

SPRING 2021

TULANE SCHOOL OF ARCHITECTURE

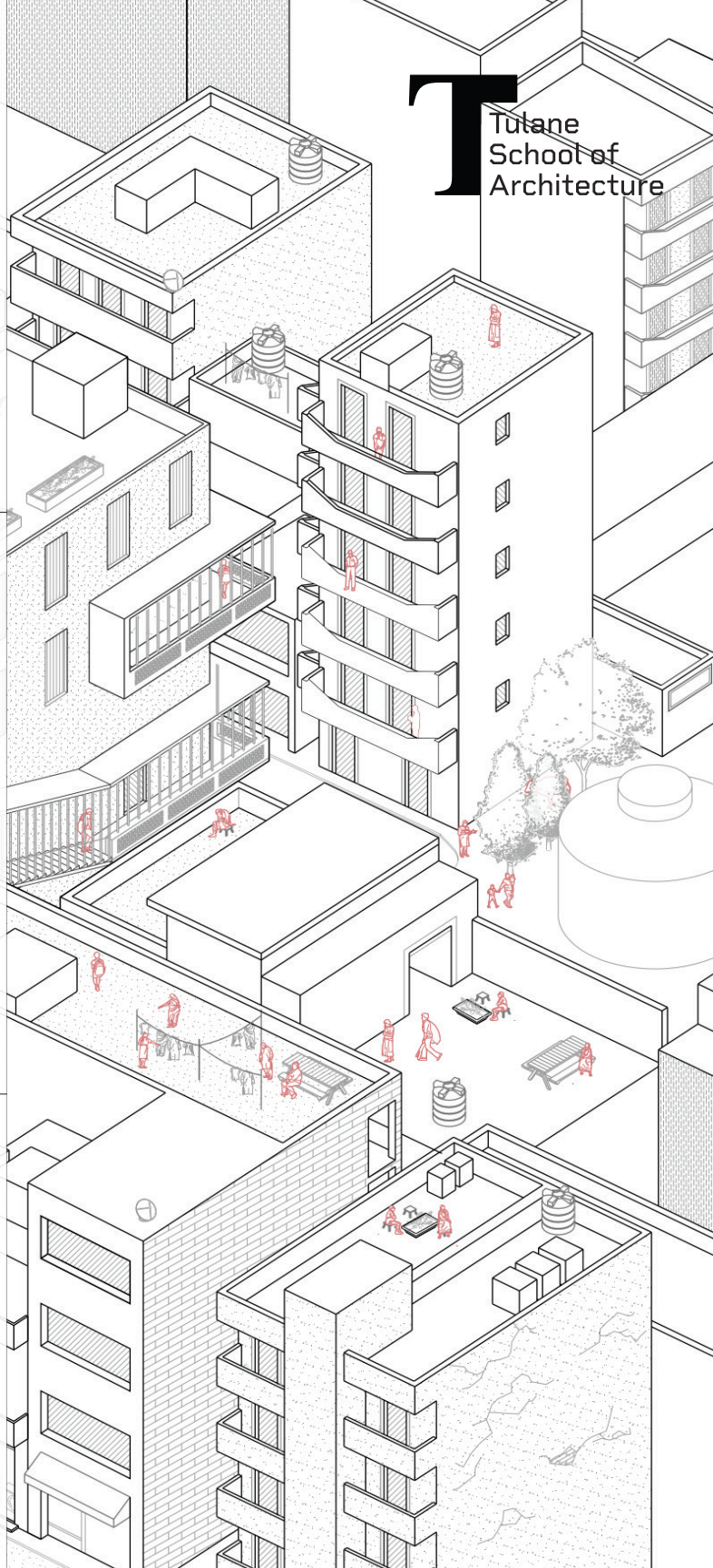
YAMUNA RIVER PROJECT

ADVANCED RESEARCH STUDIO

INAKI ALDAY
PANKAJ VIR GUPTA
MONISHA NASA

SAUL A. MINTZ GLOBAL RESEARCH STUDIO

Tulane
School of
Architecture





YAMUNA RIVER PROJECT

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RESEARCH STUDIO //
SPRING 2021**

TULANE SCHOOL OF ARCHITECTURE

INSTRUCTORS

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Credits: 6 semester credit hours
Meeting days: MWF 1pm - 5pm
Canvas Page:
<https://tulane.instructure.com/courses/2232535>

STUDENTS

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Sean Tichenor
Zach Braatten
Nick George

Danielle Scheeringa
Bhumika Shirole
Xia Li
Kareem Elsandouby

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INSTRUCTORS



IÑAKI ALDAY

Dean and Richard Koch Chair in Architecture

Iñaki Alday is Dean and Richard Koch Chair in Architecture at Tulane University, and co-founder, with Margarita Jover, of aldayjover architecture and landscape, a multidisciplinary, research-based practice focusing on innovations in the relations between cities and rivers. Both in academic research and in practice, Alday is interested in how architecture can contribute to the inhabitation of the most challenged areas of the planet. He has taught at the Polytechnic University of Catalonia, the University of Navarra and the University of Virginia, where he was the Elwood R. Quesada Professor of Architecture and chair of the Department of Architecture from 2011 to 2016. Since 2016, he has been the co-director and founder (with Pankaj Vir Gupta) of the Yamuna River Project, a long-term, interdisciplinary research program whose objective is to revitalize the ecology of the Yamuna River in the Delhi area. The project involves an interdisciplinary team with expertise in architecture, land planning, civil engineering, environmental science, public-private partnerships, anthropology, political science, history and cultural studies. The team's objective is to engage the efforts of government agencies, experts and activists in an ongoing program to address the multidimensional challenges of Delhi and the relation with its river.



PANKAJ VIR GUPTA

Favrot Visiting Professor, Architecture

Pankaj Vir Gupta is Professor of Architecture at the University of Virginia and Director of the Yamuna River Project. With a Bachelor of Science in Architecture from the University of Virginia (1993), and a Master of Architecture from the Graduate School of Architecture at Yale University (1997), Gupta practices as founder principal vir.mueller architects in New Delhi since 2003. The office of vir.mueller architects combines architectural research, education, and practice. vir.mueller architects strives to create timeless aesthetic relationships, evoking the spirit of contemporary culture, ecology, and technology. Gupta is also a Registered Architect, licensed to practice in the U.S.A., and a member of the Council of Architecture in India. He has received awards from the American Institute of Architects, the Foundation for World Education, the George Nakashima Foundation for Peace, the Graham Foundation for Advanced Studies in the Fine Arts and the Fritz-Höger Award for Excellence in Brick Architecture. He has taught and lectured widely in the U.S.A. and in India. Since 2012, Pankaj has been a Professor of Architecture at the University of Virginia; he is the Founder and Co-Director (with Inaki Alday), of the Yamuna River Project, a long-term, interdisciplinary research program whose objective is to revitalize the ecology of the Yamuna River in the mega city of New Delhi.



MONISHA NASA
Research Assistant Professor

Monisha Nasa holds a Bachelor of Architecture from Guru Gobind Singh Indraprastha University, New Delhi and a Master of Architecture from the University of Virginia where she received awards for her graduate work including the World Architecture Award and a Faculty Award for design excellence. She has served as a research fellow with the Yamuna River Project, a pan-university project at the University of Virginia and Tulane University since 2017 and has professional experience working at firms in the US (2018) and India (2013-2017).



Elliott Moreau
B.Arch



Zach Braatten
B.Arch



Sean Tichenor
B.Arch



Nick George
B.Arch



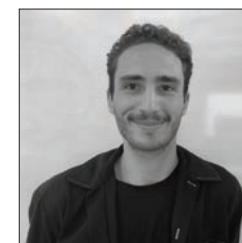
Danielle Scheeringa
M.Arch



Bhumika Shirole
M.Arch, MSRED



Xia Li



Kareem Elsandouby

CONTEXT+ PROMPT

The Yamuna River Project is a long-term, inter-disciplinary research program whose objective is to revitalize the ecology of the Yamuna River in the Delhi area. The design studio will engage with the role of Architecture, Landscape Architecture and Urban Planning in our current environment. This will be the 7th edition of this research studio and the first of a new phase commencing at Tulane University. Iñaki Alday – Dean and Koch Professor of Architecture and Principal, aldayjover architecture and landscape -- and Pankaj Vir Gupta -- Professor of Architecture and Principal, Vir Mueller Architects/Delhi -- initiated the project with a series of research studios beginning in 2013-14. The first phase (2012-2019) of the design/research studios, concluded with a vision for Delhi's urbanity -- anchored around the Yamuna river and Najafgarh drain. The studio proposals sought to rejuvenate the civic environment, improve local infrastructure, and reorient patterns of urban settlement in order to ameliorate the lives of local residents and enhance public access to Delhi's culturally and ecologically vital Yamuna River. This phase developed significant public engagement for the project, with a series of exhibits and public lectures in India, in Europe, and in the United States and culminated in an award-winning publication: Yamuna River project, New Delhi Urban Ecology.

The XXI century has been described as the century of the cities. With more than 20 mil-

lion inhabitants, Delhi is the second most populous city in the world, and the first in the developing world. With the Yamuna River as its anchor, Delhi has served as a capital city for over eight centuries -- for the Mughal Empire, the British Raj, and for post-independence India. The construction of the British capital initiated the change in the relation between the river and the city, severing the traditional spatial interdependence. The dramatic contemporary situation is thus that of a sacred river, with polluted waters, crossing a forgotten floodplain, cut and encroached by haphazard infrastructure, illegally occupied and exploited, and one from which the city, uncharitably, now looks away. The cleansing of the rivers and the transformation of 100 river cities is one of the main political priorities of the country, as stated by the Indian Prime Minister -- Narendra Modi. Both the river -- as the public commons much like the traditional "maidaan" (accessible and combining ecological performance, food production and socio-ecological public space), and the extraordinary legacy of historical buildings and spaces (open, connected to the city and recovered) can become the central urban structure of the capital. New architectural and public space proposals, responding to the pressing social needs will be the purpose of the design research. The Najafgarh Drain, offers the opportunity to work in the different urban and landscape fabrics, searching for innovative proposals in the most acute "cross section" of the city and its water system.

Therefore, the second phase of the project commencing Spring 2021, will focus on revitalizing the Yamuna river and recovering its connections to Delhi's urban fabric by developing a comprehensive vision and strategic interventions in the following two key areas:

1. The main tributary of the Yamuna: the Najafgarh drain. Examining a portion as case study to extract lessons for the entire drain.
2. The connection between New Delhi and the Yamuna, particularly in the Lutyen's zone where the connection with the river was never resolved.

The studio is conceived as a research team that combines collective and individual work, with the expectation of three outcomes:

1. An individual urban project, most likely a building, integrated in the urban context. The decision of site, program and area of intervention will emerge from the study and deliberate proposal of urban strategy.
2. A collective Master Plan, developed by the studio as a team, that will build upon work from the previous phase.
3. A substantial body of research, with graphic synthesis, on the different urban layers that create the city: socio-economics, ecologies, infrastructures, mobility, culture, physical urban fabric, etc.

