TOWARDS A GLOBAL LEARNING COMMUNITY

MIT'S REPORT TO THE ROCKEFELLER FOUNDATION ON CURRICULUM DEVELOPMENT FOR THE INDIAN INSTITUTE FOR HUMAN SETTLEMENTS

Bishwapriya Sanyal
Ford Professor of Urban Development and Planning
and
Lawrence Vale
Ford Professor of Urban Design and Planning

Massachusetts Institute of Technology, Cambridge, MA
TOWARDS A GLOBAL LEARNING COMMUNITY: 
REPORT TO THE ROCKEFELLER FOUNDATION 
ON CURRICULUM DEVELOPMENT FOR THE 
INDIAN INSTITUTE FOR HUMAN SETTLEMENTS

Principal Investigators

Bishwapriya Sanyal
Ford International Professor of Urban Development and Planning, MIT
MacVicar Faculty Fellow
Director, SPURS and Humphrey Program

and

Lawrence Vale
Ford Professor of Urban Design and Planning, MIT
MacVicar Faculty Fellow
President, Society for American City and Regional Planning History

Department of Urban Studies and Planning
Massachusetts Institute of Technology

July, 2013
## TABLE OF CONTENTS

### CHAPTERS

1. Towards a Global Learning Community... .......... 1
2. Climate Change: Adaptation and Mitigation... .... 41
3. Economic Development and Financial Management... .... 57
4. Energy Policy and Planning... .................. 79
5. Environmental Planning and Design ... .......... 91
6. Law and Governance: Making Indian Cities More Equitable... 117
7. New Urban Planning: Instincts, Instruments and Institutions... 133
8. Sociological Foundations of Urban Practice ... .... 149
9. Technology and Human Settlements... ........... 159
10. Transportation and Human Settlements ... ....... 173
11. Urbanism... ........................................ 185
APPENDICES

1: List of MIT-IIHS Events, 2009-2013...

2: Multiple Modernities and Large Scale Urban Transformations:
Presentation Slides...

3: IIHS Curriculum Development at MIT: Presentation Slides...

4: “Practica” as a Mode of Teaching and Learning: The MIT Experience:
Presentation Slides...

5: PhD Program Structure at MIT: Presentation Slides...

6: Potential Research Collaborations: Presentation Slides...

7: MIT-IIHS Courses by Specialization...

8: List of MIT-IIHS Core Team, Faculty Coordinators and Contributors

9: Proposed Course Template...

10: “Open” for IIHS: Memo...

ADDENDUM
Course descriptions, organized by specialization

For full descriptions of all courses produced by the MIT team, see separate volume, available electronically by request from the team leaders.
July, 2013

It seemed like a perfect match: When in 2009, MIT’s Department of Urban Studies and Planning (DUSP) received a generous grant from the Rockefeller Foundation (RF) to assist with the curriculum development for the Indian Institute for Human Settlements (IIHS)—a brand new university to be created to educate in a new, unconventional way, innovative practitioners who would enhance the quality of life of human settlements of varying sizes and in varying regions of India.

MIT has had a long history of intellectual engagement in India, dating as far back as 1960, with the establishment of the Indian Institute of Technology at Kanpur.1 Within MIT, DUSP too has had a long tradition of international engagements, not particularly in India but generally with urban development issues in newly industrializing nations. For example, courses focused on urban housing problems in these nations were offered as early as the 1950s; later, in the 1960s, DUSP and the then Harvard-MIT Joint Center for Urban Studies led the effort to plan a brand new city in Venezuela. A special program to host mid-career urban professionals from newly industrializing nations was established in 1967 with support from the Ford Foundation. This program, known widely as SPURS (Special Program in

---

Urban and Regional Studies) has 700+ alumni around the world and recently celebrated its 45th anniversary. In 1981, DUSP became the first urban planning program in the United States to create a specialization in international development planning, intended for both masters and doctoral students. This program admits between 15 to 20 international graduate students annually. This International Development Group is led by a strong team of faculty members with interdisciplinary backgrounds and has been consistently ranked as the leading program for international development planning, since ranking of such programs started.

In 2008, when the tripartite alliance with the Rockefeller Foundation (RF), Indian Institute for Human Settlements (IIHS), and the Department of Urban Studies and Planning (DUSP) was established—it was a special institutional moment. MIT’s president had just visited India in an official role to demonstrate the Institute’s interest in strengthening academic relationships with Indian universities and research centers. Moreover, the Dean of the School of Architecture and Planning—within which DUSP and the International Development Group (IDG) are housed—had just launched a school-wide initiative to create urban laboratories (UrbLabs) in selected rapidly urbanizing nations, one of which was India. The UrbLabs were planned as hubs for both research and practice. This was the school’s way of acknowledging that, to keep pace with global changes, MIT had to go beyond simply attracting international students to MIT. Instead, this was a recognition that the growing urbanizing regions of the world had become the perfect settings to educate students about the unprecedented changes and challenges facing urban professionals. Educating students required more than standard lectures, or even occasional site visits for studios. As a professional school, MIT’s planners and urban designers needed to be engaged in actual problem solving, where such engagements by academic-practitioners would generate new understanding about how to efficiently and equitably influence urban outcomes. All this would require a new organizational set-up with hubs in rapidly urbanizing regions. Yet for such hubs to be vibrant, both intellectually and financially, they could not be operated from

---

2 For discussion of UrbLab India, see http://sap.mit.edu/resources/portfolio/erode/
Cambridge, Massachusetts. MIT needed to find and partner with local institutions, places that embraced similar intellectual priorities, academic rigor, and operating values of MIT.

IIHS's mission statement matched well with MIT’s intellectual priorities for a number of reasons. For one, like IIHS, MIT’s urban faculty found inspiration in the complexities of urban challenges India was grappling with during a critical moment in the nation’s transformation as it inexorably shifted from a predominantly rural, agricultural to an urban, industrialized economy. We agreed that to steer the massive transformation in the right direction, India needed a new cadre of urban professionals who could think “outside the box” and who were both visionaries and pragmatic. India would need urban professionals who could be critical of existing systems and bureaucracies and yet eager to work with institutions of the state, market and civil society to influence developmental outcomes that could benefit all. India’s urbanization demanded a new brand of professionals who were not only intellectually confident but also curious and willing to learn from practice and revise their understanding of the socio-economic transformation processes; professionals who appreciate India’s secular principles, its proud history of struggles for democracy and yet are forward looking, not complacent, and ready for bold experiments. IIHS’s mission statement captured such sentiments very well, and it seemed that IIHS had the potential to contribute significantly to addressing the large challenges posed by the unprecedented large transformation India was going through as the twenty-first century commenced.

That IIHS was to be a new private university with solid intellectual backings of prominent Indians also appealed to MIT, which too is a private research university. It seemed that IIHS would not be constrained by the usual bureaucratic rules and governance procedures that typically inhibit educational innovations. IIHS was not going to be yet another public university churning out a handful of conventionally educated professionals for whom practice meant following bureaucratic rules, much like they had absorbed through rote learning. Like MIT, IIHS wanted to educate “reflective practitioners”, not train planning
parrots; both institutions wanted to educate “life-long learners” who cared deeply about equalizing social and economic opportunities for all, not just the elites. IIHS was to be a meritocratic institution, like MIT, and it was to be an institution where the mode of learning was to be experimental, drawing on multiple disciplines, with a primacy given to problem solving. The goal of IIHS was to create a symbiotic relationship between learning and practice, each informing the other; this fit very well with MIT’s motto—Mens et Manus (Mind and Hand), which celebrates learning by doing in the act of problem solving.

This problem solving orientation, however, was not to be the more prosaic variety that too often characterizes vocational training programs. Like MIT, IIHS aspired to be a first rate research university and one with a professional bent. This too fit well with MIT’s School of Architecture and Planning’s own mission; and it fit especially well with the intellectual mission of DUSP and planning, which in the 1970s had led to the transformation of the urban planning field in the US, expanding it from traditional mapping and physical design to encompass a multidisciplinary scholarly approach to studies of urban and public policies created to influence the quality of life in such areas.³ This shift in intellectual emphasis had major implications at DUSP for curriculum development as specialized knowledge of problems in contrast to general basic concerns came to gradually dominate the curriculum. The faculty who offered specialized courses drew on disciplinary theories to meet the high standard of advanced academic research, a hallmark of MIT. And, yet, even as the field of urban studies and planning evolved and became more specialized and relatively more “theoretical,” DUSP as a professional school has maintained its central focus on educating problem solvers who are critical of conventional thinking, who understood the limitations of traditional technocratic approaches to problem solving, and who valorized practice as leading to theory building, not the other way around.

³ For an overview of the development of planning education at MIT, see Lawrence J. Vale, Changing Cities: 75 Years of Planning Better Futures at MIT (SA + P Press, 2008); http://dusp.mit.edu/sites/all/files/attachments/project/changing_cities.pdf
The International Development Group (IDG) at DUSP has been particularly exemplary in the way it has nurtured such an unorthodox, non-technocratic approach through advanced scholarly research that questioned the dominant and hegemonic ideas of the time. Standing in sharp contrast to the views and methodologies of what became popularly known as “the Washington Consensus,” the rigorous research of IDG faculty advocated an alternative model of development, one that celebrated the planning efforts on the ground by developing-country professionals. In contrast to the preaching of “the Washington Consensus,” which dictated from the outside how professional planners needed to radically transform their approach, at IDG, the intellectual sympathy was for those planners in developing nations who innovated despite many constraints, and who often had interesting insights regarding urban problems as well as solutions. This was not an ideological position, however; IDG faculty had come to this conclusion through extensive fieldwork-based research in many developing countries. The emerging prospect of IIHS, offered MIT an opportunity to help build an important intellectual partner with whom to continue this style of research. By cooperating with IIHS, whose stated mission was to produce a new style of research, it could be possible to produce work that would be scholarly yet useful for policy makers.

Yet another reason why IIHS and MIT joined hands was that both institutions believe in creating an open system of learning, knowledge creation as well as dissemination. As is well known, MIT has led the creation of Open Courseware and recently has taken the initiative one step further by creating MITX, which is a member of edX which is a non-profit organization founded by Harvard and MIT and joined by many other leading US universities to disseminate the best of higher education all over the world. The model appealed to IIHS, which wanted to embrace new technologies available for learning and wanted to create a platform the students could use in accessing various sources of knowledge beyond classroom teaching. Since IIHS was envisioned as a national, and not simply a regional university, MIT’s open source courseware had a special appeal, even though the large
variations in languages among various regions of India posed a challenge, which was to be addressed if and when the new university expanded its enrollment of students.

The Rockefeller Foundation played a key role in bringing MIT and IIHS together as a way of creating a new cadre of professionals to address India’s urban challenges. Through the Foundation’s generous support, the IIHS-MIT partnership was enriched by the participation of other institutions such as Development Planning Unit, University College London (DPU, UCL), the African Centre for Cities at the University of Cape Town (ACC, UCT), the Federal University of ABC in Brazil, the Urbanization Knowledge Platform (UKP) at the World Bank, Arup, IDEO, and others.

IIHS courted this widely distributed group of core partners, and their participation in various meetings launched a global community of scholars, practitioners and institutions, all searching for effective ways to address urbanization challenges not only in India but also elsewhere in other newly industrializing nations. Amidst this multi-nodal network of practitioners, MIT’s primary responsibility was to work with IIHS on curriculum development. In a way, this was similar to the role MIT had played in the early 1960s in the creation of the Indian Institute of Technology (IIT) at Kanpur. The goal then was to create an engineering curriculum for a newly independent, newly industrializing, and politically democratic nation. There was no ambiguity then about who was to learn from whom: the flow of knowledge and technical expertise was clearly one way—from northern to southern universities because the former were developed and had accumulated advanced knowledge that could be put to good use for developing the latter. But a half-century later, when MIT and IIHS began a conversation about education on human settlements, the world was different. In 2009, India was growing at the annual rate of nine percent while many cities in the US were facing economic decline! Moreover, there was an utterly different academic mood as if the center of gravity of social transformation had changed, and the action was “there” now, not here in Cambridge, Massachusetts. This altered scenario and the
accumulated wisdom over the last fifty years regarding what constitutes an effective inter-
university collaboration between northern and southern universities, posed new challenges
about what is a useful and innovative curriculum for educating professionals who could steer
the development trajectories of urban settlements. How could such professionals best be
educated? Many such questions intrigued MIT as well as IIHS as we launched a new global
education effort with the generous support of the Rockefeller Foundation.

The Multiple Facets of MIT-IIHS Collaboration

MIT’s active collaboration with IIHS started in April 2009 and has evolved over four years
through various forms of interactions—not simply regarding the curriculum but also
encompassing a range of other interconnected issues that ultimately will affect the quality of
education offered by IIHS, once it is fully established.

This report provides a chronology of multiple events in which MIT and IIHS collaborated
(see Appendix 1). Some of these events were organized by MIT; others by IIHS; and one by
the Development Planning Unit (DPU) at the University College London, which also
advised IIHS on curriculum development. At MIT-organized events in Cambridge and
Bellagio, the participants included not only members of the key partners—MIT faculty and
doctoral students, representatives of the Rockefeller Foundation and IIHS leaders—but also
faculty from UCL, and representatives of developmental institutions, such as the World
Bank, Lincoln Institute of Land Policy and the African Centre for Cities. Arup and IDEO,
two private firms currently engaged in innovative practice, also participated actively,
reinforcing one of the principle aims of the collaboration—namely, how to craft learning
environments which would valorize theory and practice equally, each reinforcing the other.

MIT faculty and doctoral students also participated actively in events organized by IIHS
both in Bangalore (January, 2010 and June, 2011) and Bellagio (August 2009 and June 2010).
These events served as useful forums for exchange of views between a large number of MIT faculty, IIHS and outstanding professionals from India and elsewhere, regarding urban development challenges and priorities for educating practitioners. As discussions regarding IIHS’s curriculum needs evolved, MIT recruited additional faculty from other leading urban planning and development programs in the US and across the world: Brown University, Cooper Union, Duke University, Harvard University, Hunter College, New York University, Northeastern University, Rutgers University, Tufts University, the University of California (both Berkeley and UCLA), the University of Michigan, the University of New Hampshire, the University of North Carolina at Chapel Hill, Parsons School of Design, NY, and the World Bank in the US; Politecnico di Milano in Italy; the Institute for Applied Economic Research (IPEA) and Institutions and Democracy in Brazil; the European Climate Foundation; the Institute of Development Studies in the UK; and the Indian Institute of Technology, Delhi, the Institute of Social Sciences, and the Centre for Policy Research in India— to contribute to the curriculum development process. MIT also organized a meeting of twenty South Asian faculty members from various other planning schools to meet with Dr. Aromar Revi, IIHS’s director, at the annual conference of the Association of Collegiate Schools of Planning (ACSP) in October 2010. That conference also featured IIHS as the centerpiece of a well-attended roundtable on “Asia’s New Global Universities,” sponsored by the Global Planning Educators Group (GPEIG), including participation from Drs. Revi, Bishwapriya Sanyal and Lawrence Vale, as well as several participants from other universities. By engaging almost the entire India-oriented faculty from ACSP schools, these events enhanced the North American visibility of IIHS project, while also affirming MIT’s role in addressing new directions for planning and urbanization in India.

The discussions at the various convenings held on three continents extended well beyond curriculum development issues. Starting with discussions of the overall vision of IIHS, the deliberations covered a range of issues including: the changing nature of the field in urban development planning and the new sensibilities necessary for effective practice; new types of
research questions which bridge planning theory and practice; and even new ways of learning and educating through hands-on problem solving efforts in the form of field-based studios and what at MIT are called “practica”. What follows are conceptual highlights of such conversations, not their chronological listings (which are included in Appendix I).

These conversations created the beginnings of a global community of scholars and practitioners who not only thought about IIHS, but used the deliberative process to reflect on their own work. This was certainly true for MIT, which directed the faculty in charge of curriculum development to propose new courses, not simply for IIHS students but also as opportunities for revamping MIT’s own curriculum. In other words, MIT’s approach to curriculum development was explicitly egalitarian in terms of standards; MIT did not think of two different sets of courses, one appropriate for MIT students and the other for IIHS. MIT’s instructional faculty, whether crafting brand new courses for use within MIT or for other universities, consistently aimed to meet the following criteria: first, develop and promote a critical understanding of urban issues; second, blend theory and practice in understanding why some planned efforts work better than others in addressing urban challenges; and third: open the students’ minds so that they could become lifelong learners—not mere degree holders—and could keep pace with rapid socio-economic changes likely to affect urban realities in an increasingly integrated world.

Like all collaborative planning efforts, which require extensive deliberations and questioning of established norms, MIT-IIHS-Rockefeller and other efforts also generated thoughtful proceedings and summaries. We have grouped such large discussions into six broad categories: First, we participated in conversations regarding IIHS’s vision to create a brand new innovation university that would educate a large number of students not only from various regions of India, but from across South Asia and other newly developing regions of the world. Second, IIHS and MIT had prolonged discussions about the changing nature of urban challenges facing urban planners in India, and explored the professional sensitivities
that needed to be cultivated to create a new type of “urban practitioner”—in sharp contrast to traditional bureaucratic urban planners. Third, IIHS-MIT interacted on the structure of the necessary curriculum for the Master of Urban Practice (MUP) degree and, after much deliberation, the MIT-led team focused on developing the course contents for ten specializations. Fourth, there were considerable deliberations over what should constitute a new research agenda that could valorize practice and generate new ways of understanding the possibilities as well as limits, while creating suitable interventions to address contemporary urban challenges. Fifth, MIT shared its experiences of a new pedagogic style—the practicum, which engages faculty, students, practitioners and citizens in addressing real-life urban problems. Finally, MIT also shared its experience of what it takes to develop a practice arm within academic programs with professional orientations, and discussed how having an applied consulting arm might affect the scholarly qualities of research and teaching.

**Regarding IIHS’s Vision**

As mentioned earlier, MIT was deeply drawn to IIHS’s vision for creating an “innovation university” of excellence that would be a “game-changer” in educational style and content. Starting with IIHS’s director Aromar Revi’s presentation at MIT in April 2009, in which he laid out the magnitude and complexities of urban challenges facing India, we jointly recognized that the ambitious vision for IIHS rested on at least three critical assumptions: first, that unusually large problems, such as the ones faced by the growing number of cities in India required an unusually bold—almost audacious—institutional reforms that were equally large and complex in scope. Second, large problems required large number of practitioners—not just a small elite group as represented, for example, by the graduates of the Indian Institutes of Technology or of Management (IITs and IIMs)—but also that such large-scale production of practitioners did not require any painful tradeoffs with academic excellence (which has traditionally implied the need to educate a relatively small number of
individuals selected through extraordinary competitive selection processes, as in the case for admission to the IITs and IIMs). Third, IIHS wanted a broad-based multi-disciplinary and holistic education, one that not only included specialized knowledge of specific problems and advanced methodologies for addressing problems, but would also draw from practice by deep engagements with problem-solving on the ground. IIHS envisioned producing practitioners for all regions of India, and anticipated the need for professionals who could be effective practitioners at all levels—from large to small human settlements, and in all institutional settings, whether private, public or non-governmental. This comprehensive approach was justified as necessary to break through the existing conventional educational system so as to reach out to the multitude of young Indian citizens with rising educational and career aspirations. Such inclusive education needed to be of the highest quality as well. The IIHS model argues that the dual objective of excellence and inclusion could be attained by tapping the huge potential of information and communications technologies in which India had already excelled relative to other developing nations.

The curricular implications of such an all-encompassing and ambitious vision gradually dawned on us—MIT and IIHS—as we engaged in discussions, first in Cambridge, then in Bellagio, and finally in Bangalore. Compared to the vision for IIHS, the Department of Urban Studies and Planning at MIT is a small educational venture, graduating an average of 70 Master’s and ten doctoral students a year (which is large for planning programs in the United States, but minuscule in relation to the demands of global urbanization challenges). The number of undergraduates at MIT who specialize in urban studies and planning is even smaller, especially compared to the enrollment in MIT’s various science and engineering departments. Consequently, most courses offered by the department are geared towards Master’s students and feature class sizes of 15-20 students—often smaller, with larger classes limited to a few core subjects. MIT’s Master’s students have varied undergraduate training, ranging from architecture to economics to environmental science, but they do comprise an elite group in terms of their previous high grade point averages from prestigious universities.
in the United States and around the world. More important, the courses offered at DUSP are quite numerous—more than 50 per semester. The vast majority of these courses are not required for all students; many of them are advanced courses in specialized topic areas linked to the current research of the faculty. The move away from a strongly prescribed curricular sequence with many required courses is not unique to MIT; most planning schools in the United States followed the same intellectual trajectory starting in the late 1960s when traditional curricula came to be questioned as hindering a free-flowing learning experience.

To put it another way, there has been a conscious move at MIT and other leading planning programs—especially those with a sufficiently large faculty size—to move away from offering an all-encompassing and comprehensive sets of courses toward creation of a learning environment of highest quality by offering specialized courses taught by faculty who conduct advanced research on those topic areas. The assumption underlying this specialized education is three-fold: first, that students who enroll in Master's programs such as those at MIT, UC Berkeley or Harvard have—or will gain—good basic understanding of foundational issues in the discipline.

Second, the students should be offered the opportunity to explore, on their own (though with some guidance from faculty advisors), various ways of thinking as revealed by the varying intellectual and methodological orientations of the faculty. Third, since the faculty are rewarded for advancing their specialized field of knowledge through research—particularly in top-ranking research universities—they usually teach courses that are relevant to their current intellectual passions. Very few faculty members, if any, are eager to teach remedial courses or even broad overview courses that remain confined to basic conceptual ideas. We have assumed that first-rate students will be able to pick up strands of interesting ideas and methods from the courses they select and that they will be able to construct and refine their conceptual frameworks and lenses as they learn to recognize the frames and lenses deployed by others. Their education may not be comprehensive but will instead be unconventional and finely tailored to their own particular needs.
How this hyper-specialization approach to teaching works out specifically in different planning programs depends primarily on the budgetary constraints with which each program has to work. In MIT’s discussion with IIHS, this matter of budgetary constraints, or its opposite—budgetary possibilities—was not discussed as much, in part because of the intellectual excitement generated by IIHS’s ambitious plan. The enthusiasm emerged because there is clear evidence of a very large demand in India for some form of advanced degrees related to human settlements. The excitement is further enhanced by the realization that this regionally dispersed demand could benefit from an economy of scale through the judicious use of information and communications technologies, and that both general and specialized courses could be provided to deliver excellent education to a large student body by IIHS in ways that would coordinate all sorts of activities—teaching, research, consulting—and at various levels from Bachelor’s to Master’s and eventually doctoral students through a set of integrated and planned curricula as well as extracurricular activities, which would all contribute to the education of life-long learners.

There was surprisingly little discussion of trade-offs between, say, creating an integrated system and the difficulties of implementing such a system well, or between the need for multi-disciplinary training and at the same time, the level of rigorous in-depth education that is necessary to achieve a high quality of scholarship. Can everything really be valued equally when educating a new type of practitioner, or are there conflicting demands? Our usually optimistic discussions seemed to assume that hurdles could be surmounted through “learning by doing” as long as there was political will backed by a team of young, entrepreneurial, exceptionally talented, and hardworking individuals who were eager to seize the unique moment in India’s history to create a new institution that could be equal in vigor to the newly energized Indian economy.
Planning Sensibilities: Old and New

There was complete agreement between MIT and IIHS that India needed a new type of planner. The tone of the deliberations around this issue—how the new planner would be different from the old planner—was set early on by Dr. Rakesh Mohan, then the Deputy Governor of the Reserve Bank of India, who was invited to deliver the keynote speech at an MIT-organized event in July 2009 to launch the MIT-IIHS cooperative efforts with financial support from the Rockefeller Foundation. At the event, Dr. Mohan emphasized that India needed a new type of urban professional who, unlike the old bureaucratic planner, appreciated the positive role of rapid urbanization in economic growth. India needed professionals who were not just physical planners trained to produce static master plans and distant visions, but who could also stir socio-economic activity of the sort that rapid urbanization requires for ensuring continued economic growth as well as inclusive development. On MIT’s side, at the first meeting in Bellagio in August 2009, Bishwapriya Sanyal extended this argument further, laying out a conceptual foundation which contrasted old sensibilities with new ones (see Appendix 2) and proposed fundamental shifts in thinking, seen as necessary for educating a new type of planner not only in India but also elsewhere. In the United States, leading planning programs, such as that at MIT, have struggled with the evolving needs of the changing profession since at least the late 1960s and continue to recalibrate their curricula. As Sanyal articulated in his opening presentation, it has already taken a forty-year search to develop an educational model that could cultivate the new sensibilities.

Such deliberations proceeded with new partners joining in at IIHS’s request. For example, the Development Planning Unit at University College, London, with a very different educational approach than that of MIT, was invited to provide a European perspective. Representatives from the Federal University of ABC (located in São Paulo) and the African Centre for Cities joined the deliberations, strengthening the voice of the “Southern partners”
at the table and opening up greater dialogue about ‘south-south’ knowledge transfers. This gathering of multiple voices did not create a cacophony, however. There was always consensus on the broad objectives for a new type of practitioner: someone able to react to the new challenges posed by rapid urbanization. We collectively recognized that the term “urban planner” needed to be revised to convey accurately what IIHS had envisioned its graduates to be: not traditional, bureaucratic physical planners, but rather innovators and entrepreneurs who could operate in multiple settings—private, public, and NGOs. Instead of seeing the urban world through outdated regulations, they needed to be able to seek influence in a variety of ways that could turn rapid urbanization into an asset for economic growth and inclusive development. This is why the decision was made to call IIHS graduates “urban practitioners.” This, we all hoped, would differentiate them from traditional urban planners who did not have much credibility as proactive agents for social improvements.

Once the deliberations on nomenclature were settled, we turned much of our attention to one particular element to be cultivated and celebrated in the education of the new practitioners—namely, how they could best learn from practice, not after graduation, but while enrolled at IIHS. The partners who engaged in this discussion, again, were not limited to IIHS and MIT; we were joined by the private firms of Arup, IDEO and others who were all eager and were in consensus that learning from practice had to be seamlessly incorporated into the education of new urban practitioners. MIT led the way by inviting Gary Hack, Dean Emeritus of the Design School at the University of Pennsylvania, former faculty at MIT and a principal of the famous private firm of Carr, Lynch, Hack and Sandell, to speak at an MIT-organized event in July 2009. The goal was not to emphasize the benefits of practice-based education; it was assumed that everyone agreed with this noble objective. The point instead was to open a discussion of how academic institutions—particularly within applied programs—could build an organizational structure in which teams of faculty and students could work on real-life problems with clients, learn from the process, and generate revenue through charging consulting fees that could be then be utilized for various purposes, such as
financial assistance for needy students or building and renovating educational infrastructure. As dean of PennDesign, Hack had developed a model that worked well and which has been closely watched by other planning schools in the US. MIT wanted to share this experience with IIHS, which had conveyed an interest in developing a practice arm that could work in India to utilize the funds allocated to cities under the newly formulated Jawaharlal Nehru New Urban Renewal Mission (JNNURM). How to take advantage of such consulting opportunities while maintaining a high level of academic rigor has been a dilemma for many planning schools in the US. Hack discussed various such issues that needed to be considered as IIHS contemplated the creation of a practice arm either on its own or in consultation with partners from India or elsewhere.

As a second way to help IIHS integrate practice with classroom-based teaching, the MIT team shared our experience in conducting “Practica”—client-linked projects that engage MIT faculty and students in problem-solving outside of the traditional system of paid consultancies that have typically not relied much on students and university-based pedagogies. Professor Lawrence Vale made a presentation at an MIT-IIHS meeting in April 2009 on this topic and explored in depth various aspects/issues IIHS may need to consider in adopting this practice-driven approach to educating students (see Appendix 4). There was much agreement about the value of the practicum as a way of educating budding practitioners. Several issues required additional attention, however: organizational questions regarding how to identify appropriate projects; decisions about how to allocate both faculty and students’ time for serious engagement with issues requiring significant time commitments that could extend well beyond the limits of a single academic term; and how to deploy a practicum-style pedagogy—which usually involves no more than ten or so students—to a much larger cohort of learners once IIHS reached its full size. Most important, IIHS would still face the fundamental challenge of how best to utilize this “hands-on experience” to creatively frame problems in ways that enable something to be done about them. To be truly meaningful, practicum-style education is about learning how
to work around organizational barriers, how to involve various stakeholders in the problem-solving process and, finally, how to communicate recommendations so as to create the momentum necessary for their implementation.

A third way MIT contributed to the discussion on how to incorporate practice in theory-building is by sharing MIT’s experience in conducting advanced research that theorized from practice—rather than the other way around. The discussions of such research took many forms, initiated by a discussion of practice-driven research topics in Bellagio in August 2009 and June 2010, which included a presentation by Lawrence Vale describing the structure and fifty-year evolution of DUSP’s own doctoral program (see Appendix 5). A range of issues regarding research was covered in other meetings in Bangalore, London (at a meeting hosted by University College, London in November 2009), and Cambridge, Massachusetts. In Bangalore, where IIHS had assembled a wonderful group of Indian scholars and practitioners for a conference in January 2010, there was a long discussion regarding the kinds of research necessary for building an academically respected field of knowledge to influence practice.

This was not a new topic for MIT because its very name—the Department of Urban Studies and Planning—represented a late 1960s reinvention of the former Department of City and Regional Planning. This renaming was intended to signal the contributions of two emerging streams of research—one of them an “Urban Studies” component that drew on disciplinary research to explain urban settings, and the other a “Planning” approach to practice-oriented research, which analyzed how practitioners intervened in urban settings or explained how they evaluated projects and policies for organizational learning. This separation of research on cities and city planning into two separate streams served the purpose of broadening the field of inquiry for a while, but as the field matured and as the complexities of problems to be addressed deepened, the separation between “urban studies” and “urban planning/urban design” threatened to create an organizational fissure at MIT. Since MIT is currently trying
to bridge this, we wanted IIHS to avoid creating it in the first place. Hence, much of the discussion about what is considered rigorous, excellent, and useful research for urban practitioners revolved around how to bridge the classic dichotomy between social-science researchers and practicing planner/designers. Having academics as well as practitioners, such as those from Arup, involved in these discussions proved to be a valuable learning experience for the MIT team—and hopefully, for IIHS too—even though there were moments when scholars and practitioners talked past each other, as is still common in the US planning schools.

How to avoid this type of dual-track conversation—one among tenured/tenure-track scholars and the other among adjunct practitioners—remains a challenge because it threatens to reinforce the traditional dualism of theory and practice. This conceptual separation, which can only be bridged through innovative research questions coupled by innovative organizational design of professional educational programs, was an issue that emerged more than once within IIHS-MIT’s engaging discussions. We never really resolved it, however, since the MIT team lacked a clear understanding of how IIHS was going to structure itself. The MIT team provided IIHS with information about how the Institute facilitates faculty research by providing seed funding, research leaves, research assistants, and so on. This created some discussion, but it might have had an inadvertent negative effect, since it conveyed the message that IIHS and MIT were very different institutions. Despite some similar aspirations, during its ramp-up of operations, IIHS faces significantly different resource constraints that prohibit it from adopting MIT’s approach to the cultivation of outstanding research. Perhaps such discussions confirmed IIHS’s long-standing position that a “South-South relationship”, rather than a “North-South relationship”, could be more relevant for organizational learning. Indeed, there was a presentation on this very topic in Bellagio (June 2010) by Edgar Pieterse of the African Centre for Cities, which is primarily a research organization and had received funding from the Rockefeller Foundation as well. MIT acknowledged the differences in resource constraints, but never emphasized this, either
as a key obstacle or as the primary factor in the promotion of outstanding research. In the spirit of creating free-flowing and egalitarian conversations among all the participants who contributed to the IIHS-MIT collaboration, MIT emphasized, instead, what it considered interesting research questions rather than expensive funding mechanisms (see Appendix 6).

This is not to underestimate the importance of research funding but to induce a new type of unconventional research imagination that requires a different sensibility regarding the world of practice. This new mode of “practice” is not assessed with conventional evaluation methods such as cost-benefit analysis, which focuses on measurable outcomes. It subjects every detail of practice to institutional inquiry with deep sympathy for practitioners—both at the street-level and higher up—to better understand the complexity of interconnected causes that lead to varying outcomes. Very rarely are such outcomes a total success or a total failure; there are inadvertent side effects that also must be taken into account in proposing changes that are institutionally realistic, economically sound, and politically acceptable to elected and appointed officials. To conduct this kind of research, one cannot separate research from teaching. In fact, the best way to conduct this sort of research is to engage both faculty and students in concrete problems and struggle through the semester searching for solutions while the students read the recommended readings and, if possible, visit the site more than once to appreciate that they need to learn how to craft simple solutions to complex problems—not the other way around, as is often the case in traditional research. Traditional research often generates enormous amounts of “data” instead of revealing interconnected problems, and it can ultimately leave students with a helpless feeling that perhaps their job in problem-solving is minimal at best. That is the kind of research MIT wished to avoid, and we explicitly conveyed this message to the faculty who served on the MIT team to craft new courses. Cultivating the new planning sensibility that would be the hallmark of the new Master’s Degree in Urban Practice for IIHS also entailed a corresponding approach to research and research methods.
Curriculum Development: Breadth, Depth or Both?

Starting with IIHS’s first presentation at MIT in 2009, and spanning all the jointly held activities at Cambridge, London, Bangalore, and Bellagio over the last four years, the central element in MIT’s cooperative effort has been the crafting of new courses to fit with IIHS’s vision, curricular priorities, and organizational needs (See Appendix 3 for IIHS Curriculum Development at MIT). As mentioned earlier, MIT was not the only institution advising IIHS; by June 2009, a team from the Development Planning Unit at UCL had joined the conversation, and soon afterwards representatives from France, Brazil, South Africa and other partners were invited to enrich the discussion on both program structure and content. The assembly of multiple institutions and large number of active participants led to serious discussions, first regarding program structure. What is to serve as core knowledge? What should be the most important specializations? How are these two elements to be integrated, in which sequence, and using what modes of learning? We discussed pedagogies that ranged from lecture sessions to internships, “practica” and other modes—all adding up to holistic education of both the mind and the body.

Since MIT’s own program is primarily targeted to graduate students—both Master’s and doctoral—we were naturally inclined to advise IIHS on graduate curriculum matters (and were more circumspect about offering advice on undergraduate aspects). Yet the MIT team remained uncertain as to what level of knowledge could be expected of students who would be admitted to IIHS’s graduate program. At MIT, incoming students have solid grounding in either some related discipline (typically in the social sciences) or knowledge of applied fields, such as architecture or urban design, and incoming students typically have two-to-five years of work experience following their Bachelor’s degrees. Hence, by the time the students join MIT’s Master’s program, most are eager to specialize in their particular areas of interest. This convinced us that, with some appropriate advising from faculty, the students know best

---

4 What we are calling core knowledge is described as the “Commons” in IIHS parlance.
which courses they should be enrolling in, and, as a corollary, it implies that they should not be forced to take too many required courses. Such an approach is not unique to MIT. As previously noted, the move away from a set of fixed core courses began more than four decades ago when US planning schools engaged in serious rethinking about not only what to teach but also how to teach. The purpose was to create a learning environment and cultivate learning habits in fields, such as urban studies and planning, that were undertaking serious self-examination and were boldly questioning of old, established knowledge. As standards for tenuring faculty became increasingly more demanding, most professors preferred to teach advanced courses in their areas of specialization so they could blend teaching and research with the ultimate goal of publishing in top-ranking professional journals. To put it another way, as a department, MIT has rarely worried about how to transfer “core competencies” to meet established standards for some mythic, generalizable profession. Instead of educating to staff “the profession,” we have been more ambitiously cultivating mindsets that will challenge, change, expand, and diversify that profession. We expect individual students to work with their assigned advisors to craft their own intellectual pathways to suit a unique set of particular needs, and the students do so by selecting from a large array of courses offered within the department, elsewhere at MIT, and at Harvard. This is not to say that there are no core requirements whatsoever; there are courses in micro- and applied economics, quantitative and qualitative analysis, visualization through use of advanced geographic information systems, and some preparation for thesis work. But these courses are often not central to the learning process of the students; with the exception of a semester long “Gateway” course, they serve as “prerequisites” that can often be bypassed through a series of optional test-outs. In other words, MIT’s program really rests on specialized courses taught by faculty who are leaders in their domains of knowledge and who engage in specialized research. Few courses rely on anything resembling a single textbook; learning occurs from an accumulation of critical attention to multiple sources, often work that suggests contradictory points of view and is intended to inspire debate. That is why, in MIT’s collaboration with IIHS, the faculty who participated under the leadership of
Professors Lawrence Vale and Bishwapriya Sanyal opted to develop specialized courses, which they hoped could be used by both IIHS and MIT. Although we did pay some attention to the core or “Commons” portion of the IIHS curriculum—and some of those who coordinated particular specializations had strong views about what skills and knowledge base would be needed by IIHS learners in order to get them ready for the specializations—most of our efforts to help IIHS build an integrated curriculum focused on crafting the more specialized pathways that we hoped could educate the sorts of professionals most able to assist an urbanizing India.

