means a fee of ₹2.15 lakh is required to run a college properly (with intake of 40 students per year) in 2023. This amount does not include capital expenditure, such as buying of books or equipment or even events like conferences or publications.

However, the average fees approved by state authorities for colleges in Mumbai is around ₹1.4 lakh. In other places, it is much less. This becomes a great hurdle for private affiliated colleges. The staff of state and central government colleges get paid by the government and hence do not feel the fee pressure. On the other hand, private universities have very high fees ranging between ₹3–6 lakh per annum.

Most state-university-affiliated institutions cannot afford to pay salaries as per the 7th Pay Commission recommendations as their fees are regulated. In the absence of resources and with heavy workloads, teachers get burnt out quickly and resign, and new teachers are appointed.

During this study, most private institutions affiliated to state universities expressed a sense of precarity through control from various government agencies. Such control manifested in the form of approval processes, centralised admission process, reservation systems, fee control, and centralised examination and evaluation systems. In many cases, the affiliated colleges perceived the syllabus to be outdated and the control of universities through examinations and viva voce as high.

Box 2.4: The precarity of affiliated colleges and their staff

In Maharashtra, the DTE becomes a conduit for implementing many state policies. The office asks for the same data in different formats, making admissions and transfer processes extremely tedious. Moreover, the DTE and universities in Maharashtra constantly forward notifications and orders from different government agencies to implement their agendas. These include sending evidence of singing the national anthem, planting trees, attending irrelevant seminars and undergoing yoga sessions, among others. These often become hurdles to teaching as management expects teachers to be involved in these activities. Institutions become soft targets to implement the government's vision, which they, their staff and their students may or may not want to be a part of. In all these processes, a huge amount of documentation and paperwork is to be managed by the staff, adversely affecting the already tight schedules and heavy workloads of institutions. Institutions do not consider these agencies, bodies, organisations and authorities as support systems. They are usually perceived as power-wielding agencies with not much material or intellectual contribution to education other than control and ad hoc demand. Recently, accreditation through NAAC has become mandatory for institutions. While this is an expensive process, it has also increased the burden of work on teachers. No one from within these institutions perceives this as adding any value to architectural education, but rather see it as a harassment and money-making endeavour. In some cases, for the staff of private institutions, the sense of precarity is amplified on account of management having strong controls, usually over financial matters, as they try to squeeze from whatever fees they get and cut corners.

The government, through the DTE, controls admissions to all the state and state-university-affiliated colleges. Since 2019, the number of applicants for architecture has significantly decreased. In these years, the government-organised admission process has also been delayed. This has resulted as an advantage for private universities who could quickly fill up their seats. With lesser applicants and delayed admission processes, state-affiliated institutions are unable to fill up their seats, which affects their finances and in turn affect the teachers.

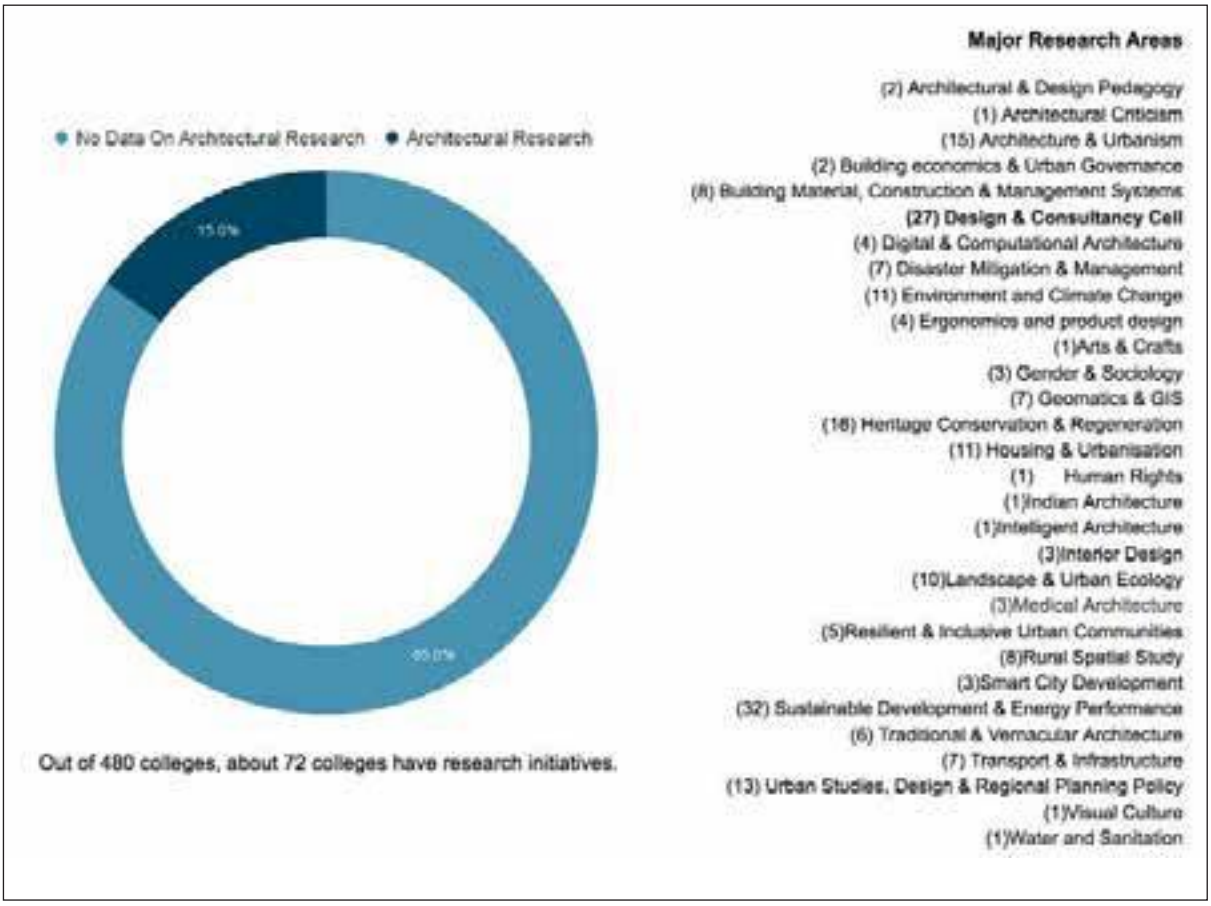
On the other hand, even though permanent staff of central and state university colleges have some sense of job security, most of their time is spent on engaging with a variety of bureaucratic activities that the government passes on to them. Most private institution teachers reported that they do much more work than their counterparts in state and central institutions, get paid much less and yet remain fearful of losing their jobs. During the COVID-19 pandemic, most private institutions reduced staff and cut salaries, while the state and central government staff received full salaries as per usual. Additionally, one finds that the bulk of the low-paying jobs are held by women to fill up the positions stipulated by the COA.

Teachers are not trained for teaching. Most teachers reported that the teacher training programme conducted by the council is not of much use as these are a series of lectures by different persons and the schools conducting the programme are not organised enough to put together a coherent course. The teachers also reported that they attend these programmes as their attendance adds up to the marks related to approval by the COA and in that manner, they are coercive. On the other hand, architects from building-making practices are often invited to run studios. These architects also have no training in teaching and no stakes in the institution or the education system.

There is no systematic evaluation of courses, course structures, teaching, teachers, skills and capacities. Institutions are usually validated through architectural offices that employ students, or by the number of students undertaking postgraduate programmes in foreign countries, competitions won by students or university results. However, these are also informal and not systematised.

Very few opportunities exist for faculty members to undertake research work. Even when research is undertaken, it tends to be technologically oriented. From their websites, we found out of 406 schools, 72 schools appear to be actively working in research and 27 schools have established design and consultancy cells that undertake research projects as well as active community projects. Institutions that undertake research or consultancy work are either central-government-owned institutions, state-owned institutions or institutions/departments of private universities. Very few faculty members from state-university-affiliated institutions undertake research or even have opportunity to do so. In the case of central and state institutions, opportunities arise from universities themselves as well as from other government departments that hire their services. In the case of private university colleges, there are some with resources for research by faculty members. Most teachers working at state-university-affiliated private institutions are also engaged in private practice or work in some office. In the case of government or private university colleges, such work is often prohibited.

Figure 2.5: Research initiatives in architecture colleges



Source: The authors

Box 2.5: Stories of academia trying to find relevance

Despite many regulatory and financial hurdles, institutions have been innovative in formulating new directions and developing their own agendas. In most cases, the faculty appear to be very active and motivated towards the cause of education. State-university-affiliated institutions particularly showcase great resilience and innovation, attempting to exert autonomy by defining their own institutes. For example, in the case of institutes that were studied closely:

- **The School of Environment and Architecture, Mumbai** strived towards creating an academic space by providing an environment for students and teachers to grow and find their own paths for practices of different kinds. It undertook several activities like setting up a research centre and providing space, time and financial support for teachers to develop their research practice; developing research-based pedagogy; developing critical abilities for relevant design practice in society with new courses on repair-retrofitting, caste, class and gender-based difference, community participation, spatial theory etc; developing a conversational and interrogative culture through a series of internal discussions on public affairs; and organising public engagement activities like public lectures, conferences and charrettes. The institute also has a strong online documentation culture, which forms a good basis for evaluation and constant updating of the programme.

- **Padmabhushan Dr. Vasantdada Patil College of Architecture, Pune (PVP)** invests highly in developing a social orientation in its students and fostering a sense of solidarity. Towards this end, PVP's architecture programme is organised with design studios, workshops and other projects engaging with the concerns of the city where "social concern" and the "public domain" are the main focus. There have been real-time urban projects that involved community engagement. Moreover, students are not allowed to undergo internships in their town or in Pune, thereby fostering higher exposure. PVP also encourages a series of activities build solidarities amongst students and teachers, such as peer-to-peer learning through encouraging vertical and horizontal interactions and joint field visits. The institute also has a strong documentation culture which forms a good basis for evaluation and updating of the programme.

- **Avani Institute for Design** has been striving to develop itself as a strong regional school in Kerala. Towards this end, many activities have been initiated, including the development of a repository of architectural documentation from the region, engagement with local bodies and communities, focusing on the environmental dimensions of the region and undertaking design exercises based in the region. The institute also spends one year in reorienting students into an integrated studio learning environment. The institute runs summer and winter workshops for students. An annual research symposium is organised to promote research work among faculty and students. Through these efforts, live problems are undertaken and engaged with.

- **OP Jindal School of Art and Architecture, Navrachana School of Design and Architecture, NITTE Institute of Architecture and RVS School of Architecture** have been trying to work out a curriculum and pedagogy that leverages their networks with other departments of the the university as well as other

institutions and practitioners across the country. A series of fresh models of collaborations have been put forward, where the students are given the agency to design their path and trajectory of learning. In the case of Jindal School, there are no horizontal years and students can do a series of courses from across other departments of the university. Jindal also sends students to different kinds of practices for internships throughout the programme. Similarly, Navrachana School has a common programme that is conducted across university departments. At NITTE, in one of the semesters, students intern with an architectural or allied design office. The network of these offices forms a co-op for the students to learn the "outside". RVS, meanwhile, has developed a series of collaborations with institutes and offices from across the country and takes its students to these organisations where courses are offered.

There has also been a rise in the number of graduating students in the past year. While approximately 1,800 students graduated in 1990, around 5,520 students graduated in 2010 and nearly 25,250 students graduated in 2021. As the "supply" of graduates has increased, the wages are likely not going to improve. There is no regulation of wages for architects employed in architectural offices. More than 100 students in their senior years from across the country were interviewed during the course of this study. Most of them felt that students who did well in design-related subjects were not the ones who have the most projects or who get projects easily. Obtaining projects largely depends upon familial and other networks. Even with about 30–50 per cent caste reservations and more than 60 per cent of enrolled students being women, one finds few architectural offices independently led by persons from Scheduled Castes, Scheduled Tribes or women.[10] This is because having knowledge in the discipline is not enough. One needs networks and initial capital to start one's practice, which is easier for students from upper classes and castes who often have greater access to both.

Students also felt ill-equipped to deal with market and industry-related skills. While creative processes in design are stressed in the curriculum, students often feel less confident about handling issues relating to everyday administration like accounts, approvals, standards, quantification and estimation, negotiating abilities, details of construction and so on. They also felt that offices are a good place to teach market and industry skills. Many students expressed the need for having a year-long internship rather than a semester-long one.

The architecture industry has been largely informal, typically validated through a guru–disciple relationship. Usually, the principal of the office keeps a large share of the profits. The average salary for an intern is ₹5,000 per month (and it varies from ₹3,000 to ₹10,000). The average salary for a fresh graduate is ₹15,000 per month (varying from ₹10,000 to ₹20,000). After three years, this salary is about ₹35,000 per month. Representatives of the COA as well as senior architects state that this condition is similar to that of professionals in design and other creative industries like fashion and film. Circumstances get better after three to five years, when networks are built and architects are able to get their own projects.[11] A number of students reported that many small offices entirely run with interns and fresh graduates.

[10] Over the past five years, the students of the School of Environment and Architecture (SEA) in Mumbai have been interning at various offices from across the country. The institute maintains a database of these offices. As per the database, out of 114 offices, there appear to be three offices that are led by persons from either Scheduled Castes or Scheduled Tribes, and 11 offices are led by women.

[11] In an event organised by IDAC Expo (organised by an event management company that invites architectural product companies and architects), Habib Khan, the President of the COA, and Salil Ranadive, a reputed architect from Mumbai, acknowledged that while freshly graduated architects are paid very less, this is a momentary state and that they will start earning more as they put in more years of work, like all workers in the creative field.