The studio will coordinate the graphic expression for several reasons: a/ the need

for sharing information by all the team members, b/ the need for the materials to be communicated to other constituencies with consistency, c/ the curation of the final outcome of the studio as a public exhibition to be shown in the USA and in India. The project's objective is to engage the efforts of government agencies, experts and activists in an ongoing program to address the multidimensional challenges posed by the vision of Re-Centering Delhi. The signing of a Memorandum of Understanding with the Indian and Delhi Governments through the Delhi Jal Board makes revitalizing the ecology of the Najafgarh drain, the source of 60% of Yamuna's pollution in the Delhi area, an important focus of Phase Two. Over the longer term, the Yamuna River Project's objective is to build a publicly accessible body of knowledge and expertise that will catalyze efforts to reinvigorate the Yamuna's ecological system in Delhi. This multi-disciplinary exercise shall create a template applicable for the many cities and emerging economies in the global south.

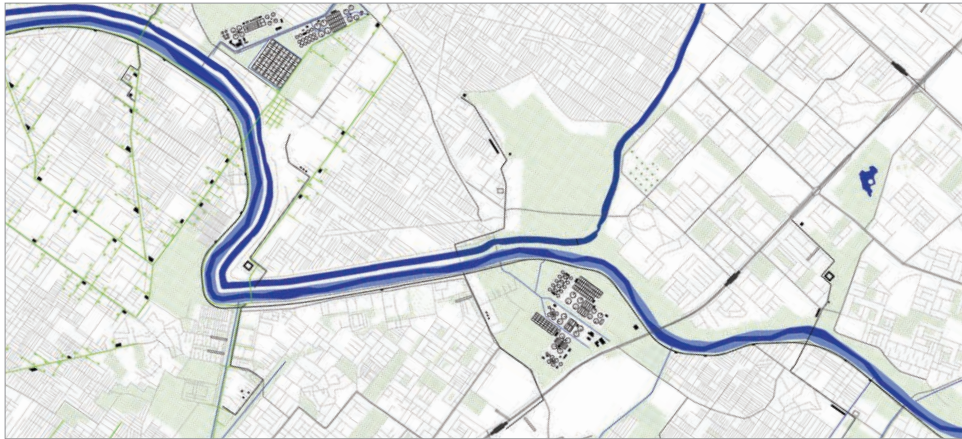
visit www.yamunariverproject.org for more information

KEY AREAS OF FOCUS

NAJAFGARH DRAIN



LUTYEN'S DELHI



What is known as the Najafgarh Drain in Delhi is really the Sahibi River, originating near Jaipur in Rajasthan. An ephemeral river, it may run dry; but during the monsoon it is an important source of water in an arid region. In Delhi the Sahibi used to feed the Najafgarh Lake, which covered as much as 300 sq km. A natural shallow river connected the lake to the Yamuna. In the 1960's the government widened this natural course bed and channelled it, leading to the drainage of the lake. The lake bed became available for development, and the waterway became a liquid dump, collecting untreated sewage from tributary drains and depositing it all into the Yamuna just beyond Wazirabad, where the natural flow of the river is diverted. As Delhi continued to expand, urban fabric engulfed the Najafgarh Drain. Because the Najafgarh Drain is so wide, and connections across it so few, it acts as a wall slicing Delhi apart. Like the Yamuna, the Najafgarh's smell and span reinforce boundaries and cause people and neighborhoods to turn away. Yet before entering Delhi, the drain still exists like a river, attracting birds and waterfowl.

The Delhi Jal Board is in the process of installing interceptor sewers along the subdrains to capture polluted water in the drain system and divert it to nearby sewage treatment

plants. This process will effect 78 tributary drains that flow into the Najafgarh Drain and dramatically transform the function and character of the drain system.

Without a holistic urban design approach the new drain conditions will continue to be a major environmental and health hazard for millions of Delhi's inhabitants. The Najafgarh sub-drains need to be rethought as ecological linear parks during the dry season and designed to evacuate large amounts of storm water during the monsoon. The seasonal presence of water will create rich biodiversity corridors penetrating the city and connecting it with the Najafgarh River corridor. By restoring it's connection to the city through design interventions, the Najafgarh drain can be transformed into a critical piece of public infrastructure and a major artery for the city of Delhi.

There are four sewage treatment plants along the drain that would be able to supply a continuous flow of water during all seasons. One of the questions is what these 'fountains' need in order to provide clean water to the river system.



The capital city of the British Empire in India was moved from Calcutta to New Delhi in 1912 following the partition of Bengal. The centrality of Delhi in the imagination of Indians as the 'Capital' after the revolt of 1857 forced the British to acknowledge it and build a city there that signified the permanence of their empire¹.

British interventions severed the connection between the city of Delhi and its water long before the construction of the new capital. The redirection of Yamuna's water into canals at Hathnikund to irrigate large swaths of Haryana and Uttar Pradesh, rendered the existing system of communal water management dysfunctional using Baoli's and Bunds in Delhi. Railways constructed north-south connecting major commercial centres along the river further created a division between the city and its river. Edwin Lutyens, who was part of the original town planning commission sent to India, was chosen as the architect to design the new capital. Major buildings were designed by Herbert Baker. Other important influences on the design were Lord Hardinge, then Viceroy of India and Henry Lanchester, another British architect. The new capital which prioritised formal geometry over connections to the existing fabric of the city was anchored on Raisina Hill, an

elevated platform south of the Mughal city of Shahjahanabad. The Viceregal palace was the first major building since 1500's, built away from the river bank. Despite several attempts, the connection of the new urban axis to the Yamuna River was never formalized. This shift of emphasis away from the river marked the beginning of New Delhi's future growth with the river as the backyard, a significant departure from the Mughal capital where the Red Fort was situated in harmony with the Yamuna, proudly sitting on its banks.

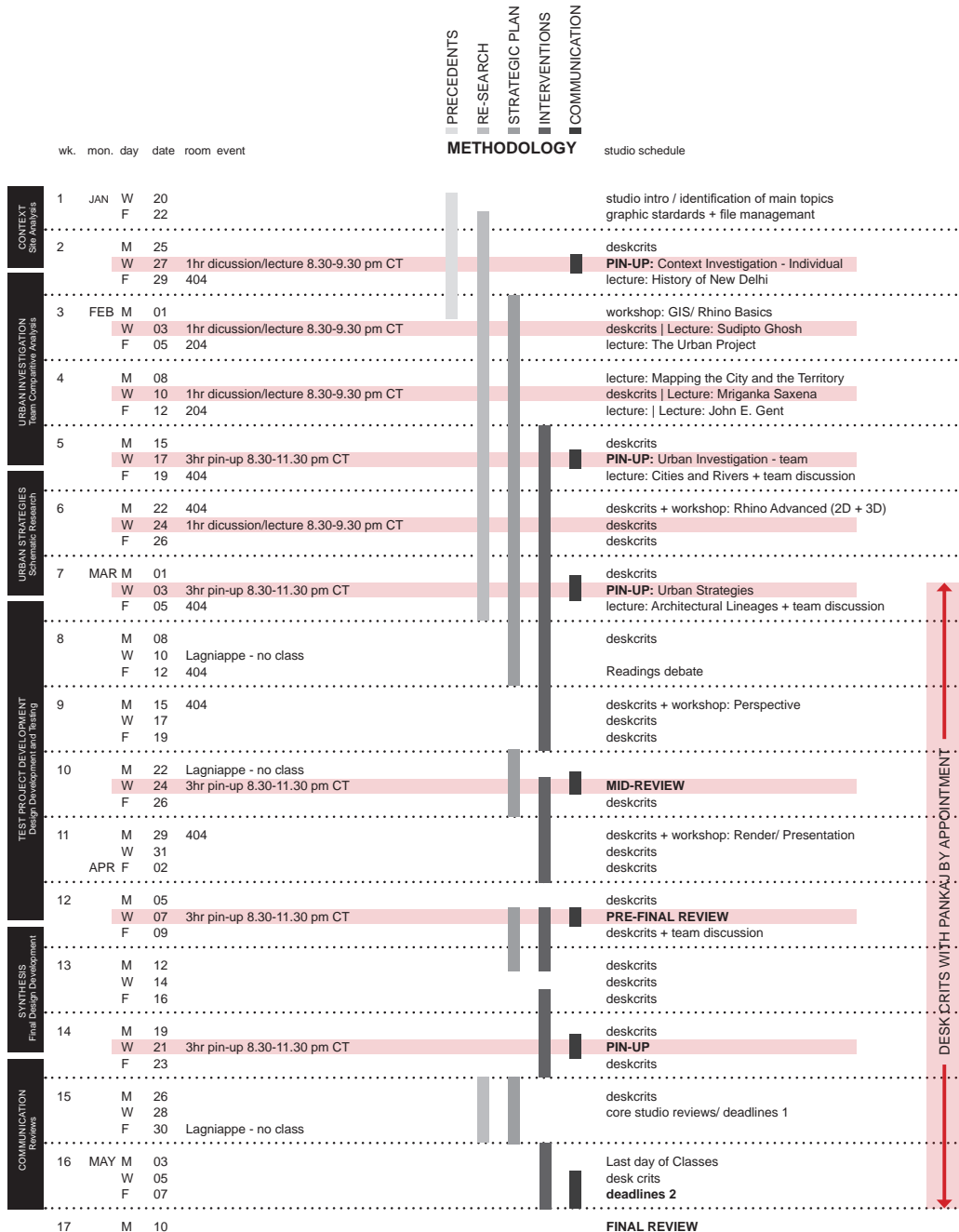
Currently, as the global political climate leans towards right-wing populism — in India, a sectarian government with autocratic tendencies endeavours to leave its mark on the city as several civilisations have before them. The central vista project is threatening to deprive the city of its heritage and public space and has been criticised for its opacity, top-down approach and haste. Altering the Lutyens' zone in such a cavalier manner by short-sighted policies to serve narrow interest groups is a grave concern². The development of this area must accompany a holistic understanding of the socio-ecological context, the layers of embedded history as well as the future aspirations of the citizens of Delhi and India.

¹ Chianti Seema., "Set in stone." The Indian Express, August 29, 2009

² Shrivastava, Anuj. "Why the redevelopment of Delhi's Central Vista is a matter of grave concern." The Wire, 06 March 2020

SCHEDULE

* Subject to change/adjustment



METHODOLOGY

1. CONTEXT RESEARCH

(2 weeks)

Individual investigation on Delhi focused on themes:

- History
 - Social challenges
 - Ecological challenges
 - Current debate and history of planning
 - Culture and religion
 - Political fabric
 - Water and riparian structure
 - Housing and migration
- Delivery: Narrated Visual Presentation
PIN-UP: Wednesday Jan 27

2. URBAN INVESTIGATION

(3 weeks)

In groups of two students, each in one site, through a comparative method looking at the same issues in both:

- Socioeconomics: who lives, who works, who uses each area, how they move
 - Urban morphology and land use
 - Urban infrastructures
 - Ecologies and riparian system
- Delivery: Urban Mapping and Diagramming
PIN-UP: Wednesday Feb 17

3. URBAN STRATEGIES

(2 weeks)

Development of an urban vision of transformation for each of the two portions of Delhi, defining the relation with the river (Yamuna or Najafgarh/Sahibi), the urban ecologies and the infrastructural interventions.