Selection of Specializations, Course Structure and Pedagogical Intent

At MIT, there was considerable discussion among the core group of faculty who had been recruited by Professors Bishwapriya Sanyal and Lawrence Vale to participate in the curriculum design process. Our goal, as envisioned in our initial proposal to the Rockefeller Foundation and IIHS, was to identify a set of faculty curriculum coordinators, each of whom would be responsible for identifying the best possible set of educators—whether from MIT or from other top-ranking universities in the US and abroad—to help them develop a set of courses to support a given specialization, and to make sure that this specialization was properly tailored for the needs of IIHS and, more broadly, for the needs of India. Most of these curriculum coordinators attended meetings not only in Cambridge, but also in Bellagio and Bangalore, which facilitated ongoing dialogue as the curriculum proposals developed.

The early discussions assumed that IIHS faculty would be organized around four “schools,” modeled after semi-autonomous research centers in US universities, which assemble a flexible group of faculty, research assistants, and students around a few topic areas with funding from external sources, such as philanthropic foundations, national government, research agencies, or even private consulting firms engaged in city building efforts. The key
themes to be covered were the usual suspects: Environmental Sustainability; Urban Design and Real Estate Development; and Urban and Regional Economic Development. There was very little disagreement among the parties in the collective process about the importance of these large themes; the task of breaking down each broad theme into a set of specific courses was to be led by MIT and UCL with review of courses to be provided by IIHS to make sure that these curricula could be calibrated to IIHS’s specific needs. For the most part, UCL and MIT brought different strengths to the curriculum development process, and the two teams were tasked with working on different specializations. This division of labor seemed acceptable to all because it provided some intellectual autonomy to the partnering institutions to craft the courses they considered important and interesting. This also assured IIHS the final say to pick and choose—both entire specializations and individual courses—to fit their specific needs from the larger repertoire of offerings that would be generated. The MIT team alone was charged with producing courses in at least 70 different subject areas, grouped into a series of ten specializations, so this was certain to generate more options than IIHS could ever deploy, at least not during its early years (see Appendix 7 for complete list of courses organized by specialization).

The core IIHS team, with some input from the international partners, decided to take responsibility for preparing the “Commons” courses on its own, some of them in the form of six-week course modules as is prevalent at UCL (but not at MIT, which usually offers full-semester-long courses). Drawing on the advice of domestic advisors who emphasized the need for broad-based and historical understanding of human settlements and urban planning in India, IIHS structured the Commons curriculum, which was to be offered in the first year of the two-year Master’s of Urban Practice program, and scaled to encompass much of that first year. In structuring the Commons, IIHS incorporated one element of MIT’s pedagogic approach, namely, the use of “Practica”—field-based, client-driven, problem-solving exercises. As mentioned earlier, MIT had shared with IIHS the rationales, forms, and structures for practica, and stressed its important role in providing an education that truly
valorizes practice. There was consensus that greater reliance on reflective practice as a mode of education would be essential to break out of traditional rote learning of the old kind, which characterizes classical education in India. IIHS took the bold step in incorporating such practica as more than just as an add-on to a traditional sequence of courses. Instead, IIHS proposed making this kind of pedagogy a unifying thread in the educational process, connecting the learning experience across the two years, even as Commons courses dominated the first year and more specialized courses were consolidated into year two.

In line with this division of labor that emerged from the continuous consultations in various settings in Cambridge, Bellagio, London, and Bangalore, MIT was assigned to develop the curriculum for ten specializations. In turn, MIT selected ten faculty curriculum development leaders to fully develop each specialization. Each faculty leader, in turn, recruited other faculty—both from MIT and from other top-ranking US and international universities—to develop the specialization overview, as well as the courses that would constitute the curricular details of each specialization. In most cases, each team commissioned and developed courses in eight subjects, although some were slightly larger and some smaller. In selecting the faculty to craft some seventy-five new courses, the core MIT team was motivated by three broad criteria. First, MIT selected faculty more for their distinct points of view than for comprehensively covering all aspects of every specialization. The goal was not to transfer the knowledge of all aspects of multi-dimensional and interconnected issues urban practitioners are likely to encounter in their jobs, but to develop a way of inculcating a type of sensibility that would be markedly different from conventional ways of addressing human settlement issues. This emphasis on the need to cultivate a new sensibility was laid out explicitly by Professor Bishwapriya Sanyal early on in the curriculum-building process, and it influenced who at MIT was selected to devise the overview and to craft the new courses. MIT also took into account the geographical interests and expertise of faculty who were selected by assembling a team of faculty who were familiar with South Asia in general, and India in particular (see Appendix 8 for the entire list of faculty coordinators and
contributors). Many of these faculty members had completed their early education in India and were aware of the strengths as well as weaknesses of conventional Indian education of urban planners. By assembling such a team of faculty, both young and senior, MIT wanted not only to generate courses of relevance to IIHS, but also create an academic network that IIHS could tap into for purposes other than curriculum development—such as connecting IIHS graduates to top-ranking US universities; collaborative fund raising for joint research efforts; short-term teaching at IIHS by faculty members; and even longer term engagements to offer practica and workshops with students from various US-based universities including MIT.

A second aspect of curriculum development that MIT conveyed to all involved faculty—at MIT and elsewhere—entailed development of a common format for every subject description. Although not intended to be formulaic, each subject had to include discussion of eleven different issues (see Appendix 9 for the proposed course template). Each course is designated as either Commons, Required (for a specialization), or an Elective. Each description contains a discussion of “minimum learner standards/pre-requisites,” offers a “justification or rationale” for the subject, outlines “learning goals” and “learning outcomes,” explains the “objectives” for each unit, sets out “pedagogic approaches,” proposes approaches to “support and mentoring,” proposes ideas for performance “assessment,” supplies a detailed account of key “readings and resource materials” organized by topic areas, and offers up additional “guidance for educators,” intended to help those who would be asked to actually teach these courses in India.

In meeting these criteria (which were developed jointly with IIHS), each course designer needed to be able to articulate the conceptual logic underlying the course structure, identify the rationale and sequencing for the course assignments, and demonstrate a command of the relevant literature by listing required and recommended readings for each session (which also facilitated the capacity to reveal and assess the relevance of the course for India). In laying
out such detailed descriptions of each course, the faculty assumed that students would bring a reasonably high level of prerequisite knowledge obtained during their previous university education. Although some courses were designed to be required in each given specialization, most were pitched as electives, often reflecting the faculty members’ particular research priorities rather than a general comprehensive view of broad topic areas. This approach to curriculum development, MIT assumed, would generate uniquely crafted and intellectually novel courses.

Developing curriculum in this way generates at least two central challenges. First, it is difficult to ascertain the proper level at which to pitch these classes until IIHS is established and more is known about the caliber and background of the students. And second, perhaps more fundamentally, it is unclear how best to transfer the core contributions of these courses so that they could be taught by IIHS faculty, even though these were not the people responsible for the initial crafting. These matters were not adequately addressed, in part because IIHS had not hired faculty at the time MIT submitted the courses (mostly in 2010 and 2011). Also, there was, and still is, much ambiguity regarding class size and intellectual capabilities of students. Some of this will eventually be influenced— not solely but possibly to a great extent— by the university’s business model. MIT was aware that IIHS wanted to reach a large number of students— perhaps more than the total number of students that graduate from all schools of planning in the US, so this is uncharted pedagogical territory— as was noted after a presentation by IIHS director Revi at the ACSP Conference in 2010.

From the perspective of the MIT-led team trying to develop courses, the likely magnitude of the IIHS graduate student cohort and its varied composition was never really made clear. At MIT, where most courses are taught seminar-style with back-and-forth exchanges between faculty and students, class size is a crucial component of the intellectual dynamic and the pedagogical possibilities. In developing the suite of courses for IIHS, the relationship between class size and its affect on course content and teaching was not deliberated enough.
There was a general agreement that IIHS wanted aspects of the US-style education model because it was the opposite of what had characterized Indian education—large class sizes, one-way lecturing, rote learning, and very little interest in research. To break away from that traditional model was one of the explicit goals of IIHS-MIT collaboration, and the crafting of new specialized courses seemed like a necessary step towards that cherished goal.

The third factor influencing the curriculum development process involved the wish of IIHS to build on MIT’s strength in open online educational material distribution (called OpenCourseWare, or OCW). Here, the issue regarding class sizes was just the reverse: IIHS assumed that MIT had developed good ways to reach a very large number of learners around the world through the skillful use of OCW and that similar modes of communication and teaching could be useful for IIHS to reach a large number of students (especially mid-career professionals), in addition to those who would attend the residential university campuses. And, even for the residential students, the new information and communication technologies could open up new ways of learning beyond the classroom lectures. The hope was that a large number of students could use a large array of communication technologies to learn in multiple ways, from multiple sources—including MIT’s OCW—to build a multifaceted curriculum at a fraction of the cost and time of the old ways of providing education. This aspiration, of course, was not unique to IIHS; many US universities were also pursuing similar goals, even before MOOCs (Massive Online Open Courses) emerged. Neither MITX nor edX had emerged when IIHS and MIT launched the curriculum development process; however, MIT had established a worldwide reputation for “giving away its best courses free of charge,” and IIHS had assumed it could tap into or borrow from MIT’s system to build its own online courses which could be translated into India’s multiple regional languages to serve a large number of students in multiple states.

Under the leadership of Dr. Vijay Kumar, then the Senior Associate Dean and Director of MIT’s Office of Educational Innovation and Technology, MIT engaged with IIHS along
these lines. Dr. Kumar participated in several meetings in Cambridge, Bellagio, and Bangalore, and worked closely with IIHS staff to identify a plan by which IIHS could achieve its goal (see Appendix 10 for Dr. Kumar’s plan for Open for IIHS). Not surprisingly, the plan Dr. Kumar proposed for IIHS to create its own platform for knowledge dissemination was extensive and would have required a significant level of funding, for which he and IIHS jointly wrote a proposal. Meanwhile, he suggested that courses be taught in short modules, in contrast to the semester-long courses organized in seminar form at MIT. IIHS worked closely with Dr. Kumar in crafting a prototype “mental map” of concepts a student must learn to understand the challenges for better planning of human settlements. One such concept-based mental map was discussed extensively at the conference in Bangalore in January 2010. Dr. Kumar also helped IIHS to understand the challenges it would face in translating video lectures into regional languages using computer programs. All such efforts helped IIHS to understand, both intellectually and pragmatically, the kind of institutional and computational infrastructure it would need if it were to operate a cutting-edge university linked globally as well as regionally through a learning network that would provide a diverse array of courses and other educational opportunities in local languages at a low cost, while generating a reasonable level of revenue.

IIHS’s goals were noble and implicit; it envisioned a business model of the kind many US universities are pursuing at the moment by investing in MOOCs. Although MIT’s OCW is only about a decade old, it already seems like a model from the past; that its attractiveness has diminished is reflected in the fact that MIT had to subsidize it to the tune of $1 million annually and the courses were less interactive and relatively traditional compared to the best of MOOCs, such as those offered by coursera and edX. We can confidently assume that the online education technology will continue to evolve and make the current modes of MOOCs obsolete in the near future. What remains ambiguous, however, is the impact of the new technologies on learning abilities—particularly on students who come from socially disadvantaged backgrounds. Since the objective of IIHS’s stated goal is to provide education
to such disadvantaged groups who do not have access to reputable universities, such as the IITs and IIMs, IIHS may have to craft a technological path on its own to address this challenge. To do so, IIHS will not only need access to new information and communication technologies but also, more important, will need to develop a good understanding of how students learn—a new and more complete theory of learning. The world’s foremost educational delivery systems and universities still lacks consensus about how best to enhance learning.

**Benefits of MIT’s Engagement**

MIT’s engagement over the last four years in IIHS’s curriculum development process has been a learning experience for MIT. We cannot speak for IIHS, which at the time of this writing is still awaiting formal approval from the Government of India (GoI). Even as IIHS waits to launch the full program, the MIT team continues to be involved by participating either via video links to give lectures at a meeting of mid-career professionals (January 2012), or in the recently held workshop on doctoral planning education in India (July 2013). Thus, the IIHS-MIT collaboration that started four years ago continues, even though the original purpose of the collaboration—namely to disseminate the new courses that have been crafted—has not yet been operationalized, due to reasons beyond IIHS’s control. This is somewhat frustrating, but overall the collaborative effort between IIHS and MIT with the support of the Rockefeller Foundation has been rewarding for MIT in more than just one way.

First, thanks to IIHS, MIT came to appreciate the amazing aspirations as well as capabilities of a wonderful group of highly talented individuals, led by Dr. Aromar Revi, who continues to work very hard not only on curriculum development but also on managing all other aspects of institution-building to create a new type of a learning environment to educate urban practitioners. True, IIHS’s vision at times seemed audacious, all-encompassing, and
overly ambitious, but it was always backed up with hard work and relentless effort in building, one step at a time, all the elements necessary for the formation of a new university to meet India’s urban challenges. The group of IIHS staff with which the MIT team interacted was young, talented, and hardworking. It was primarily because of them that we are still hopeful that the joint efforts of the last four years will finally culminate in a new institution, one that we hope can become our long-term partner.

A second set of benefits for MIT has been to be part of a global network of innovative individuals and institutions, from not only India but also other countries, including South Africa, Brazil, France, the UK, and the US. At times, this large network seemed too big and unwieldy, and somewhat diffused in purpose, but it was unified by one central goal—to create a new type of learning environment that would valorize practice, help students break out of orthodox learning habits and traditional conceptual paradigms, and be bold, curious, and creative in addressing urban problems, particularly in ways that can improve the quality of life of disadvantaged communities. The collective effort to co-create such a learning environment to be known as IIHS has been uplifting, and has been a learning process in itself because it provided opportunities to explore various theories of learning, implicit in the many suggestions, worries, and remarks made by a remarkable group of individuals with considerable experience in teaching and professional practice. What is truly remarkable is that such interactions in various settings did not fit any stereotypical model of interaction between “the North” and “the South,” or even among “Southern institutions” themselves. Very interestingly, the Southern universities were frequently more ambitious, audacious, and idealistic, while the Northern universities were more cautious, pragmatic, and muted in tone. Perhaps this is a sign of contemporary relationships between Northern and Southern universities - at least those universities in the South that are located in regions experiencing rapid economic growth. This also signified a new type of relationship between “the North” and “the South” characterized by an equality of intellectual tone, each more accepting of “the Other.” To be part of this great experiment in institution-building in India at a major
turning point in its development trajectory, and with so many interesting partners such as IDEO, Arup, and UCL, was in itself a valuable learning process for MIT.

Yet another reason MIT benefitted from this curriculum development process is because this effort, even though intended to assist IIHS, also provided an opportunity to MIT faculty and others in each specialization team to redevelop and restructure their old courses. Thanks to the generous support from the Rockefeller Foundation, curriculum development for IIHS also led to the creation of brand new courses, which are being used not just at MIT but also at other top-ranking US planning schools. This is not an insignificant achievement considering the current financial strains at many US universities, and how this has reduced the usual funding available for new course development. The benefits of new course development are many; some are obvious. However, out of this, one particular benefit to MIT has been the support it could provide to some outstanding doctoral students who assisted the faculty in defining the specializations, and preparing a set of courses, which, it is hoped, they will be able to adapt and teach after graduation. A number of MIT’s doctoral students have been deeply engaged in the IIHS-MIT collaboration, some of whom participated fully by traveling to the meetings and workshops in Bangalore and Bellagio, where they could engage not just in curriculum development but also in defining research priorities. The full benefits of such interactions may not be visible immediately, but they are bound to flourish as the doctoral students finish their dissertations and start teaching as assistant professors in the US, India, and other countries, whose universities are bargaining to attract newly minted PhDs from around the world.

The Future of IIHS-MIT Collaboration?

Assuming that IIHS will eventually be approved by the Indian Parliament as one of the newly founded universities of excellence and innovation and that it will indeed proceed to offer a range of educational services—degree programs from the Bachelor’s to Doctoral
level; programs for mid-career professionals; consultancy services for cities and regions—organized around four or five schools, each with a good offering of core and specialized courses, as originally envisioned, it will be worthwhile to extend the IIHS-MIT collaboration for mutual benefit.

For MIT, a principal objective for collaboration with IIHS was to establish a practice-driven research hub in India. Envisioned as an “Urban Lab,” MIT faculty sought to create a venue where MIT students and faculty could engage seriously and over a sustained period of time with Indian urban challenges, learning through rigorous studies of urban projects and policies as active participants with Indian colleagues in both design and implementation. In other words, these “UrbLabs” were to provide the right setting for “learning by doing” as well as for “reflective practice”—two notions cherished deeply at MIT. To be involved in such a learning process as a partner of an innovative academic institution in India like IIHS seemed like an excellent idea four years ago, and remains an attractive goal even if MIT’s early enthusiasm has been tempered somewhat by the slow pace of change and educational institutional reforms in India. What remains inspiring is the rate and complexity of the urbanization process in India—affecting large-, medium-, and even small-sized cities across the nation—offering opportunities for the kind of inverse learning MIT values when theorizing from practice (and not the other way around). This is all part of the need to reinvent conventional planning education.

If MIT were to pursue this goal of learning by doing through action research in real settings, it would need to join hands with either IIHS or some other Indian entities (not necessarily just universities) offering practica of the kind we have recommended that IIHS should offer. With the Indian Central Government significantly increasing the funding available for improvements in urban areas, this is the appropriate time to engage seriously in developing proposals for practica, which could engage the most pressing problems of rapid urbanization and study the interventions proposed to address them. To do this well, MIT-IIHS should
concentrate their collective effort on a few select cities in India, locales that would agree to participate in a sustained relationship over at least three to five years. These places would work with MIT-IIHS by providing access to projects and policy interventions to be studied thoroughly to better understand such planning efforts. Whether such triple partnerships among IIHS, MIT, and select Indian cities could be viewed as a source of consulting income for IIHS is an issue to be deliberated carefully, especially given that MIT is motivated primarily by an interest in research that can lead to better design of projects and policies. This is an idea easier to propose than to actually implement well in practice. However, we hope that it could be an idea worthy of future support from the Rockefeller Foundation, if it works, to contribute to innovative research on urban issues while, simultaneously, strengthening the IIHS-MIT relationship.

There could be multiple additional benefits of engaging jointly in the development of urban practica. For one, if outcomes from the practica are documented well, they could generate the kind of detailed case studies of planning efforts that are still lacking, a shortage of teachable material that became apparent during the course development process. To emphasize the point further, the reading lists of required and recommended readings compiled by leads of each specialization from MIT and their team members who have considerable knowledge of academic research on urban India did not unearth many well-researched case studies of planning interventions in India. There is a fundamental lack of good case studies of planning practice, precisely the kinds of pedagogical raw material that faculty sorely need if they are to develop the kind of new planning sensibility IIHS and MIT hope to cultivate. The practica, if researched thoroughly by impartial and empirically driven urban scholars, could fill this major gap in course materials. Despite the broadly espoused goals for something new and different, when one reviews the reading material prepared by the MIT-led team, the readings draw mostly on current theoretical debates, framed in classical disciplinary ways, and fall short of what IIHS and MIT most wish to stress intellectually: the kind of theorizing from practice that is truly multi-disciplinary and focused
on the performance of planning institutions. To produce that kind of research would require
detailed knowledge of planned interventions from within planning institutions, assembled by
scholars who remain objective and impartial, but who remain more attentive to the power of
organizational constraints than traditional scholars tend to be. Hopefully, such scholars will
emerge from IIHS’s future doctoral program and can work together with the faculty from
IIHS and MIT to develop case studies of intervention that draw on research generated by
practica.

A second benefit of practica, if jointly organized by IIHS and MIT, could be the
opportunities these would create for intense two-way discussions (or even productive
arguments) between the IIHS faculty who seek to adapt the curriculum as laid out in this
report and those faculty from MIT and elsewhere who structured the curriculum, the
courses, the reading lists, and course assignments. Ideally, we would have preferred to have
had more of those sorts of discussions during the actual process of course development, but
since IIHS had yet to hire all faculty needed to offer the various academic programs, the
process of course development was somewhat more unidirectional than intended—from
MIT to IIHS. This could certainly present problems for newly hired IIHS faculty as they try
to modify the proposed courses to fit their own intellectual priorities and pedagogical styles.
Still, this sort of difficulty in adopting courses developed by others could be turned into an
opportunity for the kind of mutual learning that is essential for knowledge production in an
increasingly integrated world. The jointly held practica could provide the ideal forum to test
which readings are useful and why. In other words, the practica would provide “the material
basis” for agreements—as well as disagreements—about what is considered useful
knowledge, direct challenges that get at the heart of why courses are designed in particular
ways. To sustain such interaction between IIHS and MIT faculty and create two-way flow of
ideas, MIT faculty and students may need to be in India for significant periods of time;
similarly, IIHS’s newly hired faculty may benefit by visiting MIT to jointly write up the case
studies, drawing on the practica. By reconsidering and reflecting upon practicum experience
from a productive distance, it may be possible to develop and distill the theoretical conceptualization of problems, such that the understanding of the proverbial “forest” is not lost in the details of “the trees” observed during the practica.

A third way in which practica could benefit is by generating visual material to structure interactive courses of the kind edX is currently trying to develop. True, it is too early to claim that edX has a definitive way to convey teaching material; but MIT is deeply engaged at the moment in fine-tuning new methodologies for teaching, drawing on the multi-dimensional possibilities of information and communications technologies, and IIHS could benefit from the process if it joins hands with MIT in developing totally new, interactive courses. In these settings, the students could be asked to play the role of urban practitioners addressing particular problems whose complexity has been revealed through practica. This approach to integrating new educational technologies in curriculum development may be more rewarding as a learning instrument than translating MIT’s old OCW into India’s regional languages. The “hands on” element of practica may offer novel ways to help the edX platform convey the key conceptual underpinnings of interventional ideas that are central to the field of urban practice.

**Organization of the Report**

This remainder of this report is organized into eleven chapters and ten appendices. As a supplement to this report, we have also produced a lengthy second volume, which provides the full detail for the courses submitted to IIHS, grouped under the ten specializations. The remaining chapters, two through eleven, in this main report are organized according to the ten specializations in alphabetical order. Each chapter contains the specialization overview for the particular graduate curriculum contribution made by the MIT team, in fulfillment of the conditions of the contract with the Rockefeller Foundation. The list of specializations is as follows: Climate Change, Economic Development and Financial Management, Energy
Planning and Policy, Environmental Planning, Law and Governance, New Urban Planning: Instincts, Instruments and Institutions, Sociological Foundations of Urban Practice, Transportation of Human Settlements, Technology and Human Settlements, and Urbanism. Each “specialization chapter” includes an introductory overview to the specialization, an outline of its foundations, and a brief summary of the pedagogical intent and instructional methodology to be adopted for teaching the courses within that specialization.

**Concluding Remarks and Acknowledgements**

Thanks to the support of the Rockefeller Foundation, MIT participated in an exciting collaborative effort, primarily with IIHS but which also included the participation of UCL, the African Centre for Cities, and two outstanding private firms—Arup and IDEO— as well as opportunities to work with individuals from several other non-Indian academic institutions. This joint effort was enriched further by the participation of a number of well-respected urban scholars and practitioners from India who advised IIHS on curriculum development. This level of interaction regarding the creation of a new institution of higher learning in India is not surprising, however, given that India has had a relatively long tradition of established universities even before India’s independence from British colonial rule in 1947. Having such an established tradition makes any new effort like the creation of IIHS a somewhat different process than if one were creating a new university in a small country where academic institutions are more nascent. Established traditions are harder to reform because such practices provide a sense of grounding for what are considered good universities. This perception is never totally discarded even if there is some acknowledgment that a new type of university may be necessary to fit the new times India is currently experiencing. In any case, having a crowded field of existing universities makes it more difficult for start-ups like IIHS that present themselves as provocative upstarts.
This tension between what has worked and what needs to be altered ran through much of the curriculum development process for IIHS. The process was influenced deeply by a consensus among the participants that India's current urbanization and development challenges are unprecedented, and that the changing times call for a fresh look at how to best prepare a new breed of urban practitioners. How to operationalize such a dramatic shift in attitude is a complicated issue. This is true in part because the established system of funding for educational institutions is also under question, even as the need for education and the ability to pay for it have increased steadily over the years, creating a sense of educational market that seems lucrative at first glance. Structuring a new curriculum for a large cohort of students from varying backgrounds in these changing times is not simply an educational exercise because the issue of curriculum development is intrinsically linked to admission policies, staffing decisions, alternative revenue generating models. Certainly, the idea of a university that is co-dependent on creation of a consulting arm, for instance, is not something widely practiced in India—or elsewhere. Adding to both the innovation and the uncertainty of the IIHS venture, there are multifaceted and interlinked issues driven by the promise of new information and communication technologies, which could expand coverage, reduce cost, and provide a sense of technological advancement necessary for a renewed push for India's modernization.

Considering the complexities of issues involved, the IIHS-MIT collaboration has been quite productive because of good discussions among a set of thoughtful, hardworking, and patient partners who all want IIHS to succeed. Among these participants, a few must be acknowledged individually because without them the process could not have moved forward. We are most grateful to Dr. Robert Buckley and Anna Brown of the Rockefeller Foundation, two of MIT's current and former doctoral students—Dr. Madhu C Dutta-Koehler and Amit Prothi—and of course Dr. Aromar Revi and his wonderful team of talented professionals such as Dr. Gautam Bhan, Amlanjyoti Goswami and Kavita Wankhade. Finally, we are most grateful to the faculty from MIT and elsewhere that we
recruited to craft the ten specializations and the corresponding courses. Their names and affiliations (as noted earlier) are provided in Appendix 8.

To really appreciate the contribution of the faculty and experts involved in this project, one has to read the long appendices in this report, as well as the addendum of courses, which describe in detail the logic, structure, and course readings for the 75 courses crafted as the centerpiece of our effort to develop an integrated curriculum to support IIHS. We are hoping that these course descriptions are not the end product of this relationship with IIHS. Instead, we hope these form the beginning of a conversation about the best way to cultivate a new planning sensibility, one that can become the hallmark of newly graduated urban practitioners in a newly invigorated India.

Respectfully submitted,

Professor Bishwapriya Sanyal
Ford International Professor of Urban Development and Planning
Director, SPURS and Humphrey Programs
MacVicar Faculty Fellow
Co-Principal Investigator, IIHS Curriculum Project

and

Professor Lawrence Vale
Ford Professor of Urban Design and Planning
MacVicar Faculty Fellow
President, Society for American City and Regional Planning History
Co-Principal Investigator, IIHS Curriculum Project
CLIMATE CHANGE: ADAPTATION AND MITIGATION
Settlements contribute to anthropogenic warming and, at the same time, are sites where the impacts of climate change are expected to have significant impacts. For instance cities and towns in Northern India need to prepare for the impacts on water supply from receding Himalayan glaciers, while those on the coasts need to attend to the ways in which sea level rise will erode coastlines and affect coastal tourism and industry. Over time, it is also anticipated that changes in precipitation patterns and temperatures will alter food and water availability, contribute to changes in disease vectors, and create numerous individual hardships, particularly for those who are most vulnerable. Through this specialization, learners at IIHS will come to understand the ways in which climate change will affect the built environment, natural systems, and human populations in Indian settlements as well as in cities throughout the world. They also will become familiar with tools and techniques they can use to plan new settlements and redesign existing settlements to be climate-resilient.

Most academic programs on climate change emphasize climate science and mitigation. One of the distinguishing features of the climate curriculum at IIHS is that in addition to having a working knowledge of climate science and mitigation, learners will be familiar with climate adaptation. From a conceptual standpoint, the adaptation component of the climate specialization will ensure that learners are familiar with theories of urban change, institutions, multi-level governance, civic engagement, and justice. From an applied perspective, they will be prepared to assess climate impacts and recommend a subject of action that accounts for issues such as interdepartmental coordination, the nexus of development and adaptation, financing, and the protection of vulnerable populations.

---

Prepared by JoAnn Carmin, Associate Professor of Environmental Planning and Policy, D USP, MIT
Graduates of IIHS who specialize in climate change will be prepared to work in a range of organizations (government, business, civil society) and address a variety of climate-related issues. Since research and scholarship on climate change are rapidly evolving, the design of the structure of the climate specialization and that of individual subjects need to be sufficiently flexible so that emerging ideas and techniques, as well as new scholarly works, professional reports and cases are available to learners. The most critical concerns in structuring subjects, ensuring that the climate specialization is current, and promoting climate literacy in the IIHS learner body more generally, are as follows:

- Climate action is a dynamic field. Therefore, the subjects need to be anchored in clear learning goals so that they can be updated regularly, but in ways that retain their fundamental intent and linkages to the general logic of the climate specialization as well as to the curriculum more broadly.

- Climate action spans systems. It is important to train learners to understand how their work in adaptation and mitigation spans natural, built and human environments. Of the latter, this includes social, political and cultural systems.

- Climate needs to be distinguished from environment. For many years the inclination has been to link climate to environment. While environment is an essential consideration, learners need to be sensitized to the ways in which climate cuts across sectors.

- Climate should be mainstreamed across the curriculum. It is necessary to integrate ideas about vulnerability and risk and to promote adaptive measures across environment, development, and design subjects.

- Case studies and educational materials should be international. Learners should embed their work in the Indian context. However, the knowledge base is still emerging and
lessons are being drawn from all parts of the globe. Therefore, it is important to draw on materials and examples from around the world, though with a critical eye toward how they may or may not apply to Indian settlements.

The ongoing refinement of subjects and the promotion of climate sensitivity across the curriculum will ensure that IIHS learners are prepared to account for climate change and take climate action in their professional practice. Within the more general domain of climate change, the adaptation component of the curriculum will emphasize:

- Ensuring that learners understand the implications of basic climate models
- Linking scientific models and knowledge to policy and planning
- Gaining familiarity with the range of impacts and options cities can take to foster resilience
- Training learners to assess risks and vulnerabilities
- Evaluating capacity and potential for change
- Developing sensitivity to the needs of the most vulnerable populations
- Generating action plans

**Commons/ Year One**

The key concepts covered in commons subjects (environment, economics, social and human development, planning, and contemporary India) will provide a foundation for more advanced study and practice in the field of climate change.

**Specialization/ Year Two**

The climate change specialization will ensure that graduates of IIHS are familiar with climate science, mitigation strategies, impacts of and adaptation to climate change, and climate governance. They also will have a working knowledge of climate modeling and assessment tools as applied to the context of human settlements. To accomplish this goal, learners will
take required and elective subjects, including at least one practicum, in the second year of their studies.

REQUIRED SUBJECTS

Required subjects would cover basics of mitigation and adaptation within an urban context. Learners who complete the sequence would understand the basics of climate science and its application to urban contexts, links between natural systems, built environment and human systems, climate assessment, and climate mitigation and adaptation planning and implementation. Some preliminary suggestions for subjects are as follows:

Global and Local Dynamics of Climate Change
This subject provides learners with an overview of the Earth’s climate system, factors contributing to global change, and the methods used to predict and monitor climatic changes. Sufficient depth is provided to ensure that learners understand the science behind the information they will use in the professional practice. An emphasis is placed the types of information available and necessary for making decisions at the local and regional scales and how this information can be properly interpreted and applied to urban contexts.

Climate Change, Cities, and Society
Learners develop a theoretical and conceptual foundation for professional action by considering the links of climate change to urban development and the ways in which climate initiatives often span levels of government, institutions, systems, and sectors. Concepts cover include systems dynamics, adaptive capacity and adaptive management, risk perception and communication, civil society mobilization, participation, and implementation, multi-level governance, policy learning and policy change.
**Climate Policy and Politics**
Global, national and local institutions in climate mitigation and adaptation policymaking and implementation are examined. At the international level, this includes an assessment of policies and initiatives within the UN system and role of intergovernmental organizations in policymaking and financing. At the national and local levels it examines decentralization versus national policy and policy mandates that affect climate action in cities.

**Designing No Carbon, Low Carbon Cities**
The emphasis in this subject is on building assessment mitigation, and adaptive design techniques. This includes developing GHG inventories, approaches for promoting low-carbon retrofits and upgrades to existing buildings and infrastructure, and no-carbon strategies for new development. Consideration is given the nexus of mitigation and adaptation in both retrofitting and the creation of new developments.

**Urban Climate Adaptation**
This subject focuses on the ways in which cities will be affected by climate change and strategies that can used to prepare for the impacts. The readings examine governance and institutional development as well as policy, planning, and technical interventions related to urban climate adaptation. While diverse populations and city types will be considered, particular attention will be paid to the needs of vulnerable populations and resource constrained locales, and the ways in which local government and community-based activities can achieve equitable levels of climate-readiness.

**Urban Climate Risks and Decision Making Tools**
This class builds on basic techniques from the commons and other subjects in the climate specialization to ensure that learners have skills to engage in basic forecasting, simulations, and scenario building related to climate-society relationships. The subject requires a working knowledge of GIS and statistics.
ELECTIVE SUBJECTS

Climate Adaptation

Water and Climate Change
This subject looks at the hydrological cycle and impacts of climate change on water supply, management and adaptation responses. It covers the provision of water services and also explores case studies of social struggles over water resources and understanding the sociology of water management. It grounds these topics within urban India’s water problems and considers adaptation techniques and responses.

Climate Change and Public Health
This subject looks at the contribution of climate change to the global burden of disease through extreme events, vector-borne disease, and malnutrition. It also looks at rural pollution, black carbon and health. Close attention is paid to Indian public health reality and planning for public health and climate change. It also delves into quantitative methods to evaluate risk associated with climate change and considers adaptation issues and techniques related to migration, food and water scarcity, clinic stocking and accessibility for diverse populations, and health education in a changing climate.

Climate Modeling
This subject surveys climate models focusing on strengths, limitation, outputs and predictions from each, and the importance of modeling for policy and decision-making. It also examines the types of downscaled models being developed, their strengths and weaknesses, and the ways in which they can be used to inform action.
Climate Change and Climate Justice
This subject focuses on the equity and justice dimensions of climate change. Particular consideration is given to inequalities between nations as well as within countries, regions, and cities that result from the consumption of resources and production of greenhouse gas emissions. Learners will examine the ways in which climate inequalities manifest at different scales, explanations for these inequalities, and different types of regulatory, policy, planning, and civil society tools and programs used to prevent and redress inequities. Case studies and examples of climate inequities and climate action will be drawn from cities and countries around the world.

Extreme Events, Risk Reduction and Disaster Management
Climate change will result in a more frequent and more acute extreme events. This subject thus examines how social systems behave under stress, traditional ways of responding to stress, policies, strategies and models of disaster management and disaster management principles and practice. It will also look at reducing disaster risk during disaster response creating durable and sustainable recovery. The subject will consider disaster mitigation, response, and recovery from a climate perspective.

Climate, Energy, and Environment

Sustainable Built Environment and Environmental Planning
Building on the commons, this subject surveys environmental planning, sustainable architecture and design. Learners will draw from historical, present and future approaches to understand how to build equitable and environmentally sustainable cities. It explores planning to provide basic services (water, waste, sanitation etc) in increasingly resource-constrained scenarios. In particular, it focuses on long range planning to reduce environmental impact as well as respond effectively to the uncertain outcomes of climate change.
Energy
This subject looks at global and Indian energy scenarios and systems. It covers energy regulation and delivery in India. It focuses on types of renewable options, affordability, pricing mechanisms, feed-in tariffs and other policy levers, grid issues, social/political barriers to diffusion. It looks at both demand and supply side policy issues.

Resource Use Flows, Mapping and Analysis
A subject situated in ecological and social systems, which focuses on resource flows, distribution and mapping. This includes material flow analysis through a global, national and local lens and will touch upon human and industrial ecology. Climate mitigation and adaptation are addressed through content that examines ways to assess projections of resource scarcity as a consequence of climate impacts and emissions/ emissions reductions related to resource flows.

Consumption and Technology
A subject that generates understanding on the relationship between the environment, consumer culture and technology. It provides a critical evaluation of technology, design cultures such as ‘planned obsolescence’ and consumption. It will examine consumption practices, and what they mean for different populations and societies.

Agriculture and Food Policy
This subject examines the impact of climate change on agricultural production and food security. It analyzes trends and emerging challenges in land use change, world food production and distribution. It delves into particular impacts felt within India (poverty, vulnerability and risk) and the relevant responses. It also looks at agriculture’s contribution to climate change and delves into approaches and new technologies for emissions reduction and carbon sequestration. Some consideration is given to urban agriculture, both as a way to adapt existing practices and as a complement to production for food scarcity.
**Energy: Advanced Topics**
This subject covers the role of energy in climate change, energy planning, and advances in energy technology and solutions.

**Communication, Negotiation and Conflict Resolution**
This subject provides theoretical and practical experiences in negotiation, mediation and conflict resolution techniques within the context of climate change and related issues. It also surveys media and language, examines socio-cultural contexts of environmental dispute and how public relations and communications theory can be used to convey environmental messages and a critical overview of techniques use to convey climate related issues.

**PRACTICUM SUBJECTS**

**Climate Mitigation and Adaptation**

**Climate Action Planning**
Learners will work on a greenhouse gas inventory for a city or town and develop a climate protection plan.

