SHAPING GREEN URBAN FUTURES

Urban Landscapes: Now and Next

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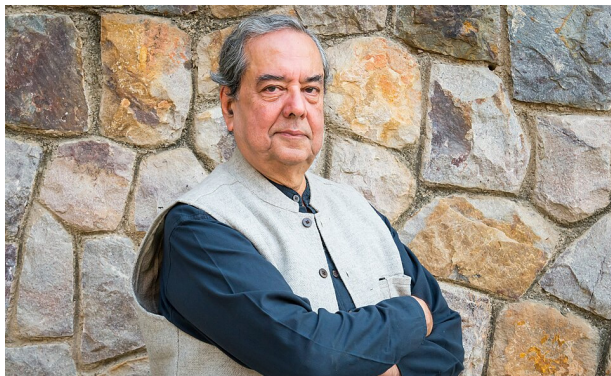# SHAPING GREEN
URBAN FUTURES

URBAN LANDSCAPES: NOW AND NEXT

FOREWORD

Urbanisation is not just a demographic trend—it is a profound transformation of how we live, produce, consume, innovate, share knowledge, relate to one another, and interact with our environment.

India's urban landscape is undergoing a profound transformation. As cities expand and evolve, they face increasingly complex challenges—ranging from climate vulnerability and resource stress to loss of community values, social inequity and fragmented governance. The need for integrated, inclusive, cohesive and future-oriented urban solutions has never been greater.

This report, a collaborative effort by Development Alternatives and Socratus Foundation, comes at a crucial juncture. It offers a thoughtful inquiry into the directions Indian cities might take as they navigate the dual forces of opportunity and critical challenge. Cities, long seen as beacons of progress and possibility, are now also confronting the harsh realities of congestion, inequality, climate impacts, and ecological strain.

What kind of urban future do we wish to build—and for whom? This report does not pretend to offer definitive answers. Instead, it offers a few pressing questions. It acknowledges that cities are dynamic, living systems with unique challenges and capacities. Building sustainable urban futures demands local wisdom, adaptive strategies, and collaborative innovation grounded in a commitment to equity and environmental responsibility. At the core of this study are conversations with thought leaders from across India's urban sector—practitioners, policy experts, architects, designers, planners, entrepreneurs, and grassroots leaders, whose experience and vision reflect the diversity and dynamism of the field. These interviews have been carefully synthesized to draw out not just the current state of play, but also emerging trends, systemic gaps, and transformative opportunities. The result is a forward-looking narrative that links lived experience with actionable insight—designed to inform the next wave of urban strategies.

As India moves forward on its urban journey, let this work serve as both a mirror and a map—a mirror that reflects where we stand today, and a map that gestures toward alternative, hopeful futures.

I commend the teams at Development Alternatives and Socratus Foundation for curating this important dialogue, and invite readers to engage, challenge, and build on the ideas presented here. We hope this report catalyzes new conversations and inspires collective action in pursuit of an urban future that creates liberating possibilities and leaves no one behind.

Dr Ashok Khosla
Chairman, Development Alternatives Group

MESSAGE

With over half the world's population living in urban areas, cities are the frontlines of the climate crisis, and central to achieving the Sustainable Development Goals. In line with the 2030 Agenda and the vision of Viksit Bharat 2047, India is advancing inclusive, climate-resilient housing at scale and pace. The UN in India is proud to be partnering with the Government, civil society, private sector and other stakeholders to foster inclusive, resilient and greener urban futures. Development Alternatives' Alt Urban initiative and its platform trialogue 2047, uniting diverse voices to reimagine India's cities, could not be timelier.

Shombi Sharp
UN Resident Coordinator, India

ACKNOWLEDGEMENT

This knowledge product — a thought paper titled "Shaping Green Urban Futures" — is the outcome of a collaborative effort between Development Alternatives and the Socratus Foundation for Collective Wisdom, as part of the Alt Urban programme, which focuses on shaping a long-term vision for India's urban transformation. Socratus is committed to orchestrating the building of the ecosystem by partnering with Development Alternatives to co-create solutions, mobilize collective wisdom, and influence systemic change. This collaboration extends beyond the thought paper, paving the way for alternate urban futures through joint efforts across sustainable urban development, resource efficiency, and circular economy pathways in India.