The career trajectories of graduates and their patterns of employment vary according to location. In large cities, about 30 per cent of the graduates diversify into other design-related occupations; another 30 per cent undertake postgraduate education, after which they return to either start their own practice, find employment in large firms or teach; 30 per cent work in an architectural office; and finally, about 10 per cent start their own practice. On the other hand, in smaller towns, about 40 per cent of the graduates start their own practice; 20 per cent work in other offices; 20 per cent pursue postgraduate studies; and the remaining 20 per cent diversify into other design fields. There are also examples of cities, where about 35–50 per cent of the graduates join an interior design/contracting/furniture company and provide architectural services to new homebuyers on commission basis. This is particularly prevalent in Bengaluru and Hyderabad. We may conclude that a substantial proportion of graduates are not involved with the building making industry and there is a minuscule participation of architecture graduates in rural habitation problems.

Architectural Offices

For this study, architectural practitioners[12] were contacted through an online interview with three questions about their expectations from interns, expectations from graduates and gaps in the education system. A detailed set of responses is provided in Annexure E.

The expectations of architectural practitioners are largely around representation and drawing abilities, model-making abilities, software skills, communication skills, mechanics of structures study, construction and process of building making. Some of them have been explicit about the need to know building systems and basic service systems.

A few architects expressed a need for a better understanding of climatic conditions. Some architects mentioned the need to be inquisitive and have the ability to ask questions. They also stated that students' familiarity with history and theory, awareness of contemporary works, practices and discourses is lacking.

A few architects noted the need for architectural skills; about being trained in the language of architecture.

Some architects have pointed out the gap between academia and profession, the unawareness of "real-world practices" and on-ground experience, which creates a gap in the teaching–learning process. The focus here is towards making students ready for office work.

Architects expressed that doing the internship in the fourth year is better than in the final year as the latter makes it difficult for students to apply their learnings back in the academic space. Further, it reduces the possibility of peer learning from senior students who have training experience. Architects feel that if the internship period were to be followed by the academic course, it would be helpful to share and contest their skills acquired through the internship. Many architects also expressed the need for a year-long internship.

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[12] We would like to thank all practitioners who provided valuable inputs during the study: Akshay Narwekar, Anand Patel, Anand Sonecha, Angad Kasliwal, Aniket Bhagwat, Anne Geenen, Apoorva Madhusudan, Bina Bhatia, Faizan Khatri, Gaurav Roy Choudhury, Gauri Pandit Joshi, Harleen Duggal, Krishna Parikh, Madhav Raman, Mahesh Radhakrishnan, Nemish Shah, Parvez Charani, Pramod Balakrishnan, Suparna Bhalla, Prasanna Desai, Pratush Shankar, Praveen Bavadekar; Quaid Doongerwala, Rahul Gore, Rahul Kerur, Ravi Sarangan, Riyaz Tayyibji, Rohit Shinkre, Sandhya Manjunath, Sankalpa, Suchita Pawar, Suresh Krishna Murthy, Vandana Ranjit Sinh and Vinit Nikumbh.

Events, Magazines and Awards

The validating machinery for good architecture in India has been historically weak since Independence. Buildings with expensive materials; large, exclusive and privatised spaces; mechanised comfort; clearly defined spaces for different types of works and workers; windows, balconies and terraces that open into a natural surrounding or sky or wilderness have been some of the parameters for validation amongst the middle class, which largely emerged from aspirations that were formed through television, film and advertisements. The only architecture magazine in the country until the 1980s was the *Journal of the Indian Institute of Architects* (JIIA), which was started in the 1930s. Though JIIA had serious discussions on planning, architecture and urban development until the 1970s, its quality started deteriorating and it became a collection of project documentation and advertisements with uncritical writing. In 1978, *Inside Outside*, a glitzy magazine largely about interior design, was first published. In the mid-1980s, two promising magazines started: *Architecture Plus Design* (1984) and *Indian Architect and Builder* (1986). These magazines published architectural documentations, projects of different kinds, biographies of practices and articles by educators. However, since the early 2000s, even these two magazines moved to publishing uncritical collections of projects with a great number of pages dedicated to advertisements. Many other magazines have emerged in the past decade which largely continue this trend. There have, however, been some efforts at publishing serious writing on architecture; *Tekton*, for example, has been consistently publishing papers since 2014.

In the past few years, several online publications, archives and magazines have emerged which seem to have a large reach.[13] Internationally, *ArchDaily*, has a very large collection of projects. These projects are crowdsourced, where architects can contribute their works. In India, *Architexturez* has a vast collection of texts and books on Indian and South Asian architecture. *ArchitectureLive* positions itself as a watchdog magazine for architecture raising current issues on practice and education. *Studio Matter*, established in 2016, produces a biannual journal called *(In)side* on contemporary architecture and interior design. They also run an online archive called *Think Matter,* a digital journal that hosts professional content with an aim to provoke a conversation on issues and ideas that concern the practice and pedagogy of architecture in India, and a system of validation of architecture projects in India through *The Merit List,* where architects are invited to submit projects. A review panel of 4–5 architects goes through every project and shortlists a few as "the merit list" based on various criteria. All the latter three are run by very small organisations. *ArchitectureLive* and *The Merit List* have been publishing books on curated and reviewed architectural works.

While popular magazines and awards are largely very low in content and usually oriented towards maximising advertisements, serious journals and web-based magazines and archives are few and struggling for funds. Some of them work with crowdsourced funds, while others with limited philanthropic support.

[13] We would like to thank Rajesh Advani, ArchitectureLive along with Maanasi Hattangadi and Ruturaj Parikh, Studio Matter for generously participating in this study.

Figure 2.6: Award categories for the Aces of Space Design Awards

Source: https://www.itp.events/AcesofSpaceDesignAwards2022

On the other hand, there are a number of architecture awards that are given by product manufacturers and suppliers.[14] Here, again, architects have to submit their projects, which are then reviewed and selected by a jury. However, in most of these awards, the organisers make sure that the maximum number of awards are given; for example, there would be an award for best use of glass, or best washroom design of the year, to name a few.

Additionally, there are a few events like the *IDAC Expo* and *ACETECH* which are organised annually by event management companies. These events are held on a large ground, where a shed is built with "stalls" inside showcasing a variety of architectural products. Typically, building material suppliers and vendors sponsor these events and have their stalls in these fairs.

Both the awards and the expos seem to have shaped the idea and image of an architect and architectural practice. Architects are invited from all over the country to visit; usually to "curate" a discussion or a thematic pavilion. These events are aggressively publicised and attract students as well as the general public. Architects are usually packaged and marketed as assertive corporate workers throughout the event and in all publicity material. The usual narratives here are also technocratic as these events have material and technology suppliers at the core.

[14] For example, JK Cement Architect Awards (https://www.aya-jkcement.com/index.html); Spaciux Design Awards (https://spaciux.co.in/); India's Best Design Awards (https://www.design-india.com/ibda/); Architecture and Design Excellence Awards (https://designawardsindia.com/); Trend Excellence Awards for Architecture and Design (https://www.trendsawards.in/); and Aces of Space Design Awards (https://www.itp.events/AcesofSpaceDesignAwards2022).

CHAPTER 3: HABITATION MAKING FOR THE 90 PER CENT POPULATION

This part of the study undertakes a cursory survey of the other ecosystem that provides for mass inhabitation for the 90 per cent of the population that does not get served by trained architects. The intention here is to develop an understanding of the process of habitation making, and the capacities and resources involved in the same. This chapter is expected to help articulate the gaps in the formal educational ecosystem that restrict it from engaging with the masses.

For this, we undertook two short studies of house makers and small contractors.[15] The samples for these two studies were identified through the networks earlier works of the project team. The limitation was that since the project team is located in Mumbai, the samples are also from Mumbai. However, the metropolis of Mumbai holds space for myriad contexts. We also studied a few alternative practices and pedagogic experiments that have engaged with questions of mass inhabitation questions.

Specifically, the three studies included:

1. **The processes of habitation making for the 90 per cent of the population that does not get services from formally educated architects:** This study was undertaken through biographical case studies of house making in villages, slums, inner-city areas, urban peripheries and second cities, where formally educated architects rarely undertake projects. In these studies, we were interested in identifying the process through which houses get built in these localities. We interviewed key persons involved in the house making process. The interviews were focused towards understanding: the contexts for making/changing the houses; design considerations, if any; procurement of material and labour; mobilisation of funds and handling of procedural, logistical and legal issues.

2. **Capacity development processes amongst actors involved in making habitations for the 90 per cent, such as small contractors, master builders, *ustaads*, and so on:** This study was undertaken through biographies of small contractors who are involved in the process of habitation creation in the above-mentioned localities. Here, eight practices were studied. We were interested in the processes through which small contractors acquire their capacities and skills and participate in habitation making process in these localities. We interviewed small contractors and focused on understanding: the manner in which skills were acquired; manner of obtaining work; procurement and management of finances, labour and material; problems with the practices; and relationship with (formal) education.

[15] We are grateful to the local contractors and artisans interviewed during this project: Pavan Vishwakarma, Dinesh Kumar Kumbhar, Rohtaaz, Ramkaran, Nimesh, Muhammad Shaikh, Laala and Amjad Khan. We would also like to thank Sunanda Jadhav, Sunita Sutar, Sharmila Barap, Jayshree and Rupesh Bomble, whose stories of home making we have followed closely. All of them have been kind and generous in sharing their experiences.

3. **Alternative educational initiatives that have responded to the above-mentioned gap:** These have not only engaged with the habitation question for the masses, but have also explored different technological, pedagogic and habitation making processes. We looked at a few alternative educational initiatives that have responded to the above-mentioned gap between architectural education and non-involvement of architects in the production of habitation for the majority of the population. Samples for the above study were identified through the networks of the project team. This study was undertaken through interviews of persons who have made such initiatives. The main aspects the study aimed at understanding: orientations and focus of the practices; current practices; management of logistics; impacts; and hurdles.

Practices of Home Making

Box 3.1: Stories of home making

Figure 3.1: Sundanda Jadhav's house in a slum in Juhu, Mumbai

Source: The authors

Case 1. Sunanda Jadhav's Slum House

On the outskirts of the posh township of Juhu in Mumbai, home to several Bollywood stars lies Sunanda's slum with around 800 houses. In the 1970s, this settlement had only 15—20 houses. The land was rumoured to belong to a Bollywood actress. It had been taken over by slum lords, who sold parcels of land to various individuals. Sunanda's mother bought a piece of land for ₹30 and built a makeshift tent to live there with her family. The houses have now been consolidated over the years. Many have essential facilities in their houses and even have air conditioners installed. The local Member of the Legislative Assembly (MLA) has built toilets in the area using funds allocated to him. He has also built a temple and is now building a large garden in the vicinity.

Sunanda works as a maid in several homes in Andheri. She has one son and two daughters. While the two daughters are married and live elsewhere, her son and daughter-in-law live with her. Sunanda's home was supposed to be redeveloped as part of the slum rehabilitation policy by a local builder. A politician who was in nexus with the builder had promised to give every slum dweller in his constituency a rehabilitated house if they voted for him. As the politician lost, hopes of getting this free slum house also crashed for Sunanda.

In 2013, Sunanda started looking for other alternatives. She borrowed money and started retrofitting her dilapidated house. She approached Khalid bhai, the local contractor who was in the business of making slum houses. She asked him to renovate her house. This involved cementing the floor, consolidating the kitchen platform, building an internal washing space and building an additional floor. The floor was only partly done and had a lot of water seeping in. The next year, she borrowed money and approached her son's friend, who was a mason, to tile the floor. In the next two years, she spent ₹1 lakh to build additional lofts on both floors to act as sleeping spaces. Recently, Sunanda, with the help of her neighbours, used a credit scheme to buy a new washing machine. The machine is placed outside the house as there is no place inside. The outdoors function as a spill-out space, where many neighbours sit together, compensating for the small interiors.

A few months after this, Sunanda, along with a few neighbouring families, obtained a metered electricity connection for the house. Now her house is consolidated and reasonably habitable. Sunanda is proud of building this house for her family. In contrast, a slum rehabilitation building built in the vicinity by the same builder who had promised her a house has been abandoned because of unsafe building practices and the real estate market crash. Over the years, the building has been vandalised. The economic situation is such that no new slum rehabilitation buildings are being built. Since this is a completely market-driven policy, it makes little sense as a housing delivery system for the poor.

Case 2. Sunita Sutar's house in the self-built settlements of Safiya Begum Chawl in Mumbai

Figure 3.2: Sunita Sutar's House in a slum at Bhandup in Mumbai

Source: The authors

Safiya Begum Chawl is a self-built settlement adjacent to the Bhandup–Mulund industrial belt. The land belonged to two individuals, Baig and Kera Yadav. Slowly, in the 1980s, the chawl was subdivided and sold to several individuals by slum lords who had taken possession of the land. The settlement, situated on a sloping terrain, was mostly occupied by labourers working in the industrial belt. Inhabitants of the settlement kept upgrading their houses as and when they had resources.

In 2000, as part of the World Bank's Slum Sanitation Program, the Municipal Corporation of Greater Mumbai took up a large sanitation project in 300 self-built settlements of Mumbai. Seema Redkar was a municipal officer who worked with the Solid Waste Department of the municipality. She found the clause of individual toilets in the World Bank guidelines interesting and very relevant. She approached several self-built settlements. Safiya Begum Chawl was one of them. Soon after, active members of the community mobilised people and became involved in the process of building toilets. Seema Redkar worked with local contractors to achieve this. The contractors laid pipes to connect to a large septic tank under the municipal road. Different people based on their resources built the toilets at different times. Some houses were very small and did not have any place to build toilets inside. This is when the community got together and found land in the interstitial spaces in the streets just outside their houses. Though these toilets were outside, they were still designated to one household. People helped each other in times of crisis and occupied each other's houses as their own.