**Climate Risk and Vulnerability Assessment**
Learners will complete an assessment for a city and generate summary adaptation recommendations. Consideration will be given to the most vulnerable populations, methods of financing initiatives, and ways in which adaptation can be mainstreamed given the capacity and priorities of the city.

**Climate Adaptation Planning**
This practicum helps learners move from assessment to adaptation planning. The subject will take a specific challenge or set of challenges a city is facing (e.g., sea level rise, water
scarcity), and develop recommendations for action, including cost projections and implementation guidelines.
ECONOMIC DEVELOPMENT AND FINANCIAL MANAGEMENT
Shifting global trends over the past quarter century have altered the economic life of cities in profound ways. Forces of transformation, such as liberalized trade, rapid technical change, unprecedented levels of mobility of capital and people across borders, intense international competition, and growing battles over the production and use of energy and urban infrastructure have reshaped the way we build, sustain and manage our cities and localities. This transition is especially vivid in large emerging economies such as India, China and Brazil, among others. Managing the economic complexity of these briskly growing cities and regions in an era of globalization and in an environment of economic volatility will be a central challenge facing urban practitioners in the decades to come.

Drawing on a heterodox approach to urban economic growth and transformation, the goal of the Economic Development Concentration is to prepare a cadre of future urban managers and practitioners who can play leadership roles in defining and dealing with these evolving urban challenges. Through their work in agencies and institutions across cities of different scales, these urban professionals will contribute fresh insights and a new vision to fostering more equitable, accountable and innovative economic change in urban communities.

Collectively, the concentration seeks to analyze, document and understand institutional transformations in an urban and regional economy that can effect not just the growth potential of firms, industries, and jobs, but also shifts in business practices and the labor market that can help address deep rooted economic disparities related to persistent inequality, urban poverty and the increasingly precarious nature of modern work.

Prepared by Meenu Tewari, Associate Professor of Economic Development and International Planning at the Department of City and Regional Planning, University of North Carolina at Chapel Hill.
Methodologically, the concentration follows a heterodox and grounded approach to economic development providing students with a range of both analytical and interpretive skills, ranging from rigorous quantitative and qualitative analysis to analytical writing to technical skill development, and exposure to a variety of methodologies, from interviewing and case study development to labor market and industry analysis.

Urban economic processes are deeply embedded politically and socially, even more so today when global integration is creating new opportunities, but also many new challenges. The same global pressures that can create conditions of unprecedented growth in some places can deepen economic inequality and dislocation in others. The concentration is therefore explicitly interdisciplinary and comparative, drawing on theory as well as case material from developed and developing countries, and urban and rural settings to provide a politically and socially grounded understanding of economic change. The courses in the specialization train students to engage with economic and political processes at multiple spatial levels (international to national to sub-national and local) and navigate through a range of conceptual frameworks to contribute fresh insights toward fostering accountable, inclusive and innovative economic change in cities of different scales.

Central Themes

The economic development concentration is organized around four key themes. (1) Industrial competitiveness and local economic regeneration in a global age; (2) Work, livelihoods and poverty alleviation: the dilemma of reconciling growth with job creation and job quality, (3) Institutional reform and the challenge of planning under conditions of uncertainty and the reduced fiscal capacity of the state, and (4) Managing urban resources and innovations in the state’s capacity to deliver services: rule of law, global standards, and regulatory reform.
Industrial competitiveness and local economic regeneration in a global age

The first theme relates to the dilemma of fostering economic growth, competitiveness and upgrading in particular places and in firms in an era of globalization where deep economic integration coexists with endemic economic instability. It is well known that globalization has substantially altered the nature of competition and the configuration of work within firms and regions. Trade is freer, demand is increasingly fragmented and volatile, product cycles are shorter and tighter, buyers demand not only low price but quality, variety, innovation, and speed. Networked forms of production are on the rise and economic activities that were once concentrated within firms and regions are dispersed across the globe in myriad value chains. In addition, the migration of jobs and populations across borders is linking developed and developing regions in new and unpredictable ways. Many old assumptions associated with the standard theories and models of economic development are at odds with current realities and do not fit the patterns we see on the ground. How, then, do city managers plan for and manage economic growth in the face of footloose capital, porous boundaries and the global reach of powerful lead firms that put new pressures on the capacity of the local state. How do they ensure that industrial growth is inclusive and income distributing rather than income concentrating under current conditions? Taking the perspective that there are few certainties or policy prescriptions that apply universally, the economic development concentration will explore what works and what does not and why in this dynamically changing context. In contrast to the certainty of past principles, the processes of fostering economic competitiveness today demand new understandings of evidence on the ground, new metrics of assessment, and an ability to interpret and apply the lessons of past experience, theory and history to different contexts in new and customized ways.

With globalization, outsourcing, advances in logistics and the rapid transnational movement of capital, cities have emerged as the new locus of industrial policy, of industrial deal-making and contestation over the purview of international law. As firms make globally dispersed
investments and locational choices, cities are increasingly the sites where contention over transnational regulation as well as domestic rights (including property rights and access to land) play out. Similarly, a variety of debates over global standards related to labor, quality, safety and the environment - as embodied in production and trade are at play. These global standards as well as private forms of governance, such as corporate codes of conduct are igniting new controversies about the costs of compliance, who should bear these costs and how they affect a firm’s investment decisions. Urban practitioners will need new skills to deal with these seeming tensions over growth and the multifaceted demands for regulatory compliance that sometimes appears to limit that growth.

Work, livelihoods and poverty alleviation: the dilemma of reconciling growth with job creation and job quality
A second theme relates to the distributional and spatial consequences of growth. Specifically, the theme relates to the growing tensions between growth, employment and regulation. On the one hand trade is increasingly free, but on the other hand new kinds of regulations govern industrial performance and labor use. Will growth automatically produce jobs, especially good jobs and lead to an equitable distribution of the gains of growth? Or, will employment have to be placed directly at the center of economic development processes, calling for jobs-based economic development strategies to overcome jobless growth? Focusing on issues of work, livelihoods, labor market dynamics, upward mobility, and poverty in the formal and informal economy we ask how and under what conditions does economic growth translate into good jobs, decent conditions of work, prospects for upward mobility especially for the poor, the marginalized and the less skilled. And how and when does growth foster improvements in human capability and social choice. What role do planners, firms and civic society institutions play in this process? This theme speaks in particular to the challenge of dealing with diversity, exclusion, contestation and deepening inequalities across cities and regions that accompany globalization and economic growth and play out at the local level.
A related tension is between economic growth and social welfare. Long categorized into separate policy categories, this segmentation of growth and social policy has been called into question by the new emphasis on rights based approaches to poverty and economic development. In the current narrative on growth, how can the concerns of profit and productivity by firms be reconciled with the rights based aspirations of workers especially with regard to access to work and to social protections? Where firms were once seen as the drivers of local economic growth and job creation, today with the outsourcing of jobs and rapid technical change and obsolescence, the fortunes of individual firms are increasingly divorced from the fortunes of communities, workers and localities. There is much talk of declining sectors and emerging industries, with city managers chasing after the hyped new growth sectors and the knowledge economy. How can we turn this narrative on its head so that there are not sunset industries and sunrise industries, but rather sunset and sunrise occupations that serve to bring concerns about labor and skills to the center of discussions on productivity and industrial competitiveness and which can be combined creatively to serve several sectors, not just the ones that happen to be in fashion at the moment? More broadly, what are the circumstances under which economic growth can be accompanied by social upgrading and community wellbeing?

Institutional reform and the challenge of planning under conditions of uncertainty and the reduced fiscal capacity of the state

The third theme relates to innovations in the state’s capacity to deliver urban services and economic growth at a time of flux, uncertainty, economic volatility and the dramatically reduced fiscal capacity of the state worldwide. A central reality facing economic development planners today is the challenge of planning for growth and development in the face of uncertainty. Not only is the nature of competition facing firms and regions vastly different today than it was thirty years ago, but the recent volatility in financial markets, the cascading effect of the great recession on all sectors of the economy and chronic budget deficits facing central and sub-national states have hollowed out the capacity of the state to
offer incentives, inducements and supports the way it did in earlier decades when concerns about growth oscillated between debates over export promotion versus import substitution. Today there is a diversity of concerns. Privatization, decentralization, contracting out of services, third party service delivery by NGOs and others have already emerged as alternatives to state intervention two decades ago. More recently, a range of efforts have taken shape that are centered on new types of institutional partnerships, alliances and broad-based support networks involving segments of the state, private sector and civil society, including new types of unions and labor organizations. Given the uncertainty and the partial and evolving understanding that planners have of the problems they are dealing with, the most innovative of these arrangements are based on learning – organizational learning as well as interpretive comparisons across cases, and experiential learning that draws lessons inductively from what is working on the ground and what is not and why. Pedagogically, this calls for a learning environment that is also inductive – where students learn from experience, fieldwork, practica, from structured comparisons, from history, as well as theory. This provides a window on how planners have to deal not only with uncertainty but also diversity, exclusion, and inequalities as manifest at the local level, and what options they have for action that can foster outcomes that are positive sum, not narrowly zero-sum.

Managing urban resources and innovations in the state’s capacity to deliver services: rule of law, global standards, and regulatory reform

The fourth theme relates to the challenge of implementation, rule of law and the concrete management of urban resources and urban infrastructure. One of the critical lessons of the past sixty years of development experience and research is the importance of taking implementation seriously. There is no single or singular pathway between economic conditions, policy prescriptions and outcomes on the ground. Nor does the same policy choice lead to the same outcomes in all contexts and places. Nonetheless, understanding why some programs and policies work well and are successfully implemented while others are not is critical – be they industrial policies, workforce development programs, poverty
alleviation schemes, micro-lending or infrastructure development efforts. This requires taking institutions and context seriously. That the same global forces are experienced differently in different places and by different actors and places underscores the importance of the institutional arrangements, rules and norms embodied in particular places that refract and contextualize larger forces differentially. These institutions, norms, and processes thus become important targets of a progressive reform agenda.

Within this theme the concentration examines the management of urban resources, such as water, sanitation, and urban infrastructure - which pose especially trenchant challenges in emerging economies such as India where demand is outstripping the supply of urban infrastructure. Additionally, it is in this sphere where line agencies and street level bureaucrats have traditionally been accused of rent-seeking and corruption. What are the innovative ways in which the rule of law, institutional reform and accountability can be fostered in a sector that, if neglected, can limit the size and extent of the market and hence inhibit broad-based economic development from taking root? Without presuming corruption in the ranks of the street level bureaucrats as inevitable, nor assuming that the solutions must either be top down or bottom up, what the conditions under which the state and bureaucracy can be creative in shaping innovative outcomes in this arena of infrastructure and implementation of basic services? Some of the most insightful new research in this area uses the lens of the rule of law and regulatory reform to study the institutional basis of good implementation practices and outcomes.

Running across these themes is an interest in empirically grounded work that engages with the relevant theoretical and policy literatures but draws insights about what works and what does not and why on the basis of on an empirically based understanding of what actually happens on the ground, where it happens and why, and what lessons this offers for urban practice.
Pedagogy

The global shifts that are re-framing urban economic processes have called into question many old assumptions about growth and development. At the same time efforts to overcome the stresses produced by global pressures have produced new knowledge about what works and what does not and why, and there is immense promise in exploring how to incorporate this knowledge to build new institutions and craft fresh solutions to the problems of economic development. To this end, the economic development specialization is explicitly interdisciplinary and comparative, and a critical appreciation of theory and history is grounded in efforts to draw concrete insights from case material.

Avoiding market fetishism or a reliance on overly abstract economic and technocratic fixes, the concentration takes seriously the task of engaging critically with theory, understanding standard models of development in their own terms, and then going beyond them. Through courses, practica and assignments students will learn how to challenge their own assumptions, bring theory to bear on their experience on the ground. Students will also learn about the inseparability of theory, method and practice, and the importance of politics to the craft of planning. The concrete propositions that frame any policy, action or research agenda are always theoretically and contextually driven, with political consequences—awareness of which may actually lead to creative breakthroughs in practice.

Pedagogically, the concentration uses mixed methods, grounds theory in extensive case-based instruction and empirical evidence including that gathered first hand via practica. It situates urban economic analyses within comparative international and sub-national frameworks, case studies and analyses; links analyses of the formal economy with the informal economy and processes, between tacit knowledge and codified rules, norms and practices, and draws out connections between urban industrial processes and rural and agrarian structures and movements. It questions rational-actor based conceptions of growth
and development (the old Washington Consensus) and highlights the role of institutions in shaping economic and political outcomes and their spread effects. Finally, the concentration focuses not only on economic growth and its distributional consequences, but also on the changing role of the state and civil society in shaping these outcomes on the ground.

**Structure of the Concentration**

Reflecting these themes, the electives in the concentration are organized around four streams in which students can sub-specialize to complete their course requirements:

- Industrial Development and Competitiveness
- Economic Institutions and Governance
- Work, Poverty and Livelihoods
- The Management and Economics of Urban Resources

The concentration follows a $3 + 1 + 4$ structure. Students will take three required courses spread over their third and fourth semesters, one methods course, and four electives before proceeding to a thesis in their final semester. The electives can be picked from any one of the four clusters in which they are organized: (1) Industrial Development and Competitiveness, (2) Economic Institutions and Governance, (3) Work and Livelihoods, and (4) The Economics and Management of Urban Resources. Students are required to take at least one elective in each cluster from within the Economic Development concentration and the rest can be chosen from a number of cross-concentration options.

Students are expected to have prior preparation in intermediate microeconomics, macroeconomics, development studies, quantitative reasoning and qualitative methods. The three required courses include:

- Histories and Theories of Economic Development (Tewari, ED)  
  (Offered in semester 4)
Economic Development Institutions, Policies and Practices (Tewari, ED) (Offered in Semester 5)

Public Finance (Smoke, ED) (Offered in semester 4)

Students would choose at least one course from a methods module:

**Economic Evaluation** (In semester 4 or 5)
This course would over the salient qualitative, quantitative and institutional approaches to program and project design, program design, developing measurements, variables and program outcomes, assessing program inputs the project environment, ethical issues, mixed methods evaluations, organizational analysis, randomized experiments, cost-benefit analysis, hedonic models, contingent valuation techniques

**Techniques in Urban and Regional Analysis** (In semester 4 or 5)
This course should cover the standard methods of regional economic analysis such as shift-share, location quotients, economic base multiplier analysis, input-output, clustering analysis, analysis of occupations and labor markets, spatial statistics and econometric analysis. [If possible, it should also address key theoretical and practical dimensions of qualitative research design such as data-gathering methods including interviews, focus groups, surveys, field observation, and archival research; sampling methods, data analysis procedures, historical analysis, case study research, industry analysis, and new approaches to analyzing global value chains and industrial clusters.]

Finally, students will chose four electives from any one or two of the following four Clusters:

- Industrial Development and Competitiveness
- Economic Institutions and Governance
- Work, Poverty and Livelihoods
- The Management and Economics of Urban Resources
In each cluster students must take at least one elective from within the economic development concentration; others can be taken from a list of cross-concentration courses.

**Industrial Development and Competitiveness**

**Required electives from within the ED concentration:**
- Indian Enterprises in the Global Economy
- Local Industrialization, small firms and the informal economy

**Cross-concentration electives:**
- Urban Governance, Politics and the City: Economy and Society
- Poverty, Capability, and Social Mobility: Prospects and Practices
- Urban Informality: Planning, Power and Politics
- Legal Aspects of Urban Transformation
- Governance, accountability and citizen participation
- Planning Sensibilities for Effective Practice

**Work, Poverty and Livelihoods**

**Required electives from within the ED concentration:**
- Poverty, Capability, and Social Mobility: Prospects and Practices
- The Changing Indian Labor Market: Metropolitan job creation and workforce development in the 21st century

**Cross-concentration electives:**
- Urban Governance, Politics and the City: Economy and Society
- Local Industrialization, Small Firms in the Informal Economy
- Housing Policies
- Urban Renewal and the retrofitting of slums
Supporting Urban Livelihoods, Reducing Urban Poverty: Lessons from Organizations of Informal Workers
- Governance, accountability and citizen participation
- Planning Sensibilities for Effective Practice
- Transportation for Low-Income Settlements

**Economic Institutions and Governance**

Required elective from within the ED concentration:
- Urban Governance, Politics and the City: Economy and Society

Cross-concentration electives:
- Local Industrialization, small firms and the informal economy
- Poverty, Capability, and Social Mobility: Prospects and Practices
- Reform of Local Authorities
- The Politics of Urban Policy
- Law and Politics of Local Governance
- Governance, accountability and citizen participation
- Planning Sensibilities for Effective Practice
- Decentralization, Democracy, Citizen Participation and the Planning Process
- Flexible Bureaucracies
- Urban Informality: Planning, Power and Politics
- Alternative Dispute Resolution and Access to Justice

**The Management and Economics of Urban Resources**

Electives from within the ED concentration:
- India’s Urban Resources
Cross-concentration electives:

- Indian Enterprises in the Global Economy
- Poverty, Capability, and Social Mobility: Prospects and Practices
- Urban Renewal and the retrofitting of slums
- Urban Projects and the Architectures of Globalization: Reconfiguring Urban Spaces for a New Century
- Planning for 2nd- and 3rd-tier Cities
- Masterplans
- Water: Politics, Policy, Law
- Transportation for Low-Income Settlements
- Environmental Law, Politics and Governance
- Negotiation, Dispute Resolution And The Practice Of Public Engagement (Susskind)
- Planning Sensibilities for Effective Practice

PRACTICUM SUBJECTS

- Microfinance and small enterprises
- Precarious work: the changing nature of jobs in the Indian labor market (NREGA, Right to work)
- Industrial location and deal-making at the urban level (Singur/ Nandigram/ or Delhi)
- Innovative service delivery programs (KKPKP, Pune)
- Technology and Innovation
- The innovative state
- Financing, managing and implementing innovations in urban infrastructure (JNNURM)
REQUIRED SUBJECTS

Theories and Histories of Economic Development
This course reviews the fundamental concepts and theories of economic development and traces how policy thinking about the development process has evolved over time. Students will learn about the varied political, social, cultural and economic influences that shape theoretical frameworks and how these shifting forces have transformed and redefined development paradigms over time. By critically examining these paradigms and their underlying assumptions in historical perspective, and grounding them within current challenges, the course will introduce students to foundational economic development theories, as well as train them to draw insights and lessons from history and theory to frame progressive action on contemporary dilemmas of development policy and urban practice in creative and reflective ways.

The theoretical frameworks will be applied to national, sub-national and international contexts, and though focused on the Indian case, will draw on comparative evidence from countries around the world.

A central goal of the course is to provide course participants with a critical, non-reductionist understanding of economic development theory and practice, and an appreciation of how these paradigms and practices have evolved in response to shifting economic and political trends over time.

Students will learn how to challenge their own assumptions, bring theory to bear on their experience on the ground, appreciate the dynamic and evolving nature of economic development theories, examine their social and political underpinnings, and evaluate how and why these debates are relevant for current urban practice. Students will also learn about the inseparability of theory, method and practice; that there are political stakes inherent in
any position. The concrete propositions that frame any policy, action or research agenda are always theoretically and contextually driven, with political consequences—awareness of which may actually lead to creative breakthroughs in practice.

Finally, students will learn about the embeddedness of theoretical ideas in the economy, society and polity.

Substantively, this core course introduces students to the theories and histories of economic development. Starting with Adam Smith’s ideas of the division of labor, we explore the development paths taken by industrial and industrializing countries from colonial times to the present day. The course critically examines fundamental concepts and theories of economic development, and traces how policy thinking about the development process has evolved over time. Changing global economic trends, and new findings from extensive empirical research over the past two decades have posed new challenges to our understanding of how cities and regions develop, change, and grow. We will use directed readings, theoretical debates, and case materials to examine how our current thinking about key development problems—such as economic growth, employment, competitiveness, industrial upgrading, skill formation, and institutional arrangements that sustain innovative development processes—has changed in light of the new global challenges.

**Economic Development Policies, Practices and Institutions**

This course explores the political economy of development policies, programs and projects, particularly in rapidly transforming urban and metropolitan settings. It introduces students to a range of ideas and perspectives on the formulation and implementation of economic development policies and programs and explores the institutional processes planners use to achieve policy goals and priorities. Concerns of implementation and the policy making process are therefore central to the course. Throughout the course students will be encouraged to think critically about the underlying theoretical assumptions that are used to
justify policy interventions. They will also be asked to consider how these underlying assumptions influence the type of economic and social problems that are given special consideration and treatment during the policy making process. Related to this, the course will discuss the barriers and opportunities to sustained economic performance that vary widely by state, region, city and community. Global economic trends, government policies, state and local politics, local institutions, levels of professionalism, civic cultures and activism, as well as environmental pressures and various dimensions of social difference (class, regional ethnicity) constitute the context within which economic development policies are designed, implemented, evaluated and contested. An awareness of these multifaceted influences on the planning process will prepare the urban practitioner to situate their policies and think of program design that can foster more progressive and equitable outcomes.

**Financing Local Government**

Many countries have been significantly reforming the scope and organization of the public sector in recent years. This course critically examines the changing structures and operations of government fiscal systems, with a particular focus on the experiences of developing countries and the growing trend to empower and strengthen sub-national levels of government. Major topics include a basic overview of broader national fiscal reform issues and processes; a detailed review of the principles and approaches used to determine an appropriate division of fiscal responsibilities (expenditure and revenue) among levels of government; assessment and implementation of decentralized government revenue mobilization; and evaluation of prospects and strategies for pursuing decentralization, intergovernmental reform, and sub-national revenue generation. The course focuses on economic/fiscal analysis, but this is placed in the context of political, institutional and cultural considerations that are critical for effective policy design and implementation.
ELECTIVE SUBJECTS

The Changing Indian Labor Market: Metropolitan Job Creation and Workforce Development

The nature and evolution of labor market processes, employment, and labor institutions are at the heart of socially inclusive outcomes of economic growth and development. This course examines how urban labor markets work in India and in late industrializing countries. Numerous forces of transformation related to the internationalization of production, deregulation, trade, corporate restructuring, and new skill requirements are changing the nature of work in emerging markets. This course considers the varied effects of these forces on different industries, social groups, and geographic spaces, it examines the institutions they are mediated by and asks why they sometimes produce gains for workers and firms, and sometimes lead to widening wage and income disparities. It explores how employment patterns are shifting in rapidly growing, urbanizing and globalizing economies; how work is organized differently within enterprises; new processes of skill formation and mobility; and linkage within formal and informal segments of metropolitan labor markets. These processes are examined in the context of the changing policies and politics of work – the struggles and debates over social protection, wage and labor conditions, outsourcing, contingent and temporary work, formalization of informal and precarious work, tensions between rules that benefit workers versus those that benefit small and informal firms, the deepening role of law, jurisprudence and other governance mechanisms in the implementation of international labor standards, trade rules, private codes of conduct (CSR) and managing the new rights based work and economic development processes (e.g., NREGA). Viewed through conceptual and theoretical lenses, and drawing on comparative case studies from India and other countries, the course links these themes with a consideration of public policy and planning.
In the first half of the course we examine the distributional aspects of the labor market (wages, job creation, working conditions and job security), shifts in the organization of work (networked forms of work organization, inter-firm ties within clusters and global value chains, links between formal and informal work), how jobs are found in urban labor markets and the situation of specific groups such as women, migrants and the urban poor. In the second half we examine specific labor markets institutions, programs and initiatives in urban settings and in specific industries - e.g., training programs, new labor market intermediaries (including unions and urban social movements), job-based economic development strategies and supports, efforts to link competition-enhancing industry upgrading programs with skill development, and workplace justice, and community and place based organizing strategies that link workplace reforms with improvements in the living conditions of workers.

**Poverty, Capability, and Social Mobility: Prospects and Practices**

As cities become the pre-eminent destinations for rural people in developing countries, especially younger and poorer ones, poverty and vulnerability will become markedly more urban in character. Addressing these situations of growing urban poverty and burgeoning ghettos and slums will require being sensitive to the factors that deepen poverty and other factors that help raise poor people’s hopes and aspirations through visibly improving patterns of economic achievement. Knowledge of practices that can help bring these concepts to life is equally important: What programs and policies have helped reduce vulnerability and prevent risk? How have poor individuals and communities been supported to build better lives for themselves? How can capability be connected more directly with opportunity in the future? Through a combination of theory, concepts and practices, this class will help illuminate the nature of the task, presenting a toolkit of practical possibilities. Case studies and practical exercises, developed principally from the Indian context, will be nested within broader-ranging theories and concepts. Cases from other developing countries, particularly other countries in South Asia, will be brought in to illuminate emergent trends and better practices.
**Indian Enterprises in the Global Economy**

This course provides the micro-economic foundation for the new degree program on urban settlements. It focuses on an enterprise perspective of economic development and locates firm level dynamics in the rapidly changing global context. In cities throughout the world, enterprises take the lead in making key decisions on investment and job creation. Being able to see the world through the business lens is essential for understanding why and where poverty is reduced and prosperity created and for understanding ways of accelerating or changing these processes. The central question for this course is how the potential of the business sector can be harnessed to the goals of economic and social development.

**India’s Urban Resources**

The objective of the course is to provide a practical foundation in the management and development of urban resources for students in the Economic Development concentration. Urban resources are defined as both the natural elements of a city (including rivers, lakes, air, temperature, trees, and soil) and the man-made infrastructure built to harness and tame these resources and to support urban economies (including both ‘networked’ infrastructure, such as transport, water supply, drainage, and other human-made assets, such as ports and parks). The course will pay special attention to the nature of urban resources, the tools used to value them, the organizations, which manage and develop them, and the policy conditions, which enable their optimal use, both in terms of resource protection and of service delivery. The course blends theory and practice in the choice of readings. In addition to focusing on Indian cities and conditions, the readings and discussions draw on international experience and on historical evidence to draw on comparative research to reveal the different issues faced along different trajectories of growth over time.

**Urban Governance, Politics and the City: Economy and Society**

This course exposes students to ways of thinking about the economy of cities in India (and other parts of the Global South), ways in which policy makers have sought to intervene and
engage with urban transformation, and how conceptual and theoretical concepts have been framed about how cities work on the ground. Focused at the urban household and city level, the course is organized in two parts. The first section explores the material practices of the everyday city. This section looks at the connection between land and manufacturing, the role of small, medium sized and informal firms in shaping the everyday urban economy, land and housing, urban poverty, migration, property and urbanization, the material aspects of city politics, governance and citizenship and the impact of globalization on the city. The second half of the course examines the contested governance of the urban economy. It focuses on the ways administrators and planners have conceptualized and materialized the policy realm set within the wider concept of 'governance'. We will also look at the planning process, and consider the political consequences of 'larger' city moves -- metro wide transport corridors, new townships, urban renewal, and IT corridors. In doing so, we will engage with several conceptual issues. Does the urban context shape the efficacy and politics of efforts to promote the local economy in significant ways? Much like the city at the grassroots, the realm of interventions is full of contradictions, lost hopes, desires of city building, political conflict, that often lie unsettled. If so, do these contradictory aspects open up progressive policy spaces in unexpected ways, or, do they subvert well-intentioned normative ideals? Are there forms of practices around civic engagement and participation that can mitigate the harshest impact of being urban, especially for the poor and the chronically poor? Does an engagement with the city's economy hold the possibility of progressive political practice and accountability?
ENERGY POLICY AND PLANNING
Every country requires energy to power its economic development, facilitate the transport of goods and people, enable its government to provide security and allow its residents to live their lives. How much energy it generates, what it pays for electricity and various kinds of fuels, and on which sources of energy it relies are matters of public policy as well as the product of a great many private decisions. Energy planning, at the national level begins with an analysis of energy supply (How much of each type of fuel is currently available and at what price?) and demand (How much of each type of fuel do we use for various purposes and what are we willing to pay for it?). Once these are clear, forecasts for various future dates show the changing dimensions of the two (supply and demand) “pie charts.” The only way to specify desired or likely changes in supply and demand is to make assumptions about price, geographic and technological distribution of supplies, and acceptable levels of environmental and social impact.

Governments have the option of taking full responsibility for energy production and distribution, regulating (or subsidizing) private efforts to do the same, or staying out of the picture entirely. India, for example, employs a mixed strategy. The country has seen rapid increases in energy demand (although per capita energy consumption is still rather low as compared to many other countries). It’s one of the ten largest users of nuclear power in the world. Oil and gas are provided via a state-run company while electricity is produced and distributed by both public and private entities. In an effort to enhance energy self-sufficiency (since most of its fossil fuels are imported), slow growing energy demand, and minimize the environmental impacts of burning fossil fuels, India has passed a variety of

---

7 Prepared by Lawrence Susskind, Ford Professor of Urban and Environmental Planning, DUSP, MIT
minimize the environmental impacts of burning fossil fuels, India has passed a variety of laws encouraging investment in renewable energy (particularly wind power) and imposed regulations aimed at encouraging more efficient energy use along with investment in “greener” buildings. There is a lot of work yet be done, however, since more than half of the rural households in India are still without electricity. India sees renewable energy as an element of both its rural electrification strategy and its long-term approach to economic development.

Provincial/state and local governments have a role to play in energy planning. Whatever objectives a national government might hope to achieve, sub-national units of government typically want a say in the specifics of implementation as well as a share of the revenues generated through energy development in their region. Power plants, transmission lines, pipelines and transportation links must also be located in ways that facilitate energy development and distribution. Local governments can support these investments, especially when there are jobs and other financial incentives to do so; but, they can also oppose implementation of national or regional policies when they run counter to local priorities or because environmental costs or risks appear to be concentrated in their area while the benefits accrue to others.

At the level of specific facilities, there are also concerns about how to ensure safe and efficient operations. Responsibility for licensing and oversight of operations is usually assigned to one or more governmental bodies, often in partnership with private industry. How intergovernmental and public-private partnerships are structured tends to reflect the history, law and culture of the country involved. Efforts to encourage energy technology innovation, including investment in research and development, also reflect existing entrepreneurial and financial capabilities.
Aspiring public and private managers and administrators seeking to prepare for careers in energy policy and planning, require expertise in a number of important areas. While they certainly must develop generic skills in policy analysis, organizational development, and public management that all planners draw on, they must also need to master unique sectoral skills. We have identified five such specialized competences that are unique to energy planning: (1) an ability to forecast energy supply and demand at various scales; (2) strategies for financing energy development and linking energy investment to overall economic development; (3) techniques for siting energy facilities and engaging stakeholders in facility planning and management; (4) an overview of renewable energy technologies and the dynamics of sustainable technology innovation; and (5) techniques for forecasting and minimizing the environmental impacts of energy development, particularly as regards climate change mitigation.

Commons: Year One
The key concepts covered in the commons subjects (economics, social and human development, environmental planning, and contemporary India) will provide a foundation for more advanced study in energy policy and planning. There also ought to be numerous opportunities to use energy examples or case studies to present the key ideas and techniques that are central to the common subjects.

Specialization: Year Two
The energy policy and planning specialization will ensure that graduates of IIHS are familiar with the five sectoral competences described above. To accomplish this, learners will be expected to complete seven required subjects during the course of their studies.
REQUIRED SUBJECTS

We are in the process of developing preliminary course outlines for the seven specialized subjects and spelling out what is involved in teaching the key sectoral competences described above. These seven courses are:

Energy Policy: Matching Supply and Demand in a Globalizing World
Includes approaches to understanding and forecasting the prices of various energy supplies (including renewables) and estimating shifting demand for energy in each sector of the economy. This class begins with a technical overview of various forms of energy and the issues involved in producing and distributing them. Students will need to apply what they have learned about macro- and micro-economics.

Sustainable Energy Technology
Includes an overview of a range of renewable energy technologies - their engineering, economics and institutional histories. Special attention is paid to the cost-effectiveness of renewable energy - including solar, wind, biomass, hydro, geothermal and ocean waves - under various sets of circumstances. Students will need to master key engineering concepts.

Regulating the Social and Environmental Impacts of Energy Development
This class offers a full semester introduction to the techniques of environmental impact assessment - and related energy project assessment techniques - including the way they are practiced around the world. The legal and regulatory requirements for impact assessment, strategic assessment, cost-benefit analysis, risk assessment, life-cycle analysis, and sustainability (i.e. carbon footprint) analysis are reviewed along with the key controversies surrounding the use of such methods to analyze energy project and policy alternatives.
Energy and Climate Change Mitigation

Begins with a short introduction to the basics of atmospheric, land and ocean systems and their interactions. Reviews the findings of the Intergovernmental Panel on Climate Change (IPCC), which has determined that industrialization and other human impacts on the environment have emitted greenhouse gases in quantities sufficient to adversely affect the climate. Analyzes sustainable development alternatives that can mitigate the risks of climate change and explores their implications for national, regional and local energy policy-making.

Siting Energy Facilities and Creating Opportunities for Stakeholder Engagement

The siting of energy facilities, including renewable energy projects and “smart” grid extensions, requires a combination of technical and political analyses. There are optimization techniques that can ensure the most efficient location and networking of centralized and decentralized power-producing facilities, but political, ecological and other public policy considerations must also be taken into account. Laws and regulations governing the siting of different kinds of facilities will be compared. Students will learn about methods of involving the public and various stakeholders in the siting process.

Financing Energy Development

Analyzes a range of business models for financing energy development and distribution, particularly in developing economies. Using case studies from a variety of countries, this class will prepare students to formulate and assess capital requirements as well as the operating costs of various forms of energy investment. Public-private partnership models will be examined. Students will learn a variety of accounting and business management principles.

Energy Efficiency: Information and Behavioral Drivers

Finding more efficient ways of using current supplies of energy must be part of any national (regional or local) energy policy. This class will focus particularly on the kinds of
information that can help individual homeowners, municipalities, regional governments and national agencies formulate and assess possible investments in and regulations designed to encourage energy efficiency in all sectors of the economy. New technologies and organizational strategies for supplying this information will be reviewed. Behavioral obstacles will be explored to help students understand how various kinds of energy efficiency incentives and controls are likely to work.

**Energy Futures: Green Technology and Social Innovation**

In many parts of the world, technology innovation is presumed to be an important element in the shift to more sustainable patterns of development. “Green technology” (i.e., technology innovation aimed at reducing adverse ecological impacts while enhancing energy supplies at reasonable cost) are presumed to be within reach, although the problems of “scaling up” to commercially viable applications are likely to be substantial. Recent work aimed at understanding the institutional obstacles and bringing new green technology to scale in India and elsewhere will require modifications in prevailing assumptions about social innovation. Students will learn how government can encourage “green technology” innovation and help bring it to scale.

**Links to other Specializations: Climate Change**

**Global and Local Dynamics of Climate Change**

This subject provides learners with an overview of the Earth’s climate system, factors contributing to global change, and the methods used to predict and monitor climatic changes. Sufficient depth is provided to ensure that learners understand the science behind the information they will use in professional practice. An emphasis is placed the types of information available and necessary for making decisions at the local and regional scales and how this information can be properly interpreted and applied to urban contexts.
Climate Change, Cities, and Society
Learners develop a theoretical and conceptual foundation for professional action by considering the links of climate change to urban development and the ways in which climate initiatives often span levels of government, institutions, systems, and sectors. Concepts cover include systems dynamics, adaptive capacity and adaptive management, risk perception and communication, civil society mobilization, participation, and implementation, multi-level governance, policy learning and policy change.

Climate Policy and Politics
Global, national and local institutions in climate mitigation and adaptation policymaking and implementation are examined. At the international level, this includes an assessment of policies and initiatives within the UN system and role of intergovernmental organizations in policymaking and financing. At the national and local levels it examines decentralization versus national policy and policy mandates that affect climate action in cities.

Designing No Carbon, Low Carbon Cities
The emphasis in this subject is on creating assessment mitigation and adaptive design techniques. This includes developing GHG inventories, approaches for promoting low-carbon retrofits and upgrades to existing buildings and infrastructure, and no-carbon strategies for new development. Consideration is given the nexus of mitigation and adaptation in both retrofitting and the creation of new developments.

Urban Climate Adaptation
This subject focuses on the ways in which cities will be affected by climate change and strategies that can used to prepare for the impacts. The readings examine governance and institutional development as well as policy, planning, and technical interventions related to urban climate adaptation. While diverse populations and city types will be considered, particular attention will be paid to the needs of vulnerable populations and resource
constrained locales, and the ways in which local government and community-based activities can achieve equitable levels of climate-readiness.

**Urban Climate Risks and Decision Making Tools**
This class builds on basic techniques from the commons and other subjects in the climate specialization to ensure that learners have skills to engage in basic forecasting, simulations, and scenario building related to climate-society relationships. The subject requires a working knowledge of GIS and statistics.