We extend our sincere gratitude to all the urban thought leaders who generously contributed their time, perspectives, and experience to this work. Their voices form the crux of this paper, offering both grounded realities and bold visions that challenge conventional thinking. Additionally, their insights, drawn from diverse sectors including policy, academia, civil society, planning, and citizen action, have helped us explore the multiple dimensions of India's urban future.

We gratefully acknowledge the contribution of the Development Alternatives' team, led by Dr. Swayamprabha Das, along with Mohak Gupta, Dr. Gyanesh Gupta, Anuradha Das, and Pankaj Khanna. Their support in facilitating outreach, coordination, and logistics for the interview process was critical to its smooth execution.

A special thank you to my colleagues, Preeti Prada Panigrahi and Disha Ranjana from the Socratus Foundation of Collective Wisdom, who led this exercise end-to-end—framing the inquiry, designing the methodology, conducting in-depth, semi-structured interviews, and synthesizing the reflections and narratives that shaped this paper.

This has been a co-created effort, grounded in dialogue and shared intent. While it does not claim to be exhaustive, it reflects an honest attempt to surface ideas, provocations, and directions that can inform inclusive, sustainable, and forward-thinking urban development in India.

Any limitations or gaps remain our own.

Devjit Mittra
Executive Director,
Socratus Foundation for Collective Wisdom

CURATORIAL NOTE

Mapping Urban Futures Through a Distributed Dialogue

This exploration emerged from a compelling need to surface grounded insights and bold alternatives from those actively shaping India's urban transitions. Over six intense weeks, we undertook a rapid, action-oriented inquiry—grounded in trust-based networks, thematic depth, and the urgency of a moment marked by climate disruption and technological acceleration.

We curated a deliberately diverse constellation of thought leaders spanning government, civil society, academia, market innovators, and philanthropy. With sectors like electric mobility and climate-tech evolving at breakneck speed, we chose to listen deeply, not for surface opinions, but for voices rooted in lived experience, institutional memory, and future-facing imagination. This was not a representative census; it was a strategic, intentional sampling designed to illuminate the emerging edges of what's possible, leaving behind possibilities for more discourse and dialogue.

Our contributors brought insights from critical domains—finance (both public and philanthropic), mobility, livelihoods, housing,

and waste—while also striving for equity across gender, geography, and institutional perspective. We acknowledge the limits of this exercise: grassroots leaders, young changemakers, artists, and voices from tier-3 towns were underrepresented. Their absence is not an oversight but a signal—a reminder of the work still to come.

This was not an extractive process, but a co-generative one. Participants were collaborators, not informants—provocateurs, not passive respondents. What emerged was not a singular vision of the urban future, but an assemblage of alternate pathways, where often, the solution introduced the problem, not the other way around.

As India stands at the intersection of climate adaptation, urban inclusion, and technological transformation, this body of work invites us to reimagine not just what cities are but what they could become, shaped by ecological wisdom, economic justice, and emotional intelligence.

Preeti Prada Panigrahi

Preeti Prada Panigrahi
Director, Programs & Partnerships
Socratus Foundation for Collective Wisdom

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INTRODUCTION

Cities are an aspiration. They are the hubs of economic opportunity and creative energy. Cities represent the vitality of nations and are simultaneously the victims and perpetrators of concentrated environmental pressures. They define the way half the world population lives and how the other half wants to live. Today, they are among the biggest 'influencers' of the pursuits and ambitions of human endeavour. They are everywhere, or maybe trying to be everywhere.

Cities have existed in the past, are the present and they seem to be the future. But what will cities of the future look like? How will they be designed? Who decides how they are designed and how they are run? Who are they designed for? What will success look like for cities of the future?

Cities are a quintessential example of complex systems where the interests of diverse stakeholders interact in unpredictable ways. They are trying their best to deal with wicked problems that present new challenges every day, have no single 'correct' solutions, and inevitably demand trade-offs at every step of decision-making.