Delivery: Site drawings at several scales (site, detailed areas, samples of intervention)

PIN-UP: Wednesday Mar 03

4. TEST PROJECT DEVELOPMENT

(5 weeks)

Individual tests of implementation of the vision through public space/infrastructural interventions, insertion of new typologies or singular strategic interventions.

Delivery: Several scales as needed, including material definition

MID REVIEW: Wednesday March 24

PRE-FINAL REVIEW: Wednesday Apr 07

5. SYNTHESIS

(2 weeks)

Development of principles, systemic implementations, incremental processes and policy recommendations. Format: exhibition/publication.

Delivery: Research paper Abstract and Outline

PIN-UP: Wednesday Apr 21

6. COMMUNICATION

(2 weeks).

Graphic refinement, representational strategies and final resolution of the urban strategies and test proposals

Delivery: Compilation of the semester's work

PIN-UP: Friday May 07 (tentative)

NAJAFGARH AND THE YAMUNA

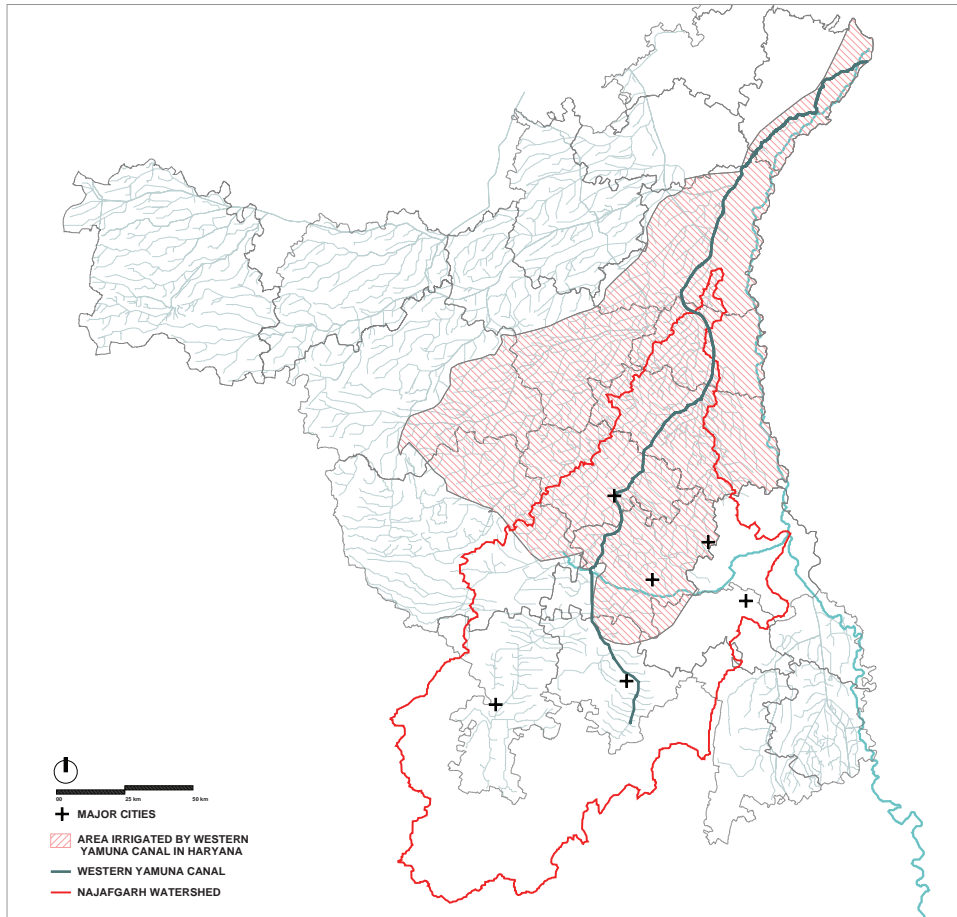


Figure -1

The two largest canals of the Yamuna system are the Western Yamun canal and the Eastern Yamuna Canal, both of which originate at the Hathnikund Barrage in the state of Haryana, 250 km north of Delhi. They respectively irrigate 486,000 hectares and 191,000 hectares in Haryana and Uttar Pradesh annually. The Hathnikund Barrage diverts a majority of the river, leaving only residual flows of 3% to

continue down the Yamuna river to Delhi. Figure-1 highlights the area irrigated by the Western Yamuna Canal in Haryana. Figure-2 shows the watershed of the Najafgarh drain which originates near Alwar in Rajasthan. Major cities in Haryana lie in this watershed and contribute to the pollution that reaches the Yamuna.

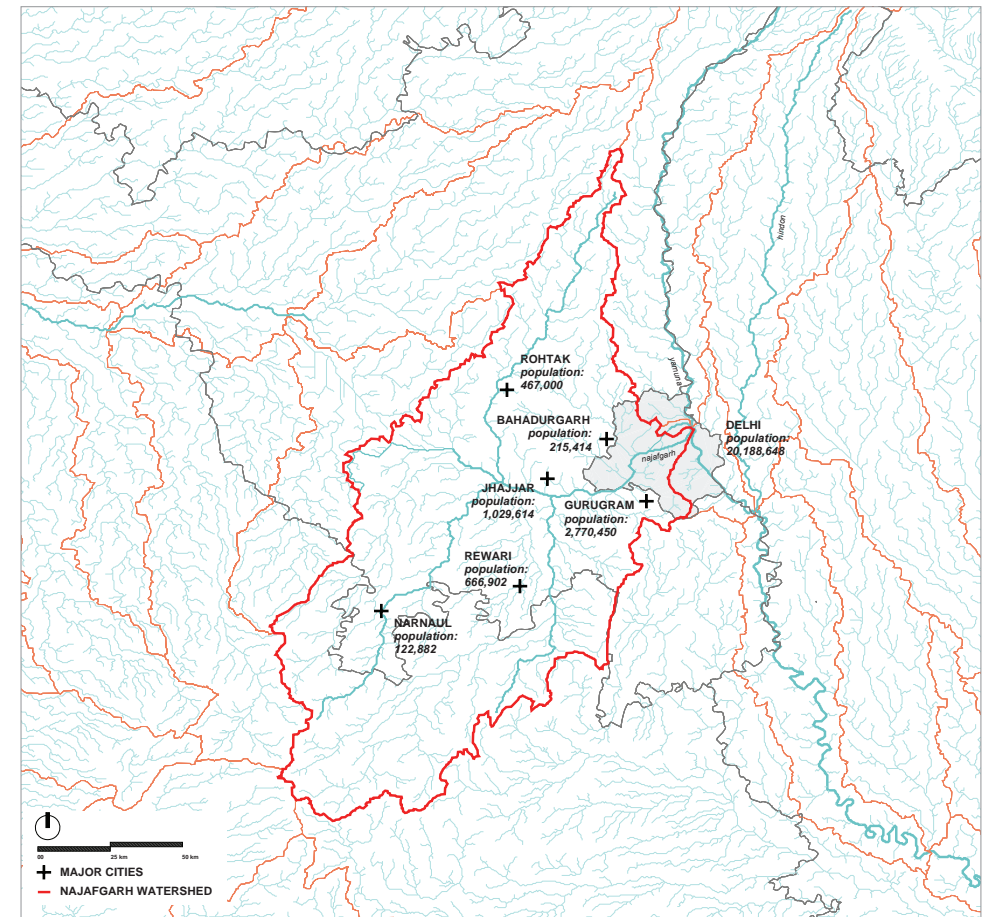
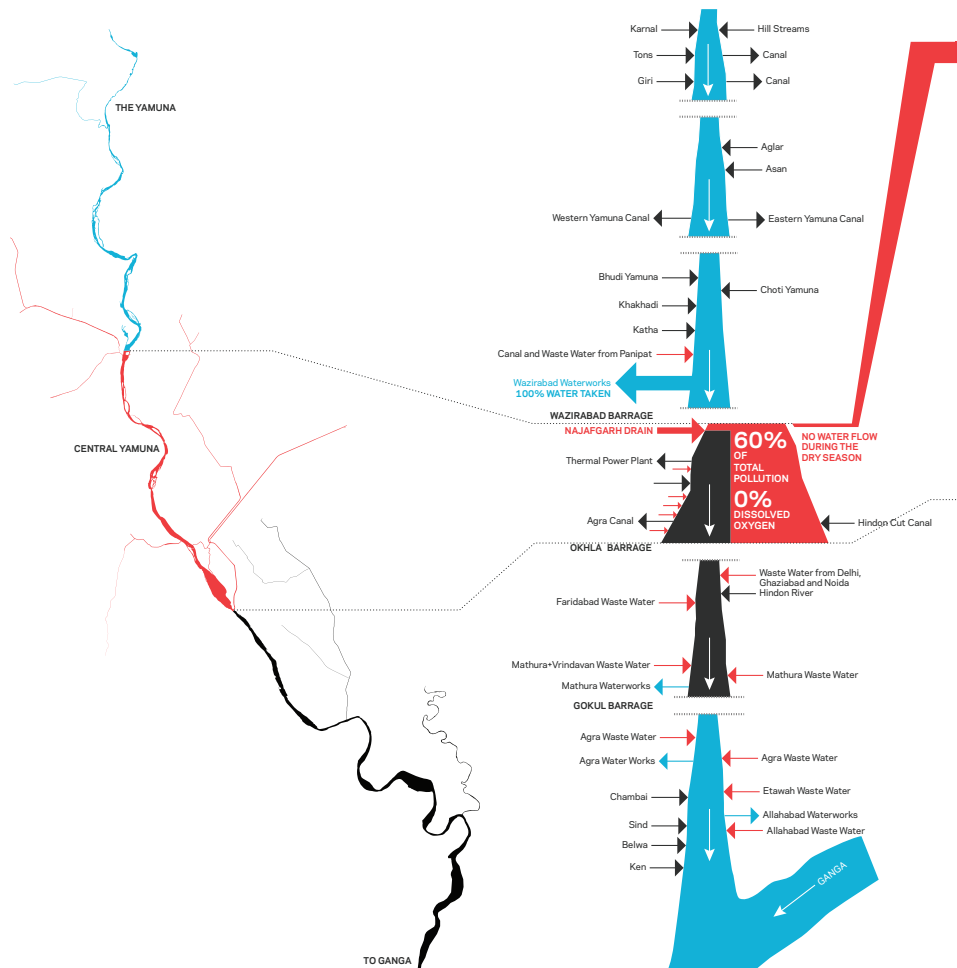


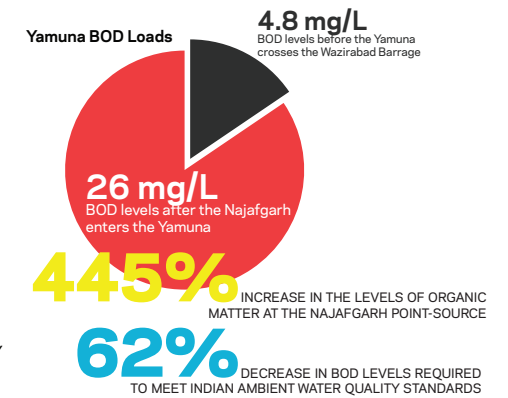
Figure -2



Organic Matter (BOD) Loads from Delhi Area Drains, May 2015

NAJAFGARH DRAIN 7155.0 KG/DAY

MAGAZINE ROAD	43.1
SWEETPEA COLONY	16.8
KYBER PASS	3.2
METCALF HOUSE	29.6
QUDDIA BAGH	108.9
TONGA STAND	29.4
CIVIL MILL	202.8
DRAIN NO. 14	395.0
POWER HOUSE	237.9
SEN NURSING HOME	184.4
BARAPULLA	275.4
HINDON CUT	2345.8 KG/DAY
MAHARANI BAGH	359.6



Research Director: W. Lung, Professor of Civil and Environmental Engineering
Research Team: K. Carter, M. Grady, J. Johnson, E. McDuff, V. Tran, T. Zhang



Satellite Images: Esri, Digital Globe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN and GIS User Community

1.6% (22km)
of the length of the Yamuna River is the Delhi segment, stretching from the Wazirabad to Okhla Barrage.