**ELECTIVE SUBJECTS**

**Climate, Energy, and Environment**

**Sustainable Built Environment and Environmental Planning**
Building on the commons, this subject surveys environmental planning, sustainable architecture and design. Learners will draw from historical, present and future approaches to understand how to build equitable and environmentally sustainable cities. It explores planning to provide basic services (water, waste, sanitation etc) in increasingly resource-constrained scenarios. In particular, it focuses on long range planning to reduce environmental impact as well as respond effectively to the uncertain outcomes of climate change.
ENVIRONMENTAL PLANNING AND DESIGN
This memo outlines the proposed M.U.P. subspecialization in Environmental Planning for IIHS. The memo consists of four major parts:

- Evolution of the Environmental Planning field Internationally
- The Current Situation in Environmental Planning in India
- Draft Components of the IIHS Environmental Planning Sub-Specialization
  - Philosophical relationship to the Core
  - Foundation subject for the Commons [1]
  - Required subjects for the specialization [3]
  - Elective subjects (with a focus on the Water Platform) [3]
  - Integrative elective subjects that cut across the specialization [2]
  - Capstone practicum: Campus Environmental Planning and Design
- Anticipating Future Adaptations in the Environmental Planning field

**Evolution of Environmental Planning**

Although sometimes regarded as a recent concern, environmental planning has ancient origins in the management of human impacts on the natural world, natural pressures on human action, and ideas about order and purpose in the world (Glacken,1964; Saraswati IGNCA volumes,1998ab; and Harvard University, Religion and Ecology series).

Environmental planning as a profession has antecedents in 19th and early 20th century fields that continue to shape it, e.g.:

---

8 Prepared by **James L. Wescoat Jr.,** Aga Khan Professor of Architecture, SAP, MIT and **Amit Prothi,** PhD. Candidate, DUSP, MIT
These early 20th century antecedents have parallels in colonial and princely India, as reflected in a rich body of recent historical research (Gold, 2002; Grove, 1998; Guha and Gadgil, 2004; Hill, 2010).

Regional environmental planning developed in the U.S. and Europe during this period in the work of Patrick Geddes, Jens Jensen, Benton MacKay, Lewis Mumford, Clarence Stein, Henry Wright, and others. Geddes (1972) has particular relevance for India, as he worked on urban planning proposals for Bombay, Madras, Patiala, and Lahore (Glover, 2007). His work converged with leading regional economists, social theorists, and nationalists in India such as Radhakamal Mukherjee (1938). The Tennessee Valley Authority (TVA) in the U.S. also linked settlement planning with rural and regional resource development, as has the Damodar Valley Corporation project in India from 1947 onwards.

Outline chronology
The post-independence period witnessed a shift in emphasis toward natural resource development for large-scale urban, industrial, and infrastructure construction projects. Environmental planning focused on the consequences of those trends, e.g., on air, water, and toxic waste pollution. Environmental pollution laws, standards, regulation, and litigation advanced fitfully in India as they have worldwide. In the universities, environmental planning developed in schools of architecture and planning and, in different ways, in environmental science and engineering programs. The practice of environmental planning has undergone a number of phases:
1960s – Agricultural organizations employ land evaluation methods to map regional land use capabilities and constraints. Metropolitan planning includes some environmental considerations. Landscape architects adapt map overlay methods for urban environmental planning.

1970s – Computerization of map overlay methods is coupled with environmental scenario analysis, environmental impact assessment, and regional environmental planning. Environmental systems analysis is initiated at urban, regional, and global scales to analyze the joint effects of natural and social processes. Development of environmental impact assessment. Initial attempts to incorporate public participation in environmental planning.

1980s – Emphasis on air and water pollution regulation. Increasing emphasis on environmental equity and justice in low-income areas. Regional planning commissions created to address multi-jurisdictional environmental problems have limited authority or effectiveness. Ecological analysis in urban areas contributes to research on industrial ecology, restoration ecology, landscape ecology, and ecological urban design.

1990s – Major expansion of GIS, Remote Sensing, and CAD technologies and applications. Development of ecosystem models for large urban systems, and adaptive management programs at the regional scale to link stakeholder collaboration with modeling, monitoring, and policy adjustments. Increasing efforts to reclaim degraded landscapes and water resources, e.g., waterfront redevelopment, wetland restoration; riparian corridor protection; and urban lake, stream, coastal, and rock outcrop conservation.

traditional practices of rainwater harvesting, medicinal plants, therapeutic landscapes, and ecotourism. Expansion -- and critique -- of privatization and bourgeois environmentalism in Indian urban land development and services.

**Summary:** Environmental planning has grown rapidly over the past six decades. Advances in green building and sustainable site design are accelerating worldwide. Actual effects on the built environment and ecological sustainability lag far behind the rates of urbanization, land development, resource consumption, and environmental degradation it strives to change. These trends are a driving force for creating the IIHS and in particular its specialization in Environmental Planning.

**The Current Situation of Environmental Planning in India**

Environmental Planning has a bright future in India. The basis for optimism is summarized below, followed by a list of challenges, and an approach by which IIHS can address these and future challenges.

**Foundations for Environmental Planning in India.**

India’s foundations for Environmental Planning are institutional, cultural, and scientific.

**Institutions**

The Constitution of India treats environmental quality as a human right (to life and development), as well as a national duty of citizens to protect and conserve natural resources, heritage, and environmental quality. These rights and duties have advanced through Public Interest Litigation (PIL), Green Benches of the Supreme Court and State High Courts, and implementation of Right-to-Information (RTI) regulations. These formal institutions are strongest at the federal level and in major cities. States and secondary cities lack these institutions, which limits the efficacy of national environmental policies, not to
mention environmental responsibilities on the state list of constitutional responsibilities (e.g., water).

Offsetting this weak middle level of environmental institutions are the myriad community practices adapted to local environmental conditions. While these are sometimes romanticized, a growing body of critical social research has shed light on the complex social dynamics of local environmental management (e.g., Baviskar, 2004; and Dreze, 1997 on the Narmada River controversy).

Cultural
The cultural bases of environmental planning are likewise rich and varied in India. Contemporary Indian environmental movements have antecedents in the environmental practice and education movements of Gandhi, Tagore, Aurobindo, and others, as elaborated briefly below:

Gandhian environmental education - emphasizes human development through manual work, cultivation, animal husbandry, artisanal crafts, sanitation, and other realms of simplicity and the search for truth. These are individually and collectively central to sustainable environmental management. Gandhian schools have been called “productive schools”. However, Gandhian public schools in poor regions, e.g., rural Bihar, have suffered due to irregular infusions of resources and energy. While awareness of Gandhi has diffused through the educational systems of India and worldwide, there are few exemplars of Gandhian ideals in higher education.

Tagore - Rabindranath Tagore was an pre-eminent poet and innovator in the field of education. His educational ideas included teaching through the “child's mother-tongue... learning through activity (and not just) through the written word, that wholesome education consists in training of all the senses along with the mind instead of cramming the
brain with memorized knowledge, that culture is something much more than academic knowledge.” Tagore championed these ideas at Shantiniketan, where he established a school at the turn of the last century, which became Viswa-Bharati, a central university and an institution of national importance. “It was always the objective in Santiniketan that learning would be a part of life's natural growth. The first step towards this objective was to establish in the child a sense of oneness with nature. A child has to be aware of his surroundings - the trees, birds and animals around him. The mind is deprived if one is indifferent to the world outside. Rabindranath said we concentrate on learning from books and neglect the knowledge that is freely available on all sides.”  

Sri Aurobindo Schools follow a holistic philosophy of vital, psychic, and spiritual as well as intellectual development. Student development and environmental learning are nurtured, not taught. Environmental Studies begin in primary school and lead toward work experience in higher secondary education that may include gardening and community work. The first Aurobindo School began in 1943 in Pondicherry, and others have followed in Delhi, Jodhpur, and other cities. There are Sri Aurobindo colleges and universities in the professions and centers for advanced philosophical studies that pursue these ideals but not in urban or environmental studies at present.  

Krishnamurti - “Krishnamurti is regarded globally as one of the greatest thinkers and religious teachers of all time. He did not expound any philosophy or religion, but rather talked of the things that concern all of us in our everyday lives ... (he) pointed to the need for bringing to our daily life a deeply meditative and spiritual quality.” Several schools in India and abroad have been established to promote his philosophy on education that he

---

9 http://www.visva-bharati.ac.in/ Rabindranath/ Contents/ RabindranathContents.htm?f=../Contents/education.htm
links closely with the environment: “Create the right climate and environment so that the child may develop fully as a complete human being. This means giving the child the opportunity to flower in goodness so that he or she is rightly related to people, things and ideas, to the whole of life. To live is to be related... When we talk about a total human being, we mean not only a human being with inward understanding, with a capacity to explore, to examine his or her inward state and the capacity of going beyond it, but also someone who is good in what he does outwardly. The two must go together.”

Scholarly foundations
Contemporary environmental movements in India draw upon world-class environmental research, which ranges from basic science and technology at the Indian Academy of Science, Indian Institutes of Science, IITs and IIMs -- to advanced human-environment research at more than 200 deemed Universities throughout the country. The IIHS Environmental Planning specialization would build and draw upon these scholarly sources of environmental science, technology, policy, and social thought.

Indeed, the IIHS Environmental Planning program would stand at the center of these three sources of inspiration and strength in contemporary India (figure 1 below).

11 http://www.rishivalley.org/school/aims.htm
The challenges to Environmental parallel the strengths: they are institutional, cultural, and scholarly.

Institutional

Environmental policies are fragmented in India, as they are worldwide. Take water: the Ministry of Water Resources has primary responsibility at the federal level, though the Ministry of Environment and Forests has jurisdiction over water quality, the Ministry of Urban Affairs over urban water supply and sanitation, and so on. As noted above, however, primary jurisdiction over water issues on all but interstate rivers rests with the States which give their primary responsibility to ministries of irrigation, and which have weak and fragmented urban and environmental ministries. Water planning is not only fragmented – it is often in conflict with environmental policies. One reason for the vitality of Environmental Public Interest Litigation is the weakness of public environmental planning.
Cultural
Gaps also exist between “modern,” “technocratic,” “neo-liberal,” “progressive,” and “traditional” frameworks for and practices of environmental planning. A good example is the conflicts over displacement and resettlement of tribal and rural settlements inundated by dams on the Narmada River (see the sophisticated analyses in Baviskar, 2004; and Dreze, 1997). The growing urban and suburban middle class have led to critiques of bourgeois environmentalism (Baviskar, 2008).

Scholarly
Environmental research in India is strong in quality, and active debates in public journals such as the Economic and Political Weekly. Some environmental NGOs have active research programs that complement those of research universities and centres. But these programs are at least as fragmented as public institutions. Special problems include a large body of detailed but non-peer reviewed gray literature on environmental issues; the limited accessibility of environmental reports and impact statements, though that is improving with RTI policies; ineffective communication and integration of natural and social scientific analysis; and limited public agency use of scientific research and research institutions.

Finally, there are few established environmental planning degree programs in India, and few of the historical programs that have contributed to the development of the field (e.g., landscape architecture, environmental studies, and natural resources conservation). Some exceptions in peer institutions are briefly described below.

Peer University Programs
The main environmental planning programs in India are located in schools of architecture and planning; and to some extent in departments of civil and environmental engineering. Two peer university programs are briefly described below:
CEPT-Ahmedabad

The Centre for Environmental Planning and Technology is the only university in India with a “Department of Environmental Planning”. It has an excellent reputation as an architecture and planning school and has recently been deemed a State University. CEPT espouses a progressive vision of “knowledge and wisdom,” and is critical of what it calls “technocratic education.” It also has a vision statement that emphasizes “adaptability.”

Environmental Planning is a Postgraduate course at CEPT, offered by the Faculty of Planning and Public Policy. Its website describes the program as follows:

“The post-graduate programme in Environmental Planning emphasizes rational and scientific decision-making for planned actions in different human activities compatible with the objectives of sustainable development. With courses covering environmental economies, environmental impact assessment, policies, legislation, and technologies, the programme aims at the integration of various issues to develop comprehensive strategies for environmental planning and management.”

www.gisdevelopment.net/education/inst/cept.htm

School of Planning and Architecture—Delhi

SPA offers specialized education on the environment and human settlements. At the undergraduate level, it offers a four-year Bachelor’s Program in Planning. At the graduate level, SPA offers a Master’s Program in Landscape Architecture and a Master’s Program in Planning that includes subspecializations in Environmental Planning, Regional Planning, and Urban Planning. The School website describes these postgraduate programs as follows:

“Environmental Planning degree programme is specially designed to train students in methods for scientific evaluation of various factors for planning environmentally sustainable development of human settlements and regions... Land use planning, to be meaningful, has
to take cognizance of the legislation enacted in the field of environment as well as advanced techniques and tools currently available for analyzing and predicting environmental problems. The main objective of this programme is to impart adequate skills and exposure to the students to enable them to handle the complex challenges of environmental planning, design, impact assessment, and mitigation and preventive measures. The focus areas of the programme are environmental planning and design, techniques of measurement of water, soil, air and noise pollution, environmental management, environmental impact assessment, auditing and risk assessment, environmental economics, and environmental legislation.”

“Landscape Architecture is a profession concerned with both the built and natural environments... In the past, landscape architects were known as designers of gardens and parks. Today landscape architects are continuing this tradition, but have also expanded the field to include planning, design and management of several aspects of the physical environment. They are also specialists in site planning, which require the expertise of an architect and also detailed technical knowledge of soils, structures and services. This degree programme aims at imparting proficiency in landscape assessment and design techniques by employing ecological principles while keeping in view socio-economic and cultural considerations. The programme covers a variety of subject areas such as plant systems and processes, plants and design, landscape engineering, eco-system analysis and field ecology, etc.”

These peer institution programs are in schools of architecture and urban planning that share an emphasis on practice, but lack strong connections with the natural sciences, social research, and management science. Departments of environmental science on the IIT, IIM, and IIS campuses have a strong research emphasis but lack the connection with planning and design. The human dimensions of environmental issues are vibrantly pursued in leading

12 http://www.spa.ac.in/environmental_planning.aspx
13 http://www.spa.ac.in/masterof_landscape.aspx
social science departments and research units. However, the number of environmental planning graduates, scope of curricula, and gaps between theory and practice have caused this vital field to lag far behind the escalating environmental problems in Indian settlements.

Conclusion
The strong foundations for environmental planning outlined at the start of this section, coupled with the burgeoning challenges facing the nation, and the small number of peer academic programs, indicate that IIHS has a vital niche to fill in preparing future practitioners for the field of Environmental Planning.

Components of the M.U.P. Environmental Planning Specialization

The ENVP specialization is designed to fit closely with and contribute to the curricular vision for IIHS. This means that it (a) has a strong relationship with the Core curriculum; (b) makes an important contribution to the Common courses taken by all students; and (c) consists of a well-structured set of required subjects, elective subjects, and practica. These three components are outlined below and elaborated in the attached draft syllabi.

Relationship to the Core
The IIHS Core curriculum (version 3.0) is inspired by educational philosophies of some of the great leaders of modern India including Gandhi, Tagore, Krishnamurti, Aurobindo, and others. This philosophical aim is one of the most profound, and challenging, aspects of the IIHS proposal. It seeks to cultivate wisdom along with knowledge and creativity. It runs against the grain of competitive, careerist, and education trends that begin in pre-school in elite societies worldwide. But it resonates closely with the spirit of progressive experience-driven environmental education. The Environmental Planning specialization program has an important role to play in helping IIHS achieve these core philosophical aims.
ENVP 1: Environmental Inquiry and Practice: Foundation Subject for the IIHS Commons

All of the subjects in the Commons contribute to the Environmental Planning specialization. However, one class -- “Environment” -- is foundational. As Environmental Studies can mean many things, we attach a draft syllabus for this subject that focuses on environmental problem definition, analysis, and synthesis.

Required Subjects for Environmental Planning (ENVP 2,3,4)

Environmental Planning is an extremely broad field that draws upon all of the sciences, social research, humanities, and design professions. It is thus essential to have a well-structured set of required subjects that reflect the major modes of inquiry in the field. Three required subjects are proposed:

- ENVP 2: Environmental site planning and design
- ENVP 3: Environmental systems analysis and design
- ENVP 4: Environmental policy evaluation and design

Few established practitioners have expertise in more than one of these subjects, but all emerging practitioners must have a working knowledge of all of them. They are briefly described below and elaborated in the attached syllabi:

ENVP 2: Environmental Site Planning and Design

Urban planning programs are placing renewed emphasis on physical and ecological design. Design ranges from site-scale rainwater harvesting to streetscapes and local parks to metropolitan-scale open space, floodplain corridors, and biodiversity protection. Environmental Planners are not designers, but they need to know first-hand how site plans

---

14 It is listed as #6 in Curriculum version 2.0; and #2 on the IIHS website; last visited May 1, 2010.
are prepared, what they encompass, and how to evaluate and improve them. This required course in site planning and design fulfills these basic needs.\textsuperscript{15}

\textbf{ENVP 3: Environmental Systems Analysis and Design}

This subject introduces students to the analysis of climatic, hydrologic, and ecological systems in human settlement planning. Students gain familiarity with environmental systems analysis, including models for simulation, optimization, forecasting, systems dynamics, and operations management. These are linked with field graphic methods as well as remote sensing and GIS applications.\textsuperscript{16}

\textbf{ENVP 4: Environmental Policy Evaluation and Design}

This subject introduces students to the formation, development and evaluation of environmental institutions. These range from local environmental norms and organizations to state and federal statutes, regulations, and case law; and to international environmental policy. This subject also engages local and global frameworks of environmental equity and justice. Students learn methods of policy research, participant observation, survey research, institutional analysis, negotiation, activist strategy, and ethnography. They apply these methods to case studies in environmental impact assessment and community-based processes that strive to expand the range of choice in policy analysis.\textsuperscript{17}

The three required subjects in site planning, systems analysis, and policy evaluation provide a systematic framework for graduate study in environmental planning. They share a common commitment to design, i.e., the formulation of alternative solutions to complex problems. They provide a broad foundation for advanced elective courses.

\textsuperscript{15} This course is adapted from the site planning course of MIT Professor Eran ben Joseph, along with extensive readings on environmental planning and design practices in India.
\textsuperscript{16} This course is adapted from the environmental systems course of MIT Professor Michael Flaxman, which encompasses international as well as U.S. case studies, with additional case studies and applications in India.
\textsuperscript{17} Adapted from Introduction to Environmental Policy and Planning by MIT Prof Larry Susskind, with extensive readings and cases on environmental, law, policy and social inquiry in India (Nandimath, 2008; Sahasranaman, 2009).
Sectoral Electives in Environmental Planning (e.g., in Water Resources) (ENVP 5,6,7)

Sectoral electives build expertise in specialized fields of environmental planning, e.g., land resources, water resources, air quality, or ecosystem services. Electives in these sectors would build directly upon the foundations provided the required subjects described above. The three sector electives developed in this proposal focus on water resources.

**ENVP 5: Water in Environmental Design**
This subject focuses on water in urban landscape design. It builds upon the site planning and design requirement. It challenges students to generate spatial solutions to urban water problems at the site, neighborhood, urban and watershed scales. It examines international as well as South Asian design precedents in rainwater harvesting, monsoon stormwater management, nallah restoration, and water-conserving design.\(^\text{18}\)

**ENVP 6: Water Resource Systems**
This subject develops a more in-depth working knowledge of watershed and water resources modeling and decision support systems. By including behavioral and institutional modeling, it provides a broader planning (vis-à-vis engineering) approach. This subject includes modeling with Stella, Vensim, and Excel spreadsheet models as well as more complex urban SCADA and decision support system models.\(^\text{19}\)

**ENVP 7: Water Resource Policy**
This subject builds on the Environmental Policy Evaluation and Design track. Complex water problems require an understanding of water policy and institutional alternatives at all

---

\(^{18}\) Adapted from *Water, Landscape, and Urban Design* by MIT Prof James Wescoat with increased emphasis on South Asia design case studies.

scales. This course examines the varieties and logic of water policies from the household to community, metropolitan, state, basin, and international scales. It focuses on adaptation and change in water ethics and institutions. And it uses the results to generate alternatives that expand the range of choice for human settlement planning.\(^{20}\)

**Integrative Electives in Environmental Planning (ENVP 8,9)**

Integrative electives bridge between any two of the required subjects, e.g., site planning and systems analysis; systems analysis and policy evaluation; or policy evaluation and site planning. Two examples are developed in this curriculum:

**ENVP 8: Adaptive Environmental Management**

Large-scale environmental and settlement systems require complex stakeholder processes, and experiments that are systematically monitored, evaluated, and adjusted based on a decadal time-scale. Adaptive Management Programs in river basins, forest tracts, and coastal fisheries have begun to address these needs. They experiment jointly with environmental policy and systems variables. In addition to rigorous evaluation of existing adaptive management programs, this subject would draft proposals for establishing innovative adaptive management programs in India.

**ENVP 9: Natural Hazards Policy and Environmental Design**

The people and settlements of India face escalating environmental risks and hazards (e.g., earthquakes, floods, droughts, typhoons, etc.). Poverty increases the mortality of these hazards, and while economic growth tends to reduce these losses of life, it is too often accompanied by greater property losses. This subject combines the design and policy tracks of the environmental planning curriculum. It links policies of settlement location, warning, and evacuation with building standards and prototypes for hazards preparedness, mitigation, and reconstruction after disaster.

\(^{20}\) Adapted from courses on urban, regional, and international water policy by MIT Prof James Wescoat.
**A ll-IIHS Practicum: Campus Environmental Planning and Curriculum Design**

The IIHS campus should be an environmental planning and design laboratory that link architecture, landscape architecture, community planning, and infrastructure with the Environmental Planning curriculum. This aim is frequently mentioned, but rarely fulfilled. “Smart” and “green” buildings are increasingly common on university campuses. But notwithstanding their professed connection with the curriculum, they are rarely used experimentally.

Partial exceptions include the John T. Lyle Center for Regenerative Studies at the California Polytechnic at Pomona, California and the Lewis Center for Environmental Studies at Oberlin College. Some small environmental colleges have a campus-wide sustainable design ethos, e.g., Evergreen College, Warren Wilson College, College of the Atlantic. And most major universities have sustainability programs that link administrative services with environmental research and teaching.

**ENVP 10: All-IIHS Practicum: Campus Environmental Planning and Curriculum Design** This practicum would be open to all IIHS students in their final year. Students would be responsible for refining and implementing a campus planning improvement generating in one of the fall semester studios.\(^{21}\)

---

\(^{21}\) Adapted from campus planning workshop on water, landscape, and urban design by Prof James Wescoat that redesigns an area of the MIT campus and campus-community interface, in part by searching for innovative water and landscape design precedents in South Asia.
<table>
<thead>
<tr>
<th>Required Subjects (3)</th>
<th>Sectoral Electives: Water (3)</th>
<th>Integrative Electives (2)</th>
<th>All-IIHS Practicum (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Planning and Design</td>
<td>Water in Site Planning and Design (Studio)</td>
<td>Adaptive Environmental Management and Design</td>
<td>Campus Environmental Planning and Curriculum Design</td>
</tr>
<tr>
<td>Environmental Systems Analysis and Design</td>
<td>Water in Environmental Systems</td>
<td>Environmental Hazards Planning and Policy</td>
<td></td>
</tr>
<tr>
<td>Environmental Policy Evaluation and Design</td>
<td>Water Policy and Design</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 2: Diagram that describes the IIHS Environmental Planning sub specialization curriculum

**Anticipating Future Adaptations in Environmental Planning**

Environmental planning underscores processes of ecological succession in complex natural resources systems. Does it have a similarly rigorous adaptive approach to the profession? In some respects, yes, because the profession builds upon trends and successes of earlier periods. It is less clear how systematically programs of Environmental Planning experiment with curricula that address emerging problems in creative new ways.

The IIHS Environmental Planning specialization diagrammed in Figure 2 above should therefore be established with feedback mechanisms, as well as systematic experimentation.
with the subjects outlined above and on the attached syllabi. In addition to these ecological adjustments, the ENVP curriculum should build creatively upon the unique institutional and cultural strengths of India, testing, adapting, and changing them as Gandhi and other visionaries have in their experiments with truth. To avoid the ossification that is all too common in academic curricula and environmental institutions, the attached subjects are put forward as experiments to be tested in the IIHS curriculum, perhaps in collaboration with MIT and other universities. The experimental aims, methods, and measures should be specified at the outset to avoid ad hoc program drift and advance the field and its efficacy.

\[\text{\textsuperscript{22}}\text{ Cf. the Open Courseware experiment at MIT.}\]
REFERENCES


Environment and Urbanization. Many articles on India and comparative case studies in this leading journal of the IIED.


Harvard Divinity School. Religion and Ecology series:


LAW, POLITICS AND GOVERNANCE
The Urbanization Challenge

The city has occupied an ambivalent place in the political imagination of modern India. The independent nation-state of India was largely imagined as an agrarian society and economy. The writings and speeches of Dr. B.R. Ambedkar are, however, a notable exception. His vision of modern India was distinctly urban where the oppressed would be free from old social hierarchies and free to form new solidarities. For the first four decades of independence these two visions of India co-existed without one contradicting the other. Thus, the country’s agricultural sector was commercialized through the introduction of land reforms as well as new technological inputs, while many of those that remained landless, particularly people belonging to oppressed and vulnerable groups, migrated from rural areas to large cities in search of economic and social opportunity.

Today, the development of urban India is considered a political priority. Moreover, Indian cities today grow for reasons other than rural to urban migration. While distressed migration remains a reality, particularly in Indian states where the agricultural sector is in severe decline, the fastest urban growth is on account of spatial expansion and urban agglomeration (Kundu 2007). Here too the vanguard of growth is not the mega-city or former colonial centers like Mumbai and Kolkata, but small cities like Erode in Tamil Nadu, which consists of a mix of agricultural holdings, a university, a large-sector industrial park and clusters of small-sector manufacturing units.

23 Prepared by Balakrishnan Rajagopal, Associate Professor of Law and Development, DUSP, MIT and Shiben Banerji, PhD Candidate, SAP, MIT
One register of the new political salience of cities is the apparently sudden emergence of federal governmental funding for urban infrastructure. While urban development and planning was largely left to state-level institutions of governance in the first four decades of independence, new programs like the National Urban Renewal Mission (NURM) signal a new federal or central-level interest in managing urbanization. Yet, it is worth noting that this model of central government involvement in urban development has been debated for the last two decades. The National Commission on Urbanization chaired by Charles Correa was an early central government initiative at evolving urban development policy that could result in an even allocation of public goods and private investment incentives across the country. Also dating back to the mid-1980s, but with far greater consequences, was the Prime Minister’s Grant for Mumbai. Launched in tandem with the centenary celebrations of the Indian National Congress in 1985, this initiative established a lasting model for public housing delivery where the public sector was transformed from a producer of housing to an enabler of housing, while market agents and civil society actors were required to produce and deliver housing units in consultation with beneficiary groups.

Although the Prime Minister’s Grant for Mumbai remains the model for slum redevelopment in Mumbai, other participatory planning mechanisms have been institutionalized to varying degrees across the country following the enactment of the Panchayati Raj and Nagarpalika bills in 1994. While the devolution of administrative powers to institutions of local self-government has been relatively small, the larger impact of the 1994 bills, which are enshrined as the 73rd and 74th Amendments to the Indian Constitution, has been fiscal decentralization. Local bodies are now permitted to collect a wide array of taxes, to borrow from the private capital market, and are guaranteed inter-governmental transfers to cover current year budget deficits.

The goal of making local bodies more fiscally responsible, and in that limited sense independent, has been further underscored by central government policy on infrastructure
development. In 1996, the Expert Committee on Commercialization of Infrastructure chaired by Rakesh Mohan recommended that market agents, civil society groups and local bodies jointly plan, finance and operate urban services. One direct consequence of this approach to infrastructure development is that individual projects are now conceived of and implemented with little regard for the older citywide physical and land-use planning process. This new project-focused approach to urban development has nonetheless strengthened, rather than weakened, the demand from civil society groups for comprehensive city plans. In other words, civil society groups seek an ever-greater share of representation in decision-making bodies that have regulatory oversight or planning authority in metropolitan areas.

It is important to note, however, that institutional innovations in the financing of urban development has in no way exhausted the gamut of urban politics in India. On the contrary, the opening up of the Indian economy to foreign direct investment and the decline of centralized economic planning has been accompanied by a dramatic increase in the political violence, especially in urban areas of India. In addition, cities are a key locus for new social movements as well as competing demands for justice. The success of these movements and rights-based claims to a better quality of urban life has been seen to be dependent on the place of property rights within the constitutional design of the Indian state as well as the role of the judiciary as an organ of governance, particularly in the period following Emergency. Arising out of the symptoms of urban conflict and political violence that we find across India, we have identified three issues that will characterize the urbanization challenge over the next generation. They are:

Legitimacy of Public Institutions:
A large segment of India’s urban population has historically had to rely on informal mechanisms to connect to formal political institutions as well as the state. With the dismantling of certain organs of economic and physical planning in favor of participatory mechanisms, the legitimacy of public institutions has been questioned more rather than less.
Simultaneously, changes in the dominant ideology of the judiciary over the past decade have severely damaged public faith in receiving fair outcomes from courts.

Regional Imbalance:
The emergence of sub-national borrowing and the decline of centralized economic planning have deeply exacerbated regional variances in development and poverty levels. One alarming symptom of this phenomenon from the last decade has been the extremely uneven rate of urbanization across the country. Here again, the disparate growth of urban India and the continuing decline of the agricultural sector appear to be fuelling new forms of urban-centric ethnic conflict. Simultaneously, fiscal decentralization has dramatically altered centre-state and intra-state relations. States now compete with each other for private investment by deliberately lowering planning, labor and environmental standards to attract private investment.

Overhaul of Administrative Law and Practice:
As has been amply demonstrated by recent conflagrations over compulsory land acquisition, administrative practice in India is largely a continuation of colonial systems. Although alternative dispute resolution mechanisms have been institutionalized across the country, a dramatic change in the legal foundations of cities is still required. In mega-cities like Mumbai, institutional pluralism has created multiple and contending pockets of power without adequate accountability. The legitimacy of public institutions, which has already been listed as a key emergent challenge, is further endangered by the practice of amending the institutions of public planning with little or no public debate. The increasing role of quasi-public or public-private partnerships in urban service delivery and infrastructure raises serious questions of accountability and justice, which are unanswered by the existing gamut of administrative law.
Responses to these challenges need to be sector-specific. In other words, the best way of re-writing administrative practice for public housing delivery will very likely differ from the process best suited for employment generation in cities. Nonetheless, the objective of this document is to outline a pedagogical approach that will inculcate the analytical skills required for intervention across sectors and institutional environments.

**Pedagogy for Social Change**

Broadly, there are two ways of teaching graduate students about the law, politics and governance of Indian cities. One is a functionalist approach that emphasizes the legal aspects of different sectors of urban practice, such as the legal aspects of transport planning. The second approach emphasizes the historical, social and cultural dimensions of different economic and political systems and seeks to explain variance within and across different institutions of governance in light of historical and sociological research. We have elected to adopt the second approach to teaching law and governance, and argue strongly against a functionalist conception of law in which legal rules are thought of as instruments of change. Instead, we deem it necessary that future urban practitioners understand how judges and lawmakers refer to non-legal justifications to reach their decisions, and how notions of democracy, culture, and identity are inseparable from legal decisions.

Perhaps the most crucial area of study for urban practitioners in India is the emergence of the judiciary as an institution of governance and the bearing this has on the city planning and development process. The proliferation of multiple, class-specific quality of life movements in Indian cities suggests that the judiciary may even be the preferred institution of urban governance for India’s elite. In contrast to dominant conceptions of this political phenomenon, which oscillates between an adoration of the merits of ‘juristocracy’ over the mundane every day politics of governance and a formalist faith in the need for the separation of powers in a constitutional democracy and for the inherent functional limits of judicial
review in a democracy, we argue that a historical understanding of the emergence of the ‘juristocracy’ is necessary to evaluate the limits of judicializing urban policy.

In other words, in order for a future urban practitioner to appreciate why the movement to make housing a right in Indian cities has had little success compared to the movement to grant women greater rights in property, it would be necessary to understand the history of state-making in the Indian context and the continuation of colonial legal systems. This historically grounded analysis would draw attention to the constraints on judicializing urban policy that arise out of the legacy and political environment of different institutions, the place of property rights in the structure and design of the constitution, and the development role envisaged for the public sector within international development policy. A sociological approach to the same question on the relative legal and institutional outcomes of different social movements would draw attention to the difficult relationship between law and social movements as well as the socio-economic composition of the judiciary. Historical and sociological analysis would also help urban practitioners recognize constraints that arise from within the legal discourse itself, both in terms of the limits imposed by the conceptualization of social rights, as well as by the techniques of judging which has a conservative, deeply anti-redistributive tendency (Kennedy 1997).

Operationalizing a right-based approach to development is another significant challenge for the next generation of urban practitioners. Attempts have already been initiated at making social security a right for workers in the unorganized sector; government-enabled large-scale urban infrastructure projects have become the primary vehicle of slum rehousing and rehabilitation in large cities like Mumbai, providing free home ownership to hundreds of thousands of ‘project-affected persons’, and the Government of India’s Integrated Development Scheme for Small and Medium Towns (IDSMT) has extended this logic to smaller urban centers where the provision of basic services like water and sewerage has been combined with formalizing and upgrading small squatter settlements. Yet, despite
innovations in the ways in which the public sector engages with civil society and market agents in order to guarantee new social rights, these efforts have not necessarily led to pro-poor outcomes. Macroeconomic policy continues to constrain the extent to which the state is able to provide social insurance to the urban poor in the unorganized sector and urban infrastructure projects now result in a larger number of violent land evictions than any previous slum clearance scheme.

Though legalization of social rights can sometimes assist the poor, the ways in which it does so and the frequency with which it happens depend on the domains of private law of property, constitutional distributions of power across different levels of government as well as national-level economic policy. As an organ of governance, courts are capable of delivering pro-poor verdicts that in turn can be administratively realized. However, this can occur only under very specific circumstances in which the political ideology of the state, institutional design and the composition of the court, social movement activism outside the law, private law reform, and a substantial re-conceptualization of the rights discourse co-exist. In the absence of these circumstances, the judiciary is only a highly limited, if not irrelevant arena, for the struggles of the poor. Urban planning practitioners in India have the challenge of reconciling this insight with the reality of increasing judicialization of urban governance.

In studying the law, politics and governance of Indian cities future urban practitioners should pay special attention to how social movements seek to transform social processes and outcomes through a maze of laws at multiple levels, from the local, informal to the global. Studying the experience of social movements and their transformative impact on institutions of local governance and the language of human rights will allow future urban practitioners to conceptualize rights beyond their current statist framework under the Indian Constitution. This is especially crucial in urban India where, as we have already noted, claims of a constitutional right to such amenities as open spaces have become flashpoints of urban
politics. Indeed, evaluating the competing demands for justice and fairness and recognizing how these demands are articulated within specific institutional environments should be a core skill for future urban practitioners.

So far we have identified a pedagogical approach to law, politics and development that emphasizes the history of state making as well as the ways in which different institutions and non-institutional actors engage with legal rules and social norms. However, such institutional analysis would be incomplete without attention to the global regulatory, economic and political environment in which local and national-level organizations exist in India. Thus, the law, politics and governance curriculum at the Indian Institute for Human Settlements should include courses that comparatively describe the experience of social movements and institutions of urban governance in multiple market democracies. Such comparative study will underscore the need for urban practitioners to be mindful of the particularities of a nation’s constitutional history, institutional design and modes of political action and to draw inspirations for borrowing lessons from abroad. Concomitantly, courses on law and governance should identify the moments in which the legislature or judiciary in one country seeks to learn from the experience of another. In this way students will find that the success of transnational legal borrowing depends on the highly specific circumstances of political ideology, constitutional form, and social movement activism outside the law.

A comparativist approach to law and governance is, however, not adequate to the pedagogical task we are outlining. Courses on law and governance must also engage with the impact of international law, global human rights discourse, transnational social movements, and global administrative law on institutions of local governance. Particular attention should be paid to why certain sectors of governance like economic development policy are more susceptible to international pressure than other sectors like environmental policy. Here again, students should consider how ‘development’ as the dominant ideology of the post-
colonial Indian state has shaped the relative strength and weakness of different organs of the governance that regulate the flow of global capital through the Indian market.

Finally, the law and governance curriculum should include a critical reappraisal of private law. In planning practice, property and land use law is often narrowly construed to mean only public law regulation such as zoning. It is crucial for urban practitioners to critically examine this approach and expand their focus to look at how individuals and private entities use private law to regulate land use, and how courts influence supposedly private agreements through their decisions.

Structure of the Law and Governance Curriculum

The form of the law and governance curriculum at the Indian Institute for Human Settlements will be significantly determined by the content of the Commons courses that will be required of all ‘Master in Urban Practice’ students. We argue that a historical and sociological approach to the institutions of governance should be inculcated in students beginning in their first semester, as well as a strong grounding in legal reasoning, fundamentals of constitutional and administrative law, and in aspects of legal regimes relating to land and property. Students should be introduced to multiple strands of critical legal research and practice in their first year so that subsequent coursework can develop students’ ability to frame urban problems in novel ways that lead to equitable solutions. We are strongly against a formalist approach to law and governance, which would consist of an iteration of various legal statutes that currently govern urban development in India. The fundamental purpose of legal training is not to download the content of the rules and procedures - which contrast from practice on the ground anyway - but to develop a mindset and a rigorous sensibility for dealing with any legal issue. A significant danger of a formalist approach is that it will replicate the idea that legal rules are instruments to be deployed by skilled technocrats. Instead, as we argue, in an ex-colonial context like India, law is a crucial
matrix through which a variety of actors, including organs of the state, seek to reorder the social and economic terrain. The multiple demands for justice that already constitute the social fabric of urban India require the next generation of urban practitioners to recognize why certain institutions of governance have lost or are losing their legitimacy while they begin to devise new mechanisms that are more equitable.