Cities around the world are experimenting with new ideas to get the 'formula' right. How do they provide each individual with a safe and decent quality of life and the opportunity to thrive, without transgressing planetary boundaries? Paris is on a quest to create 15-minute cities and make cities bicycle and pedestrian friendly. Bogotá has also made bold investments in public transport and pedestrianisation, led by visionary leadership, that transformed mobility and reclaimed urban space for people over cars. Mexico City initiated the *Laboratorio para la Ciudad* (Laboratory for the City) that showcased how embedding creativity and citizen-led innovation into governance can reshape public policy and foster civic trust. Surabaya, turned its waste crisis into an opportunity by incentivizing community-based waste management, empowering women, and linking waste segregation with

public services like free bus rides. These global examples highlight the power of local leadership, participatory governance, and creative experimentation in tackling complex urban challenges. Indian cities can draw inspiration from such models to reimagine urbanism not just as infrastructure delivery, but as a platform for community-driven change and low-carbon resilience or build stories of their own. But what remains clear is that the diversity of ground realities does not allow for cookie-cutter solutions. The systemic nature of urban agglomerations, big and small, necessitates a systemic approach to localised and contextualised problem-solving that does not rely on standardised growth templates but allows for flexible, adaptive pathways to face uncertain futures.

This scholarly reflection is an attempt to understand the future trajectories for urbanisation in India, with over 4000 cities, towns and many still in making standing at the cusp of explosive growth. It touches upon several crucial aspects of urban development that will define how cities function, grow, and meet the needs of their people. It looks at the key barriers and potential opportunities to drive sustainable urbanisation. While the thought piece does not seek to provide solutions and answers, this effort strives to spark off a series of questions & intentions that will help shape pathways for green urban futures in the country; and align catalytic partnerships.

A. PRESENT REALITIES OF CITIES TODAY

A growing city's aspiration reminds us that vision must be balanced with realism. Cities must check their foundations and resources before scaling up to avoid unsustainable, resource-heavy growth.

1. THE EVOLUTION OF INDIA'S URBAN NARRATIVE

India's urban transformation over the past quarter-century has been—profound, deliberate, and directional. In 2001, just 27.8% of the population lived in urban areas; by 2021, that figure rose to nearly 35%, and is expected to touch 50% by 2047 as India marches toward its Vikshit Bharat vision (MoHUA, 2022[1]; UN DESA, 2018)[2]. What began with a policy focus on service delivery and poverty alleviation through missions like Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and Rajiv Awas Yojana (RAY) has evolved into a broader urban growth strategy; where cities are increasingly viewed as sites of economic dynamism, innovation, and climate resilience. Urban India's share of gross domestic product (GDP) is projected to rise from 63% in 2011 to nearly 75% by 2030 (MGI, 2010)[3], signifying a shift from welfare-led to growth-driven urban governance.

Since 2014, India has seen a new generation of urban reforms and missions—Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Smart Cities Mission (SCM), Pradhan Mantri Awas Yojna - Urban (PMAY-U), Swachh Bharat Mission - Urban (SBM-U), National Urban Digital Mission, and Metro expansions, anchored in infrastructure, housing, sanitation, and digital connectivity. These have been complemented by regulatory shifts like the Model Tenancy Act and performance-based instruments such as the Ease of Living Index and Municipal Performance Index, reinforcing transparency and accountability in urban governance. Collectively, these efforts have seeded a renewed urban imagination that sees cities not just as settlements; but as systems of opportunity, sustainability, and shared well-being.

This transformation is most vividly visible at the state and city levels, where contextual innovations shape India's new urban grammar. While Kerala's Kudumbashree continues to pioneer women-led urban development, Odisha's JAGA Mission has redefined slum upgrading by recognizing tenure and empowering Self-Help Groups (SHGs). Community-based models drive Indore's waste management success, Pune's support for informal workers, Ahmedabad's participatory planning, and Chennai's inclusive housing efforts reflect how urban excellence is being crafted locally. Traditional knowledge shapes sustainable urban futures in ecologically sensitive states like Sikkim and Meghalaya. These efforts show that inclusive, equitable, and ecological urbanism is not aspirational—it is already underway.

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The issue with much of urban studies, or urban development studies so far, is that the concentration has been around metropolitan cities. Urbanization levels are lower in big cities than what these other geographies (smaller towns) have witnessed at their similar level of economic development.

- Shubhagato Dasgupta

The next frontier of India's urbanization will not be dominated by megacities alone. It will be written by 4,000+ small and medium towns, many located in vulnerable bioregions such as the Himalayas, coastal deltas, and tribal belts. These towns are growing faster than metros (Census of India, 2011), yet face severe infrastructural and institutional constraints. They also confront acute climate risks, from floods to droughts and heatwaves. To respond, we need a paradigm shift—towards a more grounded, place-based urbanism that respects local ecologies, leverages community agency, and aligns growth with sustainability.