Figure 3.3: The interior of Sunita Sutar's house in a slum at Bhandup, Mumbai

Source: The authors

Sunita Sutar worked as a manager at the Modern Industrial Corporation, a company located in the industrial belt of Bhandup–Mulund. She was educated and had a relatively well-paying job. She was a single mother and became the sole breadwinner of her family when her husband, who also worked in an industry in Bhandup, passed away. The family has been living in this place since 1986. When they bought the place from the previous owner then, the house was dilapidated, made of mud with no doors. The family themselves consolidated the floor, rebuilt the walls and fixed the roof. In 1989, they built an extra space for the kitchen after demolishing a part of the mountain abutting the house. They also got water supply at the same time after much struggle with the municipal corporation; the whole community was involved in this struggle. In 1999, the family wanted to shift to an apartment to appear as upwardly mobile, but Sunita's husband fell ill and passed away. Sunita's salary at that time was equal to her monthly loan instalments. She gave up the flat and continued living in the chawl. In 2000, she got some money from insurance for her husband and used that to renovate the house. She renovated the kitchen and was the first to get an individual toilet with Seema Redkar's efforts. She employed a local mason to build the interior space of the toilet and connect it to the lines laid by the municipal corporation.

Now, Sunita lives in the house with her son, his wife, a child and a dog. The family shares one multi-purpose room with a curtain drawn across for privacy. As she is retired, Sunita now uses the common space outside the house near the well and has grown a small garden in the lane outside. While Sunita thinks this space has served her well, she feels the future generation would like to live in an apartment as it is considered upwardly mobile. The settlement has been approached by a builder to redevelop it. However, many inhabitants of the settlement have refused to give their consent to the developer as the space offered is equivalent to what they already have. Moreover, they are aware that this will lead to high maintenance charges, which they will not be able to afford.

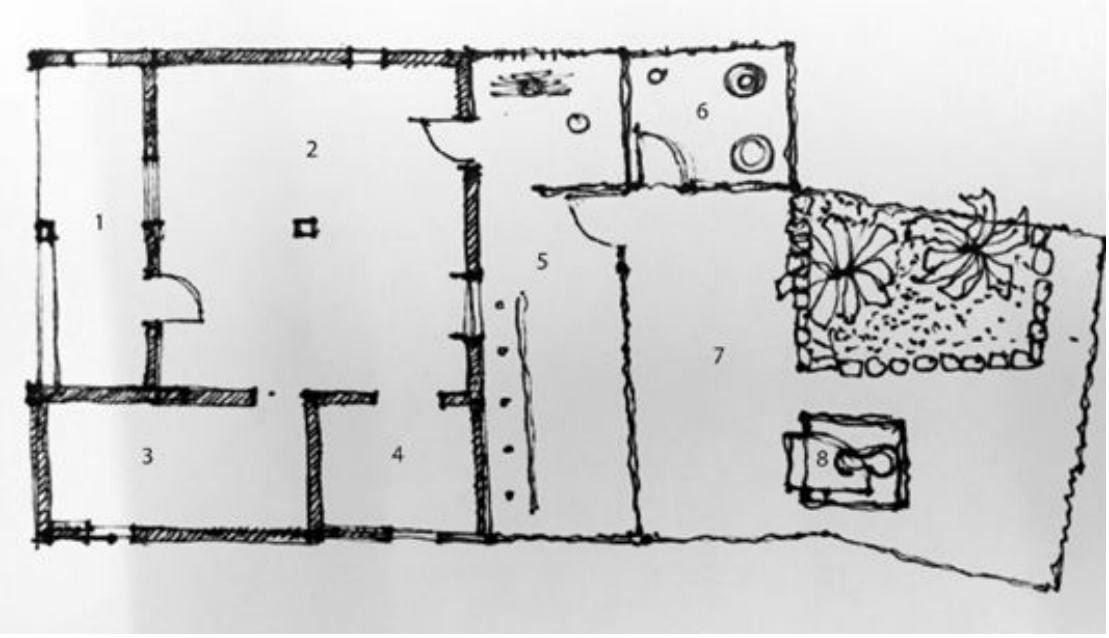
Case 3. Jayshree's autochthonous house in Murbad

Figure 3.4: Jayshree's house in Murbad village in Palghar

Source: The authors

Jayshree lives in a new house built by a local mason in a village belonging to the Warli tribe, two hours from Mumbai (Figure 3.4). This house is made of brick with wooden posts mostly salvaged from her old house. Jayshree herself is an expert in making wattle and daub walls from the local *karvi (Strobilanthes callosa)* plant. Traditionally, women would be an integral part of building houses in the village. While the men would prepare the wood for the structural members, dig the foundations and assemble the framework, women would undertake the making of walls and floors. The *karvi* plant, with lilac flowers, grows high up on the hill slopes of the forest and blooms once in eight years. It has a thin but sturdy stalk. Women collect these stalks from the forest, weave it into a framework, and plaster it with mud to make walls. The internal walls of the *karvi*, which are not exposed to the elements, last for more than 30 years. The external walls need to be disassembled and remade every two years. This is done after the harvest when the entire community is engaged in the rebuilding process. Women are also involved in finishing the floors with a layer of cow dung, renewing it at the time of festivals. They also make paintings on the walls, which are often narrative maps of the ecology of the home and its social and cultural relationships, all drawn through abstract imagery using platonic shapes. They paint with a paste made of rice, water and gum on a red ochre wall prepared by mixing red brick, earth and branches. The brush is made with bamboo sticks chewed at the edges to make the fine tip required for drawing.

Figure 3.5: Plan of Jayshree's house in Murbad village in Palghar



Note: Jayshree's house in Murbad, with an extension at the back in Karvi. (1) Verandah; (2) Multipurpose space; (3–4) Rooms; (5) Kitchen space; (6) Bathing space; (7) Backyard; (8) Toilet.

Source: The authors

For her own house, however, Jayshree could not use *karvi*. This is because the funds to make this new house came from the government under the Indira Awas Yojana (IAY). Started as a rural housing programme in 1996, IAY has been restructured into the Pradhan Mantri Gramin Awas Yojana (PMGAY)

by the current government since April 2016. PMGAY's role continues to be to provide pucca (permanent) houses to those households whose houses are *kutcha* (impermanent) or dilapidated. The government, with its modern planning paradigms, sees the traditional construction in the village as an irrational way of building since it had to be renewed often. It equated the *kutcha* house with poverty. Under the scheme, village dwellers are allocated funds to build their houses. However, the funds mandate that the houses must be built as *pucca* structures with strong materials like brick and cement. No funds are given for building constructed using wattle, daub and other traditional methods. This shifts the agency of building from individuals to professional contractors who make standard houses. The result is often an expensive construction, which changes the idea of the house for the village. The house starts conforming to an urban middle-class building-type that has a distinct living room, bedroom, etc., which does not work for the fluid relationships within families. These in turn have the danger of inculcating certain gendered stereotypes in the way a "master bedroom" and "living room" are imagined. The kitchen is a small utilitarian space where only one person can work, as opposed to the large space of the earlier house where responsibilities were shared. In Jayshree's new house made by the contractor, the windows were left unfinished as they are too expensive to make. Most of the time the windows are boarded with brick, defeating their very purpose. While *karvi* walls created much cheaper solutions for openings, in this case, windows are planned for but not implemented because of a paucity of funds.

As Jayshree found her home more and more unliveable, she also started finding ways to work around the system. She realised that IAY mandated brick walls, so she made sure the front of the house had a pucca appearance. But the back started to corrode. She used her skills at making *karvi* walls for making her backyard. This was the space of her new kitchen and washroom, which she made into a large veranda open to the outside. Now, more people could participate in the act of cooking. Her animals roamed freely in this space. She finished her floor with cow dung and built in her tools for husking grain into it.

Case 4. Sharmila Barap's house in the forest

Figure 3.6: Sharmila Barap's House in an indigenous village within Sanjay Gandhi National Park

Source: Sunil Thakkar and Rupali Gupte, 2021

In 1982, the Sanjay Gandhi National Park (SGNP) was declared a national park and in 1995, it was categorised as a forest reserve (Zerah, 2007). With the increasing pressures of population growth and economic development, the peripheries of the national park began to get encroached. In February 1995, the Bombay Environmental Action Group (BEAG) filed a Public Interest Litigation (PIL) against encroachments on the park. The subsequent judgement by the Bombay High Court on 7 May 1997 was hailed as a landmark one by environmental groups. The court ordered the government to remove all encroachments. While some were given alternative accommodation, others were evicted. Indigenous groups who were conflated with the "encroachers" filed writ petitions challenging the order. The judgement rejected the PIL on the grounds that the 2,500 people enumerated by the petition as the indigenous population was too high and unsubstantiated. Some of the indigenous groups were relocated, but realising the inadequacy of these houses, returned to their hamlets.

Navpada is a small hamlet in SGNP comprising approximately 130 houses. There are around 12 such *padas* (hamlets) in SGNP. Sharmila Barap, (she is called by her nickname, Shamu *tai*) lives in this hamlet. She belongs to the Warli tribe. Shamu *tai* works with an NGO and has three sons and one daughter. Shamu *tai* lost her husband in 2014. In 2018, she decided to rebuild her house in brick and mortar as she realised, she would not have the capacity to renew a traditional wattle and daub house in a few years, though she knew that such a structure was able to breathe better. The current house is built collectively by Shamu *tai's* extended family, with some help from young boys in the hamlet who offer their labour for daily wages.

The plan of the house follows the original house type. It consists of a large outer veranda, a multipurpose room, two small rooms at the back and a large kitchen flanking one side. The pitched roof creates an attic space that is used to store things. The veranda also has a lower roof and spans the whole length of the house, forming an important outdoor room and a buffer space to the outside. The family spends a lot of time in this space. The multipurpose room is used as the central space of the house for all activities. The two inner rooms are small. One is used as a shrine and the other as a private space for her married son's family. For an indigenous family, the house extends beyond the built space to the front yard, the backyard and the common spaces outside. In Shamu *tai's* case, the backyard is used to rear livestock. Though agriculture is prohibited by the Forest Department, the indigenous families grow some vegetables and herbs in their backyard. They do this by mostly growing creepers that do not take much nourishment from the soil. Dinesh, the youngest son in the family, has built a birdhouse in the front yard for rescued birds and a large outdoor aquarium.

In terms of material, the upper pitched roof is made with salvaged cement sheets. Below this roof is a floor made with the traditional *karvi* obtained from the forest. While the lower walls are made with baked bricks, the upper parts, which enclose the attic, are made with *karvi*. This creates a beautiful light quality and maintains good ventilation through the house. The forest officials do not allow people to get *karvi* and other wood from the forest. The indigenous people are very careful in not over-exploiting the resource as they also worship it in the form of *karvidevta* (god of the *karvi*). Precast concrete posts hold the roof of the veranda. These precast posts are Y-shaped at the top to hold a beam that runs horizontally, supporting the weight of the roof above. The floor inside is a bricolage of Shahabad stone

and tiles, while the veranda is laid with Indian patent stone. Shamu *tai* obtained the bricks, stone, tiles and cement sheets from a demolition site in the forest, which lay in that state for years after the court had ordered the demolition of many structures.

A court order from 1997 asked the government to cut all water supply, electricity and telephone lines in the forest. As a result, Shamu *tai* does not have electricity in her house. She powers two small solar batteries, which are used to run a fan and a light in the night. She also uses some stolen electricity for which she has to pay a heavy price. Shamu *tai* has managed to get a pipe to her house from the stand-post, unlike others who have to manually fill water. The forest officials have built ten fibreglass toilets for the hamlet in various locations. These are highly insufficient for the number of people in the ***pada***.

While families such as Shamu *tai's* seem to be living by innovation in whatever ways they can possibly manage, the forest department has done little to integrate indigenous people with the forest. While there is so much local knowledge in building environment-friendly houses with the indigenous groups, deep connections with the forest—in terms of environmental preservation through customary laws and rituals, new research of environment-friendly materials, decentralised water, electricity and sanitation—they seem to be of no consideration as far as the government's policies are concerned.

Case 5. Rupesh Bomble's house in a *baithi* chawl

Figure 3.7: Rupesh Bomble's house in Zaoba Wadi, Mumbai

Source: Sunil Thakkar and Rupali Gupte, 2021

Rupesh Bomble lives in a house in the *baithi* chawls of Zaoba Wadi. Zaoba Wadi is part of the inner city of Mumbai, which was originally called the "native town" as it lay outside the colonial "fort". The inner

city has several chawls built on erstwhile plantation lands to house the influx of traders who came from the hinterland, invited by the British to facilitate its mercantile economy. Chawls were generally one- or two-room tenements strung along a common corridor with shared toilets. Some chawls were two to three storeys tall. Single storey chawls are called *baithi* chawls (sitting chawls). Rupesh's grandfather had bought the house 60 years ago for ₹500 in one such chawl. The chawl comprised of single-room tenements with a *mori*, an internal washing space. There were five such rows of houses with spaces in between the chawls used as shared spaces.

Rupesh continues to pay a rent of ₹41 to Zaoba Wadi for this occupancy. Rupesh lives with his mother in the house. They run a business selling *vada pav* in the city. His house is 3 m × 3 m. in size on the ground floor and initially had a low loft above this space. Recently, Rupesh spent ₹1.1 lakh to renovate his house. He created a new kitchen platform at one end. The *mori* was converted into a closed bathroom. The central space was left open with a storage unit that doubles as a seat. A moveable ladder led one to the loft, which doubles up as a sleeping space. During renovation, Rupesh lowered the loft by inserting steel beams to create an 8-foot ceiling height below and a 6-foot height above. This space is now used to store things or to sleep. Rupesh also tiled all the walls to avoid recurring costs of painting. He thinks this renovation will suffice him for another 10 years.