An as yet unresolved dimension of the law and governance curriculum at the Indian Institute for Human Settlements is whether it will be reasonable to train specialists in this field. We are concerned that in the absence of sufficient coursework and faculty, especially during the first five years of the Institute, it might be disingenuous both to students as well as prospective employers to claim that a graduate is a specialist in urban law and governance. Thus, regulatory positions that may open up in large numbers in the current drive to reform infrastructure, for example in the transport field, can be filled by the graduates of IIHS only if they have competent legal drafting and regulatory evaluation skills. Such a specialization might reasonably emerge once a reasonable number of full-time professors have been hired to form a research cluster on law and urban governance. Until then, a viable option might be to offer a certificate in law and governance that would only be granted to students with advanced standing, such as to incoming students who have already earned a law degree. A parallel alternative would be to grant a certificate in law and governance to students based on the originality and quality of their Master in Urban Practice dissertation and who have chosen a carefully tailored curricular path that has emphasized legal aspects.

Regardless of whether law and governance is offered as a specialization or area of certification, we recommend a tripartite division of the curriculum. Required courses should establish a firm understanding of property rights and their bearing on institutional as well as non-institutional processes of urban development and politics. The history and politics of institutions of urban governance is another area of required coursework as is a foundational course on law and social movements. Elective courses can be devoted to specific sectors of
urban governance like water law, while advanced coursework intended for students who wish to pursue careers in research and teaching could focus on the impact of international law on urban governance and rights-based approaches to urban development. Each course could use case studies from India and elsewhere in the South to illustrate how various institutions and non-institutional actors engage with the social through law. It is also possible to frame the same case from multiple perspectives. Thus, the Narmada case could be used to demonstrate how a people’s movement engages with law from the local and informal to national and global legal domains. The case could separately be used to illustrate how a private law doctrine like ‘laches’ could be used to decide a matter of national environmental policy.

**Subjects Required for the Law & Governance Specialization/ Certificate:**

- Legal Aspects of Urban Transformation
- Law and Politics of Local Governance
- Law, Social Movements and Public Policy
- Practicum on Socio-Economic Rights (suggested and can be developed collaboratively)

**ELECTIVE COURSES** (open to all students have completed at least one required course):

- Housing Law and Rights
- Alternative Dispute Resolution and Access to Justice
- Water: Politics, Policy, Law
- Environmental law (suggested if it is not already part of the syllabus through another specialization)
ADVANCED COURSES (suggested for students who wish to pursue a PhD):

- International Law and Urban Governance
- Operationalizing Rights-Based Approaches to Urban Development

REFERENCES


NEW URBAN PLANNING
INSTINCTS, INSTRUMENTS AND INSTITUTIONS
This specialization is for students who appreciate that India is poised for unprecedented transformation in the form and function of its human settlements, and who want to influence that process and its outcomes by creating innovative institutions, public and private, as well as non-profit and non-governmental, to improve the quality of life in settlements of all sizes.

First and foremost, students in this specialization must love human settlements and deeply appreciate that cities, in particular, have immense potential to enhance human capabilities. Second, students need to be aware of the conventional planning instruments used to influence the forms and functions of cities, understand how such instruments worked in the past—their impact and limits—and then build on that knowledge to probe whether conventional planning instruments, such as master plans, can be revised and revamped or should be discarded as obsolete. To engage in such critical decisions, students must develop an astute professional instinct about which elements of the city-building process can or cannot be influenced with available policy instruments. This is in sharp contrast to the traditional education of urban planners who planned “comprehensively” but, lacking appropriate policy instruments, were often unable to realize their visions of good cities. The third conceptual pillar this specialization rests on is awareness of institutional constraints, as well as their possibilities, which influence the formulation and implementation of policies. Together with the right planning instincts and knowledge of planning instruments, an awareness of how planning institutions work—not in theory but in practice—makes this specialization particularly appropriate for urban practitioners who aspire to influence the

---

24 Prepared by Biswapriya Sanyal, Ford International Professor of Urban Development and Planning, DUSP, MIT
nature of urban policies and projects working within institutions created explicitly for urban
development and planning.

The courses constituting this specialization have been crafted with the awareness that urban
planning is a relatively young field of expertise compared to disciplines such as economics,
medicine, law and philosophy. In Europe, for example, urban planning emerged as a
response to the problems of industrialization and urbanization, by architects who assumed
that they could improve the quality of urban life by beautifying existing cities or by creating
new “garden cities” away from the old cities. Land-use zoning, invented in Germany, was a
key planning instrument. At the time, planning instruments were usually technical plans—
mostly in the form of maps—prepared by undemocratic organizations for decision makers
who ranged from kings to the royal appointees who were put in charge of cities. Even in the
U.S.—the first formal democracy—urban planning started with the design of parks for city
beautification, and only later, by the 1920s, had expanded its scope to better urban
management. The planning instincts that shaped the profession in its early years were
somewhat anti-urban, with the industrial city portrayed as an area where the balance between
man and nature had been lost and needed to be restored. Architects dominated the new
profession, and their skills, sensibilities and social networks were at its heart. The primary
planning instrument was the “master plan” but the planning institutions that produced them
were local entities, which lacked the power to ensure their proper implementation.

When planning practices began to be exported to newly decolonized nations in the late
1940s and early 1950s, the instincts, instruments and institutions upholding the profession
had not altered much. The key assumption underlying the profession was the same as
before: because socio-economic changes accompanying urbanization and industrialization
influenced spatial development patterns, by altering spatial patterns, the newly decolonized
nations could hasten the process of industrialization, socioeconomic change and socio-
political modernization. The instinct for spatial order, the importance of access to nature for
healthy living, and the idea that the built form should reflect the hierarchy of political authorities continued to shape the planning imagination in newly industrializing nations. There were differences, however, in the use of planning instruments—particularly, the inadequate implementation and weak ‘enforcement’ by rudimentary planning institutions, which lacked authority, personnel, and capital. This led to an increasing divergence between the visions of planned cities as embodied in the physical master plans, and what was actually on the ground—haphazard growth, increasing congestion in decaying city cores, rapid spread of informal housing settlements on the periphery of cities, and other such problems. These problems did not go away, as was initially expected, but intensified, even in cities, which were economically growing and had political stability. At a loss about how to rectify the situation, planners continued drafting master plans, hoping that such plans would keep the normative vision of the “good city” alive even in the face of the darkening reality, which they attributed, initially, to a mismatch between the rapid rate of urbanization and the relatively slower rate of industrialization.

In India, urban planning started on a similar note as in other newly industrializing nations. The promise of urban planning was articulated through the ambitious plan for Chandigarh designed by the architect Le Corbusier, who strongly believed that spatial planning could induce modernization of the economy, polity and society. Most of India’s large cities produced colorful master plans for postcolonial cities designed to be settings for nation building, with the kind of order and aesthetics that marked Western cities. Local planning institutions, however, were as weak as those in other newly decolonized nations, because nation building, not decentralized administration, was of utmost importance there.

This type of city planning began to be questioned by the early 1960s as Calcutta, once a prominent city, showed signs of sharp decline with increasing slums and shanty towns, increasing unemployment, and—most alarming at the time—the threat of a cholera epidemic. When the West Bengal Government sought the help of the Ford Foundation to
save Calcutta, and thereby thwart the threat of Communism, a new sensibility for city planning began to emerge. It also gave birth to new institutional forms such as the Calcutta Metropolitan Planning Organization (CMPO), which later evolved into the Calcutta Metropolitan Development Authority (CMDA). By then, however, both the State of West Bengal and the city of Calcutta had elected Communist governments, and there were major disagreements in the planning profession about all three aspects of city planning—the instincts, instruments and institutions necessary for good cities. The notion of the beautiful planned city was supplanted by a call for egalitarian cities, which would cater first to the needs of the poor and the unemployed. Traditional planning instruments, such as zoning, were dismissed as bourgeois tools for protecting the elite and for being neo-colonial in nature. Most important, there were serious disagreements about whether planning institutions with locally elected leadership, or those administered by centrally nominated bureaucrats, should have the ultimate authority for urban management.

Since then, city planning in India has evolved, but neither smoothly nor predictably, but has generated very useful knowledge about the effects of different planning instincts, instruments and institutions on the quality of urban life. In the 1970s, for example, a host of regulatory policies ranging from the Urban Land Ceiling Act to rent controls were introduced to create more egalitarian land and housing markets in Indian cities. Soon after, various schemes were introduced to generate employment, income and housing for the urban poor. The planning instincts underlying these policies were very different from those that had motivated the design of Chandigarh or the beautification of Delhi. Though the bias for regulatory measures as a way of shaping markets remains even now, its intensity has decreased with accumulated experience about its inadvertent side effects. Likewise, there has been serious rethinking about the appropriate role of urban local bodies (ULBs) in the planning and management of cities. With the constitutional amendments introduced in the early 1990s and the more recently formulated Jawaharlal Nehru National Urban Renewal Mission (JNNURM), the Indian planning imagination has demonstrated a radical rethinking
regarding the kinds of incentives which are necessary to achieve the large-scale urban transformations the nation is poised for. To be sure, much more rethinking and many more institutional innovations are needed. In that context, a renewed vigor is more likely to emerge from a careful and systematic analysis of all past efforts, including even master planning, than from the dismissal of all such efforts as misguided, badly conceived or wrongly implemented. After all, some Indian cities have performed better than others in some respects. India could not have produced a 9% annual economic growth rate with totally dysfunctional cities. Also, India’s democratic credentials must be acknowledged and even celebrated. They are yet another indication that India continues to learn from past mistakes as well as achievements.

That much can be learned from a sympathetically critical assessment of past efforts to influence the large-scale urban transformations in India is only one planning instinct, among many others that need to be cultivated through courses offered in the New Urban Planning specialization. That is why the first of the eight course offerings under the specialization is titled Planning Sensibilities, a core course to develop a new mindset for effective practice now. This new mindset will engage with old issues but in a new way. For example, the question of modernization—what is a modern nation? a modern city? a modern institution?—needs to be critically assessed so new practitioners are not limited by old paradigms of modernization, which provided the rationale for old planning styles. Again, the goal is not to reject every idea from the past and thereby drown in the intellectual swamp of post-modernity. The aim is to scrutinize the classical paradigms of modernization—its economic, political, social and spatial aspirations and their impact on how urban planning was conducted in the past, and which elements need to be revised, without throwing out the proverbial baby with the bathwater.

Students must grapple with many other fundamental questions in cultivating a new mindset. The individual course descriptions provide good overviews of such questions. For the
purpose of this summary, however, it may be useful to highlight a few key questions, which would signify how new planning sensibilities will differ from conventional thinking. For example, planners in India and elsewhere tend to think that to be effective planning must be based on a holistic understanding of the problem in all its complexity and the problem must be dealt with comprehensively by a set of integrated policies. In reality, this sort of planning approach is very difficult, if not impossible, to implement well.

So, why continue with this right-sounding but unimplementable approach to problem-solving? Similarly, in conventional planning approaches, politicians are assumed to be short-sighted, uninformed about people’s preferences and in general not particularly useful for good planning. In reality, however, planning cannot be useful if it is not backed politically; and, more importantly, planning needs to take into account the formal political process, particularly in democracies such as India, and help craft policies and projects which will translate political visions into actual planning efforts.

A third example of conventional thinking in planning that needs serious questioning is the classical dualistic conceptualization of issues, such as allocative efficiency OR distributional equity, top-down OR bottom-up planning, centralized OR decentralized planning, formal OR informal sectors, procedural OR substantive democracy, and cities for the elites OR for the poor. Many such dualistic formulations pervade current thinking, hindering planners’ appreciation of the connections between the diametrically opposed categories. The cultivation of a new planning sensibility will address such shortcomings, opening up the intellectual terrain, yet it will be grounded in very pragmatic concerns about how new ideas emerge, why some ideas are more implementable than others, how organizations react to new ideas and why planning organizations are effective in implementing certain policies and projects but not others. Discussing such questions with an open mind should ultimately create a new consciousness—a new instinct—about the possibilities and limits of urban planning. This is not the mindset of either a cheerleader or a doomsday pessimist; it is not
the viewpoint that everything is possible or that nothing works. Instead, the mindset this specialization will cultivate will seek answers to such questions as what works under what conditions and why, why certain parts of a policy or projects may work better or worse than other parts and, most importantly, what kind of institutional lessons can be drawn from planning efforts on the ground to revise future efforts at the margin?

The cultivation of a new planning mindset cannot be achieved by relying on old general theories of how cities should work and how urban planning can be helpful in making cities work better. What is crucial to cultivate is a deliberate stress on understanding from specificities without getting lost in details. Reframing an old proverbial statement: understanding of how a forest changes when one understands the specificities of why and how some trees survive and grow while others die, why some trees are more attractive to loggers, who own the land beneath the forest, and so on. Knowing such details cultivates a sense of specificity, which is essential to break out of standard theories. Learning from specific efforts of planned interventions is also very important for practitioners who cannot rely only on broad general theories. The best form of learning for planners is from practice, how and why the planned outcomes differ from what conventional theories would have predicted, and how practice can be altered not to fit theory, but to revise it, making it more nuanced and context-specific. The central tenet of the new mindset is that understanding the institutional context—which organization is doing what and why—is essential for effective practice. It is true, as Keynes proposed, that in the end powerful ideas rule the world, but one reason some ideas are more powerful than others is they can be implemented by organizations without massive changes and unrealistic expectations.

With that goal in mind, this specialization on New Urban Planning offers a set of eight courses, including a course on New Planning Sensibilities that will serve as the centerpiece of this specialization. The rest of the courses are grouped under three sub-themes. The first set of courses will ground the students’ understanding of the specific problems faced by cities of
varying sizes. This knowledge of the particularities of each context is essential to cultivate a new planning instinct, which is skeptical of general theories and will always test their applicability in specific contexts of different-sized cities. Another way to cultivate an appreciation of specificity of problems is to focus on different types of housing problems in different locations within the same city. The housing question has been a central issue for city authorities since urbanization and industrialization started in Europe. In developing nations, the exponential increase of slums and squatter areas demands an even higher level of urgency in addressing urban housing problems. Yet, the housing problems of the urban poor who live in city centers are not the same as the problems faced by the poor who inhabit informal settlement areas on the periphery of the cities. By understanding such differentiations within a broad category of problems, and by analyzing the efficacy of different modes of planned interventions for different types of problems, the students will develop an appreciation of why successful planning requires the crafting of specific interventions for specific problems. One such specific problem facing Indian urban practitioners is the redevelopment of slum areas, which in the past were located on the cities’ periphery, but now are in the middle of spatial expansion. Urban practitioners must grapple with how to retrofit such housing areas without requiring large-scale relocation of the urban poor.

The second set of courses in this specialization will focus on planning instruments such as the master plan, and cultivate an awareness of why such instruments need to be modified and improved upon for better results. There are many planning instruments relevant for contemporary urban practice, including regulatory mechanisms as well as fiscal instruments for encouraging private investments for public purposes. Ideally, a set of courses will address several specific instruments—such as public-private partnerships, transfer of development rights or even rent control; such courses could be developed as either short modules or full-term courses, depending on the complexity of the instrument, the extent of its use, and whether good empirical analyses of its impacts are available. In this regard, the course on
master plans prepared as part of the specialization is an important example. Because the master plan has been and still continues to serve as a key planning instrument, even though many urban practitioners question its relevance in rapidly changing urban settings. It is precisely to tap into such skepticism and make it a valuable source of learning that a critical but affirmative course on master plans is necessary. Such courses on other planning instruments will cultivate nuanced views of these instruments and how they work in practice, not in theory.

The third set of courses in this specialization will focus on planning institutions both at the top and the bottom of civil society. At the bottom, the focus is on a particularly new type of institution—namely, organizations of individuals, households and firms that advocate for and support what is popularly referred to as the urban informal economy. There are also bottom-up organizations that do not directly address the needs of the informal economy but play important roles in influencing the qualities of urban environments. This specialization does not attempt to familiarize the students with all such organizations because they have been adequately covered elsewhere in the overall curriculum. One particular organizational form that has not been covered elsewhere, and hence is the focus of this specialization, is unions of informal workers, or as they are more respectfully referred to, “the self-employed”. The unionization of these workers started in Gujarat, India in the early 1970s; since then this institutional form has spread to all parts of India as well as many other industrializing nations. This is paradoxical given the worldwide decline in the unionization of formal workers during the same time period. The two types of unions are, however, connected in more than one way, and contribute towards labor movements, which are an important force of social change in India, as elsewhere. For this reason, this institutional form deserves special inquiry by prospective urban practitioners, some of whom will manage cities in which a majority of the workforce makes a living in the informal economy.
With regard to planning institutions “at the top”, the focus of this specialization is on the role of public-sector institutions—particularly on how to enhance the performance of these institutions, which are bureaucratic and need major reforms to positively influence the functions of cities during the unprecedented transformations which are already underway. The need for such reforms has already been acknowledged and is currently being encouraged by the Indian government at the national level. The instruments for inducing reforms are, however, somewhat conventional and rely mostly on fiscal incentives of various kinds from central government. There is very little understanding of how reforms are actually implemented, of strategies for minimizing opposition to reforms, and how to make public-sector institutions more efficient, socially just, flexible, and accountable. Hence, there is an acute need for a course that introduces future urban practitioners to the institutional complexities of public-sector reforms. Students who are not likely to practice in the public sector, but wish to practice either in the private or non-profit sector, may want to better understand how non-state actors and organizations can influence public-sector reforms, and, in turn, how public-sector reforms are likely to alter organizational behavior in institutions they wish to lead.

There is a relatively more pragmatic view of public-sector institutions, to which the students must also be introduced. This alternative view does not advocate for institutional reforms across the entire spectrum of public-sector institutions, or for exceptionally demanding reforms of any established institution. Instead, this approach rests on the premise that many public-sector institutions have performed reasonably well considering the various constraints, financial and otherwise, they had to struggle with. This view does not disparage all aspects of bureaucratic behaviors; in fact, it considers many bureaucratic functions as necessary for well-functioning cities. In this sympathetic view of public-sector, organizational performances are not scrutinized only to identify bad performance; instead, serious efforts are made to understand relatively good performance, without attributing all such positive performance to the role of particular individuals. This alternative approach calls for deep
understanding of public-sector institutions— their rules, norms and varied performance—
and demonstrates (as in the course on flexible bureaucracy in this specialization) that
apparently oppositional qualities such as flexibility and bureaucratic rules can co-exist within
the same organization. What is more, such unusual outcomes may result from judicious use
of bureaucratic discretion—the same organizational element that many see as a key reason
for corruption in the public sector. This type of organizational analysis would open up the
students’ minds to all kinds of possibilities, beyond the stereotypical views about
organizations, which are not helpful for institutional innovation.

To sum up: the specialization of New Urban Planning cultivates a new planning sensibility to
understand planning instruments and institutions in a new way. This sensibility is non-
dogmatic, unconventional and heterodox. Ultimately, it provides more hope that large-scale
urban transformations can, indeed, be guided by professionally trained urban practitioners.

Suggested courses for the specialization:

REQUIRED SUBJECT

- New Planning Sensibilities

ELECTIVE SUBJECTS

Set A: Specific Planning Challenges (select two)

- Peri-urban Growth of Metropolitan Areas
- Planning for Second- and Third-Tier cities
- Housing
- Urban Renewal and Retrofitting Slums
Set B: Planning Instruments (select two)
- Rethinking Master Plans
- Public-Private Partnerships
- Innovative Regulations

Set C: Planning Institutions (select two)
- Reform of Local Authorities
- Flexible Bureaucracy
- Governance, Accountability and Citizen Participation
SOCIOLOGICAL FOUNDATIONS OF URBAN PRACTICE
This memo outlines the proposed M.U.P. subspecialization in Sociological Foundations of Urban Practice for IIHS. The memo consists of two major parts:

- Specialization Objectives
- Specialization Structure

**Specialization Objectives**

The rapid growth of cities has modified, reinforced, or ruptured the longstanding social norms, quotidian practices, personal preferences, and social connections that have bound individuals to each other, to their communities, and to the major organizing institutions of society, whether cultural, economic, or political. Many of these changes in lifestyles and expectations owe to both post-independence economic progress and new forms of democratic governance that mark a departure from India’s colonial past; but they also are set in motion by a burgeoning national investor class leveraging an ever more global economy that is placing India among a small group of high economic achievers whose cities serve as motors of accumulation and economic growth. All these shifts have produced new individual and collective uses of urban (and rural) space, new patterns of national and international migration, new forms of employment and investment, and new structures of urban governance and decision-making, together creating great confusion among many urban citizens about how to best sustain or improve their daily conditions, whether in terms of work, housing, services, or leisure. In the face of these pressures, some citizens are willing to accommodate the social, cultural, spatial, and political changes that come with rapid urbanization, accelerated economic growth, formalized property rights, pressures for

---

25 Prepared by **Diane Davis**, PhD., Professor of Political Sociology, DUSP, MIT
displacement, and the pervasive reach and application of technology into all forms of daily life, to name just a few of the challenges. But others find their daily work routines, residential patterns, family connections, and individual or collective sense of meaning threatened by these fundamental changes, leading them to react negatively against the actors and institutions responsible for these transformations.

With an eye to generating applied knowledge about the complex individual and group dynamics that unfold with rapid urban change, this specialization seeks to cultivate an interdisciplinary yet sociological understanding of cities and the multi-faceted challenges facing their citizens in the context of rapid transition. It focuses on the new social practices that accompany the cultural, spatial, political, and economic transformation of cities, using this knowledge to educate urban practitioners about how to build cities and spaces that will be more responsive to their inhabitants -- even in the face of mixed preferences, competing priorities, and unequal access to resources. The aim is to provide conceptual, analytical, and problem-solving tools that give urban practitioners a basis for understanding the social concerns of individuals and communities as well as the conditions under which they align with the urban priorities of market and state actors.

This specialization not only identifies cities as key sites of social development; it also builds on the premise that cities, almost by definition, are sites of social difference, hosting a multiplicity of social, economic, and political groupings that may or may not share priorities. Among the actors and institutions with a stake in the city, some may be more coherently defined or well-organized than others. But regardless of their economic resources, political power, or social visibility, many organized social groups and/or activist individuals play a role in establishing the limits and enabling the potential of new urban policies and projects, particularly those formulated by a diverse range of urban practitioners whose job it is to build or reconstruct cities by developing, regulating, or managing both new and old urban spaces. Urban practitioners must have a good understanding of the wide array of social
conditions in the city in order to carry out these and other urban policy objectives. They must have the sociological sensibility to work directly with citizens in planning processes, and to recognize and accommodate the cultural, economic, and spatial differences among them. They must be trained to develop and identify advocacy measures that target distinct groups who may hold divergent priorities (whether economically, socially, politically, or spatially defined). They must be prepared to recognize whether and when individual or group displays of urban preferences are contingent on certain class, ethnic, religious, or other identities. And finally, they must be prepared to identify the likelihood and the means through which residents will actively oppose urban projects, whether at the level of the neighborhood or even through social movements, if only to use this knowledge to develop more inclusive and accountable priorities and processes.

**Specialization Structure**

In order to give urban practitioners a solid tool kit for understanding the sociological dynamics of cities and how to leverage them for positive urban gains, the specialization draws on four interdisciplinary modules, or analytical entry points: cultural, spatial, political, and economic, with the latter focused on everyday urban economic practices as produced by individuals in the search for livelihood. It examines how each of these various dimensions of urban life unfold, how they have changed in recent years, and with what implications for cities and professional urban practice. Each module is comprised of a general overview course and one specialized course that targets for closer examination a key issue or set of issues that speak to the larger patterns and dilemmas of urban change. In the real world of cities, spatial, cultural, economic and political dynamics often correlate, and course readings will reflect this. Still, each module has been developed to stand separately on its own, by offering a deeper and more comprehensive overview of a set of well-recognized literatures and theories of the city. The specialty course, for its part, is intended to address more focused problems that are particularly relevant or controversial in contemporary urban India,
ranging from the communalism to megaprojects to informality to democratic participation in urban decision-making.

This course is also designed so that IIHS students with other interests, who may not elect to concentrate in this specialization in its entirety, would be able to select on full module or even one or more of different module’s overview or specialty courses to complement their other works. For example, students focusing on Urban Design would benefit from the socio-spatial course modules; students focusing in Economics would benefit from the specialty course in informality in the socio-economic module; students focusing on Local Management and Project Development would benefit from both course in the module on socio-political processes; and students focusing on urban poverty as it relates to scheduled castes and other minorities would benefit from specialty courses in both the socio-cultural and socio-economic modules; etc.

Because the curriculum is part and parcel of a larger effort to train urban professionals and practitioners in the rapidly urbanizing middle-income countries of the global south, it purposefully contains both theoretical and practice-oriented materials and draws examples not just from India, but also from similarly placed countries like Brazil and China as well as selected other countries in Latin America, Africa, and East Asia whose experiences offer comparative insight. Several courses also offer historical materials, drawing on the challenges of rapid urban economic growth and their sociological implications in the history of “early developers,” building on the assumption that much of both theoretical and practical value can be learned from examining prior historical periods, not just because of the virtues of hindsight but also as a way of identifying potential problematic issues for the present. With respect to the latter issue, each course includes reading structured around practical dilemmas that citizens, governing officials, or others face in negotiating the shifting urban terrain, with focused attention on how urban practitioners respond to these dilemmas and with what implications for citizens and the city as a whole.
Finally, the specialization offers urban practitioners an opportunity to situate their knowledge in the context of two key issues that affect urban structures and processes in contemporary India and elsewhere: 1) the **formal-informal divide** and the 2) **territorial scaling** of urban change, ranging from the local to the national to the transnational.

The concern with **formality versus informality**, which is most directly discussed in the political and economic specializations, derives primarily from recognition that urban practitioners usually deal with both formal and informal actors and institutions as they plan for the city, particularly when law and governance requirements may dictate one set of practices while on-the-ground realities of economic and political power dictate yet another. The disjunction between these two competing logics can constrain urban action by de-legitimizing the rule of law, limiting the power of elected officials, and privileging illicit over licit activities; but recognition of them and how they enable or constrain urban action can also be the basis upon which innovative urban change will rest.

Likewise, the concern with **territorial scales** of urban action is critical because it allows for a better understanding of the ways in which urban dynamics often find their roots in priorities and processes set in motion by actors and institutions that are organized at scales both larger and smaller than the city. To recognize the complex and shifting scales of determination -- whether in terms of local versus regional vs. national authority, or in terms of local versus national versus global flows of capital -- not only gives a conceptual framework for understanding how and why particular cities may have greater or lesser room for maneuver in urban policy or change. It also helps establish an action framework in which practitioners learn how to leverage global or national or regional actors and institutions on behalf of local ones, or vice-versa. Just as recognition of both formal and informal practices may help sustain innovative urban policy, so can recognition of the multiple territorial scales of action be used to understand both the limits and possibilities for effective urban change.
Module I: Socio-cultural Structures and Processes
- Overview Course: City, Community, and Culture in the Making of the Modern World
- Specialty Course: Leveraging Difference: Urban Subcultures and the Planning Process

Module II: Socio-spatial Structures and Processes
- Overview Course: Conflict and the Social Construction of Cityscapes
- Specialty Course: Urban Projects and the Architectures of Globalization: Reconfiguring Urban Spaces for a New Century

Module III: Socio-economic Structures and Processes
- Overview Course: The Economic Sociology of Cities: Production, Consumption, and Use vs. Exchange Value in Urban Life
- Specialty Course: Urban Informality: Planning, Power, and Politics

Module IV: Socio-political Structures and Processes
- Overview Course: Cities, Citizens, and States in the Social Development of Democratic Governance
- Specialty Course: Decentralization, Democracy, Citizen Participation and the Planning Process
TECHNOLOGY AND HUMAN SETTLEMENTS
9

TECHNOLOGY AND HUMAN SETTLEMENTS

Specialization Designation

This document provides an overview of the proposed “Technology and Human Settlements” specialization. A five-course specialization is proposed. The sequence provides the breadth and depth needed to understand the ways in which information and communication technologies (ICT) have been impacting human activity patterns, our tools for monitoring and interpreting these activity patterns, and our methods and planning processes for designing and governing the evolution of human settlements. The intent is to prepare tomorrow’s professionals to engage in evidence-based urban planning and community development that can capitalize on emerging ICTs without losing sight of contextual knowledge, personal freedom, institutional inertia, social capital, and the equity and distributional consequences of economic development and urbanization.

Minimum Learner Standards/ Pre-requisites

The five-course sequence builds on the Commons and, in particular, on quantitative reasoning and basic statistics, an introduction to GIS and computing skills, and the fundamentals of urban economics, policy analysis and institutions. (We assume that the Commons will include three classes covering these basics. Appendix I provides the summary description of the equivalent three classes that are a required part of the Master of City Planning curriculum at MIT). Students will not need extensive preparation in each area, but a working knowledge of the vocabulary, basic concepts, and computational methods will

1 Prepared by Joseph Ferreira, Professor, Urban Information Systems, DUSP, MIT
be important. Descriptive statistics and an understanding of statistical significance, standardized scores, correlation, sampling, and the like are necessary to understand the potential value - and pitfalls - of the spatial analyses and performance measures that can support evidence-based urban planning and community development. Hands-on experience with spreadsheets, geographic information systems, web services, and data management tools are necessary to understand the workflow and information infrastructure that allows new data sources and information technologies to be accepted and institutionalized as part of planning and public participation. Likewise, a basic understanding of economic principles, geographic patterns, planning theories, public institutions, and social choice dilemmas are key to understanding the ways in which information systems and data sharing can impact planning processes. Three of the five courses in the specialization can also serve as individual, stand-alone electives for those with other specializations.

**Justification/ Rationale for Specialization**

Emerging technologies have long been a key driver of change in the form, function, and governance of human settlements. From water and road infrastructure to telephone and automobile inventions, new technologies have changed the economics of density and agglomeration, and the social meaning of community, public space, mobility and, indeed, quality of life. Harnessing the disruptive potential of emerging technologies for collective good, while recognizing and mitigating the negative risks, continues to be a challenging but especially important opportunity to steer urban and regional development along relatively sustainable and equitable paths.

Currently, information and communication technologies (ICT) are especially important in this regard. We are in the midst of a multi-decade series of ICT-driven changes that impact human settlements at many levels. ICTs are changing the economics of place, the way we
communicate, and our need for assembly. ICTs are also changing the spatial and temporal detail and dimensions of what we can observe and understand about patterns of mobility, urban activity, and social behaviour. In addition, ICTs are enhancing the toolbox of planners, managers and policy analysts, and changing the mechanisms through which institutions can monitor, plan, regulate, and otherwise influence the pattern of human settlement and community development. India is particularly well situated to take advantage of newly emerging ICTs with regard to improvements in the design, development, and management of human settlements. The availability in India of a substantial high tech industry and skilled workers is notable and the need for improved infrastructure and urban planning is well recognized. But the role of ICTs in facilitating and accelerating the development of sustainable human settlements is far more than ‘office automation.’ While off-the-shelf ‘turnkey’ solutions can address some aspects of ‘digital government’ and routine management, changing institutions and workflows to capitalize on new data streams involves much more than ‘automation.’ Likewise, involving ICTs in building bottom-up planning processes that are efficient, representative, and equitable is especially challenging, and particularly important, in the context of India’s evolving democracy and growing pressure from urbanization and accelerating development.

Learning Goals

Understanding the ripple effects of ICTs and the ways in which their use can, and should, be part of our goals, plans, and strategies for improving human settlements is a tall task. No one educational program can cover all elements, and those elements involve much more than the specifics of particular technologies. For example, understanding the impacts of ICTs involves new questions of privacy, public access, and digital rights management. Capitalizing on ICTs requires new investment in information infrastructure, professional skill development, and regulatory institutions. At the same time, understanding and
harnessing the potential of ICTs requires more than a 'black box' understanding of relevant technologies. The challenge, for a technology specialization within a graduate level program on planning human settlements, is to find an appropriate balance of breadth and depth so that learners not only understand the role that technology has played in shaping human settlements, but they are also equipped to anticipate and shape the ripple effects of new technologies along paths that facilitate more sustainable futures.

**Learning Outcomes**

Learners would build on basic concepts and theories taught in the Commons about the social and economic purposes and organization of cities. The focus is on understanding how technological innovations have led to changes in the form, activity, and governance of human settlements. Examples emphasize networking infrastructure and mobility improvement (via telephone, motorized vehicles, etc) as well as the emergence of modern ICTs. Concepts include theories from economics and geography about land use, transportation, and environmental interactions; social theories about community formation and social capital; and political, legal and planning theories about institutions, social choice, property rights and land use regulation. Multi-disciplinary perspectives on the evolution of specific places and on the impacts of particular technologies are used to examine the direct and indirect effects of the technologies. A key component involves understanding the role of information infrastructure, software tools, access control, and data sharing in determining how planners and policy makers are able to monitor, regulate, interpret, and influence urban activity and the evolving form and function of human settlements.
Structure of Specialization

The five-course specialization on “Technology and Human Settlements” builds on the analytic and conceptual foundation developed in the Commons in order to cultivate a deeper understanding of the ways in which ICTs are impacting the form and function of human settlements, our ability to monitor and measure human activity, and the toolbox available for professional practice and citizen engagement.

An introductory course, “Responsive Cities and ePlanning,” provides an overview of the specialization. It reviews the multi-disciplinary perspectives on technology-driven changes in human settlements, emphasizing the past century and then focusing on recent developments involving ICT. Rather than attempt to identify a single theory of technology-driven change or a ‘best’ set of urban models and planning support systems, the goal is to understand key relationships and interactions, and the planning tools and urban performance measures that can illuminate patterns of urban activity, social behavior, economic development, and distributional equity. The intent is to understand how the planning and management of human settlements and socio-economic development can become more responsive in recognizing and responding to changing forces and ICT-driven opportunities and challenges.

Two additional courses build skills in spatial analysis and urban modeling. The course on “Advanced Spatial Analysis for Urban and Regional Planning,” builds advanced skills with GIS methods, spatially-referenced data management, and statistics. Learners acquire the skills needed to analyze and interpret urban activity and socio-economic patterns using spatially-detailed GIS databases that are increasingly built, standardized, and cross-referenced for purposes of administration and the delivery of urban services.

The course on, “Urban Modeling for Sustainable Development,” focuses on modeling urban futures through the use of urban simulation models. The course emphasizes scenario development across several dimensions (economic, environmental, etc.) whereby GIS
methods are used to simulate alternative futures by modeling the key interactions of land use, transportation, demographic, and geographic changes as villages and towns implement alternative development strategies. Both the overview and the spatial analysis course are prerequisites for this course.

The course on, “Urban Design for ‘Smart’ Cities,” focuses on the physical design aspects of community development whereby ICTs are influencing the form, function, and administration of human settlements (especially the form and use of public spaces). The emphasis is on the use and impacts of urban sensing, and the new opportunities, through ICTs, for energy efficiency, improvements in urban service delivery, and opportunities for public education and behavioral change.

The course on, “Electronic Democracy and Public Participation,” adopts the citizens’ perspective on ICT-driven changes in the form and function of urban activities. The focus is on the participatory democracy implications of ICTs at the local urban planning scale. Particular emphasis is on the use of data sharing techniques and GIS methods (including online mapping, mashups, social networking, and crowd sourcing) to facilitate the engagement of citizens in the design, planning, and oversight of community development strategies and programs. Emphasis is also placed on recognizing potential digital divide problems and understanding the privacy and surveillance implications and regulatory alternatives regarding pervasive computing and urban sensing.

This specialization could readily be expanded by adding further depth to the skill elements (spatial analysis, urban modeling, and urban sensing) or to the concept elements involving (a) legal issues (digital rights and ownership, privacy protection, land use and building regulation), (b) policy analysis (public goods and data privatization, eDemocracy, urban performance measures and incentives), and (c) ethics (data sharing and crowd sourcing, electronic freedom, surveillance and tracking). The specialization could also be extended to
provide advanced studio, group project, and research settings where learners can utilize the skills and analytic capacity they have acquired in the specialization.

**Pedagogic Approaches**

The overview course and the urban design and edemocracy courses are primarily lecture-oriented based on book/article readings from multi-disciplinary literatures. These readings and lectures are augmented by a set of case studies (including both Indian and foreign examples) and small group discussion. Ideally, the overview class would also be supplemented by a guest lecture series that provides the opportunity to hear first hand about current issues and professional practice. Assignments are primarily written critiques and comparisons of the readings and oral and written discussion of the cases. The introductory class is the first in the specialization and should be taken before or concurrently with the other four.

The spatial analysis and urban modeling courses use homework problem sets and hands-on data analysis and visualization exercises to facilitate learning and skill development.

**Support & Mentoring**

For the overview, urban design, and edemocracy courses, the lectures should be supplemented with recitation sections that facilitate review of the concepts and stimulate small group discussion. The urban design and edemocracy courses and the two skill-building classes could also benefit from limited engagement in small projects and internships that could capitalize on local connections with agencies, community organizations, and research institutions. Some infrastructure is required to maintain appropriate lab staff and computing
facilities (primarily ‘back-end’ servers and peripherals, data repositories or data sharing agreements, and software licenses).