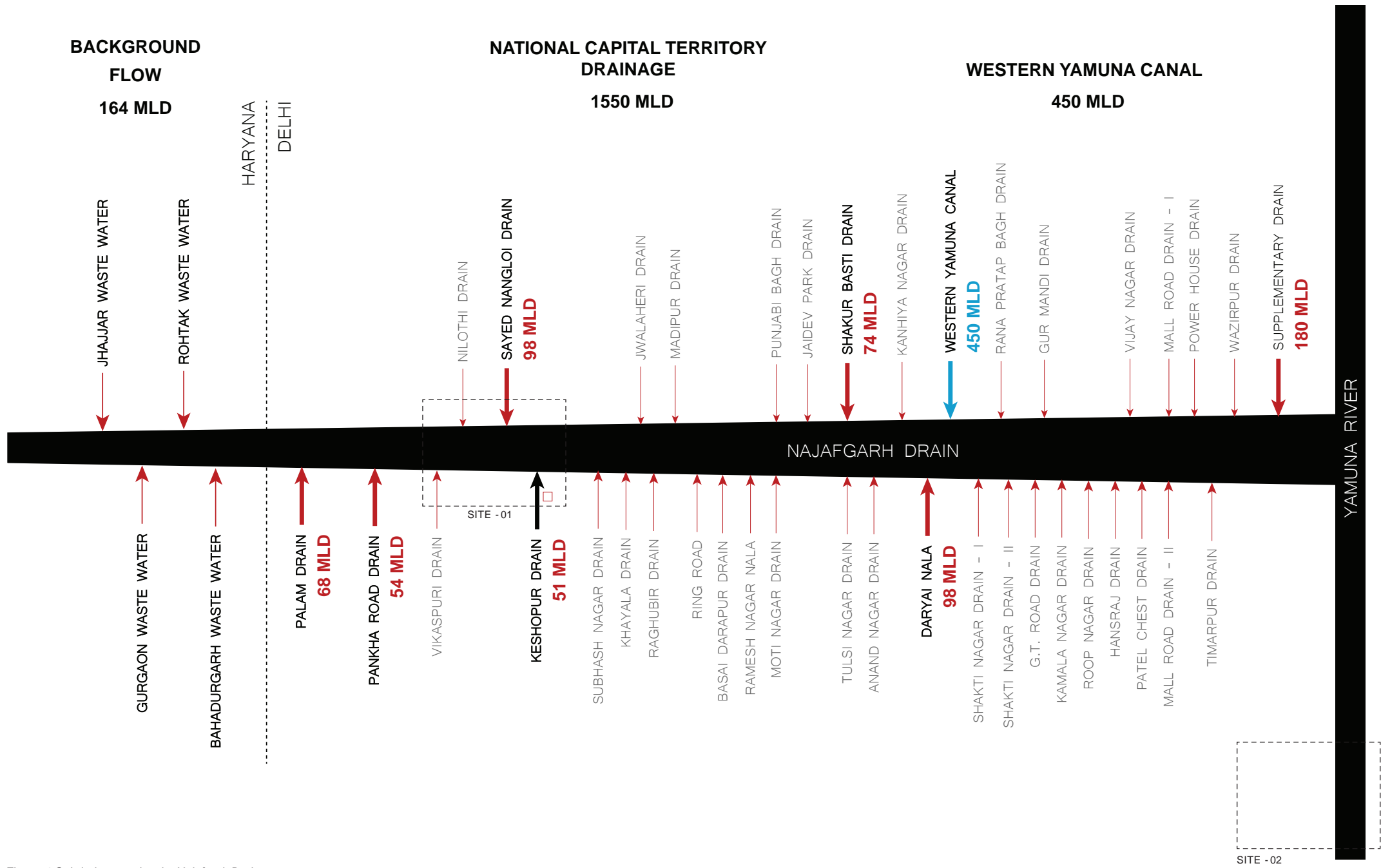
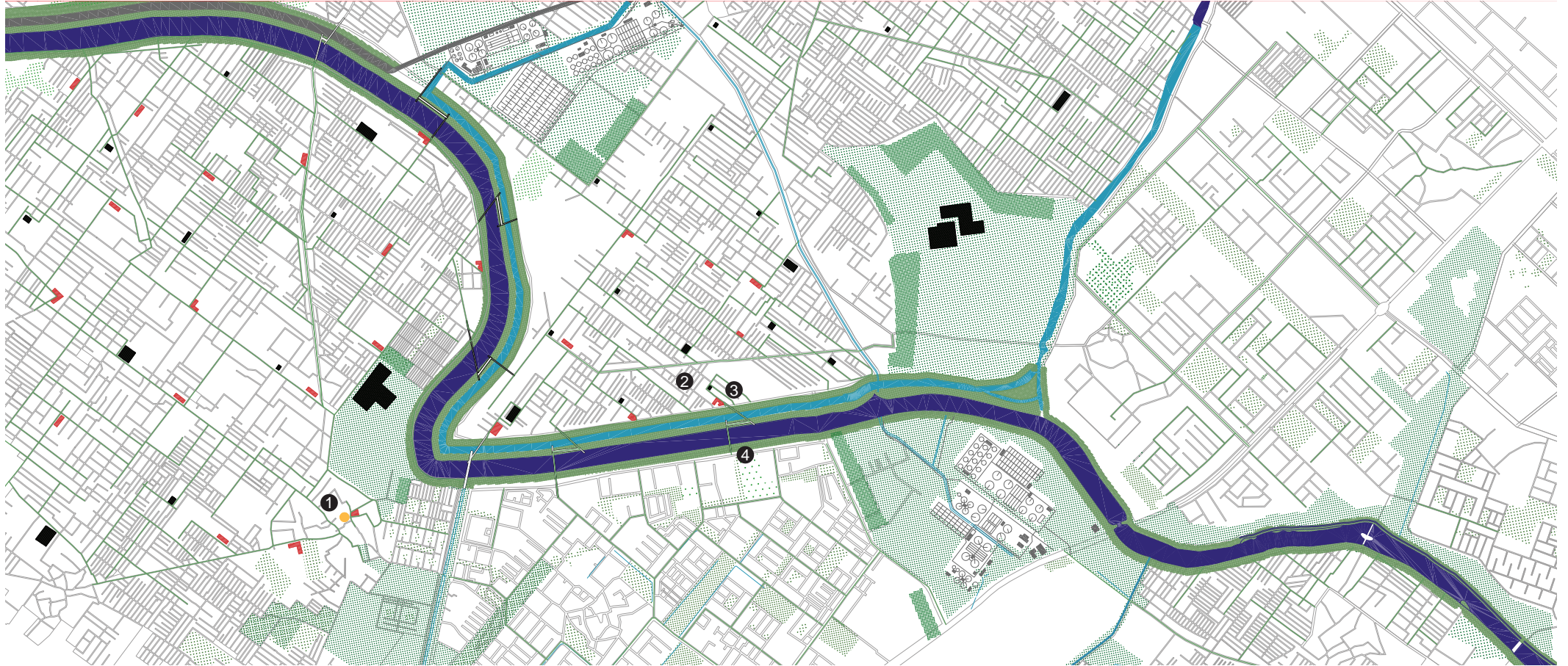


Figure -3 Subdrains entering the Najafgarh Drain
Source: WAPCOS, 1999

URBAN VISION

NAJAFGARH DRAIN



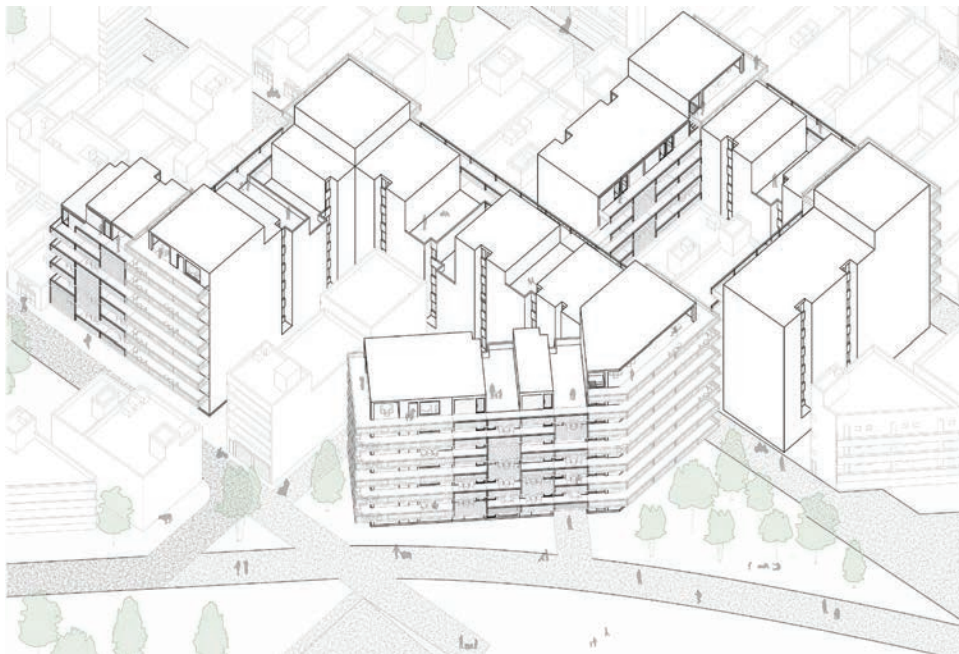
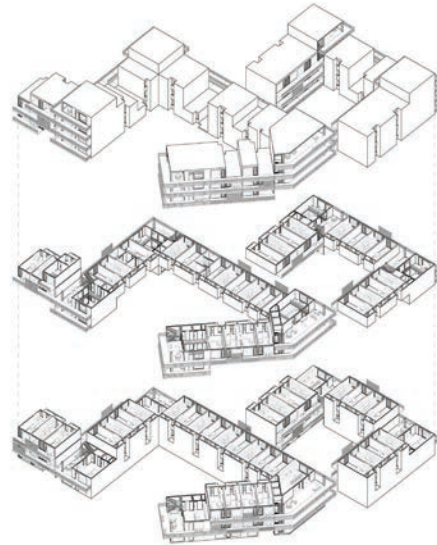
1. Kareem Elsandouby
2. Elliot Moreau
3. Nick George
4. Sean Tichenor