4000+

SMALL AND MEDIUM-SIZED TOWNS

India's urban transformation stands at a pivotal crossroads. While catalytic initiatives have sparked progress, persistent challenges, such as fragmented planning, weak institutional capacity, and limited empowerment of city governments, continue to hinder genuine urban governance reform. This moment presents a powerful opportunity to move beyond short-term, project-focused approaches and adopt an integrated, decentralized, and citizen-driven approach to urban development. By doing so, India can unlock the full potential of its cities as engines of inclusive growth, sustainability, and innovation, paving the way to realize the ambitious vision of *Viksit Bharat* by 2047.

2. WHO RUNS THE CITY?

A. *Empowering Urban Local Bodies – The True Backbone of Our Cities*

In the heart of every Indian city, it's the Urban Local Bodies (ULBs) that quietly keep the wheels turning, managing water supply, solid waste, local roads, sanitation, and public spaces. However, beneath this critical role lies a stark reality: most ULBs operate with skeletal staff, outdated systems, and very little financial autonomy. In smaller cities and ecologically sensitive areas, where local nuances require tailored responses, governance models often remain one-size-fits-all, failing to address real needs. The consequences? Slow service delivery, disillusioned citizens, and a growing disconnect between policy and ground realities.

The solution begins with restoring power where it belongs—at the local level. The 74th Constitutional Amendment Act envisioned empowered Urban Local Bodies as the fulcrum of decentralized urban governance. Yet, decades later, this vision remains unrealized, mainly due to the lack of deeper structural and institutional reforms. To unlock the full potential of ULBs, urban governance must evolve from mere administrative delivery mechanisms into strategic, outcome-driven institutions. Success must be measured by the number of roads laid or drains cleaned, as well as tangible improvements in citizen well-being, including access to clean air and water, housing security, responsive public services, digital governance interfaces, and climate-resilient infrastructure. Aspirational cities must judge the strength of their institutions, with ULBs that are financially self-reliant, digitally savvy, professionally staffed, and trusted by the public.

Crucially, India must embrace the "Principle of Subsidiarity"—the idea that decisions should be made as close to the citizen as possible. When empowered, local governments are best placed to understand their communities, innovate solutions, and respond swiftly to change. For this, ULBs must be backed by clear legislative mandates that define their authority and accountability. Capacity-building for municipal staff, supported by academic institutions and skilling programs, must become a national priority. A city's future is only as strong as the institution that governs it, and it's time ULBs are given the tools, trust, and autonomy to lead from the front.

To drive this transformation, we need professionalized urban management and skilled city managers who can bring together stakeholders through responsibly crafted strategies that work beyond typical siloes. We need leadership within these bodies: chief executive officer (CEOs) to steer strategy, chief financial officer (CFOs) to manage resources, chief technical officer (CTOs) to drive digital transformation, and human resource (HR) heads to nurture institutional talent.