Through the use of network file systems and cloud computing, the need for specialized labs and expensive equipment can be minimized. The ‘backend’ servers can achieve critical mass and benefit from economies of scale by having the specialized software (for statistics, data management, GIS, and urban modelling) layered on top of a generic software suite that serves a broader clientele and is maintained by a centralized IT staff. The capability and availability of modern laptops and smartphones with significant processing power, graphics capability, and communication bandwidth enables learners to make do with general purpose personal devices. Nevertheless, some peripheral equipment, lab facilities, and loanable devices will be needed. Large, high resolution displays (e.g., 0.6+ m diagonal with 1900x1200 pixels), and preferably dual displays, are especially helpful for visualization, geoprocessing, and data analysis. Some dedicated facilities will still be needed for training and project work with shared color printing and plotting equipment, and with high-resolution wall panels or multi-projector setups for visualization, lecturing, and video conferencing. A standardized set of loanable portable devices (such as iPads with touchscreens, GPS, and good graphics and communication capabilities) will be helpful to support projects and field work. Institutional collaboration with government agencies and firms will also be helpful to ensure access to data repositories and urban sensing data streams that allow workshops and projects to connect to ‘real world’ data and urban planning contexts.

Assessment

The assessment and evaluation methods vary across the courses. Homework in the overview, urban design, and edemocracy courses tend to emphasize short papers and oral
presentations, and the two skill building classes tend to emphasize structured hands-on exercises and problem sets. In addition, all the courses utilize case studies or small projects with some room for open-ended inquiry, synthesis, and interpretation. Further details are provided in the individual course descriptions.

Readings & Resource Materials

The reading lists associated with each course in the specialization are identified separately within each course description.

Guidance for Educators

In order to provide ground truth and a critical mass of projects and professionals, it will be important for the specialization to be connected to local organizations and agencies and to a research institute with the skills needed to monitor and analyze ICT-driven changes and experiment with the planning support systems for urban planning and management. Structured internships and project engagement will enable learners to benefit from these connections.
Appendix A: Illustrative Description of 3-Class Pre-Requisite Within a ‘Commons’ Core

This 5-class specialization assumes, as pre-requisite, some basic knowledge and skill with (a) quantitative reasoning and basic statistics, (b) GIS and computing skills, and (c) the fundamentals of urban economics, policy analysis and institutions. To provide specific examples of the material that we assume to be covered in the Commons, we include the summary description of the equivalent three classes that are a required part of the Master of City Planning curriculum at MIT².

Develops logical, empirically-based arguments using statistical techniques and analytic methods. Covers elementary statistics, probability, and other types of quantitative reasoning useful for description, estimation, comparison, and explanation. Emphasizes the use and limitations of analytical techniques in planning practice.

MIT-11.205: Introduction to Spatial Analysis
Practical introduction to spatial analysis and geographic information systems (GIS), examines how geography is represented digitally and how non-random distributions of phenomena as diverse as poverty and scenic resources can be better understood by examining their spatial characteristics.

MIT-11.203 (Microeconomics) and 11.202 (Planning Economics)
The first half-semester module “Introduces basic economic analysis for planning students including the functioning of markets, the allocation of scarce resources among competing

² See the online MIT subject listing at: http://student.mit.edu/catalog/index.cgi
uses, profit maximizing behavior in different market structures. The course illustrates theory with contemporary economic issues.”

The second half-semester module, “Introduces applications of microeconomic theory to planning problems including urban form and structure, government's role in urban settings and problems of housing finance”.
TRANSPORTATION AND HUMAN SETTLEMENTS
Improvement of an often-chaotic urban transport system is the key to improving many lamentable problems in the cities. Fortunately there is a corps of able professionals already at work on these problems in India. The purpose of the new courses proposed here is to support and extend their efforts. As suggested by the span of subject topics here, the transport specialization should be open to almost any student entering IIHS—engineering, social science, design, public administration, urban planning, economics, geography—all have a place in this complex field that cannot afford to ignore any features of reality that may determine success or failure of planned action. This write up assumes no close collaboration with a technical university that could complement the IIHS curriculum with highly technical transport courses. It assumes that an institute of “human settlement” will focus on producing professionals including special foci within an education of holist perspective. But change of the program—as by affiliation with an engineering school — to make more technical specialization possible would produce a welcome greater choice in student programs.

The Subjects

The set of eight courses in transportation are meant to deal together comprehensively with the urban transport system of large and medium sized cities. Many of these courses are adapted from use at MIT, but penetrated by issue identification and bibliography to support their use to solve problems in India. We anticipate entering students with different backgrounds. Accordingly, there are three introductory subjects. One, simply called *Introduction to Transport Planning* is a mode-by-mode introduction to the field that provides a

---

28 Prepared by Ralph Gakenheimer, Professor of Urban Planning and Transportation, Emeritus, DUSP, MIT.
basis for continuation into more advanced courses for additional problem solving and
general approach to urban transport as a field. The second, Transport, Land Use and
Environment, is more focused to putting urban transport into context with the rest of urban
planning, for the student who is entering IIHS conscious of a concern for becoming an
urban planner with continuing tie to transport as a referent within urban planning. The
third, Urban Transport Systems, deals in a more analytical form with relations of transport
modes to their users, to other modes and to the economy. This subject is for the student
with some background in mathematics and statistics seeking to be more technically oriented.
Many students may choose to take more than one of these introductory subjects, though
faculty may find it difficult to make them entirely complementary (different from one
another). All the rest of the transport subjects are elective. They will be composed by
students based on their future plans in discussion with faculty.

Since public transport is of great importance in Indian cities there are two courses, Public
Transport Management and Transit Service Planning and Programming. Most students in transport
should almost surely take at least one of these. The first of these courses deals with the
institutional side of transit, management and organization at the municipal and metropolitan
levels, where efficiency is often very difficult to achieve. The second deals with the
demANDING tasks of programming capacities and frequencies of service responsive to
demand, and the programming of staff time, as well as the acquisition, maintenance, and
retirement of equipment.

Transportation Finance is a subject also important in the overall program. It will be of special
interest to students with a background, or concurrent learning, in economics. Public
transport in many countries is continually very poorly funded. It is important to find means
of reliable financial support—a problem calling on economics, politics and public
administration. The subject also deals with the funding of capital improvements.
These are followed by two courses of special concern for India. One attempts to deal with the creation and selection of low cost actions in very low income communities, Transport for Low Income Settlements, to improve personal transport possibilities for people whose locational and economic conditions leave them the most in need. The other, responsive to current controversy in India that is likely to continue for some time to come, is Urban Transport Technologies. The issues are how to make choices, and how to integrate new modes into a scheme of already bewildering variety of active technologies.

**Future Program Expansion**

Additional subjects in the future could expand the transport program in three possible ways:

One way would be the further intensification of relating this area to the best practices of existing Indian professionalism. This might include group internships at flagship agencies, government offices or consulting firms. It might take the form of studio subjects in collaboration of operating groups in which the students would gather to solve a particular problem--either students with similar interests to solve a specific problem or students and faculty with different interests to engage a more multifaceted problem. This could include also special classroom subjects on specific topics of current interest such as: design variations for bus rapid transit, the potential of high speed rail in India, or the viability of yielding to the local governments’ quest for metros.

A second expansion possibility would be toward more technical subjects such as traffic engineering, or the use of new electronics for ticketing, service programming, maintenance programming, etc. A whole new area under this heading is logistics, the private sector movement of cargo.
A third direction would be to further enhance the linkage between transport and the rest of the full context of Indian reality. Examples: transport and energy sources in Indian and world reality, transport and the local environment, international cases of transport policy (comprehensive management in Singapore and Hong Kong, countries with substantial privatization of highways [Chile, France], countries with active bus rapid transit programs [Colombia, Mexico, China], global examination of national urban transport policies.

Where will IIHS Transport Specialists Seek Further Study and Employment?

There are many work roles for transport specialists: government agencies from national to local, public transport operators, private transit operators, logistics divisions of large companies (likely to be popular because it pays well), engineering and planning consulting firms, public-private partnerships in large scale infrastructure, social welfare agencies and also research.

More generally, transport students are likely to be attracted into virtually any of the other IIHS areas of study. Transport, by its nature, relates to them all so transport students are likely to be attracted into further study in any of them, using the transport phenomenon to structure concern for the new specialization toward a more advanced degree. Conversely, it is the very frequent experience of transport instructors in planning schools to be sought by returning graduates who have found their way into transport though they never had initial intention or study background to enter it. There is a market for “retreading” graduates for work in transportation.

The Problems

What are the problems to solve? The foremost is getting people to work, especially people of very limited capability to pay and suffering from a long journey to work because of great
jobs-housing imbalance. This is the case for families forced to the periphery of metropolitan areas because of housing prices, who cannot pay a substantial fare for a long transit trip, and in any case need long hours to traverse the congested roads. This is a problem that can make use of input from every one of these courses: Better funded transit, better allocation of land for accessible housing, faster transit technologies, improved traffic movement management, improved programming of the transit network, etc. These possibilities are attractive grounding to follow formal course work with studio/practicum type student experiences where actions are proposed in mutually supporting combination such as those listed just above.

One of the problems afflicting the whole developing world is the management of non-homogenous traffic. Darbera and Nicot (1985) identified 16 different transport modes on the urban streets of India! No doubt many of them are still in use. Different velocities, different rates of acceleration, different braking distances, turning radii, grade capability, varying resistance to damage and injury on collision, breakdown susceptibility. All this leads to inefficiency of travel, mental fatigue, congestion, and a very high accident rate. Some current efforts to identify exclusive bicycle paths and to establish exclusive bus lanes as in the new Janmarg bus rapid transit in Ahmedabad are examples of efforts to overcome some of these problems.

With rapidly increasing motorization the need for socially responsible use of the automobile is very pressing. Indian authorities need to look at new unaccustomed actions such as parking regulations, auto owner charges, congestion pricing, and auto use bans based on examples from distant countries.

Transit management and service planning surely have high priority. Adequate transit services very rarely meet their costs from the fare box, though many less than adequate systems are forced to survive that way throughout the developing world. The Brihanmumbai Electric Supply & Transport (BEST) management of Mumbai has managed
to turn a profit. This is a very remarkable achievement that needs to be studied carefully as a model. Is the expanding Delhi metro network an example that should be followed in other major Indian cities? There is a whole span of activities that need to be improved, including the design of networks, the programming of service levels, the programming of staff, of vehicle maintenance, of new equipment acquisition and equipment retirement. Above all the question of financing public transport to be supported by land taxes or other assigned revenue sources has high priority.

Unfortunately, we are at a time when the viability of transit service is threatened by inexpensive new motorcar models and an increase of two-wheeled motor vehicles, which impact the transit share of travel volumes. This is a matter in which Asia in general has a problem more serious than Latin America, for example, where the lack of alternative modes enables the transit share to reach some 70 percent of motorized trips in many cities (instead of only some 20 to 35 percent in Indian cities) though unexplained sudden increases in two-wheelers also in those cities on distant continents is currently creating inroads in transit shares. As a result a very large portion of the urban world—indeed virtually all of it-- is now sharing this problem of (per capita) transit patronage decline.

Pollution and environmental sustainability are topics in which Indian cities have taken leadership. The decision to require transit vehicles in Delhi to convert to LNG has been observed worldwide. Studies to reduce the use of fossil fuels, especially heavily polluting two-stroke engines are part of the concern of this curriculum.

There is an important missing link in transport planning between the creative design of facilities and simple ordinary design standards. To the extent that designers become interested in this area there is a possibility for substantial achievement that has not been possible elsewhere. As a start in India there has been, for example, a helpful dialog about the questionable efficacy of flyovers. There might be further attention to intersection
design, signalization and multimodal street use especially including pedestrians. Adequate attention to these topics seriously affects the feasibility of bicycle use. The courses proposed here do not include these topics but they might be considered.

A general concern that should be examined is perspective on the informal transit sector. Attitudes tend to be divided between those on the one hand who resist it as interference to traffic, an alleged cause of many accidents and causing dilution of the market for formal public transit. Alternatively, there are those who believe informal sector public transport serves the travelling public very well, while formal sector public transport provides inadequate service and somewhat different mission capabilities. Many cities show rises and declines in the informal sector over time, as these sympathies for it rise and fall, or as the formal public sector is improved or declines. Such pendulum swings in support for informal transit are perhaps more damaging than any permanent position on these modes.

India has a particularly interesting history of national urban transport policy and metropolitan policy. India is one of the very few countries of the developing world that can claim to have a national urban transport policy. This policy has been evolving since the 1970s with assistance of government officers, consultants and the World Bank, recently updated with a revision by the Ministry of Urban Development. It has had limited implementation as a national policy but remains a quite appropriate, well drafted instrument that could be activated to assist cities in their efforts to improve transport conditions and provide much needed assistance to metropolitan agencies. An important institution at the national level is the Jawaharlal Nehru National Urban Renewal Mission, also very unusual among developing countries. It has funded important urban transport projects that provide cases for informative evaluation. Studies of the effect and possibilities of these national instruments are important subjects of concern in the course program. Elements of national and local policy of potential interest are found in several European and Latin American
countries on matters such as transport friendly land use regulations, pedestrian facilities, parking controls, multiple mode ticketing and other significant matters.

Further, the Indian National Urban Transport Policy has required (in several recent versions) that metropolitan areas create Unified Metropolitan Transport Authorities (UMTAs) to deal with transport problems at the most appropriate level for effective grasp on the entire interactive region. These have had useful effect in certain cities (e.g., Mumbai) but have not taken effective form in most cities. Filling these promising institutional vessels for the improvement of services is an important mission transport policy management.

The framework for advance in transportation policy and problem solving is in place in India. There remains the task of tying the topics of professional attention to the appropriate institutions. The questions are, given important actions to be taken in transportation: What is the most appropriate level of government to gain traction on the issues and put solutions into place? What sources of financing might make their proactive attention to the problem viable? What accountability measures can be invoked? The national transportation policy generally does not go quite to this level.

There are tasks in transportation for every discipline and professional area in IIHS. This statement is probably true for all the other areas of IIHS application as well. While requiring significant effort to make sure the interactions take place effectively, interaction among these kindred specializations assures that the contribution of the IIHS can be very positive and it constitutes an important justification for founding this new institution.
URBANISM
Introduction and Background

Overview and Definitions

Urbanism is the process of designing and building cities, and the spatial product of those processes. Urbanists are those practitioners who engage in the daily, willful, and creative acts of designing the four-dimensional environment (including time) of cities. Urbanists include conventionally defined professionals such as urban designers, architects, landscape architects, and physical planners. The contemporary notion of a city is a metropolitan area and urbanized region. Urbanists operate across this full territory, with a particular focus on shaping, implementing, and sustaining the public realm of such places. The full potential of urbanism lies at the intersection of the material city and the immaterial processes that shape
The material city\textsuperscript{31} is the physical manifestation, in terms of buildings, open spaces, and infrastructure networks, of immaterial processes such as the power dynamics of decision making, as reflected in the processes of public policy, real estate development, and larger political and democratic decision making.

**Significance of Urbanism**

As the world becomes rapidly urbanized, cities become increasingly significant as the locus of people’s direct engagement with the material reality of the everyday world and their perceived meaning of social realities via symbolism of urban artifacts. The material city gives expression, meaning, and identity to the entire sweep of forces involved in people’s relation to their surroundings. The material city not only reflects the underlying structures of society, it also serves as one of the means through which these structures are sustained and legitimized. Thus, the material city is a critical means for the flourishing of societies.

**Role of Urbanists**

Urbanists are the only professionals trained explicitly to envision the future of cities in four-dimensional form, including the crucial dimension of time. The urbanists’ approach—creative, integrative, interdisciplinary, and action-oriented—makes them among the most well-qualified problem-solvers in the world, especially when it comes to one of the most pressing challenges of the 21\textsuperscript{st} century and beyond: the making of cities that are

\textsuperscript{31}Note on the concept of the material city: The most common terms used to describe the physical city are ‘urban form’ and ‘built environment.’ Urban form has a history of referring primarily to buildings, open spaces, and morphological patterns of cities, while the built environment emphasizes human intervention. In keeping with the spirit of urbanism rather than urban design, the concept of the ‘material city’ encompasses everything that is tangible, including natural systems such as topography, vegetation, and water. Furthermore, the idea of the material city clarifies the juxtaposition of two intertwined phenomena: the material (i.e. the physical) with the immaterial (e.g. the non-physical, such as processes of private development and public policy making).
fundamentally humane, ecologically sensitive, and technologically progressive—i.e., cities that flourish.

**Principal Characteristics**

The primary features of the practice of urbanism include the design and building of three-dimensional structures, interstitial public spaces, and infrastructure over time, and a simultaneous focus on the city and its many components at multiple scales (e.g., block, street, neighborhood, district, city). Urbanists design and build a wide range of forms that constitute the material city, and employ their unique expertise in spatial design, drawing, and graphics skills. Urbanists operate as creative problem-solvers and work on fairly well-defined initiatives such projects and plans, but can also be effective through the design of wide-ranging policies or long-term programs.

**Background of Those Choosing the Urbanism Specialization**

The specialization in urbanism will draw learners from three types of undergraduate degrees. The first group consists of those with design training, primarily architects and landscape architects. A second group will be those with a high degree of exposure to design (e.g., industrial and graphic designers) and to urban development and infrastructure (e.g., planning, real estate development, urban studies, civil engineering). The third group will be those who have a strong interest and commitment to the design thinking embodied in the urbanism specialization, but who have degrees in other fields (e.g., anthropology, sociology, political science, economics). Learners with non-design backgrounds can extremely valuable for the urbanism specialization in two ways. First, they bring with them a fresh perspective on urbanism and an understanding of the city that is different from architects and landscape architects, both of which will enrich the specialization. Second, many of the non-design learners are likely to occupy influential non-design positions in the future that can have a
positive influence on urbanism, such as becoming elected officials, real estate developers, and leaders of non-governmental organizations. A challenge and a hallmark of this curriculum design is the integration of learners having previous professional design undergraduate degrees with those coming from more social science backgrounds. Their entry points may be different, but their co-presence in the classroom and practicum/studio will be a strength.

REQUIRED SUBJECTS

MUP Commons Subjects: Histories, Theories, and Skills of Urbanism

The foundation for the urbanism specialization is designed with two premises in mind: to tap into the widespread interest in urbanism from people in widely different disciplines as well as the urgent demand to address the many challenges of city-building, and to establish a rigorous frame of critical thinking, creative abilities, and placemaking skills to serve as foundation for future urbanists. The foundation subject is an essential part of the commons because they will be the primary subjects focusing on an integrated understanding of cities as material objects, as rapidly changing phenomena, and as humanly-created entities. Thus, the commons subject s the material city as a starting point and lens through which to understand urban phenomena such as the evolution of cities and the political and economic drivers of that evolution, as well as the thinking behind patterns of urban growth, including housing, infrastructure, and land use. The following Commons subject will be required, and is proposed as a replacement for the Commons subjects currently referred to as “Introduction to Settlements” and “Built Environment and Design.” The subject will be taught over three terms.
Part I: Histories of Urbanism: Evolution of City Form

The subject will serve as an introduction to urbanism by focusing on two key aspects of the form of cities in history. First, the subject will challenge the singular narrative, usually Eurocentric and often colonial in attitude, regarding the material city in south Asia by exposing learners to multiple points of view, including the dominant western view, but also postcolonial, subaltern, and other recent scholarship on cities in developing countries. Second, the subject will emphasize dynamic change over time in addition to the static materiality of urban space and form. The goal is to develop amongst learners and future practitioners a critical, vibrant, and relevant view of urbanist history.

Part II: Theories of Urbanism: Values and Action

The most potent tool in an urbanist’s toolkit is her/his mind; that is, the conceptual thinking and critical attitude that she/he brings to bear upon a project. The subject will cover a wide range of 20th and 21st theories that have influenced urbanism, including Geddes, Corbusier, Doxiadis, Jacobs, Lynch, and Koolhaas. Learners will also be exposed to the equally important theoretical work of Alexander, Crawford, Correa, Hakim, Harvey, Hayden, Rowe, and Short. The basic premise is to reflect on the way in which conceptual knowledge effects practical action, and for learners to begin to develop their own conceptual understanding of the Indian city based on a critical analysis of existing theories.

Part III: Urbanism Practicum I: Analytical, Design, and Presentation Skills

The subject will be a studio-based format that introduces the learners to the basic skills of urbanism through immersion and interaction, especially for those learners without studio-based design training. While architects are trained primarily in designing buildings and landscape architects are trained to design open spaces and systems, this subject will focus on larger scales that combine buildings, open spaces, and infrastructure systems. Thus, learners will learn techniques of documenting and analyzing places, a wide range of two-, three-, and four-dimensional design strategies, and presentation skills to effectively community their
ideas and proposals. Learners with previous design degrees (e.g. in architecture or landscape architecture) will benefit from this subject because it will help retrain their sensibilities for the urban context (e.g. designing at multiple scales simultaneously, integrating building and landscape, addressing long-term processes of city-building).

**Structure of the Urbanism Specialization**

The Commons will have already provided a broad introduction of the history and theories of urbanism to those who choose the Urbanism specialization. The specialization itself is structured around three major components: (1) a two-part overview subject, (2) a sequence of practicum / studio subjects, and (3) a set of elective subjects, divided into four categories, each of which needs to be engaged as part of the curriculum.

**OVERVIEW SUBJECTS**

Since urbanism is both a process (i.e. the design and building of cities) and a product (i.e. structure, space, and infrastructure systems) of those processes, there will be a two-term overview subject in the urbanism specialization. The city is the outcome of a symbiotic relationship between its materiality and the immaterial processes of decision-making. The subject, entitled “Form and Dynamics of the Material City,” will enable learners to understand both aspects, as well as their intertwining. The subject will be taught over two terms.

**Form and Dynamics of the Material City**

**Part I: The Material City: Form and Space**

The subject will introduce learners to a typomorphological approach to urban form and space that combines land, property structures, buildings, open spaces and infrastructures.
Territorial armatures include the gridded city, the radial, the cellular structure, the linear city, the topographical city, the vertical city, and others. Other descriptors of form include the grain of the fabric—from extremely coarse to extremely fine (density often serves as a proxy for this), and the components of a city—such as linear channels (e.g. highways, streets, pedestrian paths, waterways) and more or less defined enclaves (e.g. campuses, neighborhoods, districts, precincts). The subject will conclude with discussions of new types of form enabled by changing technologies and political structures (e.g. new communication and transportation technologies, more inclusive forms of decision-making).

**Part II: The Changing City: Urban Dynamics**

The subject will address a fundamental question: How is the city shaped over time? While the city may be designed, built, and experienced as a material object, the crucial dimension of time suggests a phenomenon in flux. There are two aspects to the notion of city as flux. One aspect is the process[es]—including design—by which the city is conceived and built. Urbanism is one part of a complex process that involves financial investors, real estate developers, and builders on the one hand and building and planning departments, and elected officials on the other. The second aspect is the process by which a city changes over time through globalization, technologies, conflict, and market demand—all of which intervene through human decision-making.

**PRACTICUM SUBJECTS**

In addition, each learner will be required to take a practicum (i.e. studio or workshop) in a four-step sequence, beginning with basic skills sets for urbanism—which will be taught in the third term of the first year, as part of the Commons subject—and proceeding towards more complex and challenging issues and projects. Each practicum could very well be client-based, but the goal should be to go beyond simply doing what the client wants. The goal should be to learn skills while challenging conventions, for example by helping the client
reframe the problem. Depending on the specific focus of each practicum, they could very well welcome learners from other specializations (e.g. transportation planning, energy planning, urban and regional planning) and schools (e.g. School of Systems and Infrastructure, School of Climate Change and Disaster Management). Such practica are also excellent opportunities for mid-career learners to engage with a particular challenge in a manner that builds both technical skills and intellectual abilities—a deeply reflective experience that they may not receive in professional work.

**Urbanism Practicum II: Praxis**

The second practicum in the sequence will build upon the basic skills building of the previous one and engage more directly with theoretically-informed and highly-reflective practice. While the problem and project at hand may be modest and manageable (e.g. street revitalization, mixed-use complex, small educational complex), the practica will introduce large conceptual ideas to drive the design process (e.g. what constitutes a “successful street” in India? What are appropriate mixes of land uses? How can the design of a vocational school complex serve as a catalyst for community empowerment in an informal settlement?). Through a series of readings, case studies, and reflective learners will investigate such issues beyond formulaic thinking.

**Urbanism Practicum III: Research by Design**

The third practicum will raise the knowledge and skill level of learners by challenging with design initiatives—such as a project, plan, program, or strategic framework—that will enable them to learn by designing around a particular issue. For example, the design of large-scale housing projects and new townships in India is creating a type of material city that is increasingly fragmented by economic class and can potentially lead to further social fragmentation. A project could address this challenge through investigations of such more integrated housing projects have been designed around the world and research into the types of demographic mixes that can be designed for in a particular context.
Urbanism Practicum IV: Challenges and Transformation

The fourth and final practicum in the sequence would address the issue of not only addressing key challenges (e.g. designing for poverty, incorporating the latest technologies, environmental conservation and ecological sensitivity), but also how each challenge becomes an opportunity for genuine transformation. Advanced topics for this practicum could include designing for the larger regional context, for example around issues of transportation and energy infrastructures in the growing economy of India.

The practica in urbanism will be designed to accomplish two sets of goals: (a) to help learners develop skills by challenging them to be proactive (i.e. seeking and reframing problems) and innovative (i.e. applying creative skills towards fundamental change), rather than being simply reactive (i.e. responding only to clients’ wishes) and overly modest in their objectives (i.e. new types of form for the sake of being different); and (b) to respond to actual needs in Indian cities, whether it be private sector investors promoting mixed-income housing neighborhoods, nonprofit organizations developing networks of open spaces using native vegetation, or government organizations envisioning the three-dimensional future of an urban region. The practice can alternate between city types (i.e. megacities such as Mumbai, Delhi, Kolkata, Chennai, second tier cities such as Ahmedabad, Bangalore, Jaipur, Pune, and smaller cities facing some of the fastest rates of urbanization, such as Nashik, Indore, Guwahati, Raipur) and challenges at different scales—from local streets or transportation corridors, to large sites for housing projects or office and industrial complexes, to upgrading an entire informal settlement, to urban center revitalization efforts, and strategic urbanist interventions for new towns and settlements.
Categories for Structured Electives

Learners will be required to take at least one subject from each of the following four categories:

- **Urban Systems**: Built and Natural,
- **Urban Development**: Private Sector Investment,
- **Urban Policy**: Regulating Design, and
- **Urban Regeneration**: Designing Renewal.

The subjects could either be taught as a subject or a practica (e.g. a client-based project for a system of green infrastructure in dense neighborhoods, or innovative market-based initiatives for reviving dilapidated areas, or the design of new types of public policies to incentivize the regeneration of historic areas through urban adaptive reuse). The classroom-based subjects and practica will, as far as possible, focus on design approaches to critical issues that need immediate attention—such as the design of appropriate transportation amenities (e.g. streets designed to accommodate the coexistence of animals, pedestrians, bicycles, two-, three-, and four-wheeled motorized vehicles) and large-scale housing (e.g. different design strategies to accommodate extremely poor families with multiple generations living together and engaged in home-based economic activities). These are opportunities for learning from the past, and developing fresh and innovative approaches.

Each of these elective categories and their subjects will be heavily informed by the particular context and specific challenges in India and South Asia. For example, while Indian cities face many complicated problems, they also possess under-appreciated assets, such as a living tradition and rich history of urbanism, an often-misunderstood social and physical vibrancy, unusual but highly viable mixes of land uses, examples of urban fabric that is suitable for the sometimes harsh climate, and a low-energy / low-impact lifestyle in parts of the country. Furthermore, what are most commonly seen as problems can in fact be solutions, if properly
understood that way. As an example, the compact dwellings found in informal settlements may lack durability and proper infrastructure, but they are also excellent examples of innovative design and resourceful building techniques that may be learnt from, adapted, and improved upon in simple ways. Such an “asset-based urbanism” approach is essential to develop and pursue as we seek different strategies to cope with the immense challenge of Indian urbanization.

**Urban Systems: Built and Natural**

**Ecosystems and the City**
The subject will investigate the idea of the city as an ecosystem, and ways in which natural processes shape urban landscapes. The subject will examine key ecological principles with an emphasis on large-scale ecology. For example, the subject will discuss the difference between “city versus nature” and “city as nature”, and how these different conceptual understandings have very different consequences for the ways in which we design and build cities. The final phase of the subject will integrate human and natural systems through a study of ecological design focusing on integrative approaches to science and natural resource management. [This subject could be combined with subject on Urban Ecology in the Environmental Planning specialization]

**Landscape Urbanism**
The subject will introduce learners to the newly developing field of landscape urbanism through lectures, case studies, readings, and discussions. The key focus is the role of landscape in the urbanization, and the exploration of design interventions. Learners will analyze existing projects from around the world and developed strategies of landscape urbanism that might be most appropriate for India and South Asia (e.g. designing systems to circulate and filter storm water runoff, nurturing native vegetation in the everyday city, reclaiming polluted land and industrial sites).


**Environmental Site Planning / Site and Systems Design**

The subject will focus specifically on understanding the nature of land (topography, the concept of ‘buildable areas’, property structures and layouts) and related systems such as access to land (street design and systems), energy supply (e.g. electric, gas, renewable energy sources), and water-based utilities (water supply, sewage systems). The topics will be treated at multiple scales (parcel/block/street/neighborhood/city/region), depending on the issue at hand. For example, at the scale of the individual parcel, learners will be exposed to the basics of grading, while at the scale of the block they will learn about the relationship between property structures, and at the scale of the region, learners will examine the design of larger infrastructure systems. [This subject is cross-listed in the Environmental Planning specialization]

**Urban Development: Private Sector Investment**

**Land and Real Estate Markets**

The subject will provide an overview of the underlying structure of most cities—land markets and real estate markets. The material will provide both a macroeconomic view of such markets, including the role of land as a scarce and valuable resource, how demographic trends affect market trends, the important of accessibility and transportation in shaping markets, and the ways in which local government policies and regulations interact with real estate. The subject will cover both theories of real estate markets, and specific examples of past and emerging markets (e.g. the relationship between local markets and patterns of globalization, increasing demand from service industries, market demand that may be untapped in the formal sector—such as for more home-based businesses). [This subject could be combined with the subject on Urban Economics in the Economic Development specialization]
Real Estate Design and Development

The real estate development process requires knowledge, skills, and strategies to craft the material products—in tandem with design—and manage the processes of financing and implementation over time. The subject will look at such processes and their critical components. Learners will learn about the process first hand by creating development proposals on actual sites within a metropolitan area and work with actual real estate investors and developers. A proposal for this subject is included as one of the set developed for this Urbanism specialization.

Real Estate Finance

The focus is on concepts and techniques for analyzing financial decisions in property development and investment. Topics include investment performance measurement, leasing and property income streams, pro forma analysis, basics of equity and debt valuation, income tax and leverage considerations, and mortgages. The subject will conclude with explorations of new and innovative forms of real estate finance (e.g. different sources of local, national, and international capital) that are needed to meet the challenges of rapid urbanization in India, South Asia, and other developing regions of the world.

Urban Policy: Regulating Design

Public Policies and Urban Form: Taxation, Investment Priorities, and Budgets

Often the public policies that that have the greatest influence on the shape of the material city are those that are not intended to be design policies, but are defined as taxation and financial incentives, capital investment programs, and various kinds of budgets that define what is to be spent where. Urbanists can be much more effective if they have a basic understanding—such as the one offered by this subject—of these indirect policies. Historic examples and contemporary case studies will enable learners to understand the powerful role such policies play in the shaping of cities, how the policies come to be, and how urbanists
can deftly navigate the thicket of public policies. This subject could also serve the specialization in Public Policy.

**Local Land Use Regulations**

Local government regulations often establish the policy framework within which the city-building process occurs. Many cities have outdated building and zoning codes, sometimes dating from the British colonial era. Further, such regulations take on different guises, such as fire and safety regulations, permitted land uses, building height and density requirements, design guidelines, and master plans. Local government has specific powers to create certain types of regulations that wield enormous influence on what gets built in a city and where. However, used wisely, local regulations can also serve as a catalyst for development—such as when cities allow older industrial or commercial structures to be adapted for residential development in areas where there is a high demand for housing.

**Designing Policy via Democratic Governance**

The goal of this subject is to help shift the thinking of urbanists from passively reacting to existing public policies to actively helping design policies that will lead to flourishing cities. Urbanists have the unique combination of creative thinking, interdisciplinary problem-solving, and the ability to envisioning the future in powerful ways. This combination can benefit the design and implementation of urban policies. On the other hand, policy-making in the vast majority of the world, including India, occurs within a relatively messy and complicated system of democracy (rather than in an exclusively top-down or authoritarian way). The democratic system creates opportunities for informed policy-making (such as for greater inclusivity or more transparence) that can yield substantially improved outcomes for the city.
Evaluating Design Quality and Impact
The subject will help learners evaluate urban design and development initiatives in order to judge its value, quality, or importance. There are many ways of evaluating urban design and development: examining the amount of private profit and/or public revenue generated by a project, noting the prestige and number of awards received by a project, the appeal of a project as seen in the number of visitors and residents it attracts, the popular acclaim received by a project in magazines and newspapers and on television and the internet, and the originality of the design idea or philosophy behind a project. The subject will consider all of these and more, including the notion that the ultimate value of an urban design project is the long-term impact it has on a city, whether it is creating a vibrant environment, repairing past damage, generating economic activity, mobilizing the community, connecting disparate areas, creating truly public space, or fostering a sense of identity in a community. The key is to avoid overly simplistic and formulaic thinking in favor of a multifaceted and in-depth approach.

Urban Regeneration: Designing Renewal

Historic Conservation and Adaptive Reuse as Regeneration
The goal of this subject is to study and articulate the ways in which countries with historic cities that date back several millennia (such as India) can view their historic buildings, infrastructure, and urban fabric not simply as something to be preserved, but as valuable resources to be leveraged to meet the needs of today and tomorrow. The subject will focus on the latest research and techniques in historic conservation and adaptive reuse as means for rejuvenating neighborhoods and cities.

Avenues for Urban Regeneration
Urban regeneration frequently requires the types of human and financial resources that no single organization possesses. Increasingly, the model for the present and future involves
different types of partnerships, between public and private, between non-governmental organizations and international foundations, between local and national governments, and collaborations between multiple partners. In the context of India and South Asia, there also micro-regeneration strategies, in which particular building types (e.g. residential) and land uses (e.g. institutional) are introduced to catalyze regeneration processes within a particular area. Urbanists have a unique and valuable role to play in this model, as they bring the interdisciplinary expertise and knowledge as well as the visioning abilities to make regeneration a reality.

**City Centers, Neighborhoods, and Industrial Lands**

The subject will examine three groups of urban areas that continue to require particular attention and intervention: urban cores and downtowns, housing and neighborhoods, and industrial lands and waterfronts. The subject will adopt a comparative topical approach, in which a particular topic (e.g. adaptive reuse of waterfronts, or conversion of old industrial lands) will be examined in a comparative manner (e.g. the strengths and weaknesses of different approaches adopted in Asia, Europe, and North America).