TEST PROJECTS

COOPERATIVE AFFORDABLE HOUSING AND COMMUNITY AMENITIES

Nick George

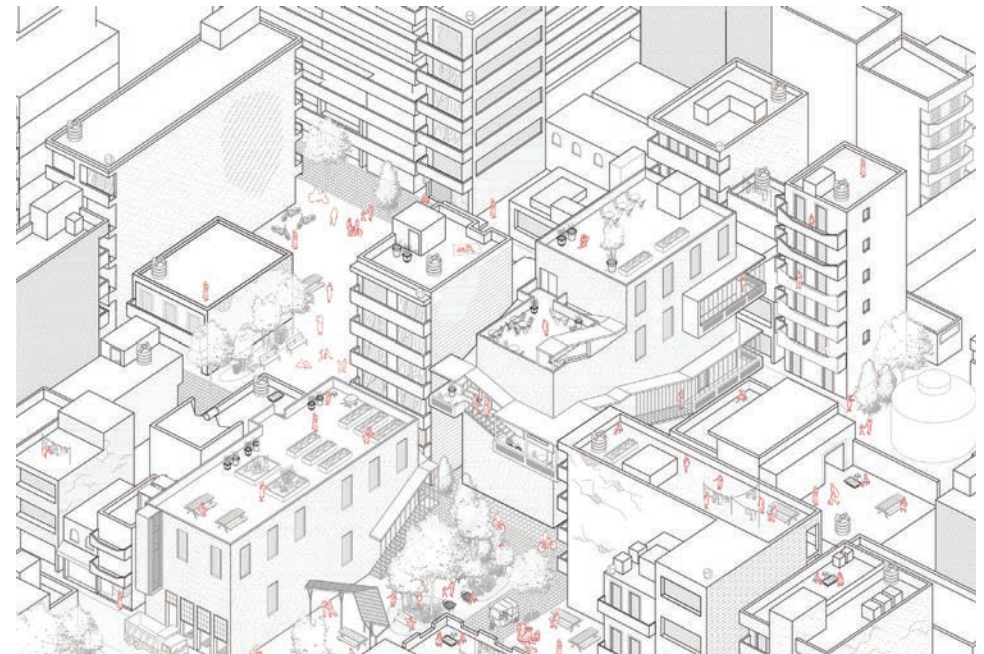
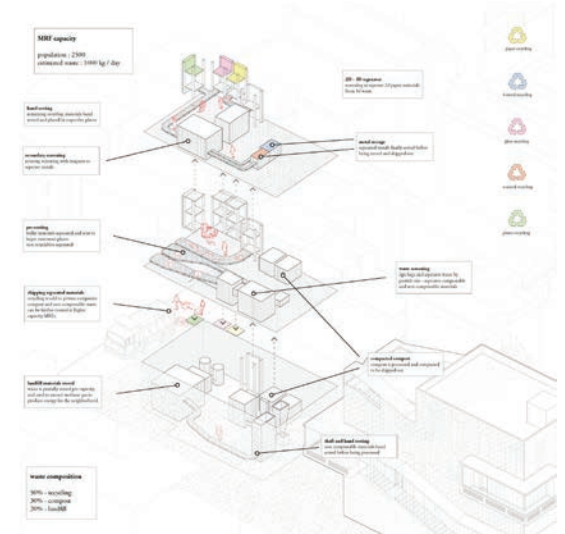
The current estimated need for housing in the capital city of Delhi, India is approximately 2.3 million dwelling units. Within portions of the city, especially in the neighborhoods of Nilothi and Hasthal, the need for housing is exacerbated by the lack of sufficient housing stock whereby an average of four to eight persons inhabit only one to two room dwellings. This project investigates the development of higher density through cooperative model of ownership that helps to increase the availability of affordable housing while producing economic development for the plot owners. Through a systematic removal of low-density structures, a new higher-density housing development comprised of a specified set of dwelling unit modules is instantiated in said previously underutilized space.



INTRODUCTION OF INFRASTRUCTURES AND PUBLIC AMENITIES IN NILOTHI

Elliot Moreau

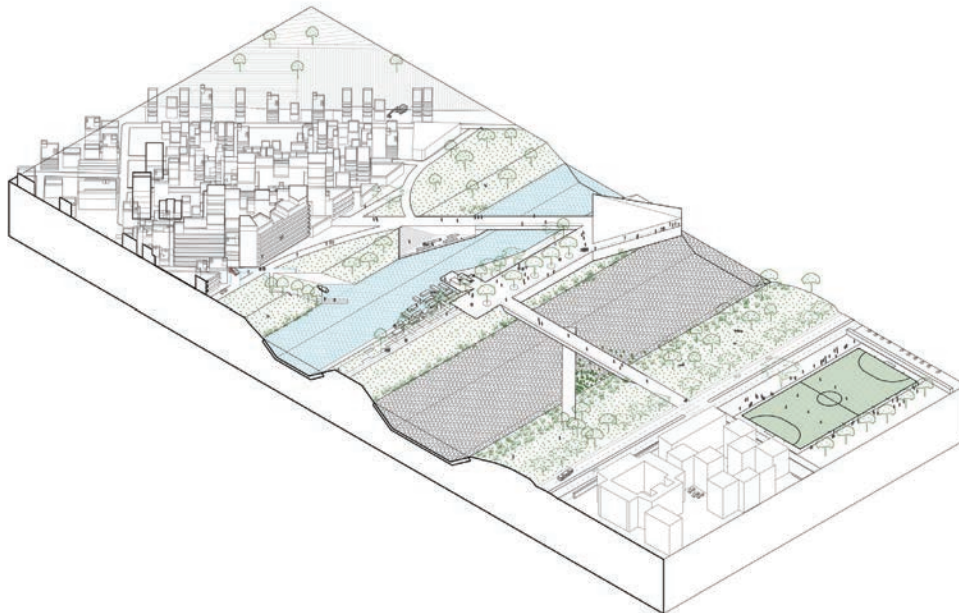
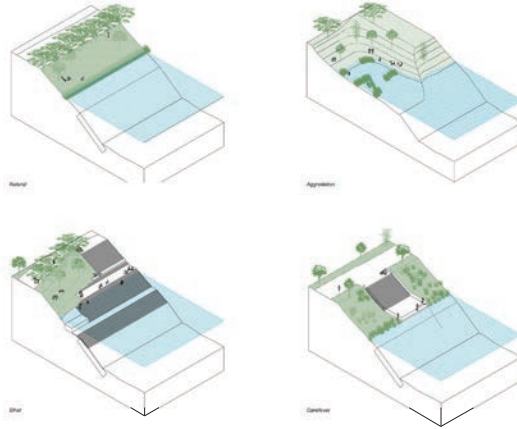
The neighborhood of Nilothi began as an agricultural settlement that has grown to become an informal neighborhood in Western Delhi and has now become one of the densest areas in the city. The population is projected to double in the coming decade. The neighborhood lacks proper infrastructure to deal with its sewage which flows untreated into the Najafgarh Drain along with trash and wastewater. This project introduces a decentralized infrastructure system that localizes the treatment of waste and sewage and reuses their products to create a micro economy and re-vegetate the site. These new centralities serve as public nodes, part of a larger network of public spaces and programs within the dense urban fabric to create resilient and democratic public infrastructures and urban occupation.



RECOVERY OF THE NAJAFGARH DRAIN AS PUBLIC SPACE

Sean Tichenor

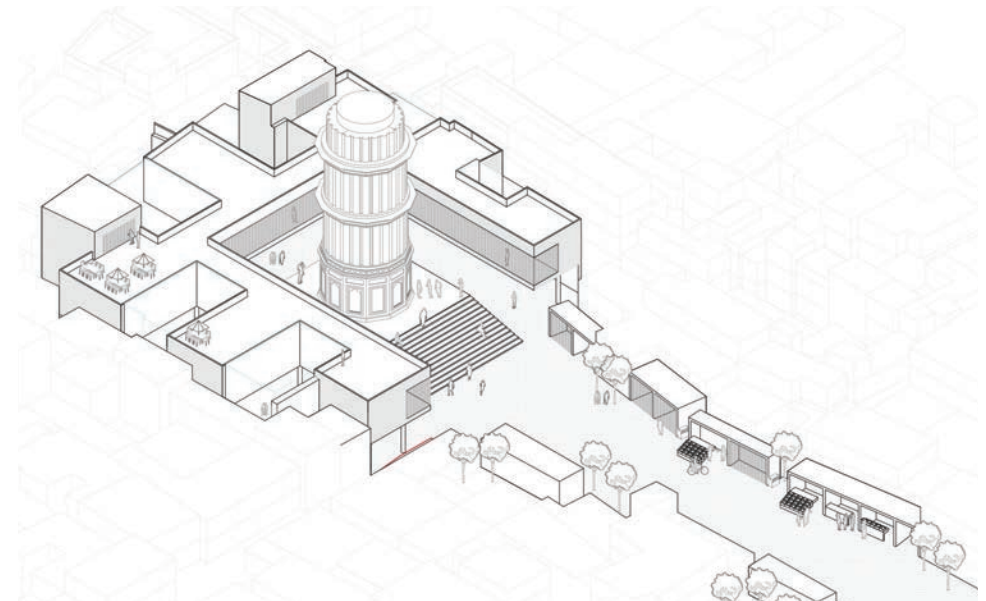
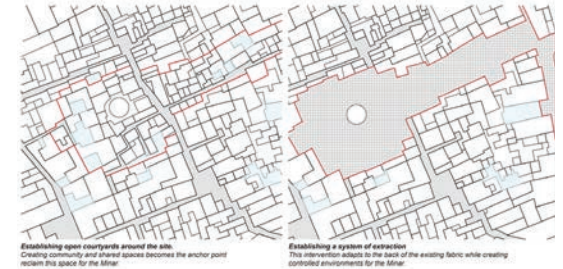
To return to a Delhi which has an intimate relationship with its water systems, where do we start? Lessons of urban theory tell us that large, state controlled, centralized projects may not be appropriate in this case. The channelization of the Najafgarh, in fact, produced some of these problems in the first place. The restoration of Delhi's waters must rely on social and decentralized infrastructures to maintain itself. These infrastructures can be started with a change in urban imaginaries. Interventions which provide an example and vision of clean water systems can plant seeds of urban imaginaries with clean water. The project proposes to isolate the Supplementary and Mungashpur drains, diverting them through the unused capacity of the Nilothi STP, producing a landscape of clean water running parallel to the polluted Najafgarh while introducing public spaces and amenities along these new arteries.