Just outside the house, 3 m away, the lane widens. The community has placed a bench in this space. There is also a temple of the Goddess Jarimari here that is more than 80 years old. This space, barely 3 m wide, has an intimate human scale. It becomes the living room of the chawl. Rupesh recalls how in his childhood the tenement was not the only place he considered home. He and his cousins often found space to sleep out in the open, under the sky, and enjoyed doing that. Today, with increased densities, mosquitoes and some sense of insecurity from theft, he finds it difficult to do.

However, he continues to feel like his home extends into the actively-used lanes outside his house, the nodes at the entrance of the chawl and the city lanes outside, where his *vada pav* shop is located and where he and his friends spend a lot of time. The spatial structure of the settlement allows this extended idea of the home to take place. Rupesh looks at the redeveloped buildings around him and wonders how he will adjust to life in them if his settlement ever gets redeveloped. He has visited some of these buildings. While there may be in terms of having a private property for oneself, private toilets, avoiding the embarrassment of using common toilets etc., spatially, these homes feel claustrophobic as they are built to maximise profit for the developer.

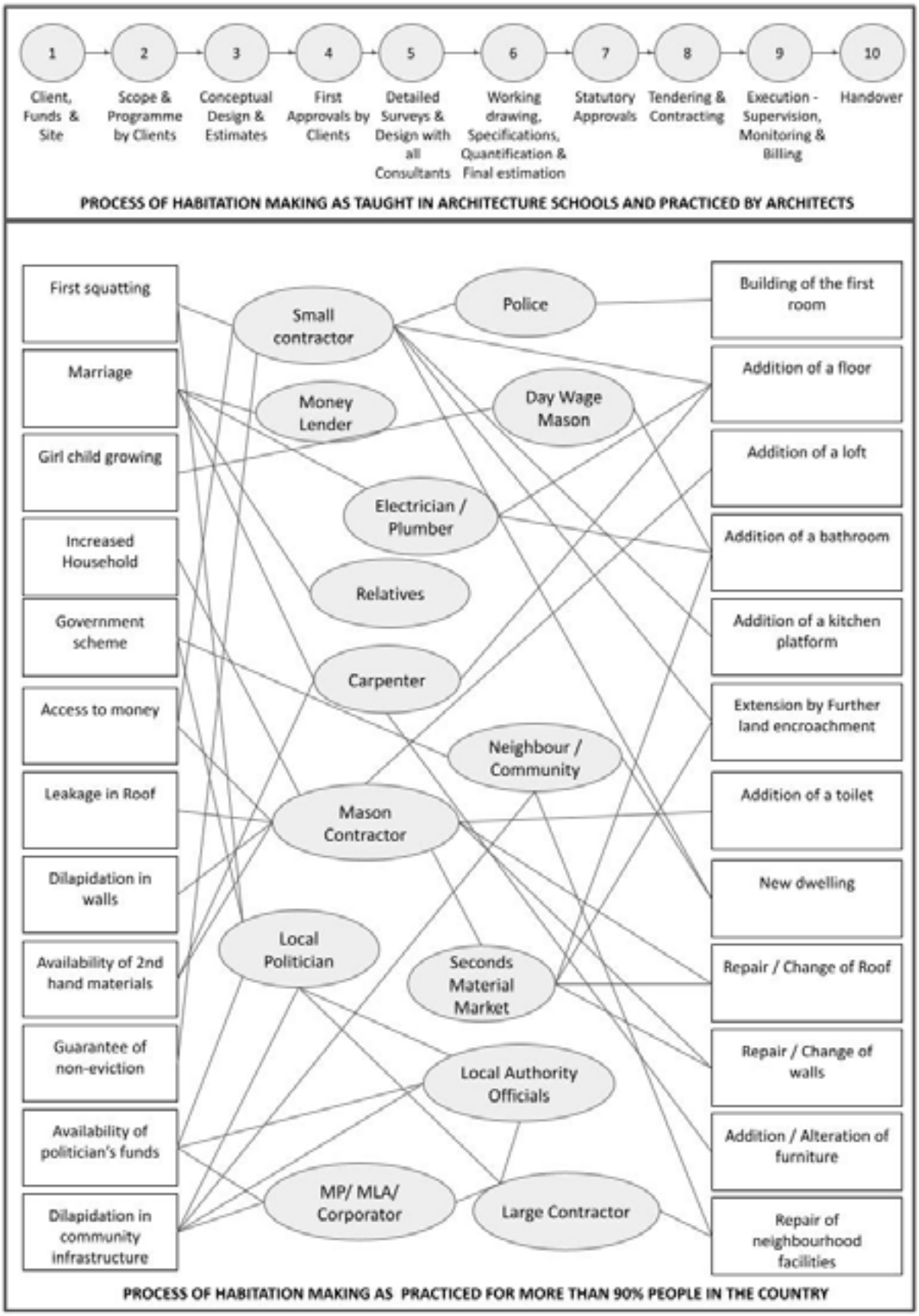
Figure 3.8: The interior of Rupesh Bomble's house in Zaoba Wadi, Mumbai

Source: Sunil Thakkar and Rupali Gupte, 2021

The regulation for redevelopment of cessed buildings in Mumbai has led to high-rise towers in the inner city, destroying the urban form and spatial patterns of the neighbourhood, which had a relationship to the street and a rich lived relationship within. The towers often have parking up to the first seven floors. The lower floors are given to the tenants and the upper floors are for sale. While upper floors often have more open and free-flowing layouts, the tenant housing tends to lack light and ventilation. The city has been home to Rupesh and he enjoys a rich textured relationship with it. The high-rise towers would in many ways deny him and other chawl inhabitants these relationships.

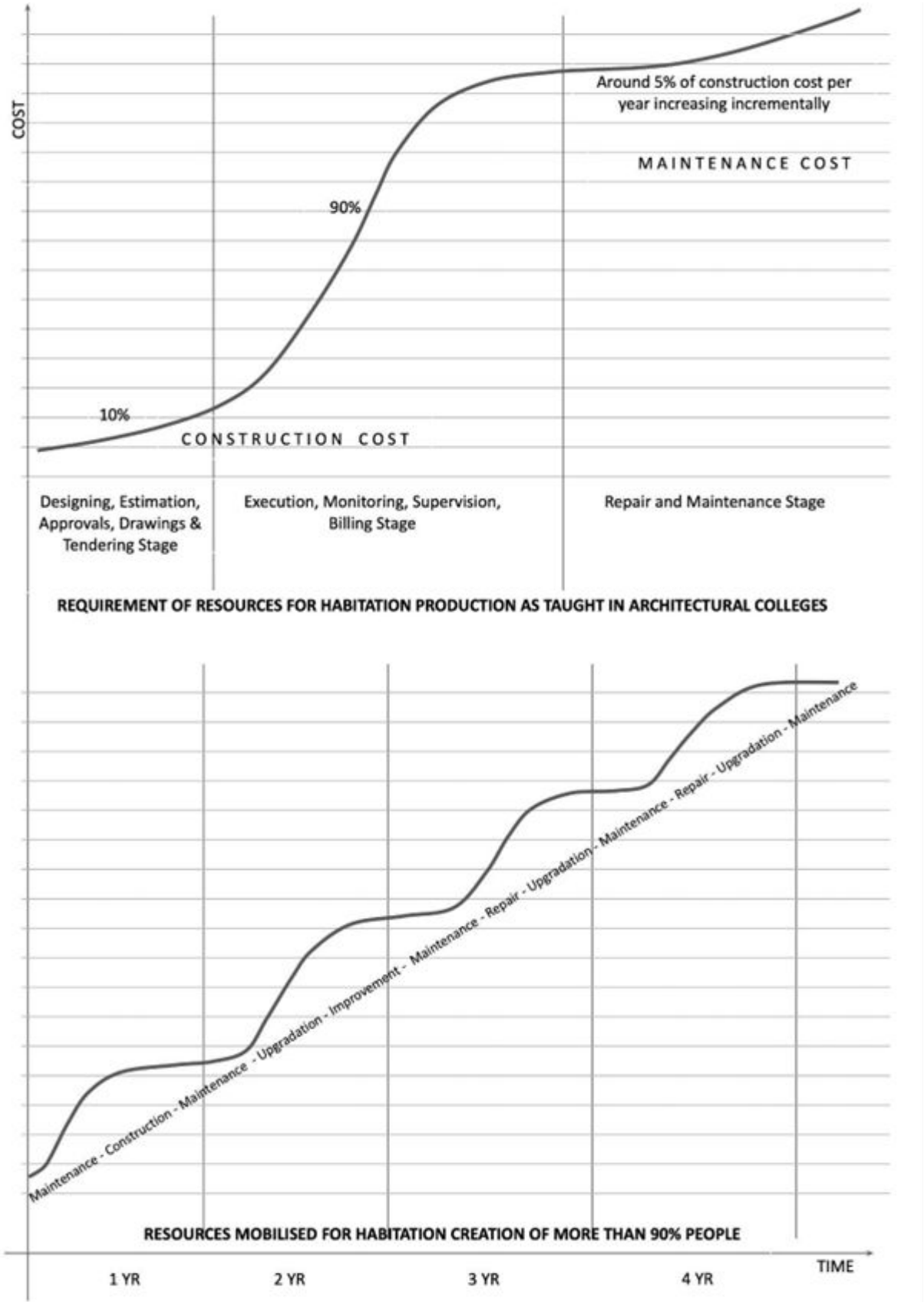
(A summary of our interviews with the house makers is provided in Annexure F.)

Figure 3.9: Process of habitation making as taught in schools versus the way it actually happens



Source: The authors

Figure 3.10: Resource mobilisation for habitation as taught in schools versus the way it actually happens



Source: The authors

As discussed earlier, building making processes in mainstream education and patron-dependent practices (comprising only 5–10 per cent of the population) has a more or less linear trajectory. Habitation making processes in slums, pastoral villages, indigenous villages, urban villages, urban peripheries, inner-city areas and second cities (which together house about 90 per cent of the population) do not follow a linear process where design gets finalised before and buildings get made subsequently. They are made incrementally through expansions, improvements, upgrades, repairs and retrofitting, and are mobilised slowly over time as when the need arises and resources permit.

The actors involved include communities with roles played by men and women, small contractors, artisans (carpenters, masons, grill makers etc.), and small builders. Most of these actors pick up the abilities for house making as life skills rather than through a formal education process. Often, women play an active part in decision-making and building, particularly in the case of autochthonous communities. On the other hand, their roles shrink when processes get standardised via contractors and other professional agencies.

The process of house making is not straightforward. It includes negotiations with neighbours and other members of the community, bribes and other stealthy practices (for instance, working during weekends to avoid being discovered by municipal officials) since these constructions are often illegal. The demand/opportunity for such habitation making may emerge from unusual circumstances: demolition of another house, a government scheme, marriage in the house, splitting of a family, access to some furniture, leakages, natural dilapidation of building material and so on. This demand is also time-based and does not involve a one-time solution.

Most of these practices are supported by a network of material banks and entrepreneurial practices that recycle old material and building elements, source cheap materials or prefabricate ready-to-use building elements that are cheap due to economies of scale. This has huge potential for thinking of forms of economic generation and employment through activating the informal economy and bottom-up design thinking. Most of these practices evolve from lived relationships and an economy of resource consumption, and so tend to be innovative in their configurations of space and in the assembly of building materials. Most eschew standards to make optimum use of space available.

In most home making practices, the private and public spaces blur to create extensions, where a neighbour's house, the neighbourhood, the street and the city could become an extension of one's home. This is predominantly due to the spatial configuration of the houses, which create intimate spaces where people can spill out into. These spaces shrink in the cases of slum rehabilitation, where corridors get regimented in ways that are not conducive to commoning.

Small Contractors and Self-Learnt Builders

This section looks at eight cases of small contractors and self-learnt builders who have been making habitation for the 90 per cent of the population who do not get served by trained architects.

Box 3.2: Stories of small contractors and self-learnt builders

Case 1. Pavan Vishwakarma

Pavan Vishwakarma is a young carpenter hailing from Cherapur, Rajasthan. As farming could not sustain his family of seven, he came to Mumbai for work at the age of 14 to provide for the them. In Mumbai, he lived in Kurla and worked in Chandivali, where he did several odd jobs like repairing the base timber boards of sewing machines in a factory. His employment here did not last for long as he was underage.

He currently resides in Nala Sopara, Maharashtra, where he rents a room with his brother, next to his teacher Shri Hari Vilas Pal and his family, who is a master carpenter and taught Pavan carpentry. Pavan chanced upon work with Tanaji Shinde, a contractor who sent him to work as a helper to Hari Vilas Pal who taught him all the skills needed to be a good carpenter. His training period included cleaning the site, holding material and other small tasks that would allow him to lend a hand as well as observe and learn carpentry. After two years, as Hari Vilas Pal gained confidence in Pavan, he was given an independent site where he had to build furniture for a bedroom in Goregaon. He continued to work with his teacher for 10 years, until Hari Vilas Pal chose to retire.