Urban planning in India remains an under-recognized profession, and it isessential to value urban planners as critical technocrats, not just government municipal employees.
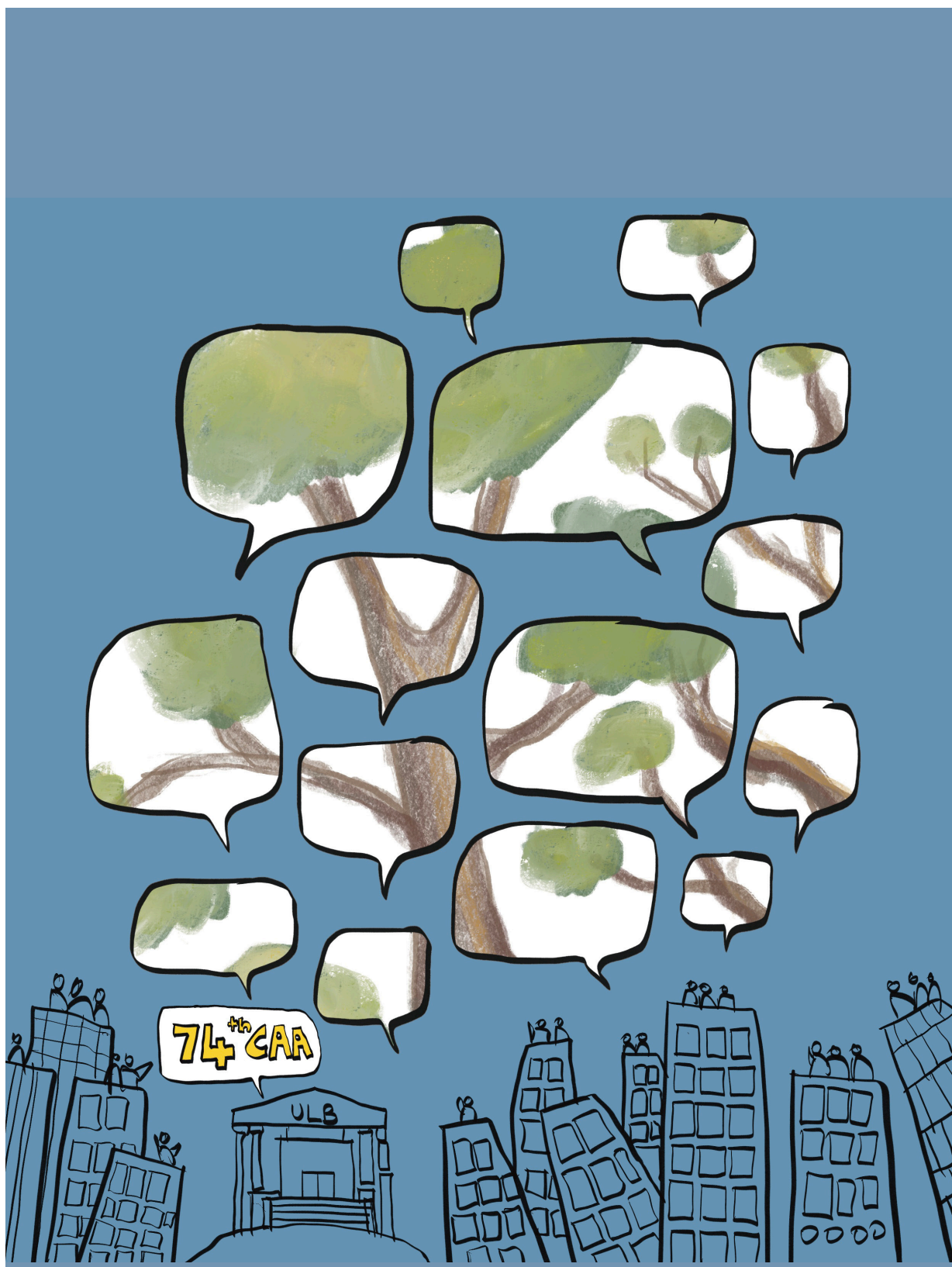
The 74th Constitutional Amendment Act, also known as the Nagarpalika Act, has given constitutional status to municipalities, mandating states to adopt decentralized urban governance. Three decades on, and still the vision remains unfinished. Upholding this vision is essential to shaping resilient and self-governed cities, driving India's urban transformation.

Another challenge is the broken ecosystem of transdisciplinary collaboration. Financial analysts, architects, urban planners, and municipal engineers often operate in siloed domains, which hinders and interferes with holistic decision-making, potentially leading to ineffective data-driven service delivery. Municipal authorities or Urban Local Bodies are the primary providers of urban services in a given geography. Typically, these bodies are staffed with engineers who facilitate decision-making. However, they rarely include dedicated urban planners to guide spatial strategy or oversee comprehensive data collection, and architects to envision and build sustainably. A revived Council of Town Planners, akin to the American Planning Association, could lobby for policy reforms with specific outcomes & indicators, fund indigenous research, and cultivate thought leaders.

Unlike North American or European models, where town planners enjoy precise career trajectories and autonomy, Indian planners lack both institutional stature and effective professional associations to advocate for systemic change. This ambiguity weakens their ability to influence the built environment, leaving architects and engineers to dominate public-sector projects without fully integrating strategic planning principles for the built environment. As a result, the urban landscape also frequently reflects ad-hoc decision making rather than coherent, long-term visions tailored to India's varied cultural and environmental contexts.