RECOVERY OF HASTSAL MINAR AS PUBLIC HERITAGE SITE

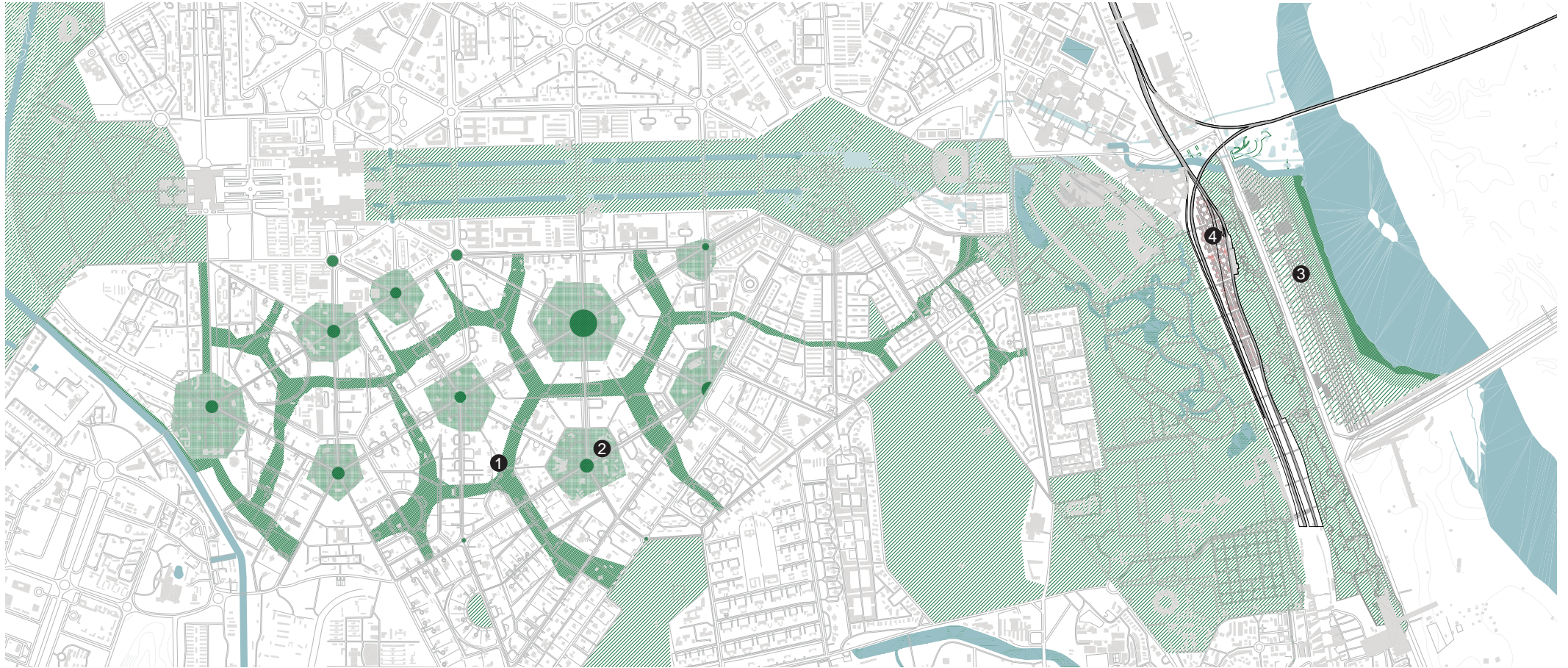
Kareem Elsandouby

The Hastsal Minar is a Mughal-era monument, built by Shah Jahan in the early 17th century. Referred to as a "mini Qutub Minar", the physical condition and historical conservation of the Hastal Minar could not be more different from its namesake in Mehrauli. Today, though technically a protected heritage monument per India's Department of Archaeology, the minar is threatened by the encroachment of haphazard slum construction. This proposal blends conservation and social innovation to restore the monument's historical form and offer public amenities that the neighborhood lacks. The Hastsal Minar is restored and its immediate context re-purposed to elevate its stature as a public node with civic amenities, providing the citizens with a community space that connects with a network of public spaces/ parks along the drain and becomes a launchpad for socioeconomic progress.



URBAN VISION

LUTYEN'S DELHI AND THE YAMUNA



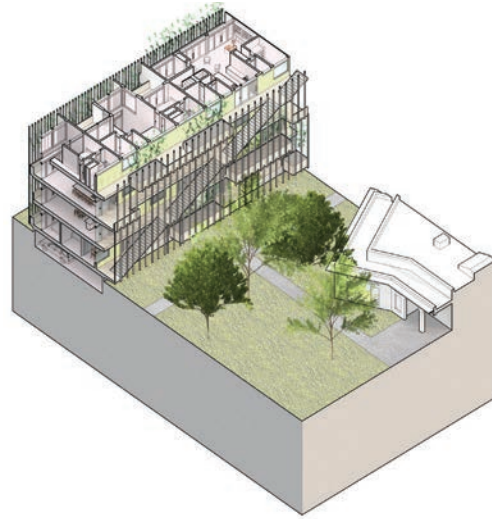
1. Zach Braatten
2. Xia Li
3. Danielle Sheeringa
4. Bhumika Shirole

TEST PROJECTS

DEMOCRATIZATION OF LUTYEN'S DELHI: THE BLOCK

Zach Braatten

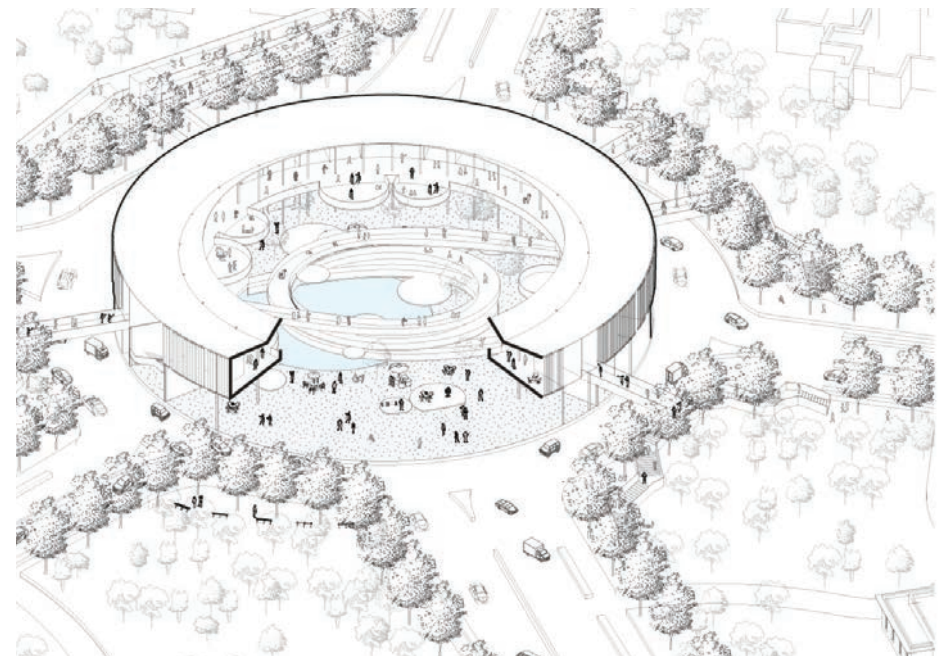
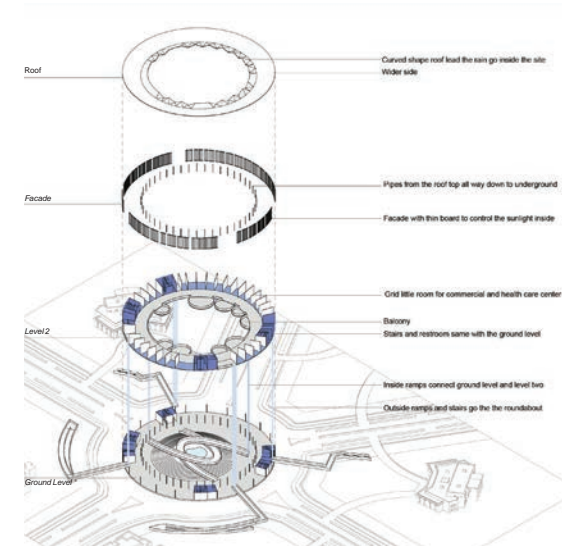
This project outlines ways to realize the potential of the Lutyen's Bungalow Zone as a cultivator of democracy. The project proposes to introduce new housing while retaining most existing bungalows and tree coverage, thereby increasing density in this well connected heart of New Delhi. Housing the government officials closer to the center will reduce commutes for the burgeoning workforce, while spaces for formal and informal commercial activity will introduce elements of the urban fabric currently underdeveloped. A new, secondary grid of parkland will link the Central Ridge Forest to the Yamuna River and the heritage sites near the flood plain, connecting the river to the city.



DEMOCRATIZATION OF LUTYEN'S DELHI: THE INTERSECTIONS

Xia Li

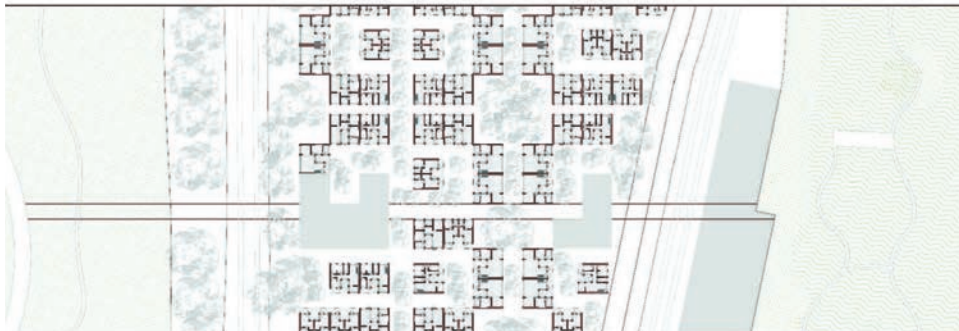
In New Delhi's unique urban plan by Edwin Lutyen's for the political center, modulated in hexagons or triangles, the intersections are treated as traffic roundabouts, resulting in disconnected and underutilized islands with manicured gardens. This network of 24 roundabouts in the Lutyen's zone have the potential to become a new vehicle for the democratization of the public spaces in New Delhi. These nodes can house amenities like public bathrooms, women's clinics, classrooms, municipal offices etc and connect with the pedestrian network and amenities on the streets. This high-quality green space can also help in coping with the persistent flashfloods and excess floodwater by serving as a drainage basin to collect and harvest rain water during monsoons.