Pavan believes that the space and materials guide his decision of crafting furniture pieces for a project. He has done a couple of independent projects like building a medical shop in Virar, where he was given complete autonomy. Pavan has also worked with Kingfisher Airlines to build the simulator, chairs, and four to five mock cockpits for testing in timber. He made large *ring farmas* (round frames)[16] of the airplane in large rooms. The non-cuboidal nature of the mock cockpits was especially challenging, which he figured out using his intuition and skill. He has also built a bungalow over a period of four years in Satara completely by himself, from the foundation to the furniture. Currently, several people of different ages work with and under Pavan. The older experienced carpenters revert to Pavan as they find him more skilled and the younger carpenters work under him as his students. He believes in engaging with his co-workers on equal terms. He deems himself to be relatively lucky as he has not faced any serious financial crunches or payment issues. In fact, in the few past projects, he was paid over the quotation for his honest and good-quality work.

Case 2. Rohtaaz

Rohtaaz is a *mistry* from Sapra, Rajasthan who currently lives in Virar, Maharashtra with his family of five. His father was a contractor, and this prompted Rohtaaz to move to the city in order to earn a living. He lived with his father in Kherwadi during his initial years in a one-room house along with other kin from his village, a majority of whom were engaged in the construction labour market in Mumbai. He learnt how to work with stone from an *ustaad* called Leela Ram for four years. His first project was a housing society in Vashi where he was assigned the responsibility of fixing tiles around the windows and doors and making the dados for the entire building. However, before this, his training period included cleaning the space, carrying waste for disposal away from the site and cutting small chips of tiles to understand how different tiles and stones behaved.

[16] There is a practice of naming new and unusual objects instantly amongst most artisans. Such names travel and become the common name to refer to similar objects in the future.

Rohtaaz largely gets work from Khar Naaka, his brother, who is also a civil contractor and from Nagpal Developers with whom he has worked for more than 15 years. Young men from his village and state come to work under him through his kin relations. Rohtaaz has set up two models under which training is done. In the first, young *mistrys* pay him a fee to directly begin work, usually to cut and fix tiles. If the *mistrys* who have come to learn under him are unable to pay, they have to undertake cleaning work on the site, after which they are gradually trained by observation.

Mobilisation of funds for procuring material is done by preparing a rough bill of quantities. Rohtaaz takes a 20 per cent advance payment, which is used to procure material and hire other *mistrys* on the site. There are times when payments are not done in full or get delayed. To pay the people he recruits, he borrows money from his brother. This was something he recollects his father also doing, which left him with a debt of ₹14 lakh that Rohtaaz and his brother have to repay.

Rohtaaz has undertaken unique projects, like laying a patterned flooring at a mall in Goregaon which he designed and executed within two nights; a temple for a house in Bandra Kurla Complex, where he designed and put together an ornate miniature replica of one of the temples that he had visited in his youth. He believes that all stones and materials are different and they guide his method of cutting and fixing the stone.

Case 3. Dinesh Kumar Kumbhar

Dinesh Kumar Kumbhar is a 30-year-old civil contractor who has been working in the western suburbs of Mumbai, mainly Khar, Santacruz and Andheri, and in Navi Mumbai over the last 10 years. He lives in Virar in a house of his own next to family from his village in Sapra, Rajasthan. His father, who was also a contractor, had been working in Mumbai for the last 30 years. However, he succumbed to COVID-19 in the first wave of the pandemic in 2020. He claims to have learnt the trade by observing and assisting his father and elder brother. Dinesh narrates that sitting at the *naka* (an edge of a street where one can find labourers on hire for a daily wage) for *"dedh ghanta"* (one and a half hours) is extremely crucial, as this is the way information is shared through networks; one gets a sense of work and if and where there is a requirement of his skills on ongoing sites. Networks of the community and the village clearly play in to determine the opportunities one is exposed to. In Dinesh's case, however, the factor of his father's practice also plays in, where older clients and friends inform Dinesh and seek him to take up new work.

For each project, Dinesh gets a sense of the material requirements and then provides an estimate to his client. After negotiations in some cases, he receives an advance, which is used to buy materials. He sources materials from places close to the site; in this case mostly from Khar. At times, the money from the advance may not be sufficient and has to be mobilised from his network of friends and family. This gets used in paying the *hajri* (daily wages) to the site workers. Dinesh, however, faces trouble with payments. Points of friction for Dinesh are largely local goons, local authorities who deal with the collection and disposal of debris, and *mathadi kamgar* (loaders who carry material on their head), who he claims harass him and ask for money. Further, builders and developers strong-arm him and keep payments pending or extend work. In some cases, if there is a disagreement on the ethics of extending or making alterations, he is pushed to make changes by the client. When this is done, the local authorities are known to come and demolish such construction or fine him.

Case 4. Ramkaran

Ramkaran ran away from his home in Basti, Uttar Pradesh to work in the city of Mumbai. He has been living and working here since the last 30 years. When he came to the city in the 1990s, he was fortunate enough to find an older cousin who was a mistry and then lived with him and visited his sites. The necessity to earn a living made him take up the work of an assistant under the master carpenter there. Since the teacher worked largely in Juhu, Bandra and Parla, his clientele is mainly situated in these localities. Currently, Ramkaran does not go to any *naka* due to his age; he is hired by or through his older clients. He believes that his mastery lies in making custom furniture with ornamentation and engraving. The new, relatively neat designs popular on the internet fluster him and he wishes to make things the in the old way.

He has been practising since the last 30 years, and his sons have also followed suit to become carpenters. His sons mainly work with him. Working within the family has its benefits and downfalls according to him, as the newer generation does things differently and are relatively quicker, whereas he believes the process of learning should be slow and methodical from the very basics of making a simple joint. Transactions are made partially in cash and partially through cheque. He asks for an advance based on the materials required and the *hajri* to be paid to give to anyone working with him. Incomplete site work, losing of projects and non-payment of outstanding bills from developers have currently left the family in huge debt. He faced a lot of precarity during the pandemic. There was an absence of any kind of support during this crisis. He feels that the profession is diminishing due to online businesses and the craft of making and understanding timber will soon disappear.

Case 5. Nimesh

Nimesh learnt fabrication from his neighbour Govind Phadke who was a fabricator himself living in the old town of Bombay. While studying he did not enjoy college and chose to drop out. To make ends meet at home, he started assisting Phadke and subsequently carried on the legacy. He also worked in a *karkhana* (small factory) in Bhiwandi for a year in between his training. The first thing that he was taught was to understand different metals and how to work with processes of coating, anodising and shaping them.

He now mainly works with builders and developers and takes up smaller projects in his neighbourhood. The pandemic disallowed him from undertaking any form of work on the residential building scale and thus he diversified into making smaller products like air purifier frames for a company based in Nariman Point and making small structural changes to old houses in his neighbourhood.

Four people work under Nimesh permanently on account of the volume of work and their salaries are paid by him on a daily basis from his pocket. This leaves him vulnerable in situations where clients, developers and builders bargain with him and do not pay him the full fees. Nimesh's *kaarigars* (artisanal workers) live in a workshop close to his house. He claims that all the people working under him are like kin and he tries to keep them happy as he believes and finds them highly skilled. In the case of a larger project, he hires people temporarily on a project basis. He reaches out to these people through his employees and their contacts who are involved in the same line of work. In the case of a larger project, he hires people temporarily on a project basis. He reaches out to these people through his employees and their contacts who are involved in the same line of work.

Case 6. Muhammad Shaikh

Muhammad is the youngest amongst three brothers who have been in the business of contracting. After completing his Bachelor of Commerce (B.Com) degree, he joined the family business and started learning by visiting the sites his brothers were contracting or working in. His first project was a painting and plastering job in a four-storey residential building in Mira Road. Along with his brothers, he surveys parts of the suburbs looking for buildings that need repair work, largely during the monsoon season. The brothers then send letters stating intent to repair to these societies. This is something they began recently and tested it in Dahisar and Borivali. They also check advertisements that invite tenders in newspapers for repair work.

The societies select the contractor, who then surveys the entire building for cracks and leakages. The contractor sends a quotation before receiving the contract. They usually take up large projects of big societies that span for at least 1–2 years. As they largely deal with repairing housing societies, Muhammad takes an advance payment. These transactions happen partly by cheque and partly by cash in case discounts are given. The society deposits cheques after the committee members of the society assess the work. If there are cracks, these are filled and painted. If plaster falls off somewhere, they redo it. Within the 12 years guarantee given by them, they do all the maintenance.

Muhammad has at least 15–20 people working under him on a site. Since most of the work is to do with building facades, he feels responsible for the safety of the *mistrys* (expert artisans, usually carpenters) and *kadias* (masons) he hires. He largely recruits them from the *naka* in Borivali or Dahisar and prefers people they have worked with before. If there is an urgent requirement of a specific skill set, he accesses a network of contractors including his brothers for the same. He faces issues with the disposal of debris. Officials from the Brihanmumbai Municipal Corporation (BMC) try to harass him and his workers. Moreover, the nature of the work, especially waterproofing, is such that it may fail at times, which leads to him redoing it at his own expense or at rates that lead to losses.

Case 7. Laala

Laala's father passed away when he was in Class 6. He had to take up the responsibility to support his mother and sisters within the next five years. He wanted to become an engineer but found the exams and school system of very little value. Around this time, one of his sisters was getting married and their house needed to be painted. He took estimates from a couple of civil contractors but found that if he hired them then it would be very expensive for his family. To make things economical he started renovating his home by himself.

He found the work hard but realised that it was much cheaper because he saved 30–35 per cent. He took up work for a neighbour on a trial basis and this gave him an idea to start his business. He made an estimate with the costing and added 15 per cent as his charges. His labour taught him about quantities of material and methods. Initially, he only did interior painting work. Later, he took up exterior painting work of a building in Mahim. Eventually, he even started taking on civil work. He shared that his labour, who he also claims are his friends, have been his best teachers.

He said that the toughest part of his work was to figure out how to treat and manage the labour. The entire business is dependent on the labour. No matter how good the material is and how smart Laala

He said that the toughest part of his work was to figure out how to treat and manage the labour. The entire business is dependent on the labour. No matter how good the material is and how smart Laala himself is, it will amount to nothing if his labour is not engaged in the work. There is also trouble from the authorities when he needs to take permissions for certain kinds of work. The time, effort and cost to get permissions is very high, which clients are not ready to bear. To avoid the tedious permission process, he tries to do without it, but there are a lot of risks for him and his client that could land him in trouble. Also, where he works on-site, the rules for debris and noise change from society to society. This has economic implications as well.

Case 8. Amjad Khan

Amjad Khan has lived in Behrampada all his life, where he became a contractor under the guidance of his uncle. He worked as a mason and over time took up the business. He finds a distinction in the kind of work they do in slums versus outside, where space, time and resources are a constraint and work is done piecemeal. As a result, the same contractors may not be involved and a lot of time the work is carried out by the tenants themselves. The material is also reused at times and needs extra care to avoid breakage or wastage. There is also a distinction in the work done by the house owners who might want to add a floor or enhance an existing floor due to some an event or occasion and the accumulation of funds versus the tenants. The tenants expect smaller and cheaper estimates as the permanency of their stay is not guaranteed. He has to manoeuvre within these expectations so that the work done is suitable for each client's specific needs.

Since the nature of the work is such that permissions may become an issue, the team works very quickly. Amjad calls the type of work he does as "RP" or "repair permission" work in the incremental neighbourhoods. He needs to manage the police as well as the ward officers, which has a substantial financial implication of paying bribes. If an entire house has to be done or a floor has to be added, then he has to mobilise a large team and they try to finish work that would take 15 days in three days over the weekend. In such cases, the profits are higher because the work is risky. The payment done depends on the availability of resources by his clients. This means that delays are expected based on access to resources and their mobilisation. He tries to manoeuvre through this by taking small loans to make partial payments to his team. Since these are not bank loans, the interest is higher and he also has to mortgage some of his assets like his son's bike.

He gets most of his works through established networks in his neighbourhood. He does not bother going to the *naka*. Most of the work he gets is small projects but which are substantially large in volume, especially during festivals or in the event of marriages. The payment is largely done in cash through his clients, who also happen to be residing in the same locality. In case payments do not come through, he tries to manage as he knows his clients closely and trusts them.

(A summary of the interviews conducted with small contractors is provided in Annexure G.)

The backgrounds and preconditions of these builders vary, but they are all from lower classes. They began learning at a very young age after finishing their secondary education. Their first exposure to the work was in big cities where they migrate to and the nature of the work has to do with the act of making/building with their hands.

There is a strong network of kinship and they start by working under some older *ustaad*/contractor whom they get in touch with through kin. Here, learning begins by doing odd jobs and observing the master builder on the site. This goes on for a year at least and may extend to another two years depending on the methods the master builder employs and the progress of the younger apprentice. Master builders rarely ask for fees while imparting knowledge. Cleaning the site, carrying the debris and other chores are carried out by the apprentice instead.

Apprentices learn and experiment before getting their own small contracts. They slowly gather a team of their own, usually through connections from previous employers. Often, smaller parts of a site are handed over to the apprentice to work on by the master builder, and he supervises and advises the apprentice as and when required.

There is no formal learning involving reading or making orthographic drawings. The apprentices read these drawings through practice and intuition. They also do not intervene in space-making through making drawings. However, working with material and understanding its behaviour is inherently central to the learnings absorbed during the training period and this knowledge is used and relied on while undertaking acts of building/making space. There is a strong ecosystem that the apprentice gets inducted into that helps them in mobilising labour when they get new projects and obtaining finance in times of precarity. They learn and mobilise the logistical requirements (invoices, tax payments, etc.) through networks.

While their experiences and biographies could be tremendously valuable as case studies for architecture students, the artisans could also benefit from inclusion in architectural academia. Moreover, they may be the best link to organise architectural services through trained architects for the 90 per cent population that currently does not have access. These builders can be invited to participate in the pedagogical process in architecture schools, such that there is a mutual exchange of knowledge.