**Future Roles**

**Possible Employment Pathways**

Graduates with the specialization in urbanism will seek to transform the field through the practice. Some will find employment in conventional organizations such as private sector architecture and planning consulting firms, planning departments of local governments, and the design and engineering divisions of real estate development companies. However, the principal goal of the specialization is to develop leaders in the field who will establish new pathways, for example, by empowering non-government organizations to play a lead role in local design issues and build political design constituencies around such issues (e.g., partnering with residents to improve informal settlements, designing and building new types
of open space networks, integrating infrastructure such as streets with pedestrian amenities such as public space). Other graduates will play a leadership role by establishing their own firms and initiating innovative projects such as designing for street vendors and open air markets, incorporating renewable energy—such as wind and solar—at an urban scale, and working with new technologies to develop more responsive types of urban form. Still others will be encouraged to seek critical positions in local, state, and central government agencies to help shape policies that will serve as a template for city-building efforts. The rigor of this specialization will also serve as an excellent foundation for those who wish to combine their professional experience with a desire to become future teachers in professional training programs and in colleges, or even as future academics with doctoral degrees. The goal of the specialization is to train those who will quickly become leaders in Indian and South Asian urbanism.
APPENDIX 1

List of MIT-IIHS Events, 2009-2013

- Workshop at MIT, Cambridge, USA
  April 2009

- Conference at MIT, Cambridge, USA
  July 2009

- Meeting in Bellagio, Italy
  August 2009

- Meeting in London, UK
  November 2009

- Roundtable on "Asia's New Global Universities" at the Association of Collegiate Schools of Planning (ACSP) Conference Minneapolis, USA
  October 2010

- Conference in Bangalore, India
  January 2010

- Meeting in Bellagio, Italy
  August 2010

- Meeting in Bangalore, India
  June 2011

- Meeting in Bangalore, India
  July 2013
Multiple Modernities and Large Scale Urban Transformations
Presentation by Professor Bishwapriya Sanyal at Bellagio, Italy, August, 2009

PRESENTATION SLIDES
Multiple Modernities &
Large Scale Urban Transformations

IIHS – Curriculum Development
August 25, 2009

Presentation Outline

I. Conceptual Underpinnings of the New Curriculum Design
   • Old Sensibilities; New Sensibilities

II. From New Sensibilities to New Courses
   • Five Proposed Clusters
Old and New Sensibilities

Older Sensibilities : Newer Sensibilities

<table>
<thead>
<tr>
<th>One Modernity</th>
<th>Multiple Modernities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orthodox, one approach to industrialization, urbanization and development</td>
<td>Heterodox and multiple approaches to industrialization, urbanization and development</td>
</tr>
<tr>
<td>Environmental concerns as one aspect of planning</td>
<td>Ecological sensitivity as a central element of planning rationality</td>
</tr>
</tbody>
</table>
### Older Sensibilities: Newer Sensibilities

| Anti-urban bias, particularly against big cities, rural-urban migration, unauthorized and un-orderly urban growth | Appreciative of the benefits of urbanism, urbanization, rural-urban migration, and the messy processes of social and spatial changes |
| Secularism requires scientific planning | Faith and beliefs deeply influence socio-spatial transformations |
| Modernization fosters new values and social practices | Large transformations disrupt meaning and require its reconstruction |

| Only a comprehensive and integrated approach is necessary for planned growth | A strategic and pragmatic approach to intervention |
| Extensive regulations are essential for orderly growth | Regulations as only one aspect of planning, and must be easily enforced |
| **Dichotomous Thinking**  Top down Vs Bottom Up development  Efficiency or Equity  Formal or Informal Sector  Technocratic rationality or political meddling | **Understanding linkages**  Top down and Bottom Up development  Efficiency and Equity  Formal and Informal Sector  Technocratic rationality and politics |
Older Sensibilities : Newer Sensibilities

Past planning efforts have been generally ineffective in achieving their objectives. Some planned efforts have worked better than others, and new efforts must build upon “relative success”

Public sector institutions are bureaucratic, rent-seeking, and have failed in facilitating change. Public sector institutions can play a pivotal role by setting the strategic visions, creating the right climate for investments, and learning from the past.

Older Sensibilities : Newer Sensibilities

Good theories of urban development and planning have been ruined by bad implementation of planning efforts. Good planning requires a deep understanding of implementation issues which must be grounded in an understanding of how organizations work

Politicians are short-sighted and distort planning. Politics is part of the problem. Procedural democracy does not create accountability. Planners have to learn to translate political aspirations into pragmatic programs, both substantive and procedural democracies are necessary for good outcomes.
Older Sensibilities : Newer Sensibilities

Social conflicts hurt development | Social change is bound to create social conflicts. Some conflicts may facilitate development

Focusing on physical design and master plans has made planning ineffective to influence the way cities develop | Physical planning when aided by newly available technologies, an astute understanding of real estate and labor markets, and a new vision of modernity is essential for influencing quality of urban life.
Older Sensibilities : Newer Sensibilities

Surety of purpose and definitive means of planning  Humility of not knowing everything, learning from mistakes and reflection in action

Curriculum Design for New Sensibilities
CORE - “THE URBAN COMMONS”

Aimed at instilling a broad and common understanding of large scale urban transformations in India by emphasizing the following four themes:

1. Social and Economic Processes
2. Spatial Forms
3. Organizations and Political Institutions
4. Professionalization

Note: The core requirements differ substantially compared to the Core Requirements proposed in the IHS Curriculum Development Document

SOCIAL & ECONOMIC PROCESSES
How cities grow and why they change

URBAN FORMS & TRANSFORMATIONS
Environment & Settlement Patterns

PROFESSIONALIZATION
New Professionalism
Problem Framing / Assessment / Conflict Resolution / Reflection in Action / Ethics

ORGANIZATIONS & POLITICAL INSTITUTIONS
How Planning Institutions work
Possibilities / Limits of Interventions

Specialized knowledge of particular problems at different spatial levels
1. Social and Economic Processes

a) Cities and Multiple Modernities
b) Industrialization, Urbanization and Employment
   (Global Experience and Indian Particularities)
c) Social Perceptions of Large-scale Change
d) How Cities Really Work: From Garbage Collection to Export Promotion
e) Combining Poverty Alleviation and Economic Growth in Cities
f) Urban Transformations and Conflict
g) Negotiation, Dispute Resolution, Consensus Building
   (Commons Skill #1)
h) Vulnerability and Resilience of Cities

2. Urban Form and Transformation

a) Models of Urban Form and Function
b) Large Urban Transformations: Real Estate and Design
c) Social Foundations of Spatial Structure
d) Technological Innovations in Urban Systems and Infrastructure Provision
e) Globalization and Its Impact on Structure and Function of Cities
f) Energy and Ecological Imprints of Urban Transformations
g) Legal Aspects of Large Scale Urban Transformation
h) Representing the City: Introduction to GIS and Urban Design Skills (Commons Skill #2)
3. Organizational Structures and Political Institutions

a) Implementing Big Plans
b) Small Plans: The minimalist approach
c) Public Sector Institutional Reforms
d) Technological Change, Urban Transformations and Planning Capacity
e) Innovative Approaches to Resource Generation for Cities
f) Standards in Planning: Questioning our Assumptions
g) Implementation and Enforcement
h) Evaluation, Monitoring and Learning (Commons Skill #3)

4. Professionalization

a) Historical Understanding of Past Planning Efforts
b) Framing Problems for Solutions
c) Guiding Major Urban Transformations: The New Professionalism
d) Entrepreneurial Planning for Large Urban Transformations
e) Professional Communications (with emphasis on professional writing) (Commons Skill #4)
f) Compromises and Ethical Dilemmas in Planning Practice
g) Reflection in Action: Learning from Mistakes
4. Professionalization

a) Historical Understanding of Past Planning Efforts
b) Framing Problems for Solutions
c) Guiding Major Urban Transformations: The New Professionalism
d) Entrepreneurial Planning for Large Urban Transformations
e) Professional Communications (with emphasis on professional writing) (Commons Skill #4)
f) Compromises and Ethical Dilemmas in Planning Practice
g) Reflection in Action: Learning from Mistakes

Sequencing:
3 (or 4) term sequence of classes under each theme

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Cities and Multiple Modernities</td>
<td>a) Models of Urban Form and Function</td>
<td>a) Implementing Big Plans</td>
<td></td>
</tr>
<tr>
<td>Industrialization. Urbanization and</td>
<td>b) Large Urban Transformations: Real</td>
<td>b) Small Plans - The minimalist approach</td>
<td></td>
</tr>
<tr>
<td>Employment (Global Experience and</td>
<td>Estate and Design</td>
<td>c) Public Sector Institutional Reforms</td>
<td></td>
</tr>
<tr>
<td>Indian Particularities</td>
<td></td>
<td>d) Technological Change, Urban Transformations and Planning</td>
<td></td>
</tr>
<tr>
<td>c) Social Perceptions of Large-Scale</td>
<td></td>
<td>Capacity</td>
<td></td>
</tr>
<tr>
<td>Change</td>
<td></td>
<td>e) Innovative Approaches to Resource Generation for Cities</td>
<td></td>
</tr>
<tr>
<td>d) How Cities Really Work: From</td>
<td></td>
<td>f) Standards in Planning: Questioning our Assumptions</td>
<td></td>
</tr>
<tr>
<td>Garbage Collection to Export Promotion</td>
<td></td>
<td>g) Implementation and Enforcement</td>
<td></td>
</tr>
<tr>
<td>e) Combating Poverty</td>
<td></td>
<td>h) Evaluation, Monitoring and Learning (Commons Skill #3)</td>
<td></td>
</tr>
<tr>
<td>Allocation and Economic Growth in Cities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) Urban Transformations and Conflict</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g) Negotiation, Dispute Resolution,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consensus Building (Commons Skill #1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h) Vulnerability and Resilience of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MIT-IIHS Curriculum Report
Suggested Course Requirements

Course Requirements

1. **Core ("The Urban Commons"):** Core classes will be aimed at instilling a broad and common understanding of large scale urban transformations in India.

2. **Foundation:** Core will **not** include foundation classes on microeconomics, statistics, accounting etc. These will be offered over a two-month intensive period prior to the start of the program.

3. **Skills:** To supplement individual skills offered as part of the Core classes, a set of advanced skill classes tied closely with specializations will be required (urban design, project evaluation, etc.). These will be integrated with the specializations.

4. **Practicum:** Practicum will focus on fostering broad thinking at multiple scales. There will be two required practica.
Course Requirements

5. Specialization: Six specialization clusters have been proposed by IIHS. Would the following still be appropriate if the urban commons approach is adopted?
   a. Politics, Law and Governance
   b. Livelihoods, Economics & Mgmt
   c. Social and Human Development
   d. Urban and Regional Systems
   e. Habitat, Urban and Environmental Design
   f. Security, Risk and Climate Change

6. Internships and Thesis: IIHS has proposed a short internship at the end of the first year and a 12-week internship resulting in a project report or research paper in the last term. We propose to keep the short internship, offer 2 practica, and a full set of classes in the last term of the second year including one for writing thesis/professional report.

7. Life Skills / Field Visits / Study Tours will be required.

Suggested Break Down of Classes

1. Core Classes
2. Foundation
3. Skills
4. Practicum
5. Specialization
   a. Skills for Specialization
6. Electives
7. Thesis/Professional Report
8. Internship / Life Skills / Field Visits / Study Tours

12 – 16 Classes (The Urban Commons)
0 Classes
Integrated with The Urban Commons & Specializations
2 Classes
6 Classes
2 Classes
3 Classes
1 Class
In Summary

Our proposal devotes a significant part of the program to “the Urban Commons” that is intended to:

• cultivate a new set of core sensibilities along with appropriate skills,

• provide a broad understanding of the interconnectedness between multiple specializations, and

• educate a new cadre of practitioners/scholars who will lead in directing the major transformations necessary for India’s urban development.
APPENDIX 3

IIHS Curriculum Development at MIT
Presentation by Professors Bishwapriya Sanyal and Lawrence Vale at Bellagio, Italy, August 2010

PRESENTATION SLIDES
IIHS Curriculum Development

at MIT

Professors Bishwabriya Sanyal and Lawrence Vale
Co-principal investigators - IIHS Curriculum Development

I RATIONALE FOR OVERALL CURRICULUM DEVELOPMENT

- Prepare a new cadre of interdisciplinary human settlement professionals to address the challenges of contemporary India

- Infuse innovative ideas to transform traditional courses
  e.g. Urban Economics (traditional); Dynamics of Peri-Urban Growth (new curriculum)

- Inspire reform in India’s higher education system to attract and create a top-tier network of faculty both within India and globally

- Integrate social-science and liberal-arts education with urban planning and design to create cross-disciplinary courses
## COURSE DEVELOPMENT

### URBANISM SPECIALIZATION

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Developed by</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urbanism: Histories, Theories, Skills:</td>
<td>Inam</td>
<td>Completed</td>
</tr>
<tr>
<td>- Part 1: Histories of Urbanism: Evolution of Urban Form</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Part 2: Theories of Urbanism: Values and Action</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Part 3: Practicum 1: Analytical, Design, and Presentation Skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduction to the Specialization in Urbanism:</td>
<td>Inam</td>
<td>Completed</td>
</tr>
<tr>
<td>- Part 1: The Material City: Form and Space</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Part 2: The Changing City: Urban Dynamics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urbanism Practicum II: Praxis</td>
<td>Inam</td>
<td>Completed</td>
</tr>
<tr>
<td>Urbanism Practicum III: Research by Design</td>
<td>Inam</td>
<td>Completed</td>
</tr>
<tr>
<td>Urbanism Practicum IV: Challenges and Transformation</td>
<td>Inam</td>
<td>Completed</td>
</tr>
<tr>
<td>Urban Regeneration: Designing Renewal:</td>
<td>Inam</td>
<td>Completed</td>
</tr>
<tr>
<td>- Historic Conservation and Adaptive Reuse as Regeneration</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Department of Urban Studies and Planning, Massachusetts Institute of Technology
Bellagio, August 2010

### TRANSPORTATION SPECIALIZATION

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Developed by</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to Urban Transport Planning</td>
<td>Gakenheimer</td>
<td>Completed</td>
</tr>
<tr>
<td>Introduction to Transport Systems</td>
<td>Gakenheimer</td>
<td>Completed</td>
</tr>
<tr>
<td>Public Transport Management</td>
<td>Gakenheimer</td>
<td>Completed</td>
</tr>
<tr>
<td>Public Transport Service and Operations Planning</td>
<td>Gakenheimer</td>
<td>Completed</td>
</tr>
<tr>
<td>Urban Transport Finance</td>
<td>Gakenheimer</td>
<td>Completed</td>
</tr>
<tr>
<td>Transportation, Land Use and the Environment</td>
<td>Gakenheimer</td>
<td>Completed</td>
</tr>
<tr>
<td>Transportation for Low-Income Settlements</td>
<td>Gakenheimer</td>
<td>Completed</td>
</tr>
<tr>
<td>Transportation Technologies</td>
<td>Gakenheimer</td>
<td>Completed</td>
</tr>
</tbody>
</table>

Department of Urban Studies and Planning, Massachusetts Institute of Technology
Bellagio, August 2010
### Environmental Planning and Design Specialization

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Developed by</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Inquiry and Practice</td>
<td>Wescoat, Prothi</td>
<td>Completed</td>
</tr>
<tr>
<td>Environmental Site Planning and Design</td>
<td>Wescoat, Prothi, Prothi</td>
<td>Completed</td>
</tr>
<tr>
<td>Environmental Systems Analysis and Design</td>
<td>Wescoat, Flaxman, Prothi</td>
<td>Completed</td>
</tr>
<tr>
<td>Water in Environmental Design</td>
<td>Wescoat, Prothi</td>
<td>Completed</td>
</tr>
<tr>
<td>Water in Environmental Systems Analysis and Design</td>
<td>Wescoat, Prothi</td>
<td>Completed</td>
</tr>
<tr>
<td>Water in Environmental Policy</td>
<td>Wescoat, Prothi</td>
<td>Completed</td>
</tr>
<tr>
<td>Adaptive Metropolitan Environmental Planning</td>
<td>Wescoat, Prothi</td>
<td>Completed</td>
</tr>
<tr>
<td>Environmental Hazards, Site Planning and Design</td>
<td>Wescoat, Prothi</td>
<td>Completed</td>
</tr>
<tr>
<td>Environmental Policy</td>
<td>Suskind, Wescoat, Prothi</td>
<td>Completed</td>
</tr>
</tbody>
</table>

Department of Urban Studies and Planning, Massachusetts Institute of Technology
Bellagio, August 2010

### Energy Policy and Planning Specialization

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Developed by</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Policy: Matching Supply and Demand in a Globalizing World</td>
<td>Glassmier</td>
<td>In process</td>
</tr>
<tr>
<td>Sustainable Energy Technologies</td>
<td>Gelay</td>
<td>In process</td>
</tr>
<tr>
<td>Regulating Social and Environmental Impacts of Energy Development</td>
<td>Susskind</td>
<td>In process</td>
</tr>
<tr>
<td>Siting Energy Facilities and Creating Opportunities for Stakeholder Engagement</td>
<td>Susskind</td>
<td>In process</td>
</tr>
<tr>
<td>Financing Energy Development</td>
<td>Hogan</td>
<td>In process</td>
</tr>
<tr>
<td>Energy Efficiency: Information and Behavioral Drivers</td>
<td>Michaels</td>
<td>In process</td>
</tr>
<tr>
<td>Energy Futures: Green Technology and Social Innovation</td>
<td>Susskind</td>
<td>In process</td>
</tr>
<tr>
<td>Energy and Climate Change Mitigation</td>
<td>Moormaw</td>
<td>In process</td>
</tr>
<tr>
<td>Commons Course (not under this specialization)</td>
<td>Susskind</td>
<td>Completed</td>
</tr>
<tr>
<td>Negotiation and Dispute Resolution</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Department of Urban Studies and Planning, Massachusetts Institute of Technology
Bellagio, August 2010
## Course Development

### Urban and Regional Planning and Management Specialization

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Developed by</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning Sensibilities for Effective Practice</td>
<td>Senyal</td>
<td>In process</td>
</tr>
<tr>
<td>Housing Policies</td>
<td>Mukhi$^a$</td>
<td>In process</td>
</tr>
<tr>
<td>Governance, Accountability and Citizen Participation</td>
<td>Joshi</td>
<td>Completed</td>
</tr>
<tr>
<td>Peri-Urban Growth of Metropolitan Areas</td>
<td>Shukin</td>
<td>Completed</td>
</tr>
<tr>
<td>Urban Renewal and Retrofitting Slums</td>
<td>Mukhi$^a$</td>
<td>In process</td>
</tr>
<tr>
<td>Planning for 2nd and 3rd Tier Cities</td>
<td>Shukin</td>
<td>Completed</td>
</tr>
<tr>
<td>Reform of Local Authorities</td>
<td>Joshi</td>
<td>In process</td>
</tr>
<tr>
<td>Modernity and Planning from Below</td>
<td>Chen</td>
<td>In process</td>
</tr>
</tbody>
</table>

Department of Urban Studies and Planning, Massachusetts Institute of Technology
Bellagio, August 2010

### Technology and Human Settlements Specialization

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Developed by</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsive Cities and e-Planning</td>
<td>Ferreira, Ramasubramanian</td>
<td>In process</td>
</tr>
<tr>
<td>Advanced Spatial Analysis for Urban and Regional Planning</td>
<td>Srinivasan, Ferreira</td>
<td>In process</td>
</tr>
<tr>
<td>Urban Modelling for Sustainable Development</td>
<td>Flaxman, Ferreira</td>
<td>In process</td>
</tr>
<tr>
<td>Urban Design for “Smart” Cities</td>
<td>Frenchman, Mitchell, Ratti, Joroff</td>
<td>In process</td>
</tr>
<tr>
<td>E-Democracy, Public Participation, and Digital Citizenship</td>
<td>Ramasubramanian</td>
<td>In process</td>
</tr>
</tbody>
</table>

Department of Urban Studies and Planning, Massachusetts Institute of Technology
Bellagio, August 2010
### SOCIAL DEVELOPMENT SPECIALIZATION

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Developed by</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Economic Sociology Of Cities: Production, Consumption, and Use Versus Exchange Value in Urban Life</td>
<td>Davis, Weinstein</td>
<td>Completed</td>
</tr>
<tr>
<td>Urban Informality: Planning, Power and Politics</td>
<td>Roy</td>
<td>Completed</td>
</tr>
<tr>
<td>Decentralization, Democracy, Citizen Participation and the Planning Process</td>
<td>Heller</td>
<td>Completed</td>
</tr>
<tr>
<td>City, Community, and Culture In The Making of the Modern World</td>
<td>Davis, Weinstein</td>
<td>Completed</td>
</tr>
<tr>
<td>Leveraging Difference: Urban Subcultures and the Planning Process</td>
<td>Weinstein</td>
<td>Completed</td>
</tr>
<tr>
<td>Conflict and the Social Construction of Cityscapes</td>
<td>Davis</td>
<td>Completed</td>
</tr>
<tr>
<td>Urban Projects and the Architectures of Globalization: Reconfiguring Urban Spaces for a New Century</td>
<td>Del Carro</td>
<td>Completed</td>
</tr>
</tbody>
</table>

Department of Urban Studies and Planning, Massachusetts Institute of Technology  
Bellagio, August 2010

---

### LAW AND GOVERNANCE SPECIALIZATION

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Developed by</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal Aspects of Urban Transformation</td>
<td>Rajagopal</td>
<td>In process</td>
</tr>
<tr>
<td>Law and Politics of Local Governance</td>
<td>Matthew</td>
<td>In process</td>
</tr>
<tr>
<td>Law and Social Movements</td>
<td>Rajagopal</td>
<td>In process</td>
</tr>
<tr>
<td>Housing Law and Rights</td>
<td>Kothari</td>
<td>In process</td>
</tr>
<tr>
<td>Environmental Law, Politics and Governance</td>
<td>Ramanathan</td>
<td>In process</td>
</tr>
<tr>
<td>Alternative Dispute Resolution and Access to Justice</td>
<td>Panzhu</td>
<td>In process</td>
</tr>
<tr>
<td>Water: Politics, Policy, Law</td>
<td>Iyer</td>
<td>In process</td>
</tr>
<tr>
<td>Operationalizing Rights-Based Approaches to Urban Development</td>
<td>Sengupta</td>
<td>In process</td>
</tr>
</tbody>
</table>

Department of Urban Studies and Planning, Massachusetts Institute of Technology  
Bellagio, August 2010
### ECONOMIC DEVELOPMENT AND FINANCE SPECIALIZATION

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Developed by</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Histories and Theories of Economic Development</td>
<td>Tewari</td>
<td>In process</td>
</tr>
<tr>
<td>Economic Development Policy and Practice</td>
<td>Tewari</td>
<td>In process</td>
</tr>
<tr>
<td>Public Municipal Finance</td>
<td>Smokova</td>
<td>In process</td>
</tr>
<tr>
<td>Restructuring and Economic Competitiveness: Firms, Industries and Regions</td>
<td>Schmitz, Aleman</td>
<td>In process</td>
</tr>
<tr>
<td>The Changing Indian Labor Market: Metropolitan Job Creation and Workforce Development in the 21st Century</td>
<td>Tewari</td>
<td>In process</td>
</tr>
<tr>
<td>Poverty, Capability, and Social Mobility: Prospects and Practices</td>
<td>Krishna</td>
<td>In process</td>
</tr>
<tr>
<td>The Economy of Low-Income Areas and the Informal Sector</td>
<td>Benjamin</td>
<td>In process</td>
</tr>
<tr>
<td>India’s Urban Resources</td>
<td>Connors</td>
<td>In process</td>
</tr>
<tr>
<td>Indian Enterprises in the Global Economy</td>
<td>Schmitz</td>
<td>In process</td>
</tr>
</tbody>
</table>

Department of Urban Studies and Planning, Massachusetts Institute of Technology  
Bellagio, August 2010

---

### CLIMATE CHANGE SPECIALIZATION

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Developed by</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate Change and Climate Justice</td>
<td>Angelovski, Camin</td>
<td>Completed</td>
</tr>
<tr>
<td>Urban Adaptation Planning</td>
<td>Camin</td>
<td>Completed</td>
</tr>
<tr>
<td>Climate Policy and Politics</td>
<td>Van de Veer</td>
<td>Completed</td>
</tr>
<tr>
<td>Urban Climate Assessment and Adaptation Planning</td>
<td>Camin, Hoornweg</td>
<td>Completed</td>
</tr>
</tbody>
</table>

Department of Urban Studies and Planning, Massachusetts Institute of Technology  
Bellagio, August 2010
EXAMPLE OF SPECIALIZATION OVERVIEW: Energy Policy and Planning

ENERGY POLICY AND PLANNING

Rationale for Specialization

- Analysis of energy supply and demand based on price, geographic distribution and acceptable levels of environmental and social impact

- Role of national, state and local governments as well as private stakeholders in energy planning

- Infrastructure and administrative mechanisms needed to meet energy goals of countries such as India (e.g. transmission lines, financial incentives)

The courses are based on five specialized competencies that have been identified for aspiring public and managers and administrators to prepare for careers in energy policy and planning:

- An ability to forecast energy supply and demand at various scales

- Knowledge of financing energy development and linking energy investment to overall economic development

- Strategies for siting energy facilities and engaging stakeholders in facility planning and management

- An overview of renewable energy technologies and the dynamics of sustainable technology innovation

- Techniques for forecasting and minimizing the environmental impacts of energy development, particularly with regard to greenhouse gas emissions
EXAMPLE OF SPECIALIZATION OVERVIEW: Urban and Regional Planning and Management

URBAN AND REGIONAL PLANNING AND MANAGEMENT

Rationale for Specialization
To educate a group of future managers and administrators at a sub-national level to create livable human settlements so that they are competent in:

- New modes of urban planning beyond the classical models (e.g. physical planning, master planning)
- Planning for rapid urbanization and managing its challenges
- Understanding the role of local authorities in planning for cities of different scales
- Retrofitting and transformation of existing cities to adapt to the challenges of the 21st century
- Understanding the importance of “planning from below”

Department of Urban Studies and Planning, Massachusetts Institute of Technology
Bellagio, August 2010

INNOVATION IN THE FIELD: Urban and Regional Planning and Management

(for the 1st year of this specialization)
- Planning Sensibilities for Effective Practice*
- Regional Economics: methods and Models
- Planning Theory
- Applied GIS*
- Urban and Regional Linkages: Migration and Remittance
- Intraregional, Interregional and International Competition
- Organizational Theories

* Courses being developed by MIT for IIHS

(under 4 concentrations)

Planning Reform
- Regional Approaches to National Planning
- National Approaches to Regional Planning
- Reform of Local Authorities*
- Revenue and Risk Sharing: Public-Private Partnerships

Housing and Slums
- Housing Policies*
- Urban Renewal and Retrofitting Slums*

Regional Landscapes and Territories
- Governance, Accountability, and Citizen Participation*
- Planning for 2nd and 3rd tier Cities*
- Peri-urban Growth of Metropolitan Areas*
- Regionalism, Economic Growth and Democracy

Planning From Below
Alternative Modernity and Planning from Below*

Department of Urban Studies and Planning, Massachusetts Institute of Technology
Bellagio, August 2010
Appendix 3

COURSE EXAMPLE: Planning Sensibilities for Effective Practice

Examples of debates around which the course is structured:

Debate 01

Should planning have an anti-urban bias, particularly against big cities, rural-urban migration, unauthorized and un-orderly urban growth?
OR
Does appreciating the benefits of urbanism, urbanization, rural-urban migration, and the messy processes of social and spatial changes help in planning livable cities?

Department of Urban Studies and Planning, Massachusetts Institute of Technology
Bellagio, August 2010

INNOVATION IN THE FIELD: Urban and Regional Planning and Management

Suggested Topics for Urban Laboratories (Urb-Lab)

Transformation of peri-urban areas
Inter-Urban corridors
Special Economic Zones
Impact of upgrading low-income areas
City-level negotiation with private firms

Department of Urban Studies and Planning, Massachusetts Institute of Technology
Bellagio, August 2010
Debate 02

Should there be a distrust of technological determinism as a driver of social change?

OR

Should there be a new appreciation of technological change as a force for transforming development and planning?

Debate 03

Is a comprehensive and integrated approach necessary for planned growth?

OR

Can planning adopt an incremental and strategic approach for intervention?
Debate 04

Should the planning process adopt a top-down or a bottom-up approach?

Debate 05

Has a focus on physical design and master plans limited the effectiveness of planning in influencing the ways cities develop?

OR

Is physical planning, when aided by newly available technologies, an astute understanding of real estate and labor markets, and a new vision of modernity, essential for influencing the quality of urban life?
Debate 06

Are “new types” of regulations essential for orderly growth?

Debate 07

Have past planning efforts been generally ineffective in achieving their objectives?
OR
Have some planned efforts worked better than others, and should those past successes serve as a guide for future planning efforts?
Debate 08

Are public-sector institutions bureaucratic, rent-seeking, and unsuccessful in facilitating change?
OR
Can public-sector institutions play a pivotal role by setting the strategic visions, creating the right climate for investments, and learning from the past?

Debate 09

Is politics a problem because politicians are short-sighted and distort planning objectives? Does procedural democracy reduce the effectiveness of the planning process?
OR
Should planners learn to translate political aspirations into pragmatic programs and understand that both substantive and procedural democracies are necessary for good outcomes?
Debate 10

Do social conflicts hurt development?
OR
Is all social change bound to create social conflicts, some of which may facilitate development?

Debate 11

Should scientific planning concern itself with the issue of secularism?
OR
Do faith and beliefs inherently influence socio-spatial transformations irrespective of planning intentions?
Appendix 3

COURSE EXAMPLE: Planning Sensibilities for Effective Practice

Debate 12

Should a surety of purpose and a definitive means of planning be the hallmark of the profession?
OR
Is the humility of imperfect knowledge, learning from mistakes, and reflection in action helpful to planning practice?

FEEDBACK ON CONCENTRATION NOTE

Core Courses:

*Alternate course* - "Planning Sensibilities for Effective Practice"

Urban and Regional Planning and Policy Lab

*See suggestions for Urb-Lab topics*
Core Courses:

Mandatory Seminar: Planning Praxis Dialogues
Alternate Title: “New Professionalism” (should be a for-credit course)

The course should be centered around some key dilemmas that planners face on an everyday basis:

- Decisions without complete information
- Political Neutrality or Advocacy?
- Uncertainty of Environments; Steadiness of Course
- Bridging Competing Goals
- New Use of Old Resources: Creating resources through linkages
- Limits of Deliberative Deliberation
- Strategic Thinking vs Comprehensive Planning
- Critical Reasoning, Persuasive Speaking, Effective Writing and Non-Verbal Communication

Department of Urban Studies and Planning, Massachusetts Institute of Technology
Bellagio, August 2010

Core Courses:

Sustainable Cities: Planning and Evaluation

Evaluation is a critical component of planning practice.

Suggested Core Course (1st year):
“Evaluation of Projects and Policies”
  - project
  - policy
  - strategic direction

Department of Urban Studies and Planning, Massachusetts Institute of Technology
Bellagio, August 2010
<table>
<thead>
<tr>
<th>FEEDBACK ON CONCENTRATION NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional Clusters:</td>
</tr>
<tr>
<td>(representative feedback on one course . . . )</td>
</tr>
<tr>
<td>Urban History: Planning and Policy in India</td>
</tr>
</tbody>
</table>

Alternate framework for the course:
Urban history of India can studied in four generations of cities:

- Development of Cities before Colonialism
- Cities of the post-independence era (e.g. Chandigarh)
- Mega-Cities of the 1970s
- IT Cities in the era of liberalization
"Practica" as a Mode of Teaching and Learning: The MIT Experience
Presentation by Professor Lawrence Vale at Cambridge, April 2009 and Bellagio, Italy, August 2009

PRESENTATION SLIDES
“Practica” as a Mode of Teaching and Learning: The MIT Experience

Lawrence Vale
Department of Urban Studies and Planning, MIT
April 2009

Practicum (singular)
Practica (plural)

A workshop-centered mode of client-based interdisciplinary teaching and learning
Criteria for Designating a Practicum Course
A practicum must:

1. Involve making and testing proposals in a workshop format
2. Involve constituents and issues in a particular place
3. Involve interaction with a client
4. Address cross-cutting issues and connect planning to allied disciplines
5. Encourage exploration and innovation
6. Include opportunities to put theory into practice
7. Include opportunities for reflection and appraisal

Make and test proposals in a workshop format

- Projects should identify and confront difficult tradeoffs
- Outcomes develop from feedback on alternatives
- Learning occurs mostly in a workshop setting, supplemented by lectures
- Fundamentally interactive
Involvce constituents and issues in a particular place

- Projects apply planning skills to an actual locality
- Scale, from small neighborhood to a larger region
- Participants meet with local government, relevant organizations, NGOs, and the public
- Emphasis on learning to balance the needs of diverse stakeholders
- Establish a long-term relationship with a particular community

Interact with a client

- Can be a municipality/local government organization
- Can be non-governmental organization
- Or can be both
- Avoid isolation of the university
Address crosscutting issues and involve allied disciplines

- Interdisciplinary teamwork, considering a variety of perspectives
- Team-taught by two people coming from different disciplinary backgrounds (e.g., environmental policy and civil engineering)
- Include outside specialists as guest speakers

Encourage exploration and innovation

- Cultivate a learning environment that encourages participants to explore and take risks
- Allow for the development of new tools and new approaches for addressing problems, as well as the application of tried and true methods.
- Recognize that there may be many different but equally appropriate solutions to a planning issue.
Include opportunities to put theory into practice

- Engage the existing literature that assesses the problem at hand
- Use practicum to implement planning solutions and help formulate new theory
- Create opportunities for follow-on projects, whether new practica, internships with the client, or academic theses and dissertations.

Include opportunities for reflection and appraisal

- Examine assumptions that underlie a student’s understanding of his or her decisions and overall effectiveness.
- Encourage reflection through discussions, journal-keeping, and self-learning assessments
- Attempt to identify and confront biases that may limit effectiveness
Practicum Fields:
Uniting Disciplines that are too often kept separate

- Economic Development
- Urban Design
- Environmental Engineering
- Human Rights
- Climate Change Science
- Urban Sociology
- Transportation

Practicum Topics

- Post-Disaster recovery
- Post-industrial decline and revitalization
- New Immigrant areas of poverty
- Suburban Growth Pressures
- Water and Sanitation challenges
- Transportation and security
- Sanitation and human rights
- Climate change
Practicum Settings

- United States Central City
- U.S. Suburban
- Non-U.S. Developed Countries
- Developing Countries

Challenge:

Can the Practicum mode of teaching and learning be successfully adapted to serve the Indian Institute for Human Settlements?
APPENDIX 5

PhD Program Structure at MIT
Presentation by Professor Lawrence Vale at Cambridge, June 2010 and Bellagio, Italy, August 2010

PRESENTATION SLIDES
PhD Program Structure at MIT

Professor Lawrence Vale
Co-principal investigator - IIHS Curriculum Development
First PhD Awarded: 1962
Since then: 367 more
65 doctoral students currently enrolled

Tidbits:
by 1981 100 PhD degrees awarded
by 1991 200 PhD degrees awarded
by 2004 300 PhD degrees awarded

Out of the 232 alumni we have information about:
105 (45%) are or were working in academia
74 (32%) are or were working in the public sector or various organizations
41 (18%) are or were working in the private sector (consultants etc.)
12 (5%) other

Largest employers:
1. World Bank
2. MIT
3. Harvard

Department of Urban Studies and Planning, Massachusetts Institute of Technology
Bellagio, June 2010
Appendix 5 251

Structure of DUSP MIT Doctoral Program

The First Semester
Coursework during the first semester entails four to five classes, including a seminar on research design and methodology.

The Second Semester
Students participate in a doctoral seminar and a mid-year review, and begin work on a first-year doctoral paper. At this time, students prepare and present a Program Statement that organizes their work for subsequent years.

The Second Year
Students with a strong background in a chosen field can begin to prepare for the general examination during the summer following the first year. Students who require more preparation will use the third and, if necessary, the fourth semester to take additional course work.

The General Examination
The general examination is taken sometime between the third and fifth semesters. All Ph.D. students are expected to prepare for an examination in two fields. Traditional first fields include city design and development, international economic development, urban information systems, public policy and politics, urban history, urban and regional economics, and urban sociology. The second, applied field is developed by each student and a committee, based on individual interests. The General Exam is given twice a year, at the end of the spring semester and at the beginning of the fall semester. Students should plan to take general examinations after the completion of their fourth semester, although they can be taken earlier with approval of the students advisor. These examinations contain a written and an oral component.

The Dissertation
After completing the general examination, each student assembles a dissertation committee. A candidate is expected to submit a five- to six-page preliminary dissertation research proposal within a semester of passing the general exam. Within one year after passing the general exam, a full proposal must be submitted for approval by the Ph.D. Committee, and the student presents the proposal in a departmental colloquium.

DOCTORAL PROGRAM STRUCTURE

8-12 students admitted every year from a wide range of backgrounds to the Department of Urban Studies and Planning under the following “groups”:

- Housing, Community and Economic Development (HCED)
- International Development (IDG)
- City Design and Development (CDD)
- Environmental Policy and Planning (EPP)
- Urban Information Systems (UIS)
FIRST YEAR + SECOND YEAR

Coursework
2 core courses (first year)
- Research Design for Policy Analysis and Planning
- Doctoral Seminar
1 doctoral level quantitative course
1 doctoral level qualitative course
Several other elective courses depending on area of interest

Additional requirements:
Completion of first year research paper

THIRD+ YEAR

The General Examination
Between the third and fifth semesters, PhD students are expected to prepare for an examination in two fields. These examinations contain a written and an oral component.