RE-ENVISIONING RAILROAD CORRIDORS AS NEW NEIGHBORHOODS

Bhumika Shirole

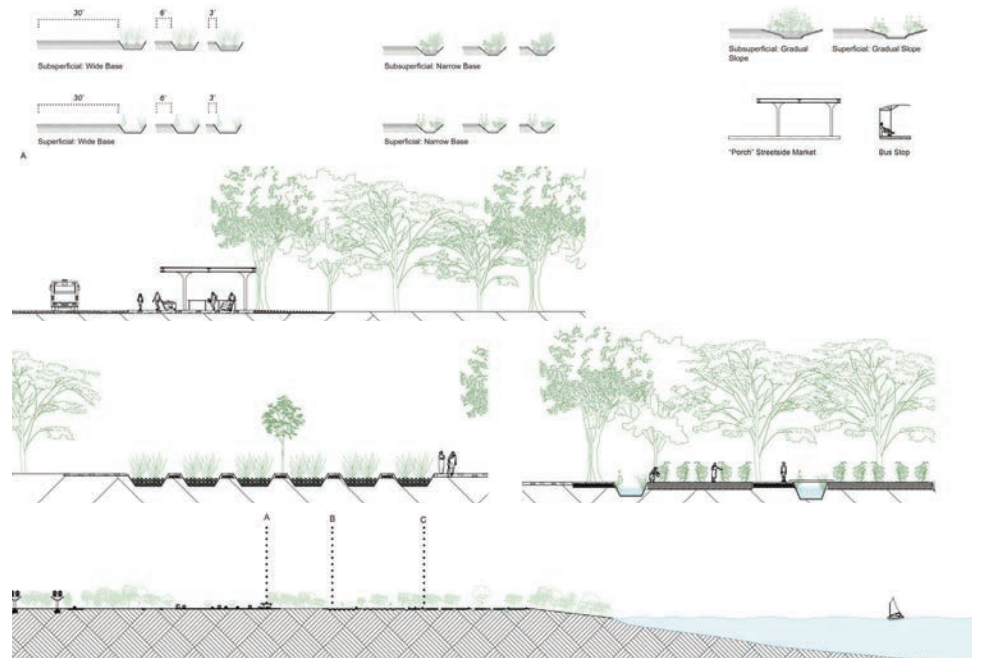
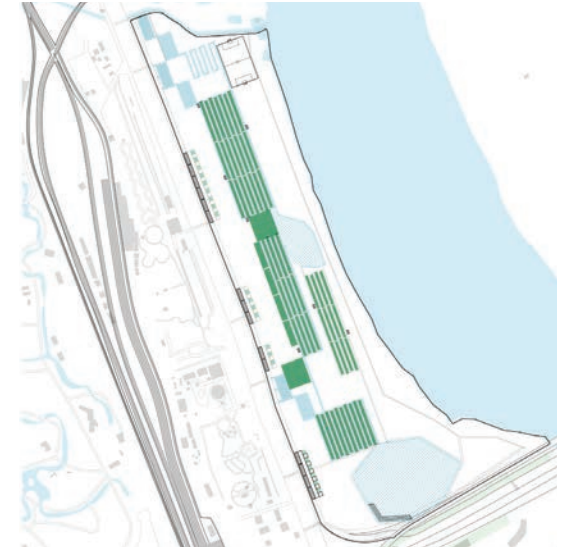
In the Lutyens' area in New Delhi, the railway tracks run parallel to the Yamuna and act as a divider between the city and the river. On the west lie the government capital, public amenities, commercial activity, historic monuments and parks along with cultural amenities in the immediate context such as the Purana Qila, National Zoological Park, Sunder Nursery and Humayun's tomb that are currently disconnected from river floodplain. In contrast, the eastern side of the railway is occupied by the flood plain, infrastructures such as a Bus Depot, storage facilities, energy plants, farmland, a highway and a park that was formerly a landfill. This project aims to connect Lutyen's Delhi and the spine of cultural and heritage amenities to the Yamuna flood plain through re-envisioning railroad corridors with affordable housing neighborhoods.



RECOVERY OF BROWN FIELDS IN THE FLOODPLAIN WITH WASTE ZERO

Danielle Sheeringa

This project proposes to remediate the Millennium Bus Depot, a 51-acre concrete brown field on the Yamuna flood plain built for the Commonwealth Games in 2010 and now in the process of being phased out. The depot is fenced in by major highways, railroads, a polluted park on a former landfill (that continues to affect groundwater quality), informal farming, a drain, and the Yamuna River. Just beyond lie cultural heritage sites and the political center of the country. The site cannot be returned to its natural state without shifting refuse and chemical absorption to other areas. Therefore, the site must explore alternative solutions that assume the human disruption caused by the construction of the depot, while restoring the functionality and value of the ecosystem and floodplain.



REVIEWERS



SAMEH WAHBA

Global Director, Urban, Disaster Risk Management, Resilience and Land Global Practice, World Bank

Sameh Wahba, an Egyptian national, is the Global Director for the World Bank's Urban, Disaster Risk Management, Resilience and Land Global Practice, based in Washington, D.C. The Global Practice, which also covers territorial development, geospatial and results-based-financing issues, has a portfolio of close to \$30 billion in commitments in investment projects, program-for-results and development policy lending, and about 450 staff. Prior to this, Mr. Wahba served as the Director for Urban and Territorial Development, Disaster Risk Management and Resilience at the World Bank Group's Social, Urban Rural, and Resilience Global Practice, where he oversaw the formulation of the World Bank's strategy, design, and delivery of all lending, technical assistance, policy advisory activities, and partnerships at the global level. He also served as Practice Manager for the Urban and Disaster Risk Management unit in Africa and the Global Urban and Resilience Unit, and as Acting Director of Operations and Strategy for the Global Practice. He worked as Sustainable Development Sector Leader for Brazil, based in Brasilia, and as an urban specialist focused on housing, land, local economic development, and municipal management and service delivery in Latin America and the Caribbean as well as the Middle East and North Africa Regions. Prior to joining the Bank in 2004, he worked at the Institute of Housing and Urban Development Studies in Rotterdam and at the Harvard Center for Urban Development Studies.



HORACIO TERRAZA

Lead Urban Specialist, World Bank

Horacio has more than 20 years of professional experience in the urban-environmental field, having worked both in the private sector and multilateral development organizations. He is currently the Lead Urban Specialist for the Latin American Region of the World Bank focusing on cities, urban infrastructure and resilience. During the previous 8 years he worked at the Inter-American Development Bank (IDB) as the Coordinator of the Emerging and Sustainable Cities Initiative (ESCI) and as Principal Water Specialist. Before the IDB Horacio worked for 11 years as a Senior Environmental Specialist at the World Bank, leading the urban environmental agenda and coordinating operations related to carbon finance in the Latin American Department. Prior to that, he worked in the private sector as Project Manager for environmental engineering companies providing treatment and final disposal of hazardous substances. Horacio has extensive experience in complex projects related to urban infrastructure and industrial pollution, implementing many of these within the framework of the principal international environmental protocols including: The Stockholm Convention on Persistent Organic Pollutants, the Convention on Climate Change and the Kyoto Protocol and the Montreal Protocol on Substances that Deplete the Ozone Layer. Horacio was trained as a mechanical engineer at the National University of La Plata in Argentina and holds a Master's in International Economics and International Relations from the Johns Hopkins University School of Advanced International Studies (SAIS).



KENTARO TSUBAKI

Favrot Associate Professor of Architecture, TUSA

Kentaro Tsubaki is an Associate Professor and former Associate Dean for Academics at Tulane School of Architecture. He joined the faculty in the fall of 2009 from Texas Tech University, where he was an Assistant Professor. He earned his B.Sci. in Physics from Kyoto University prior to pursuing his M. Arch. I. degree from University of Colorado and M. Arch. II. degree from Cranbrook Academy of Art. He is a registered architect in the state of Louisiana and in New York where he practiced as an associate at PKSB Architects, P.C., from 1997-2006. Tsubaki's primary area of interest is in the tectonics of architecture, the materiality, and the logic of construction. His research focuses on what he calls an "imperfect extension" of architectural elements, an unorthodox approach to current trends where precision in planning and assembly is valued. His research is recognized on a national level in 2014 with JAE Best Design as Scholarship Article Award. His article, Foldout Drawing: A Projective Drawing for Fabric Forming was awarded as one of the two best articles published in the year by the Journal of Architectural Education, the flagship publication of the Association of Collegiate Schools of Architecture. He has lectured extensively on the subject, and the work has been featured in numerous publications and exhibitions. Tsubaki is equally prolific in the area of innovative design pedagogy. His insistence on direct, material-based explorations in studios and seminar courses are the hallmark.



CATHERINE SCKERL

PhD Student: City, Culture, & Community Urban Studies, TU

Catherine Sckerl is an architect and urban planner with research interests in cultural and place identity, participatory design, place-making, and disaster recovery and international development. Originally from South Dakota, Sckerl completed her MArch at Tulane and MA from Oxford Brookes University before moving to Austin, TX. Her past research has addressed themes of participatory design and cultural/architectural heritage at sites ranging from the Treme in New Orleans to St. Petersburg, Russia to Venice, Italy. As a professional, Sckerl founded Espero Planning & Design Studio in 2011 and has worked with neighborhood organizations and non-profits, municipalities, and institutions to develop long-range master plans that capture and reflect the values of the local community. Key projects have included an NEA-funded Our-Town Grant for Creative Place-making with the Austin Film Society, campus planning and implementation at Austin Studios, university master planning for Texas A&M University-San Antonio, and Downtown Master Plans for the Cities of San Marcos and Edinburg, TX. Sckerl also worked on redevelopment plans for a few Gulf Coast communities following Hurricane Katrina. While vernacular place-making processes are of particular interest, Sckerl's broader area of investigation centers on cultural and place identity of the built environment.



MRIGANKA SAXENA

Architect and Urban Designer

Mriganka is an Architect and Urban Designer with over fifteen years experience in the field of urban design and planning in UK and India. She has worked extensively with both the public and private sectors with a particular focus on design led policy and tools for effective delivery. Her core areas of expertise include restoration and management of natural water resources, Transit Oriented Development and mobility. Mriganka has written policy and design guidance for various towns and cities and draws on her on-ground experience of leading numerous large scale projects for the same. As Senior Consultant with the Delhi Jal Board, Government of NCT of Delhi, Mriganka most recently led an ambitious project of comprehensively restoring existing water bodies and drains in the city. Having put in place the overall approach and methodology, strategy for roll out, enabling frameworks, SOPs and standards, the project is now ready to get on ground. As Senior Consultant at and on behalf of the Unified Traffic and Transportation Infrastructure (Planning and Engineering) Centre (UTTIPEC), Delhi Development Authority in New Delhi, Mriganka co-authored the Delhi Masterplan 2021 Transit Oriented Development (TOD) Policy, the first ever to be adopted in the country. She also redrafted the Delhi Masterplan 2021 Policy on Transportation with the aim to bring about a mobility transition in the city.



BRIAN OWENSBY

Co-Director of Yamuna River Project, Professor of History, UVA

Brian Owensby is professor of history in the Corcoran Department of History at the University of Virginia. His scholarly work has ranged from social and political history in nineteenth- and twentieth-century Brazil to legal and imperial history in seventeenth-century Mexico. Current research includes historiography and historical theory from a Brazilian perspective and a book-length project on the Jesuit New World synthesis of the eighteenth century as a counterpoint to Eurocentric accounts of modernity. He has taught a variety of courses large and small to undergraduates, including a Global History class, and is supervising several graduate students. He served as chair of the Corcoran Department of History from 2009 to 2012.