Alternative Schools and Practices

The alternative schools and practices[17] studied as part of this project have a broad focus on technology; either mobilising artisanal technologies or computational methods for crafting of habitation. These, in many ways, try to challenge the streamlined and standardised industrial processes that have become mainstream ways of thinking of habitation. They try to mobilise and train artisans into habitation making processes. The thinking here is that standardised processes have made artisans lose important skills, relegating them to labour in a highly alienating building making process. On the other hand, the craft of building making creates agency for the artisan as they play an active role in the aesthetic process of building making, where the knowledge and understanding of proportions, structural properties of materials and their assemblies are deeply situated in the body-memories of the artisans. Many alternative schools

[17] We would like to thank Anand Sonecha, Sealab; Apoorva Sharma, Bajri Collective; Sandeep Virmani, Hunnarshala and Sankalpa, ThumbImpressions for generously participating in this study.

and practices try to work with disadvantaged communities who have lost their homes due to natural disasters or other such circumstances. Some work with marginalised communities to help regenerate and conserve ecologies. These spaces have a lot to contribute towards architectural pedagogy. Some work as incubators and collaborators for several organisations that deal with local governance, women's issues, agriculture, water management, biodiversity conservation and pastoral communities as an extended practice of working on the built environment instead of focusing on building making alone. Many of the alternative schools and practices try to reduce emissions and embodied energy generation caused by building work.

These alternative schools and practices try to mobilise funds through grants or crowdsourcing methods like workshops and lectures, as opposed to relying on the patron-dependent nature of the profession. Some of the alternative schools try to influence policy by advocating for changing building codes, schedules of rates in the state for public works and more. Many have produced a compendium of design approaches that have been vetted by several governments and have become established practices in several states under their respective shelter policies. Some of these organisations are making bridges with mainstream commercial production by providing easy access to artisanal services and know-how. Many have created curriculums and teaching material that have entered mainstream education. However, much of this is continues to be perceived as alternative technologies instead of gaining mainstream recognition. This is perhaps also because the approaches suggested often are not able to deal with complex urban conditions and land and property relations.

(A summary of interviews with founders of alternative schools and practices can be found in Annexure H.)

CHAPTER 4: DISCUSSIONS WITH PEDAGOGUES

Figure 4.1: Discussion with architectural pedagogues from across India

Source: The authors

On 11 February 2022, the draft of this study was presented to a group of 20 pedagogues[18] from across the country and their responses were sought. A detailed reportage on the discussion with the pedagogues is provided in Annexure I. The key points that emerged from this discussion is summarised in this chapter.

Role and Scope of Architects, Architectural Services and Education

Most participants raised questions about the definition of "architectural services". The core team put together a working definition for this purpose: Architectural services are services of imagining new spatial configurations through drawings. The drawings are representations of form that produce the spatial configurations. As space has physical and non-physical dimensions, architectural services include an understanding of both these dimensions. At the core of the service is to imagine spatial configurations that provide comfort (physical and social) and dignity to human and non-human life. Architects are not sociologists, engineers or environmentalists; their primary skill is to understand and imagine space and its relationship to experience and behaviour and there is a rigour and *riyaz*[19] required to acquaint with this relationship.

[18] We are grateful to our colleagues and co-teachers from various institutions who participated in this discussion: Abhay Purohit, Aneerudha Paul, Aparna Surve, Arun Kale, Gauri Pandit Joshi, Jaideep Chatterjee, Kiran Mahajani, Kunjan Garg, Manoj Mathur, Neelkanth Chhaya, Neera Adarkar, Rajiv Mishra, Rajshekaran Menon, Ravi Punde, Ravi Sarangan; Reeveezee Antony, Rohit Shinkre, Sameep Padora; Shekhar Garud, Shilpa Ranade; Soumini Raja, Vidya Raghu, Vinit Nikumbh; Vinod Aranha and Vishwanath Kashikar.

[19] *Riyaz* here is an Urdu term borrowed from classical performing arts of the Subcontinent, particularly the music and dance traditions. *Riyaz* is a form of iterative practice followed with strict discipline and schedule in training one's body and mind. In each instance of this practice, the performer improves or changes incrementally. It is a form of training to not only sensitise the performer into the field of performance (music, dance etc.) but also to develop abilities in performing. In architecture, *riyaz* would be about an iterative practice in sensitising oneself in various dimensions of space and simultaneously training in imagining and crafting space.

There was a consensus about the decreasing significance of architects in society. This was largely attributed to low pay scales in the market. It was acknowledged that values were based on consumptive aspirations and that a careful positioning of the architectural discipline was required.

There was an articulation on the broader role and scope of architectural education, which included: education for personal growth, education to earn a living, and education for the improvement of society. There was also a discussion that education should equip students with what they aspire to do, which can be a very broad set of practices. Students should decide what they should do with the practice. Pedagogy should not impose biases. To this end, the core team reflected by suggesting that the role of academia is also to influence and rearticulate the choice that students make.

Numerous participants raised the need to have a pedagogy to develop sensitivity, fairness, integrity, compassion, empathy, collaborative practices and social responsibility. There were points made regarding the need to teach students about the current contexts of poverty, climate disaster and inequality, among others. They also stressed on teaching the fundamentals of climatology, light ventilation, orientation and basic ratios, and basic construction along with an understanding of economics, sociology and environment.

The question of academia being reduced to education was also discussed and the pedagogues agreed that institutions should reclaim academic space and take up the role of interrogating society, producing new knowledge and encouraging exploratory practices.

The pedagogues also discussed that each institution should have its own orientation and ideology and needs support and resources to promote this. Hence there could be substantial space provided for individual pedagogies of institutions along with a basic common minimum that can be specified by the COA and the various universities.

Widening of Scope of Studies

Many participants argued for a widening of the idea of architectural practice beyond being mere service to the building industry. They argued for research, exploratory practice and community mobilisation. Developing an environment that can hold pedagogies for all these dimensions would only strengthen the discipline and practice of architecture as architects would have many more tools and avenues to enter. They also discussed that architectural education should not follow a singular narrative and students should be encouraged to develop their education slowly based on their interests. This could be possible through making courses from different disciplines from the university available to architecture students.

The question on who all can be teachers and towards developing access for various kinds of practitioners to become teachers was discussed. These could be philosophers, artists, small contractors, artisans and so on. This further expanded towards opening up the idea of a classroom, where a neighbourhood, a construction site, an environmentally sensitive area, an artist/architect studio, to name a few, could all become classrooms. There were also discussions strengthening the existing courses with travel-based programmes, exchanges, independent study programmes, extended internship programmes and internships in non-architectural environments.

The possibility of mid-course exit for people who do not want to continue with architecture was also discussed. Here, the course could be divided into two parts: the first three years could cover general design learning, along with construction and drafting and the next two years could comprise specialised architecture education. Students could exit after the first three years and get into any other field.

Research

Many pedagogues raised the issue regarding research in educational institutions. They mentioned that currently research initiatives are very nascent. Moreover, there is no serious encouragement from schools as well. Also, students are not trained to undertake systematic research. Teachers do not write papers or publish in reputed journals. Further, we borrow research paradigms and methods from technology or social sciences and have not been able to develop specific methods for architecture. This has created three problems: firstly, there is a severe lack of indigenous knowledges and conceptualisation; second, the role of academia gets reduced to that of educational institutions unconcerned with interrogating the society; and third, there is no culture for exploratory and experimental practices and most practices are reproductive. There was unanimous agreement towards encouraging research environments in institutions.

Engaging with Questions of the Masses and Difference

There was a concern about architectural education being an elite education system that requires specialisation. At the end of this education, it is difficult, for example, to make a modest house. In order to build for the excluded 90 per cent, the discipline would need to be organised differently, pointing to many short-term courses that are run by NGOs to train in basic services like electricity and plumbing, which has very different entry-level prerequisites from the five-year B.Arch degree. There were two responses to this: first, that operational dimensions of architectural education and practice have been set up through an Act of the Parliament. and this was done not only for the architects, but for the people, so that they get good architectural services; second, that irrespective of whether they want or not, architectural works impact people and species beyond the clients— they impact environment and cultures. Hence, for both these reasons, architects need to assume responsibility for the habitation of the masses. Regarding the NGOs and Industrial Training Institute-type (ITI) institutions providing services, it was noted that these are only technologically oriented and do not have design, cultural, climatic and social comfort dimensions.

There was another concern regarding gender and caste issues to be considered over a longer time period and one can see this situation improving. Architectural education and practice may be symptomatic of the prevailing conditions. The response to this was that improvements and policy changes require interventions, movements and collective nudges and will not happen without action from the stakeholders.

Some pedagogues raised the concern that architects are helpless in the face of unsupportive policies and that one needs progressive policies in order to work towards a spatial justice.

Suggestions were made to reformulate the course so as to build empathy in students towards questions of economy, scarcity, class, caste and gender. Many felt that this would require more than classroom engagement, and to be in the field, exposed to real life situations, to understand one's own privilege and to not be patronising towards those left out by the profession. There was also a suggestion to think about an outcome-based pedagogy where affordability becomes the most important criteria to develop habitation.

Some pedagogues asserted that the profession needs to find ways in which architects can proliferate in society and become relevant again. If education is driven by the market, one needs to find ways in which architects can create a market for an extended society. For this, the pedagogy and curriculum need to be reformulated. There was also a suggestion to think of architectural services as essential services.

The Role of Regulatory Bodies

Most pedagogues felt that innovations in schools happened despite the regulatory bodies that were largely stifling such efforts by demanding data persistently in various formats. This occupied the faculty members in non-productive ways. They also felt that state regulatory bodies were essential as they ensured an equitable access to education by upholding reservation criteria and ensuring a diversity of students. Pedagogues also felt that regulatory bodies need to provide space for teaching, local diversities and institutional aspirations, make approvals easier and long term, protect institutions, provide resources, encourage collaborations, encourage the development of a research environment, promote courses that look into questions of mass habitation and develop a good system for evaluation which is encouraging and not threatening. There was also a discussion on allowing fees for private affiliated institutions based on requirement rather than popular politics or on ad hoc basis.

Representatives of regulatory bodies expressed that there has been a continuous effort to generate an open system that allowed institutions to bring their own strengths and initiatives. They stated that they were trying to organise various forums like research seminars but were struggling with the same. They also stated that effort was being made to simplify the approval processes and make the approval system more quality based than infrastructure based.

The Question of Diversity

There were two kinds of diversity issues discussed: diversity in education and diversity in students. In both cases, pedagogues felt that diversity is important but the current systems do not allow this diversity to flourish.

Many pedagogues felt that the current educational system is unifying rather than respecting diversities. They felt that instead of a centralised universal education and a common minimum programme, the way to achieve diversity is through localisation and contextualisation and to instil in students the confidence to practise in diverse geographies empathetically.

Pedagogues also highlighted that the question of intake is crucial to achieving a diversity of students. The obstacles lie in rising fees, expenses involved, duration of the course, low salaries post completion of the course and lack of networks to establish one's own practice. This leads to students in architecture predominantly coming from upper-class, urban backgrounds. Some states have achieved diversity through reservation policies but many of these students find it hard to sustain the expenses, low salaries and lack of networks to get projects, which are very easy for upper-class and upper-caste students. Pedagogues asked whether the course is really geared towards diversity and whether the course is able to bring diverse concerns to the fore. Some pedagogues felt that the current curriculum alienates one from diverse contexts. Many felt that to achieve diversity, privileged students need to be engaged in experiential learning to understand what diversity really is.

The Question of Private Institutions

Some pedagogues raised the concern that much of education is now privatised and geared towards profit making. They asked whether, in this context, private education could produce critical educators and thinkers and if private education institutions could be made accountable to a larger society. Many pedagogues asserted that privatisation was a given and that the private should be made accountable to the public. One needs to ensure that even private education is able to make relevant contributions towards sustainable futures.

Questions on Pedagogies of Humanities, Technology and Environment

The research data discussed shows that humanities formed a minuscule part of architectural education and that the bulk of teaching occurred in the field of technology. Pedagogues agreed to this and spoke about the need to have systematic and robust courses in humanities. Moreover, they also spoke about teaching technology with a social orientation.

Concerns of how climate change is being seen through a technocratic resolution were raised. It was felt that education needs to shift the focus of climate change education from the technological to make it about spatial and social justice. Education needs to transform to speak of sustainable futures, climate action and sustainable lives.

Some pedagogues felt that cities need to be imagined through resilient infrastructures. However, resilience does not seem to have immediate dividends for politicians who are in the pursuit of tangible outcomes such as poverty reduction and employment generation. Education needs to be reoriented to make these values palpable.

Architectural Offices

Many pedagogues felt that what can be taught in the office cannot be taught in schools, and what can be taught in schools cannot be taught in offices. They questioned whether the role of education should be to create technically proficient practitioners. They stated that the role of education must be much larger to encompass the discipline of architecture. Schools should be seen beyond preparatory places for office and rather should be seen as places where human beings grow and spend quality life learning about the world.

Many pedagogues felt that architectural offices should take up the responsibilities of teaching students the games of the trade as well be responsible to society. They stated that if 90 per cent of the population does not avail the services of architects, then the problem lies beyond education, with the way offices are structured. They also stated that the link between architectural practices and education should be strengthened and that training programmes should be made longer and more systematised.

Evaluation and Assessment

The pedagogues largely felt that the evaluation system must be re-examined. Some felt that the break up into various subjects fragmented the process of design thinking and lost any sense of collaboration between the various aspects of designing a building.