- The second, applied field is developed by each student and a committee, based on individual interests
### Appendix 5

#### FIRST FIELD

Traditional first fields include:

- City Design and Development
- International Economic Development
- Urban Information Systems
- Public Policy and Politics
- Urban History
- Urban and Regional Economics
- Urban Sociology
DOCTORAL PROGRAM STRUCTURE

SECOND FIELD

The second, applied field is developed by each student and a committee, based on individual interests

Department of Urban Studies and Planning, Massachusetts Institute of Technology

Bellagio, June 2010

PHD PROGRAM: FIRST AND SECOND FIELDS 2007-2010

Public Policy
- Civic Engagement in Environmental Governance
- National Energy & Environmental Planning; Wind Energy
- Urban & Regional Economics
- Urban Labor Markets & Employment Policy
- Urban Sociology
- Searching for the “Good” City
- Urban & Regional Economics
- Urban Transportation, Land Use, and Sustainability in Developing Countries
- City Design and Development
- Planning for Climate Change
- Urban & Regional Economics
- Public Finance
- Urban & Regional Economics
- Public Finance
- Urban Sociology
- Culture, Urban Inequality & Policy
- International Economic Development
- Political Economy & Development Policy
- Environmentalism & Sustainability in Development Planning
- Public Policy
- Information Systems in Planning
- Urban & Regional Economics
- Political Economy of Business in Developing Countries
- Urban & Regional Economics
- Urban Growth

Urban & Regional Economics
- Conflict Transformation in Urban Economics
- Urban & Regional Economics
- Housing Markets & Public Policy
- Urban & Regional Economics
- US Housing Policy
- City Design and Development
- Urban Form & Travel Behavior
- International Economic Development
- Economic Geography of Violent Conflict
- City Design and Development
- History of the Built Environment
- Urban & Regional Economics
- Real Estate Finance & Economics
- Public Policy
- Street-Level Bureaucracies in Developing Countries
- City Design and Development
- Urban Information Systems
- City Design and Development
- New Technologies and the Urban Experience
- City Design and Development
- Rational Urban Design Patterns
- Urban Sociology
- Race, Labor Markets, & Workforce Development
- Urban Sociology
- Describing, Manipulating, & Imagining Human Environments
- Public Policy
- Science in Environmental Conflict & Negotiation
- Urban & Regional Economics
- Urban Information Systems
DOCTORAL PROGRAM STRUCTURE

Based on these assumptions the Internal Economic Development field has been organized in two parts:

First Part
- Evolution of the idea and Theories of Economic Development
- Strategies of Industrialization and Agricultural Growth
- Planning for and Implementation of Economic Development projects and Policies

Second Part
- Development Mechanisms
- Development Institutions
- Development Regions

Example of a first field: INTERNATIONAL ECONOMIC DEVELOPMENT

Key Assumptions:

Industrialization and increase in agricultural productivity are inherently linked processes which contribute to economic development

Economic Development occurs at national, sub-national and local levels. Development at various spatial scales have the ability to influence one another and can be both reinforcing or weakening effects on the economy.

Economic Development cannot be reduced to the understanding of economic growth. even though growth is necessary for economic development. The goal is to transcend the traditional notion of development and consider the interconnectedness between economic and human development.
PHD PROGRAM: EXAMPLES OF SECOND FIELDS

City Design and Development
- Planning for Climate Change
- Urban Form and Travel Behavior
- History of the Built Environment
- Urban Information Systems
- Rational Urban Design Patterns
- New Technologies and the Urban Experience
- Society and Politics of Public Space

Urban and Regional Economics
- Urban Labor Markets and Employment Policy
- Urban Transportation, Land Use and Sustainability in Developing Countries
- Public Finance
- Information Systems in Planning
- Urban Growth
- Conflict Transformation in Urban Economics
- Housing Markets and Public Policy
- US Housing Policy
- Real Estate Finance and Economics
- Urban Information Systems

Urban Sociology
- Race, labor Markets, and Workforce Development
- Describing, Manipulating, and Imagining Human Environments
- Searching for the “Good City”
- Culture, Urban Inequality and Policy

International Economic Development
- Political Economy and Development Policy
- Economic Geography of Violent Conflict

DOCTORAL PROGRAM STRUCTURE

FOURTH+ YEARS

The Dissertation
- After completing the general examination, each student assembles a dissertation committee.
- Within one year after passing the general exam, a full proposal must be submitted for approval by the PhD Committee, and the student presents the proposal in a departmental colloquium.
Potential Research Collaborations

Professor Bishwapriya Sanyal
Co-principal investigator - IIHS Curriculum Development

GOAL OF RESEARCH COLLABORATION

Encourage alternative foundations for development through innovative responses by:

- Investigating solutions that bridge competing public-policy goals

- Understanding that useful innovations do not yield dramatic changes and amazingly successful results, but rather offer incremental and steady improvements in institutional performance amidst economic and political changes
investment and creating a positive business environment without jeopardizing environmental standards? Have they been able to achieve this without providing large corporate subsidies? Why has increased private investment led to higher employment in some cities but not in others?

Have some cities been relatively successful in renewing land use to facilitate economic growth without accentuating spatial segregation of different income groups or deepening inequalities in service provision? Why have some cities been better at incorporating civic engagement into urban-renewal decisions?

---

Why have some cities been able to reap the benefits of administrative and fiscal decentralization which resulted from the Constitution Act (74th Amendment)? For example, how have some cities managed to generate new sources of revenue, tap domestic capital markets, enhance creditworthiness, and reform their local administration while also delivering services to the urban poor? How have some cities been able to link asset formation to asset maintenance?
SUGGESTED RESEARCH QUESTIONS FOR AN INNOVATIVE RESEARCH AGENDA

Why have some cities been more successful than others in incorporating informal and unauthorized settlements into their social, physical, and legal infrastructures? How have certain urban local bodies encouraged capital accumulation in the urban informal economy? How have some cities formalized informal housing areas without either drastically reducing planning and infrastructure standards or dramatically increasing the costs of maintenance?

Department of Urban Studies and Planning, Massachusetts Institute of Technology
Bellagio, August 2010

SUGGESTED RESEARCH QUESTIONS FOR AN INNOVATIVE RESEARCH AGENDA

Why have the regulatory institutions of some cities been more effective in promoting public safety while also attracting private investment? Why have some regulatory agencies performed better than others?

What institutional practices have helped enhance the morale and performance of public-sector agencies? How have some cities succeeded in creating a cadre of street-level bureaucrats to closely interact with service users and promote a two-way flow of information between city residents and municipal agencies?

Department of Urban Studies and Planning, Massachusetts Institute of Technology
Bellagio, August 2010
How have some cities managed to incorporate new information and communication technologies (ICTs) into urban management without the need for radically restructuring the data collection process, which is expensive and institutionally difficult to implement? Why have some cities succeeded better than others in utilizing e-governance applications to enhance the quality of services, particularly to the urban poor? Why has e-governance actually strengthened traditional governance mechanisms in some cities but not in others?

How have some urban local bodies and some public utility agencies learned from past efforts? Why have some monitoring and evaluation efforts been more useful to policy makers than others? Under what conditions does organizational learning lead to capacity-building?

Department of Urban Studies and Planning, Massachusetts Institute of Technology
Bellagio, August 2010

How have some cities used urban-design initiatives to enhance livability without restricting the access of the urban poor to public spaces? Why have some cities been more successful than others in leveraging urban-design proposals as a way of redeveloping underutilized areas?

Department of Urban Studies and Planning, Massachusetts Institute of Technology
Bellagio, August 2010
SUGGESTED RESEARCH QUESTIONS FOR AN INNOVATIVE RESEARCH AGENDA

How have some cities been able to translate political promises into technically feasible and bureaucratically manageable efforts for city development? Under what conditions does the relationship between politicians and city residents, particularly from low-income areas, evolve from the traditional client-server relationship to one more conducive to long-term and geographically widespread development? Why were some cities able to implement politically unpopular policies, such as increasing user fees for services, without provoking major protest from previously subsidized groups?

Department of Urban Studies and Planning, Massachusetts Institute of Technology
Bellagio, August 2010

SUGGESTED RESEARCH QUESTIONS FOR AN INNOVATIVE RESEARCH AGENDA

Why have some cities been relatively more successful than others in mediating land-related conflicts? How have some cities managed to prevent ethnic and communal conflict and foster social peace?

How have some cities been able to modify traditional master plans to create a relatively flexible, open-ended vision of their future growth with a strategic outlook? Why and how have some cities built on their competitive advantages vis-à-vis other cities while also spreading the benefits of growth to low-income residents?

Department of Urban Studies and Planning, Massachusetts Institute of Technology
Bellagio, August 2010
MIT-IIHS Courses by Specialization

For full descriptions of all courses produced by the MIT team, see separate volume, available electronically by request from the team leaders

CLIMATE CHANGE: ADAPTATION AND MITIGATION

- Climate Change and Climate Justice
- Climate Policy and Politics
- Climate Adaptation: Planning Resilience and Just Cities
- Urban Climate Risk and Vulnerability Assessment

ECONOMIC DEVELOPMENT AND FINANCIAL MANAGEMENT

- Economic Institutions, Policies and Practices
- Financing Local Government
- Histories and Theories of Economic Development
- Indian Enterprises in the Global Economy
- India’s Urban Resources
- Poverty, Capability, and Social Mobility: Prospects and Practices
- Small Firms, Local Industrialization, and the Informal Economy

ENERGY POLICY AND PLANNING

- Enabling an Energy Efficient Society
- Energy and Climate Change Mitigation
- Energy Futures: Green Technology and Social Innovation
- Facilities Siting
Financing Energy Development
Regulating Social and Environmental Impacts of Energy Development
Sustainable Energy Technologies
Negotiation, Dispute Resolution And The Practice Of Public Engagement

ENVIRONMENTAL PLANNING AND DESIGN
- Adaptive Metropolitan Environmental Planning
- Environmental Inquiry and Practice
- Environmental Hazards, Site Planning and Design
- Environmental Policy, Evaluation and Design
- Environmental Site Planning and Design
- Environmental Systems Analysis and Design
- Water in Environmental Design
- Water in Environmental Policy
- Water in Environmental Systems Analysis and Design

LAW AND GOVERNANCE: MAKING INDIAN CITIES MORE EQUITABLE
- Alternative Dispute Resolution and Access to Justice
- Housing Law and Human Rights
- Law and Politics of Local Governance
- Law, Social Movements and Public Policy
- Legal Aspects of Urban Transformation
- Water: Politics, Policy, Law

NEW URBAN PLANNING: INSTINCTS, INSTRUMENTS AND INSTITUTIONS
- A Reflective Approach to Spatial Plans (Master Plans)
- Flexible Bureaucracies
- Governance, Accountability and Citizen Participation
- Housing Policy and Practice in Developing Countries
- Peri-urban Growth of Metropolitan Areas
- Planning for Second and Third Tier Cities
- Planning Sensibilities for Effective Practice
- Public Sector Reforms and Organizational Development
- Supporting Urban Livelihoods, Reducing Urban Poverty: Learning from Organizations of Informal Workers
- Urban Renewal

**SOCIOLOGICAL FOUNDATIONS OF URBAN PRACTICE**
- Cities, Citizens, And States In The Social Development Of Democratic Governance
- City, Community, and Culture In The Making of the Modern World
- Conflict and the Social Construction of Cityscapes
- Decentralization, Democracy, Citizen Participation and the Planning Process
- Leveraging Difference: Urban Subcultures and the Planning Process
- The Economic Sociology of Cities: Production, Consumption, and Use vs. Exchange Value in Urban Life
- Urban Informality: Planning, Power and Politics
- Urban Projects and the Architectures of Globalization: Reconfiguring Urban Spaces for a New Century

**TECHNOLOGY AND HUMAN SETTLEMENTS**
- Advanced Spatial Analysis for Urban and Regional Planning (Advanced Course in GIS)
- E-Democracy, Public Participation, and Digital Citizenship
- Responsive Cities and e-Planning
- Urban Design for “Smart” Cities
Urban Modeling for Sustainable Development

**TRANSPORTATION AND HUMAN SETTLEMENTS**
- Introduction to Urban Transport Planning
- Public Transportation Management
- Public Transport Service and Operations Planning
- Transportation, Land-use and the Environment
- Urban Transport Technologies
- Urban Mobility for very Low-income Communities
- Urban Transport Finance
- Urban Transport Systems

**URBANISM**
Introduction to the Specialization in Urbanism
- Part 1: The Material City: Form and Space
- Part 2: The Changing City: Urban Dynamics

Urbanism: Histories, Theories, and Skills
- Part 1: Histories of Urbanism: Evolution of Urban Form
- Part 2: Theories of Urbanism: Values and Action
- Part 3: Practicum 1: Analytical, Design, and Presentation Skills

- Fundamentals of Real Estate Development
- Historic Conservation and Adaptive Reuse as Regeneration
- Urbanism Practicum II: Praxis
- Urbanism Practicum III: Research by Design
- Urban Practicum IV: Challenges and Transformations
APPENDIX 8

List of MIT-IIHS Core Team, Faculty Coordinators and Contributors by Specialization
(Affiliations/Qualifications listed for faculty and students reflect their status at the time of the project)

MIT-IIHS CORE TEAM

Principal Investigators

- Biswapriya Sanyal, PhD., Ford International Professor of Urban Development and Planning, Director, SPURS/Humphrey Programs, MacVicar Faculty Fellow, DUSP, MIT
- Lawrence Vale, PhD., Ford Professor of Urban Design and Planning, President, Society for American City and Regional Planning History, MacVicar Faculty Fellow, DUSP, MIT

Student Teams

Core

- Madhu C Dutta-Koehler, PhD Candidate, DUSP, MIT
- Amit Prothi, PhD Candidate, DUSP, MIT

Supporting

- Shiben Banerji, PhD Candidate, DUSP, MIT
- Pritika Hingorani, MCP Candidate, DUSP, MIT
- Aditya Pant, MCP Candidate, DUSP, MIT
- Faizan Jawed Siddiqi, PhD Candidate, DUSP, MIT
CLIMATE CHANGE: MITIGATION AND ADAPTATION

Specialization Coordinator

- **JoAnn Carmin**, PhD., Associate Professor of Environmental Planning and Policy, DUSP, MIT

Course Contributors

- **Daniel Hoornweg**, Lead Urban Specialist, World Bank
- **Stacy D. VanDeveer**, PhD., Associate Professor, Department of Political Science, University of New Hampshire

Student Contributor

- **Isabelle Anguelovski**, PhD. Candidate, DUSP, MIT

ECONOMIC DEVELOPMENT AND FINANCE

Specialization Coordinator

- **Meenu Tewari**, PhD., Associate Professor, Department of City and Regional Planning, University of North Carolina at Chapel Hill

Course Contributors

- **Genevieve Connors**, PhD., World Bank Specialist
- **Anirudh Krishna**, PhD., Associate Professor of Public Policy and Political Science, Sanford School of Public Policy, Duke University
- **Hubert Schmitz**, PhD., Professorial Fellow, Institute of Development Studies, Sussex University, UK
- **Paul Smoke**, PhD., Professor of Public Finance and Planning and Director of International Programs, New York University

---

1 Specialization coordinators are also authors for a number of courses within their specialization
ENERGY POLICY AND PLANNING

Specialization Coordinator

- **Lawrence Susskind**, PhD., Ford Professor of Urban and Environmental Planning and Head, Environmental Policy and Planning, DUSP, MIT; Vice Chair, Program on Negotiation, Harvard Law School

Course Contributors

- **Clint Andrews**, PhD., Professor of Urban Planning and Policy Development, E.J. Bloustein School of Planning and Public Policy, Rutgers, The State University of New Jersey
- **Michael Golay**, PhD., Professor of Nuclear Science and Engineering, MIT
- **Michael Hogan**, Programme Director for Power, European Climate Foundation
- **Harvey Michaels**, PhD., Energy Efficiency Scientist and Lecturer, DUSP, MIT
- **William Moomaw**, PhD., Director, Program on Natural Resource Management, Fletcher School of Law and Diplomacy, Tufts University

ENVIRONMENTAL PLANNING AND DESIGN

Specialization Coordinator

- **James L. Wescoat, Jr.**, Ph.D., Aga Khan Professor of Architecture, School of Architecture and Planning, MIT

Student Contributor

- **Amit Prothi**, PhD. Candidate, DUSP, MIT

Additional Contributors

- **Eran Ben-Joseph**, PhD., Professor of Planning and Landscape Architecture and Chair, PhD Program, DUSP, MIT
- **Michael Flaxman**, PhD., Assistant Professor of Urban Technologies and Information Systems, DUSP, MIT
Lawrence Susskind, PhD., Ford Professor of Urban and Environmental Planning and Head, Environmental Policy and Planning, DUSP, MIT; Vice Chair, Program on Negotiation at Harvard Law School

LAW AND GOVERNANCE
Specialization Coordinator
- Balakrishnan Rajagopal, PhD., Associate Professor of Law and Development, DUSP, and Director, Program on Human Rights and Justice, MIT

Course Contributors
- Ramaswamy Iyer, Research Professor, Centre for Policy Research, India, and Former Secretary of Water Resources for the Government of India
- Miloon Kothari, former United Nations Special Rapporteur on the Right to Housing
- George Matthew, PhD., Director, Institute of Social Sciences, New Delhi, India
- Sriram Panchu, Lawyer, Supreme Court of India

Student Contributor
- Shiben Banerji, PhD Candidate, DUSP, MIT

NEW URBAN PLANNING: INSTINCTS, INSTRUMENTS AND INSTITUTIONS
Specialization Coordinator
- Biswapriya Sanyal, PhD., Ford International Professor of Urban Development and Planning, Director, SPURS/Humphrey Programs, DUSP, MIT

Course Contributors
- Martha Chen, Lecturer in Public Policy, Harvard Kennedy School, International Coordinator, WIEGO Network
- Anuradha Joshi, PhD., Research Fellow, Institute of Development Studies, Sussex University, UK
- Luigi Mazza, PhD, Professor of Spatial Planning and Urban Development, Politecnico
di Milano, Italy

- **Vinit Mukhija**, PhD., Associate Professor of Urban Planning, School of Public Affairs, UCLA
- **Roberto Pires**, PhD., Research Fellow, Research Department on State, Institutions and Democracy, Institute for Applied Economic Research (IPEA), Brazil.
- **Gavin Shatkin**, PhD., Associate Professor of Urban Planning, Alfred Taubman College of Architecture and Urban Planning, University of Michigan

**Student Contributor**
- **Madhu C Dutta-Koehler**, PhD Candidate, DUSP, MIT

### SOCIOLOGICAL FOUNDATIONS OF URBAN PRACTICE

**Specialization Coordinator**
- **Diane Davis**, PhD., Professor of Political Sociology, Head of the International Development Group, DUSP, MIT

**Course Contributors**
- **Patrick Heller**, PhD., Associate Professor of Sociology, Brown University
- **Ananya Roy**, PhD., Professor, Department of City & Regional Planning, University of California, Berkeley
- **Gerardo del Cerro Santamaria**, PhD., Associate Professor, Humanities and Social Sciences, Cooper Union
- **Liza Weinstein**, PhD., Assistant Professor, Department of Sociology & Anthropology, Northeastern University

### TECHNOLOGY AND HUMAN SETTLEMENTS

**Specialization Coordinator**
- **Joseph Ferreira**, PhD., Professor of Urban Planning and Operations Research, Head of Urban Information Systems Group, DUSP, MIT
Course Contributors

- **Michael Flaxman**, PhD., Assistant Professor of Urban Technologies and Information Systems, DUSP, MIT
- **Dennis Frenchman**, Leventhal Professor of Urban Design and Planning and Director, City Design and Development, DUSP, MIT
- **Laxmi Ramasubramanian**, PhD., Associate Professor, Department of Urban Affairs and Planning, Hunter College, NY
- **Sumeeta Srinivasan**, PhD., Preceptor in Geospatial Methods, Department of Government, Harvard University

TRANSPORTATION AND HUMAN SETTLEMENTS

Specialization Coordinator

- **Ralph Gakenheimer**, Professor of Urban Planning, Emeritus, DUSP, MIT

Course Contributor

- **Geetam Tiwari**, PhD., Associate Professor of Transport Planning, Indian Institute of Technology, Delhi

Additional Contributors

- **Yu-Hung Hong**, PhD., Lecturer of Urban Planning and Finance, Visiting Fellow at the Lincoln Institute of Land Policy, Founder and Executive Director of Land Governance Laboratory, MIT
- **Joseph M. Sussman**, PhD., Professor of Civil and Environmental Engineering and Engineering Systems, MIT
- **Brian Taylor**, PhD., Professor and Chair of Urban Planning and Director, Institute of Transportation Studies, University of California at Los Angeles
- **Nigel Wilson**, PhD., Professor, Department of Civil and Environmental Engineering, MIT
- **Christopher Zegras**, PhD., Ford Career Development Assistant Professor of Transportation and Urban Planning, DUSP, MIT
URBANISM

Specialization Coordinators

- **Aseem Inam**, PhD., Associate Professor of Urbanism, School of Design Strategies, Parsons, The New School of Design, New York, NY

- **Lawrence Vale**, PhD., Ford Professor of Urban Design and Planning, McVicar Faculty Fellow, DUSP, MIT

Course Contributors

- **Dennis Frenchman**, Leventhal Professor of Urban Design and Planning and Director, City Design and Development, DUSP, MIT
APPENDIX 9

Proposed Course Template

IIHS COURSE/ SUBJECT/ MODULE DESIGN OUTLINE

A. **Course Designation:** An average of 55 hours of contact time spread over 11 weeks, and an equivalent amount of self-study time. Convergence with Bologna standards would be ideal. Specify if the course is part of the Commons, Required for a Specialisation/Certificate, or if it is an Elective course.

B. **Minimum Learner Standards/ Pre-requisites:** A definition of the minimum pre-requisites for learners in terms of skills, knowledge sets or pre-requisite courses as appropriate.

C. **Justification/ Rationale:** Laying out the rationale for the course - why should the learners take it, why it is required either as a Commons or Specialisation course, what sequence in the programme it will appear.

D. **Learning Goals:** Course, practicum or project goals defining what high-level outcomes are sought to be achieved in the course.

E. **Learning Outcomes:** A description of the knowledge, skills and abilities that learners would acquire from the course; questions sought to be addressed and perspectives sought to be developed.
F. **Learning Units & Objectives:** A succinct description of the specific learning units, learning objectives, concepts that would be transacted or undertaken and the expected competencies that would be developed. A description of the experiential learning processes involved in the case of studios/practica/colloquia/workshops.

G. **Pedagogic Approaches:** A broad outline of the suggested pedagogic approaches in transacting the course including self-learning, peer learning, experiential learning and instructor-led learning.

H. **Support & Mentoring:** Details of the academic, practitioner and mentoring support required and technology support desired.

I. **Assessment:** The basis, types, procedure and the criteria for assessment and evaluation including both quantitative and qualitative assessments and their link to learning units and objectives and its integration into the life-long learning frame.

J. **Readings & Resource Materials:** A unit-wise list of readings and multimedia resource materials including a classification into Open and IPR restricted material.

K. **Guidance for Educators:** Advanced reading materials, resources, class size and any other information deemed useful for educators.
APPENDIX 10

"Open" for IIHS: Memo from M. S. Vijay Kumar, Senior Associate Dean & Director, Office of Educational Innovation and Technology, MIT

Open for IIHS

M. S. Vijay Kumar
Senior Associate Dean & Director
Office of Educational Innovation and Technology

The increasing capabilities of the Internet coupled with Open Educational Resources (OER)\(^1\) offer unprecedented opportunity to significantly widen access to quality educational opportunity for different sectors. By making educational assets free, open and accessible, a palpable Open Education movement is beginning to radically change the ecology and economics of education. This can be seen in the upsurge of publicly shared course websites and lecture videos from colleges and universities. Institutions have also formed consortia to co-develop open-source educational technologies, creating new models of collaboration for the production and distribution of educational resources. Open educational resources present the potential to bring globally-created, high-quality education resources to serve the knowledge needs of diverse communities; they offer the possibility of bringing interactive educational experiences to distance learners. Open Educational Resources have gained increased attention for their potential and promise to transform education— they transcend demographic, economic, and geographic educational boundaries to promote life-long learning and personalized learning. From large institution-based or institution-supported initiatives to numerous small-scale activities, the number of OER related programs and projects have been growing fast within the past few years\(^2\). The rapid growth of OER provides new opportunities for teaching and learning, challenging long-standing perspectives about educational practice.

As a nascent initiative with a stated commitment to exploring Open Source and Open education, IIHS has the opportunity to build on the best of current thinking in open access to educational resources.

In their recommendations to educational practitioners and policy makers, the editors of Opening Up Education\(^3\) emphasize that recasting the role of the university education in light of an open world presents a value proposition far more profound than the free dissemination of educational tools and resources—it allows us to proactively construct new preferred learning.
The term Open Educational Resources (OER) was first introduced at a conference hosted by UNESCO in 2000 and was promoted in the context of providing free access to educational resources on a global scale. OER includes “digitized materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research. “Resources” include

- Learning content: Full courses, courseware, content modules, learning, objects, collections and journals.
- Tools: Software to support the discovery, development, use, reuse and delivery of learning content.
- Infrastructure Enablers: Technical (specifications, standards and legal provisions to promote facilitate use, revision, translation, improvement and sharing.

The OpenCourseWare Consortium reports that there are more than 8,000 open access courses currently available in OpenCourseWare from over 300 universities worldwide. In the United States, thousands of courses have been made available by university-based projects, such as MIT OpenCourseWare, which catalyzed open education by making the content of over 1,900 courses available on the Web for free for the world.


The following sections draw from the recommendations to highlight the opportunities and considerations for IIHS.

1. The Transformative Potential

Open education suggests new opportunities for the practice of education. Through open education IIHS can meet its goals of quality and scale along several dimensions:

- The possibilities of community-based peer learning, as well as technologies that provide intellectual and cognitive support for individual learners and groups of learners.

- The opportunity for innovative activities at the intersections of domains through reuse and remix of resources, as well as connected communities of exploration. Beyond the implications for scaling and localization, this presents the promise of blended learning environments that involve optimal combinations of the physical and virtual, and integrate conventional pedagogical methods with innovative network-based learning to deliver quality educational
opportunities. This can include bringing “experts” in contact with learners or even situated learning experiences, such as laboratories, real and virtual, to supplement online access to content in distance education situations.

- The ability to extend the notion of boundarylessness beyond typical lines of geography and politics to cross disciplinary lines, inducing proximity between research and teaching, and in some cases helping bridge the divide between the learned and lay persons by making the output of research more widely understood.

- The opportunities for of continuous improvement.

2. Recasting Resources, Relationships, and Rewards

Open education demands a fresh perspective on resources and relationships available to education. Traditional assumptions of scarcity with respect to the extent and type of content or contact resources available to educators and learners are challenged. At the same time, recognizing and integrating the learner as an active, core participant in the creation and delivery of the educational experience is becoming necessary.

- Recontextualize Roles and Values: Open as a modern, 21st century educational practice demands a transition/recontextualization of educators and institutional practices from their traditional roles to the ones needed to be effective in this ecology of technology- facilitated open education.

- Credentialing and sense-making: Open leads to a rethinking of our cherished and valuable roles in sense-making and credentialing.
  - In a world of extensive access to an enormous set of resources, the learner is faced with several challenges with respect to locating and evaluating pertinent information, not the least of which is the uneven nature of available resources. How can educators best function as coaches pointing out constructive learning experiences, as resource managers, and as facilitators of effective, responsive, and appropriate learning opportunities? And in the wake of technology-enabled social learning, what support is needed for learners as peer-teacher
  
  - Certification: The extent to which online resources have an impact on the largely contact-based, situated experience becomes a new factor in thinking about certification. Then again, technology also offers new opportunities for continuous learning (life-long learning), and this has implications for how we think about certification and warranties.
3. Getting From Here to Open

Developing Culture, Capacity and Content

A. Faculty Readiness:

“In order for open education to reach its varied potentials, openness must become a core cultural value for each and every faculty member. (David Wiley, Brigham Young University)

“Openness should be built into the process of curriculum design – it should be systematized.” (George Siemens, University of Manitoba)

These two comments as part of a recent dialog (http://www.connectivism.ca/?p=178 and http://opencontent.org/blog/archives/1088) highlight the need for “openness” to be infused and integrated into the core values and practice of an institution.

For IIHS, it is critical that both a considered Faculty and a curriculum development process be implemented in order to make the best possible use of Open Educational Resources and serve as a model for good international academic citizenship.

As a necessary first-step, IIHS must embrace a culture of open in all of the curricular content it develops and in the courses it teaches from the get-go. We have learned from practice that it is much easier to start from open than to continually retrofit and rework and retool open after the fact.

In order to take full advantage of a growing number of open educational assets, institutional resources need to be allocated to build the capacity to support both faculty and students in best using, designing activities and implementing projects that use and create new open educational tools and resources.

B. Content Readiness:

Even with the seemingly infinite flow of Open Educational Resources, the challenge remains, of effectively finding, assessing and making the best use of these resources in one’s own educational context, whether from the perspective of a teacher or a learner.

In addition, we see the growing need for cross-institutional curricular communities of practice to begin adding conceptual frameworks around such resources so that faculty and students alike can begin to enhance what exists by sharing their own unique perspectives. At MIT
we are seeing some “grass-roots” communities of practice developing, for instance around the development of a communications intensive Mathematics curriculum and the introductory Physics curriculum.

There are three illustrative areas of technical development and implementation that we feel will support curricular communities of practice and the use of open educational resources across the university. Indeed, we are already pursuing these activities within MIT/OEIT as we explore ways to make even our own OCW content more relevant to curricular development at the Institute:

i. **OER Harvesting:**

To help deal with the growing volume of available open content technologies that help to automate the creation of metadata and other descriptive information, as well as helping to identify and tag conceptual information within content must be explored.

Within MIT’s Office of Educational Innovation and Technology (OEIT) we have a significant effort underway to harvest content from video materials, particularly video captured lectures. Working closely with MIT’s Computer Science and Artificial Intelligence Laboratory (CSAIL), we are leveraging research software for automatic transcription and parsing of lecture videos to create searchable transcripts and allow students to quickly jump to points in time within videos where concepts of interest are being discussed. This technology will be part of our toolkit for leveraging core content across multiple disciplines. For instance, it is currently allowing students to search for and jump to particular video clips from introductory Physics lectures delivered by one of MIT’s most energetic and beloved lecturers, Walter Lewin. Such videos can now be harvested for the various nuggets of curricular information for re-use within introductory Physics classes, for review, or to be re-purposed in other Physics intensive courses.

In addition there has been exciting work in the use of “intelligent” crawlers, semantic technologies and other means of automatically investigating and tagging educational content. We are exploring how to integrate this work to relieve the burdensome aspects of marking up and classifying materials.

ii. **Collective Intelligence Systems:**

Social tagging and social networking tools offer new opportunities for collecting information about content to help teachers and student more quickly find useful materials. Such systems, if appropriately linked with the
repositories that host OER content, can allow curricular communities to come together to share content and also information about the quality and use of content to meet educational objects of common interest.

For example, OEIT is working with MIT’s Mathematics department to develop a collaborative site for the sharing of information regarding how to better teach communications skills within math courses. Building upon the Institute-wide commitment to better educate our students in communication, MIT faculty are challenged to build communication opportunities into the curriculum. For the Math department, the MathCI website provides a place for faculty to share content and best practices to help each other teach better.

In addition, Recommender systems, similar to the those that recommend products at Amazon.com(tm) and other consumer sites, allow faculty and students to rate content, quality and relevance and receive recommendations based on past use and interest. Projects like COSL’s Folksemantic recommender system (www.folksemantic.com), and the MERLOT (www.merlot.org) project have paved the way in these areas, and these techniques are being explored.

iii. Content Federation and Re-aggregation:

Once data and services are in place to make identification of content for use in teaching and learning easier it is critical that we also make it easier for faculty and students to incorporate this content with the tools and systems that they will use for teaching. As users of technology become savvier, it is critical that the software tools and online environments that our faculty find useful in their everyday work be able to easily access and incorporate learning content.

Ongoing work within OEIT, stemming from the Open Knowledge Initiative (O.K.I.) project, among others, focuses on the problem of federated searching for content and aggregation of content from multiple sources within content authoring, visualization and course management tools. MIT’s Visualizing Cultures program, for instance, reaches into a growing collection of openly available image content stored in repositories at MIT and in museums and other collections across the globe.

3. Enabling Infrastructure

The infrastructure for supporting Open Education should provide for the following functionalities:

- A “Resource Commons” of high quality diverse educational materials,
modularized for easy use and that span the knowledge continuum.

- A development and assessment process to ensure quality.
- Applications and tools to access view and navigate across concepts, courses and curricula.
- Flexible construction of customized learning materials, enabled by standardized tools and formats and delivered in a variety of formats and media (Web, Tests, digital media).
- Capabilities for domain specific and customized interactions.
- A faculty development and training program to ensure faculty can integrate these resources in their courses and with their students.

It is useful to keep the following functional characteristics of the educational environment squarely in focus as we think of the infrastructure for IIHS.

- Flexibility: Education is not just about transmitting content to students over the Internet or other delivery channels, it is about allowing learners to structure the reality of their educational experiences in ways that best fit their needs, abilities, and available and familiar technologies. Network delivered education and using Open resources enable educational opportunity that is not constrained by location or time.

- Interactivity: For quality education it is important to increase the possibilities of interaction by creating learning environments, virtual or physical, where learners and teachers can interact amongst themselves and with each other—not just with those from their own particular institution, but with people from anywhere in the world.

- Proximity: For education to be relevant, it must be proximal—between content and learners, teachers and students, amongst learners, and also between research and teaching.

- Adaptability: Resources and experiences will need to be prepared to address needs in a variety of sectors, with a common infrastructure delivering quality in each one. These can include formal and non-formal education, vocational education and continuous education in diverse areas such as Agriculture, Health Sciences, Art & Humanities, Social Sciences, Engineering, Sciences, and Languages.

Infrastructure Considerations

A. Reliable and robust connectivity options for individuals and institutions:
The recently announced National Knowledge Network in India is certainly a positive step in this regard. An institutional backbone that provides high bandwidth connections and advanced networking capabilities is critical for reliable access and quality. Connectivity with global networks like Internet2 in the United States is also essential. It is important to recognize that high performance networks and resources are critical infrastructure for educational quality and access, not for advanced research.

**B. A Layered Delivery Framework:**

A layered delivery framework that includes Repositories of Educational Resources as well as integrated learning outcome data; User applications; Service-oriented Architecture based on open standards that facilitates the interaction of diverse applications with a variety of educational resources; as well as a technical infrastructure for enabling localization and contextualization. Creating facilities for interactions - Virtual (Domain specific Grids and Portals) as well as Physical (centers) is important. 3.

**C. Support for Pedagogical Resource Development:**

This includes the development and acquisition of relevant, quality content to meet the educational needs of diverse sectors and disciplines. Developing standards for content development, maintenance and delivery, and leveraging global OER alliances like OCW would be central to this process.

4. Planning and Prototyping the Educational Technology Architecture and Services for IIHS

The considerations and recommendations articulated above formed the basis of a planning and prototyping activity proposed by OEIT to IIHS for developing its technology capabilities and capacity in support of its educational programs.

MIT OEIT has proposed that IIHS invest in a short-term educational technology planning activity that would deliver key functionalities in time for curricular development to support the first matriculating class. (At the time of submitting the proposal this was to be of approximately 50 students by the spring of 2011). More importantly, OEIT would deliver a complete specification for the development and growth of IIHS’ long-term, sustainable technology infrastructure for education. The plan builds on an architectural model developed by OEIT for supporting a set of integrated and interoperable systems and tools related to the core curricular activities of IIHS. It focuses on integrating services and tools that relate content to learning objectives, and has been informed by the curricular concept mapping work of IIHS.

Specifically, the activity proposed was directed toward the following deliverables:
1. Educational Technology Requirements Document: This document would provide the description of overall architectural approach along with key user functionality and educational applications as well as core educational services, such as those for learning objectives, enrollment, and repository. It would also provide detailed position descriptions for key technology roles.

2. A detailed blueprint that IIHS can use as it partners/contracts with other entities for building out its long-term software infrastructure and application offering.

3. Course development and authoring tools A set of tools that will allow the faculty of IIHS to develop the first on-line course materials and activities. The core functionality will be determined during the spring of 2010. Some tools may be developed and others will be acquired and integrated. Concept Mapping Tools, course content authoring, course content distribution tools, etc. To the extent possible we plan to leverage widely available commodity tools and applications that students and faculty are already familiar with.

4. Course delivery and activity tools A set of tools that will be used directly by students as part of their educational progress, both in class and at a distance, such as Content search and access tools, collaboration tools, wiki systems, annotation tools, discussion forums, etc.

While not designed to be a scalable service suite, this implementation will be sufficient to support at least the first 50 students, and will serve as a reference implementation for developers of long-term solutions.

The potential and implementation considerations for technology-enabled open education for IIHS were also addressed at two separate sessions led by Dr. Vijay Kumar with the help of Mr. Brandon Muramatsu from OEIT at University College London (UCL) and the Indian Institute of Science in Bangalore, India (IISc).

The UCL meeting included a half-day seminar featured a team from the UK Open University (OU) led by Professor Andy Lane erstwhile head of the OU’s Open Learn initiative and focused on best practice demonstrations and discussions on implementation considerations. The sessions in Bangalore involved working demonstrations of tools and applications to illuminate the use of educational technology and open educational resources to support curriculum development and delivery for IIHS.

http://www.slideshare.net/bmuramatsu/iihs-open-framework
http://www.slideshare.net/bmuramatsu/iihs-open-frameworkspoken-media
http://www.slideshare.net/bmuramatsu/iihs-open-frameworklinking-content-and-curriculum
The proposal to undertake infrastructure prototyping activity and limited implementation of educational services was received favorably and the IIHS leadership was exploring funding opportunities to resource the activity.

Endnote

Open is becoming a means of facilitating access to educational opportunity, promoting a culture of sharing and social responsibility, and enabling unintended and remarkable outcomes. For IIHS, Open Educational Resources along with the affordances of a robust educational technology infrastructure present significant opportunity to address several interrelated dimensions of its aspirations.