CATALINA MARULANDA

Practice Manager, Urban Development, South Asia, World Bank

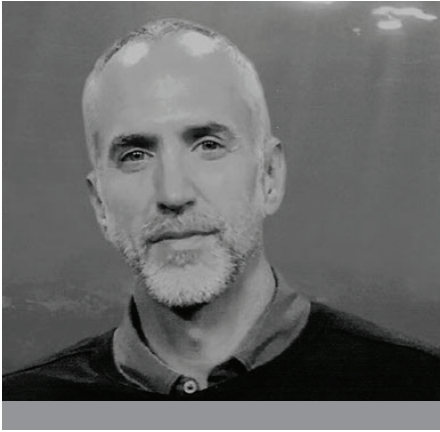
Catalina Marulanda is originally from Colombia, but she is currently based in Washington DC where she is the Practice Manager of the Urban Development Unit in the South Asia Region. As such she oversees a portfolio of roughly US\$5 billion in lending operations under development and implementation in Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka and The Maldives. This role involves working with national and local governments on urban development, promoting initiatives that aim at making cities more economically productive, environmentally sound, livable and less vulnerable, particularly for the poor. This is done through operations that focus on: (i) financing investments, (ii) providing technical assistance, and (iii) undertaking non-lending analytical and policy advisory work, on areas including municipal management, housing, urban infrastructure, neighborhood upgrading, solid waste management and others. Over the past 14 years at the Bank Catalina has focused on topics related to solid waste management, chemicals management, and brownfield remediation in Latin America, East Asia, South Asia and the Middle East. Catalina has a Bachelors Degree in Civil Engineering from Lehigh University and a Ph.D. in Civil Engineering from the Massachusetts Institute of Technology.



JESSE KEENAN

Associate Professor of Real Estate, TUSA

Jesse M. Keenan is an Associate Professor and social scientist within the faculty of the School of Architecture at Tulane University in New Orleans, Louisiana. Keenan leads courses and seminars advancing the interdisciplinary fields of sustainable real estate and urban development. As a globally recognized thought leader, Keenan's research focuses on the intersection of climate change adaptation and the built environment, including aspects of design, engineering, regulation, planning and financing. Keenan has previously advised on matters concerning the built environment for agencies of the U.S. government, governors, mayors, Fortune 500 companies, technology ventures, community enterprises and international NGOs. Keenan formerly served as the Area Head for Real Estate and Built Environment on the faculty of the Harvard Graduate School of Design; Fellow of Science, Technology and Public Policy at the Harvard Kennedy School of Government; and, as the Research Director of the Center for Urban Real Estate on the faculty of the Graduate School of Architecture, Planning and Preservation at Columbia University. Keenan is currently a Visiting Scholar at the Perry World House at the University of Pennsylvania. Keenan is the also the co-author of a variety of design research monographs, including, *Mobility Oriented Design: The Case for Miami's Metrorail* (Office of Urbanization, Harvard Graduate School of Design, 2019); *Adapting Miami* (Harvard Graduate School of Design, 2020), and *Multiple Miamis* (Harvard Graduate School of Design, 2020).



RUSS KATZ

Architect, Developer, Managing Director of MOMIDC

Architect and developer Russell Katz is the Managing Director of MOMIDC, a real estate firm focused on the design, development, ownership and management of environmentally conscious properties in the Washington, DC region. Russell is driven by the belief that environmentally sustainable, beautifully designed projects can be financially successful. He guides MOMIDC's selective project choices and oversees the operation of the firm's portfolio, which currently includes 350,000 square feet of multifamily residential, retail and office space, as well as 185 acres of conserved woodlands.



MARGARITA JOVER

Associate Professor in Architecture, TUSA

Margarita Jover received a Master of Architecture degree from the Polytechnic University of Catalonia in 1995. Together with Iñaki Alday, she founded the internationally awarded firm aldayjover architecture and landscape in 1996 in Barcelona, Spain. The multidisciplinary, research-based practice focuses on innovation and is particularly renowned for its leadership in a new approach to the relation between cities and rivers, in which the natural dynamics of flooding become part of the public space. She has taught at the Polytechnic University of Catalonia, the University of Navarra, the University of Vic-Central University of Catalonia and the University of Virginia. At the University of Virginia, she was Research Faculty (2012-15), first Professor of Practice of the School of Architecture (2015-17) and tenured Associate Professor (2017-18). Jover is co-author of the book *Ecologies of Prosperity* (ORO Editors, 2018) and *The Water Park* (ACTAR, 2008). She has been a juror for several honor awards, including the FAD Architecture Prize and Mies van der Rohe European Union Prize for Architecture (2015), and for international competitions including the Glories Square in Barcelona and the Hainan Eco-Island in China. Both in academic research and in practice, Jover promotes a broader understanding of architecture that aims to mitigate and reverse socio-ecological crises. Her academic research line discusses the reform of the current model of progress by promoting a specific socioecological urbanism.



SCOTT BERNARD

Associate Dean for Academics, TUSA

Scott Bernhard is the Mintz Professor of Architecture at the Tulane School of Architecture in New Orleans where he has been a member of the faculty for more than 26 years. Scott has served as both Associate Dean and Interim Dean of the School and was Director of the Albert and Tina Small Center for Collaborative Design (formerly Tulane City Center) from 2007 to 2012. He is the recipient of numerous teaching awards including the President's Award for Excellence in Graduate and Professional Teaching the Inspirational Teacher Award and the Excellence in Teaching Award, University-wide honors bestowed by Tulane. He was the 1995 Tulane School of Architecture Professor of the Year, and won the Malcolm Heard Teaching Award in 2001, in 2007 and again in 2012. He is a licensed Architect and principal of a small, collaborative, research and design practice focused on building in the climate and context of New Orleans. He has built more than a dozen residential additions and minor buildings in New Orleans and the surrounding region, winning three AIA Honor Awards and other awards for his work. Since 2001, he has taught studio and seminar courses investigating the subject of multi-family housing. His current research and publication includes work on the complexities of the urban fabric in New Orleans, on the relationship between architecture and social entrepreneurship and on the nature of community in raised dwellings.



ANDREA BARDON DE TENA

Predoctoral Teaching Fellow, TUSA

Andrea Bardon de Tena is a Spanish architect who develops her PhD in Advanced Architectural Projects at the Polytechnic University of Madrid. Her research focuses on the impact of cultural hybridization on local architecture and spatial transformations. She holds a Master (2018) and a bachelor's degree (2016) both in Architecture and carried out at the Polytechnic University of Madrid. During her studies, she spent one year abroad (2014-2015) at La Cambre Horta Faculty of Architecture, Université Libre de Bruxelles, in Belgium. There, she reinforced her interest in the connection between architecture and human sciences, taking multidisciplinary classes including anthropology of space. She also studied in Uniontown, Pennsylvania, United States, as a long-term Rotary Youth Exchange Student (2008-2009). She has worked abroad for office Atelier 4/5 Architecture, in Brussels, Belgium, and for CONI Association, in Coban, Guatemala, where she participated in the Rural School Prototype Project for maya-q'eqchi indigenous communities in Alta Verapaz. For the past two years, she has been working in Burgos&Garrido Architects, in Madrid, Spain, developing international landscape and housing projects. At the same time, she started her PhD thesis, being actively involved in college as a visiting lecturer and teacher assistant for Architectural Design and Research Tools classes.

SCHEDULE

Yamuna River Project Final Review, Spring 2021

CDT: 8.30 am to 3.30 pm

EDT: 9.30 am to 4.30 pm

IST: 7.00 pm to 2.00 am

8:30	Presentation	
	Urban Investigation	
	Discussion	
9:15	Rajpath and Yamuna strategy	Team 1
	Democratization of Lutyen's Delhi: The Block	Zach Braatten
	Democratization of Lutyen's Delhi: The Intersections	Xia Li
	Discussion	
	Re-envisioning railroad corridors as new neighborhoods	Bhumika Shirole
	Recovery of brown fields in the floodplain with waste zero	Danielle Sheeringa
	Discussion	
12:00	Lunch break	
12:45	Najafgarh Drain strategy	Team 2
	Recovery of the Najafgarh drain as public space	Sean Tichenor
	Recovery of Hastsal Minar as public heritage site	Kareem Elsandouby
	Discussion	
	Introduction of infrastructures and public amenities in Nilothi	Eliott Moreau
	Cooperative affordable housing and community amenities	Nick George
	Discussion	
	Wrap up discussion	
3:30	Finish	

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MAIN READINGS

1. Alday, I., Gupta, P. V. (2018). Yamuna River Project: New Delhi Urban Ecology. New York: Actar.
2. Banerjee, A. V., & Duflo, E. (2011). Poor Economics: A Radical Re-thinking of the Way to Fight Global Poverty. New York: PublicAffairs.
3. Dasgupta, R. (2014). Capital: The Eruption of Delhi. New York: The Penguin Press.

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2. Davis, M. (2006). Planet of Slums. London, New York: Verso.
3. Ghosh, A. (2016). The Great Derangement: Climate Change and the Unthinkable. Chicago, London: The University of Chicago Press.
4. Guallart i Furió, V., & Roig, C. B. (Eds.). (2015). Plans and Projects for Barcelona, 2011-2015. New York, NY: Actar Publishers.
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6. Mantoo, V. K., & Jain, A. K. (2013). Akalank's What Will Be Delhi in 2021: MPD-2021 : Master Plan for Delhi 2021 : With the Perspective for the Year, 2021 : W.E.F. 7th February, 2007 (8th Ed., Rev., Updated & Modified. Ed.). Delhi: Akalank Publications.
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8. Prominski, M. (2012). River, Space, Design: Planning Strategies, Methods and Projects for Urban Rivers. Basel: Birkhauser.
9. Guerrieri, P.M. (2018). Negotiating Cultures: Delhi's Architecture and Planning from 1912 to 1962. OUP India.

READINGS FOR DEBATE

1. The project of the city: Aureli, Means to an end, the rise and fall of the architectural project of the city (article).

Complementary: Alday/Jover, Urban uncertainty (article), Catalyst 3.
2. The role of the project: Vigano, Territories of urbanism (introduction).

Complementary: Alday, Notes about the education of the next architects (article).
3. The need of the hyperpolitic and the social space: Sloterdijk, En el mismo barco (In the same boat), Siruela.

Complementary: Meyer, The Aranzadi Park, Topos 89 2015.
4. Education and impact: Steiner, Universitas, Siruela.

Complementary: Meyer, Sustaining beauty (article).
5. The production of knowledge through design: Sennett, The Craftsman (introduction), Yale University Press.

Complementary: Jover, Landscape substance of memory and future (article), The Water Park, Actar.
6. Public infrastructure: Cuff, Working public architecture (article)

Complementary: Shannon, From Theory to Resistance, Landscape Urbanism Reader, Princeton Arch Press
7. Delhi, the Yamuna and the intellectual activism: Dasgupta, Capital (chapter), Harper Collins

Complementary: Alday, Muddy Hands (article), Vortex 01, Paper Matters-UVA School of Architecture