Some pedagogues referred to older methods where, as architects, one had to work on various aspects of a building including its design, engineering and services in an integrated way. This was a holistic learning

that later, even if given away to specialised agencies, maintained coherence. They felt that this integration was important to the process of evaluation.

Some pedagogues felt that to work towards contextualisation and localisation, evaluation needs to be done by state boards and not by centralised agencies.

Teacher Training

Concerns were raised about teaching abilities and the gap between delivering content and teaching. Most teaching has become about delivering content as opposed to setting up clear objectives, building capacities in students to learn and further evaluating them for these capacities rather than evaluating outcomes. This requires teachers to be trained in effective teaching methods and not just course content.

It was largely felt that the training programmes mandated by the COA were attended by faculty members out of sheer compulsion rather than towards building capacity. Most participants suggested that the COA should be able to develop a systematic teaching programme rather than ad hoc programmes based on availability of resource persons. There is also a possibility of developing teachers' conclaves for teachers to exchange ideas and develop collaborations. A need to have serious skills and capacity building courses for teachers was felt in four areas: first, developing and delivering courses, including writing of course briefs, contents, methods, references and evaluation criteria; second, developing familiarity with emerging knowledge systems; third, undertaking research; and fourth in areas of academic management.

Connection with Artisans, Contexts and Collaborations: The Mass Question

Many pedagogues vouched for apprenticeship-based education as being valuable and to include artisans and craftspeople as part of pedagogic spaces. Many examples were cited, such as of how after the Bhuj earthquake in 2001, some schools shifted their curriculums from being arts-based to addressing concerns of habitation in society. Other examples include artisan-schools and research spaces like Hunnarshala that has done substantial work in training artisans and in bringing artisanal practices to mainstream architecture production as well as to pedagogic spaces. There were concerns of qualification requirements of faculty stipulated by the COA, which do not allow the appointment of artisans and craftspeople as faculty members in an institution.

Some pedagogues suggested the need to have a consulting cell in architectural institutions to deal with contemporary societal concerns that can be brought to the studio. This would entail making architecture an essential service.

Some pedagogues spoke about the need for architectural institutions to collaborate and learn from each other instead of competing.

Pedagogues also spoke about the need to include participatory methods in design development and mass habitation questions. They suggested focusing on thinking about both outdoor and indoor spaces as indoor spaces usually get reduced to assets and property, while the outdoor space holds communitarian functions. They also spoke about bringing social and political movements into the classroom and making them a prominent part of the curriculum.

Pedagogues pushed for measures to sensitise people at large as well as prominent stakeholders like bureaucrats and politicians into aspects of spatial culture and building new kinds of spatial values.

Vulnerability of Schools and Profession

Many pedagogues felt that architectural institutions are in an extremely precarious situation with the demanding nature of the course, admissions dropping, fees not being sufficient to sustain the institution, and the inability to compete with courses that focus only on skilling and generating students that feed the job market. Teachers are in a precarious position in most private institutions. Core faculty members are hired in most institutions to handle logistics such as attendance while the expertise is expected to come from visiting faculty. Full-time teachers are not expected to develop their own practice, do research and are not given any support in terms of time and resources. Regulatory bodies are seen as stifling all institutions by persistent inspections and bureaucratic demands of data in multiple formats on which faculty must spend their time. The precarious situation is also prevalent in the architectural profession itself which is fighting for survival as its identity and scope of work is not understood by the society at large. Architecture jobs are easily taken over by engineers and interior designers with short-term certificates.

To these vulnerabilities, the core team responded by saying that we need a spatial theory and promotion of a spatial culture to validate the job of architects as the crafting of space, differentiating it from what engineers or sociologists do. The core team also reiterated that principles of spatial justice towards creating an equitable society that meet the SDG goals of creating egalitarian cities need to be reinforced emphatically through the curriculum. The core team also raised the concern for a need to reduce the precarity of faculty members by providing them academic spaces for research and practice. The core team asked for regulatory bodies to open up such spaces for institutions instead of threatening them with a regulatory environment.

CHAPTER 5: FINDINGS

Figure 5.1: Architects don't build

Source: Prasad Shetty, 2004

Structural Problems

The educational ecosystem for architecture is structurally embedded within a political economy, where education is a money-making enterprise and practice refers to participation in the building making industry. Only organisations with high resources are able to start educational institutions and only students who can afford high fees can access the education. These educational institutions are oriented towards creating "professionals" who can efficiently participate in the building making industry. The idea of the "professional" is constructed through the orientation of the regulatory bodies and universities that prescribe the courses; the validating machinery such as events, journals and awards; and the cut-throat building industry that is structured through logics of modern capitalism. The image of this professional is a mix of a corporate worker and a designer familiar with the codes and practices of the market, who not only aggressively pushes their ideas with clients and contractors, but is also able to handle the approval processes and construction monitoring works.

The practice of architecture, as it is currently structured, is highly dependent on patronage and personal networks. Even though every architecture graduate is trained to design and manage all kinds of buildings, procurement of projects depends upon access to patronage through one's networks. Good designers are not the ones who are undertaking the maximum numbers of projects. Privileges of caste, class, ethnicity and background play a significant role in obtaining projects. The "architecture industry" is also dominated by upper-caste and upper-class men. Only a handful of women-led or lower/non-caste-led architectural offices operate in the country. Even amongst the women-led offices, one's privilege plays a large role in the male dominant industry. One of the primary reasons for this is the manner in which architectural commissions are created and obtained. In the case of public sector initiated public buildings, design competitions have decreased and in the new tendering logics, only large established firms with a huge financial turnover have access to projects. In the case of private sector initiated public buildings, private (usually second) houses and mass housing (which are now largely in the realm of private sector builders); either architects through networks or through building for the same patron are sought. The political economy does not seem to provide access to every architecture graduate to enter the design industry and most people (especially women) end up working as employees in large firms.

Institutional Problems

The ecosystem is institutionally geared to reduce academia to educational organisations to produce trained workers for the building industry.[20] The role of academia to interrogate society, create new knowledge and possibilities for life, and participate actively in shaping society seems to have diminished. Academic spaces seem to be mere preparatory spaces for future lives. There is an absence of relevant academic (non-market) research and research environments in architecture. There is no support or encouragement for any kind of interrogatory or exploratory research in most institutions. Almost 90 per cent of architectural institutions in the country are private colleges affiliated to state universities. Though these institutions carry the heaviest burden in providing architectural education, their existence remains precarious due to excessive control and no support from state agencies. The teachers are exploited, underpaid and largely remain in contractual positions without security. Teachers are seen as passive service providers for students, who are in turn seen as prospective passive service providers for the market. The teachers are also not trained to be teachers. The training programmes organised by the COA are usually a collection of lectures, which are attended by teachers almost by force. Most teachers have a small "practice" outside teaching. This usually involves designing small projects for clients. There is no academic practice of undertaking research or experimenting with/exploring architectural methods and processes. There is no serious evaluation of pedagogy and the courses are either not updated or are updated in an ad hoc manner. Moreover, even though the habitation of 90 per cent of the people in this country gets made by artisans, local small contractors and alternative practices, currently the institutionalisation of architecture does not allow the involvement of these people in the education process. Also, there are very few institutions who work with communities.

[20] This building industry should be distinguished from the habitation making ecology. The building making industry includes rich clients, developers, building contracting organisations, clear contracts etc. and follows a linear process, where designing is done first and execution happens subsequently. Here, the built form is constructed in one go or is planned to be developed in phases. On the other hand, the habitation making ecology includes communities, humble households, small unorganised contractors and artisans, second-hand markets etc. Here, the contracts are not clear and built form is created incrementally.

Pedagogic Problems

The pedagogy of architecture has no orientation, interest, strategy or focus in addressing the population at large. The issues of mass housing or low-cost housing may become part of the course in one or two semesters, but these are oriented around developing housing complexes in the same manner as any other building. There is no knowledge or acknowledgment that habitation happens in completely different ways from the way it is taught in the institutions. Currently, architectural institutions train architects in orthographic projections; basic construction and management; basic planning of spaces based on functional logistics; stylistic thinking in history; often disorganised orientation to contemporary society (through courses related to urbanism, sociology and economics); and a technologically driven understanding of environment. Most institutions follow syllabi that do not acknowledge emerging cultural, economic, environmental and technological dimensions. Moreover, they do not define the objectives and abilities to be learnt or taught. This impacts the modes and methods of teaching as usually information is transmitted as subject content. Design processes are undefined and unclear, and generally the teachers who run the studios shape the methods. These are not evaluated for methods and processes and the evaluation is usually of students' works which is also conducted in a manner that is not objective. Literature references are usually not mentioned or are very basic/general for design studios. The process of building taught to an architect in the institution is linear, starting from the need of the client to the identification of a clear site with a boundary (the property of the client), the client's design brief, its conceptual interpretation by the architect, a measured drawing based on site conditions and dimensions, followed by approvals and working drawings made for a contractor to build on the site, site supervision and then handing over the site to the client. On the other hand, habitation making processes in slums, pastoral villages, indigenous villages, urban villages, urban peripheries, inner-city areas and second cities (which together house around 90 per cent of the population) do not follow a linear process, where design gets finalised before and buildings get made subsequently. They are made incrementally through expansions, improvements, upgrades, repairs and retrofitting and are mobilised slowly over time as and when the need arises and when resources permit. Such a process is never taught. Architects remain unaware of these processes and have no capacity to enter them.

Humanities courses that take up relevant social and spatial issues are absent in most syllabi. Concepts of ethics, differences related to caste, class and gender, justice and political economy are not taught. Professional ethics is reduced to professional logistics. Moreover, wherever these are taught, they are not taught in depth or in any systematic manner. Usually, it is through the individual teacher's initiative that students are made aware of these issues. The course seems to have attained a corporate-based managerial orientation. The absence of humanities seems to have produced an apathy amongst architects in relating to social issues. Moreover, institutions do not provide good-quality spatial specialisations. The absence of research and research environments have created a theoretical vacuum in architectural education. Most in the architecture community think of architects as people who are expected to build efficient, comfortable, strong and beautiful buildings. Environmental concerns, artistic practices and cultural dimensions are perfunctory. Most of the time, the scope of an architect is unclear and most architects are trained to become/project themselves as crude engineers, novice environmentalists, naive social scientists or diva aestheticians, who work with some intuitive logic. There is no theoretical basis for understanding of space, its production or its experience and relation to human behaviour. At the same time, concerns regarding the environment and affordability issues are hijacked by either their corporatisation or the narrative of indigeneity. However, both have a technological orientation and solutions are provided using technology for

carbon reduction or low-tech local materials and technologies. The cultural dimensions of environmental and affordability issues seldom become the entry points. For example, ideas of living with climate change, altering property relations, improving affordability and sharing of resources do not usually become the entry points for engagement. This is also due to the absence of a strong humanities course. As a result, education is largely based on the anchors of technology and professional logistics whose focus is towards creating skilled professionals for a certain kind of building industry.

Highly regulated and resource-starved institutions with no capacity to interrogate or produce new knowledge; the absence of humanities and relevant theory courses; excess of technological orientation with focus on efficiency and not equity; and the hijack of environmental discussions appear to be characteristic of the educational ecosystem. This ecosystem has historically evolved to produce an institutionalisation that is made to feed the formal building industry dominated by the elite or by real estate developers. The concepts of permanence, privacy and property define architecture; buildings have to survive for generations, with exclusive spaces for each activity and, exclusiveness entails that there cannot be further claims on it by anyone other than the people who own it. All of this creates a scenario where spatial culture is about creating boundaries with exclusive and privatised spaces that perpetuate differences; use of expensive material and mechanical devices not only to create comfort but also to resolve the environmental disturbances and to produce an identity for the owners; and about maximisation of floor space as this is not only an indicator of status, but also can be monetised whenever required.

From the review of the educational ecosystem, along with studies of home making and discussions with pedagogues, it is apparent that this ecosystem is structurally, institutionally and pedagogically insufficient to produce a relevant spatial culture, spatial justice and cultural sustainability.

However, there are a few opportunities that can be mobilised to reorient the ecosystem:

1. First, while there has been a five-fold rise in the number of graduates in the past 10 years, which may lead to oversupply in the job market reduced salaries, there remains an untapped opportunity in the 90 per cent of the population which does not get architectural services. This can be a great opportunity for architects if appropriate pedagogy is designed and executed.

2. Second, the COA, DTE and the state universities, while being centralised regulatory authorities, are also great opportunity spaces to bring about large-scale policy changes that can be easily implemented. Moreover, these agencies have the resources and intentions to improve pedagogy by training teachers, validating works, setting up appropriate syllabi and so on.

3. Third, the architecture community is a concerned fraternity. Architects are interested in improving the performance of institutions and actively participate in shaping and evaluating pedagogy. In fact, most architecture colleges are run by “practising” architects. There are a series of innovative initiatives that faculty from various institutions have undertaken out of personal and interest in making the architecture programme relevant and updated despite the constraints. The National Education Policy, 2020 also states its goal for professional education as engaging in critical and interdisciplinary thinking, discussion, debate, research and innovation.

Chapter 6 provides some concrete suggestions of how this can be done in architectural education.

CHAPTER 6: RECOMMENDATIONS

This study aims to provide recommendations towards reorienting the ecosystem of architectural education to produce a spatial culture that brings about spatial justice and cultural sustainability. It will be important to identify the exact relationship between the ecosystem of architectural education and spatial culture. As discussed earlier, the ecosystem consists of architectural institutions including teachers, students and managements; universities; regulating bodies; validating organisations; and architectural offices. Spatial culture includes all aspects comprising the imagination, production, form and consequences of spatiality (i.e., the configurations of space). The architect is involved in the process of "imagining" the built form. This process folds in itself the other dimensions of production, form and consequence of the built form and therefore it is significant in the shaping of spatial culture. The architect learns this process by passing through the educational ecosystem.

In the discipline of architecture, the process of imagining the built form is an iterative process undertaken through the making of several drawings and models. In its final form, the imagining is an orthographic drawing representation of a spatiality. This drawing indicates three things: the articulation of configuration (shape, size and volume of different components) of the built form that is imagined; the material and technology by which it will be constructed; and the service systems (of water, electricity etc.).

The architectural institutions studied as part of this project focus on building skills in: orthographic drawing; creating efficiencies in physical space management through segregation of functions; basic construction methods of buildings focused around concrete frame structures; and basic quantification and estimation. However, they do not train students in mainstream processes of habitation creation that occur across the country. The universities set syllabi that are technologically oriented and have a low representation of humanities courses. The regulatory bodies control syllabi, fees, approvals and human resources of institutions. The conditions set for human resources do not allow artisans and craftspeople any space in mainstream teaching. Moreover, repeated regulatory processes take away substantial time and the institutions shift focus to keeping up bare minimum requirements. The validating bodies create then image of an architect that is largely of an aggressive corporate worker. The offices demand basic drawing and construction skills.

In such an ecosystem, the question of mass habitation is largely resolved through affordable technology; the question of environment is resolved through environment-friendly, local technology; and the question of caste, class and gender difference is usually not considered at all. This ecosystem is oriented towards creating a spatial culture that is geared towards producing privatised utopias for a small population of people. It is therefore not able to create spatial justice nor structured to seek it. Moreover, architects are not trained to enter into the dominant habitation making process that is prevalent in the country. It is therefore not aligned with the culture of habitation making and hence it is not culturally sustainable.

To reorient this culture does not appear to be an easy task and would require a conceptual rethinking. We propose here a rethinking of the components of the ecosystem, where: institutions become academic spaces

where research and experimentation takes centre stage and where students not only learn skills, but grow with the interrogations of the institution; regulatory bodies become enabling structures providing support to institutions; validating organisation become watchdogs and ethical barometers; and offices become partners with institutions and teach skills required for practice.

Institutions as Academic Spaces

Academic space

The reduction of architectural academia into educational organisations appears to be the central issue, where students get trained with certain skills, but are not educated to become mature human beings. A reclamation of academic space will be important. Such an academic space will require an ecosystem of research activities, dissemination activities, social and cultural connection with communities, and involvement of artisans and artists. This would require the establishment of a full-fledged research cell that is supported with resources, a public platform that engages directly with the public; and a community support cell which can provide architectural support to people who do not have access to it.

Teachers

Teachers will have to be seen as active agents of knowledge creation, methodological exploration, interrogators of society and experimenters in pedagogy rather than benign and dormant transmitters of knowledge and skill developers. For this purpose, the teachers need protection, space and support for academic activities. Institutions should find ways to provide this. It is imperative that institutions carve out at least 40 per cent of time for activities including research, non-reproductive exploratory practices and social/cultural work. Of the remaining time, 40 per cent can be assigned for teaching and 20 per cent for academic administration. Efforts should be made to provide institutional security for the teachers including long-term contracts, fair compensations, retirement benefits and health insurances. Ad hoc appointment and discontinuation without proper process should be checked.

Evaluations

All academic activities such as teaching, research, exploratory and non-reproductive practices, etc. should be evaluated through a peer group, which may include co-teachers along with invited resource persons. Such periodic audits are important to undertake course corrections for the institutions, for individual courses as well as teachers.

Course book

Each institution should develop its own course book every year, specifying the overall agenda, general and specific objectives, course details, evaluation criteria and so on. This will ensure that schools spend time in planning their activities conceptually and logistically and undertaking course corrections after review of existing activities every year.

Multidisciplinary learning

Universities should encourage cross learning between disciplines where studio exercises addressing urgent societal problems can be jointly undertaken by multidisciplinary student groups. These would avoid creating knowledge silos but also create a networked society where people from different disciplines are able to develop friendships and networks and to work with each other in real life situations.

Collaborations and networks

Possibilities for institutions to collaborate with each other, with alternative institutions like Hunnarshala, with specialised practices and with civil society organisations could be explored. These will facilitate not only sharing of knowledge and resources, but will also generate a conversation between different collaborators for furthering the cause of education.

Research-based pedagogy

Integration of research activities should be a part of all courses. This will help in developing a research-based pedagogy instead of an information/standards-based pedagogy. Research methods should be taught across all years and a shift is required from social science methods to architectural methods, which are interested in space and form questions. Here, explorations with the form and language of research becomes crucial. Moreover, design and other studio courses should be focused on developing an integrated and process-oriented thinking rather than being prescriptive.

Re-articulation of existing courses

Currently, humanities courses occupy very little space in the overall syllabi of institutions. A robust course that provides a good sense of human culture and the various dynamics of society, economy and environment is necessary to orient students towards relevant practices. Environmental courses need to reorient themselves from technologically-driven green buildings and carbon-counting tendencies along with a fetishist obsession with local material and technologies towards understanding cultural and everyday dimensions of the environment. The courses should focus on how spatialities can be articulated for environmental sustainability that is culturally relevant, in which case, one is not saving oneself from the environment or saving the environment, but figuring out ways to live with the dynamics of environmental change. History courses are usually taught as stylistic periodised histories. These need to shift towards understanding the history of spatialities, types and technologies with a regional focus. This will help students to generate fresh ideas. For example, it would be important to know the history of the built-form type of a school to reorder its spaces, rather than knowing the stylistic dimensions of schools in the place. Technological courses on mechanics, material and technology are largely taught as information and standards. These require reorientation towards developing an intuitive and experience driven understanding combined with an environmental and socio-political dimension of technology.

New courses

Five new courses are critical:

1. First, an organised course on spatial theory is essential. Currently, this course is one of the most ad hoc and disorganised of all courses and has very unclear objectives. This creates an absence of theory in architecture affecting the relevance of the discipline. Most architects aim to either become engineers (trying to make efficient buildings), or social scientists (trying to solve large social problems.) or environmentalists (trying to save the environment through their architecture projects). A serious set of courses are required to understand space and form, its configurations, its meanings and its impacts on behaviour and experience. A rigorous training in design syntax and vocabulary along with the internalisation of that syntax and vocabulary is necessary. This will be most important in the creation of spatial culture and spatial justice. This will also give a well-rounded theoretical anchor to architecture and architects would have a better clarity of what they

do beyond being crude engineers and social scientists or underdeveloped environmentalists. It is also important to be able to disseminate these ideas to the general public. This can be done through popular media like podcasts, websites, virtual lectures and so on.

2. Second, a full-fledged course in ethics is required, rather than a course in professional practice which is based on professional logistics. This course could have sections on political economy, justice, law, environmental and cultural sustainability, along with professional aspects of regulations, financial management and code of conduct for architects.

3. Third, since most of the country builds its habitation through an incremental process, a course on repair, retrofitting, improvement, upgradation and expansion is most important. This should be offered as one of the core courses in architecture colleges. This course can include resource persons from the communities, including artisans, small contractors and so on.

4. Fourth, a design-build course will be critical for three reasons: first, it will empower students to undertake construction by themselves and involve communities by training them; second, it will enable a better understanding of material and making technologies; and third, it will enable interaction between architecture students and artisans/craftspeople who could get involved as teachers.

5. Fifth, a course that is targeted in developing entrepreneurial abilities. This is important as architects are not trained to enter the market of habitation making for the 90 per cent people. This course should broadly include five aspects:
    a. Ability to understand institutional landscapes, government policy and programming, housing schemes, regulations, and approval systems.
    b. Ability to understand land, property and real estate markets.
    c. Ability to understand housing finance and mechanisms, along with skills of budgeting, accounting and bookkeeping, and grant writing.
    d. Ability to earn and sustain oneself while working for the masses.
    e. Ability to of engage with communities and cultures

Regulatory Bodies as Enabling and Supporting Structure

Reduction of precarity of institutions staff

As discussed earlier, a majority (almost 90 per cent) of institutions are private, unaided institutions affiliated to state universities. Even though they take up the burden of training a large number of architects, their institutional, financial and social positions remain extremely vulnerable. In 2022–23, around 60 colleges were not provided approvals by the COA to continue running the B.Arch programme. While the students were largely rehabilitated, the teachers were left to fend for themselves with no security of any kind. Moreover, fees are controlled by universities or state authorities in an almost ad hoc manner for all of these colleges. If fees get reduced, payment of staff salaries is affected. A serious effort is required to provide security and space for undertaking academic activities for teachers of private institutions affiliated with state universities. Some of the measures may include: Providing long-term affiliations and approvals; setting up of reasonable fees based on correct estimations for running a college, along

with periodic enhancement indexed to inflation rather than on ad hoc and irrelevant annual approval processes; and protection against ad hoc appointments and removals, and fair compensation.

Ease of administration and focus on education

Teachers are burdened with extra administrative workload that is unrelated to education, like herding students for different competitions, attending irrelevant training programmes, organising centrally-mandated events, compiling the same data in different formats for different agencies and so on. Efforts are required in rationalisation and reduction in non-academic activities. Schedules for admissions, examinations and conducting of courses can be set well in advance and followed meticulously. This will bring about substantial efficiencies.

Good-quality and useful training

A serious effort is required to develop a systematic and good-quality training programme for teachers. Such a programme should cover four areas:

1. Teaching skills for various subjects of architecture, including course development, method specifications, referencing and readings.
2. Familiarity with new content emerging from the market and academia.
3. Administrative skills to handle finances, approvals, human resources and academic administration of different kinds.
4. Research skills for new knowledge development.
5. Skills in writing proposals and raising funds through grants.

Each of these areas could be then developed as a full-fledged training module with interactive sessions, readings and exercises.

Academic time space for institutions

It is important to decrease the control of state universities and create an academic time–space of at least 50 per cent that is left to individual colleges towards articulating and developing their own pedagogical interests based on their orientation, vision, location and other factors. Such space will create distinct identities amongst schools and also provide focus. The remaining 50 per cent could be specified as a common minimum programme essential for all architects across the country.

The central authority of the COA and state universities controlling the pedagogy of more than 300 schools is an opportunity— if new courses and new methods are to be rolled out, this can be easily done. Moreover, the COA also has a training cell for teachers of architecture, which can be streamlined for a systematic education of teachers. Currently, the COA appears to be the only body which is capable of understanding and closest to developing an institutionalisation based on the spatial aspects of society.

Resource support

Most Western universities have free access to libraries and online publications for their students and teachers. Few Indian universities, particularly architecture departments, have access to these. New knowledge generation and publication is not encouraged. It would be useful for universities to provide access to libraries and online journals to their teachers and to encourage teachers to contribute new

knowledge through publications that can be brought into the teaching. Spaces of dissemination should move out of the university into the city where multidisciplinary conclaves are encouraged for conferences and exhibitions and supported by affordable municipal infrastructures such as community spaces and auditoriums.[21] This could strengthen academic cultures and institutions such that they become powerful interrogators and think tanks for the country and its development.

Validating Organisations as Ethical Barometers

Space and platform to share experiences

One of the key findings during this study is that every institution has undertaken some innovation despite all problems. These are innovations in institutional culture, institutional structuring, pedagogic content, modes and methods, developing collaborations and networks, and developing a specific focus. Sharing of experiences and innovation would be extremely useful amongst these institutions. Either the existing journals, magazines and awards or pedagogues/institutions jointly can establish an annual seminar or a biannual journal for sharing these innovations and experiences.

Review through peers

The journals, magazines and awards can undertake serious review of institutional practices through periodic analysis of various kinds of data regarding admissions, performance of students and alumni, engagement with communities, research undertakings and so on. This can be published in an open platform for all to access. These will be much more valuable than a generalised and expensive accreditation process as this will not only make the institutions alert about their performances, but it will also give an overall idea on architectural education in the country.

Archive

The validating organisations can host an online archive of projects, literature, and past editions of older journals and magazines. Such a resource shall be valuable not only for teachers and students, but also for architects and the public at large.

Watchdog

One of the key roles of validating organisations is to act as watchdogs of the discipline and flag instances where problems are felt or due to occur. This needs to be undertaken fearlessly and objectively with the sole purpose of improvement.

Architectural Offices as Partners in Education

Architecture offices should be made aware of their integral roles in pedagogy such that students are offered a holistic learning environment during their internships.

Institutions should also encourage internships with other community, design and art practitioners. This would widen the understanding of creative engagement amongst architecture students as well as orient them towards other disciplines which they may pursue after graduation.

[21] These examples can be seen in Brazil in places like the SESC Pompéia and the Centro Cultural São Paulo.

During this study, numerous offices and students have stated the need to make this training at least a year long. This would be useful as many things related to the profession cannot be taught in colleges.

These include:

1. Negotiating the industry terrain: This would include skills relating to procuring projects, displaying and marketing capacities, approaching and negotiating with potential and existing clients (who could be communities), managing approvals, negotiating and managing of contractors and vendors, and so on.

2. Managing of practice: This would include skills related to office administration such as management of documentation, human resources and financing, or managing of sites, fields and consultants.

This study has identified a series of issues with the ecosystem of architectural education related to its incapacities in addressing issues related to mass habitation, spatial justice and cultural sustainability. It is clear that this ecosystem, like all ecosystems, would require a multi-pronged approach for reforming it. We believe that despite the odds, architectural institutions, which are the key nodes of this ecosystem, have been innovating and striving to remain relevant. We also believe that their efforts will be key for the overhaul of the ecosystem as despite all policy and support, it will be the institutions that will have to steer the process of change.

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