B. Leadership That Delivers – Moving Beyond Ceremonial To Accountable Governance

Effective governance reform hinges on installing directly elected, empowered Mayors—leaders who wield absolute executive authority over budgeting, staffing, and project implementation, rather than serving as mere ceremonial figureheads. A well-defined leadership structure brings efficiency and instills a culture of responsibility and long-term planning. This is not just administrative housekeeping—it's the foundation for urban resilience. Examples worldwide, such as New York's "broken windows" mayors prioritizing visible urban order and China's data-driven city administrators enforcing time-bound targets, demonstrate how empowered leadership can catalyze swift and systemic change. For India, this means creating well-defined roles for elected councillors while preventing overlaps with state legislators, ensuring that political accountability is firmly aligned with executive power at the city level.

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> We have never really elected mayors. We have nominated mayors. And this is something that needs to change, because mayors are the new leaders, the political leaders of today.
>
> - Sanjay Prakash

India's urban leadership remains critically underpowered, with most cities functioning without full-time, directly elected executive Mayors. According to Janaagraha's "City-Systems: City Leadership" study (2022)[4], only five out of India's 100 largest cities have directly elected Mayors, and even these have limited tenures and executive powers. Most urban centres rely on municipal commissioners appointed by state governments, creating a leadership vacuum that dilutes accountability and undermines local decision-making. Furthermore, the average tenure of a Mayor in India is less than two and a half years, compared to over four years in countries like South Africa, Brazil, and the United Kingdom, which hinders long-term planning and reform. The study underscores that India's cities will struggle to transform governance outcomes and effectively deliver services to their growing populations without empowered, accountable city leadership, anchored in clear mandates and political legitimacy.

India's urban future will be defined not by isolated projects but by the governance systems that enable sustainable outcomes. Empowered institutions, responsive leadership, and citizen-led planning must become the pillars of this transformation. Only by embedding smartness in thinking—not just in technology—can India build cities that are inclusive, resilient, and future-ready.

CASE STUDY

METRO MAGIC – *Delhi's Delivery Model of Empowered Urban Infrastructure*

Delays, cost overruns, and systemic inefficiencies have long marred India's urban infrastructure landscape. Projects often stagnated under layers of bureaucratic red tape, unclear mandates, and constant political interference. In the 1990s, Delhi's rapidly growing population and deteriorating mobility conditions underscored this crisis. The capital's urgent need for a modern mass transit system could not be addressed by existing governance and delivery mechanisms, which lacked the institutional capacity and agility to meet the city's scale and complexity.

Recognizing this, the Government of India and the Delhi Government jointly established the Delhi Metro Rail Corporation (DMRC)—a public sector enterprise with an autonomous structure and a single-point mandate to deliver the metro project. What set DMRC apart was its governance model: a professional board structure, empowered C-suite leadership, and freedom from day-to-day political interference. Dr. E. Sreedharan, popularly known as the "Metro Man of India," was appointed Managing Director and entrusted with full decision-making authority over planning, staffing, procurement, and implementation. Under his leadership, DMRC adopted international standards of project management, enforced rigorous accountability systems, and prioritized transparency in contracting. As a result, Phase I of the Delhi Metro was completed in 2006, on budget and nearly three years ahead of schedule,

marking a watershed moment in India's public infrastructure delivery.

Beyond Delhi, DMRC's approach offers a replicable governance framework for urban India. Its success demonstrates that infrastructure transformation is not just a matter of engineering—it depends critically on institutional design. Urban delivery agencies must be empowered with clear mandates, led by professionals with operational autonomy, and held accountable through robust oversight. The DMRC model has already inspired metro projects in cities like Kochi, Lucknow, and Mumbai, and continues to influence conversations around institutional reform in urban governance.

As India embarks on ambitious initiatives such as the Smart Cities Mission, Gati Shakti, and the National Infrastructure Pipeline, the lessons from the DMRC remain highly relevant. Replicating this model across sectors—transport, housing, water, and sanitation—could help cities move from fragmented service delivery to strategic, outcome-driven infrastructure development. The Delhi Metro is more than a transit system; it is a symbol of what empowered institutions, visionary leadership, and disciplined governance can achieve. It serves as a blueprint for reimagining how Indian cities can build equitable, efficient, and citizen-responsive infrastructure systems for the future.

3. HEALING THE URBAN:
RETHINKING THE PRACTICE OF PLANNING
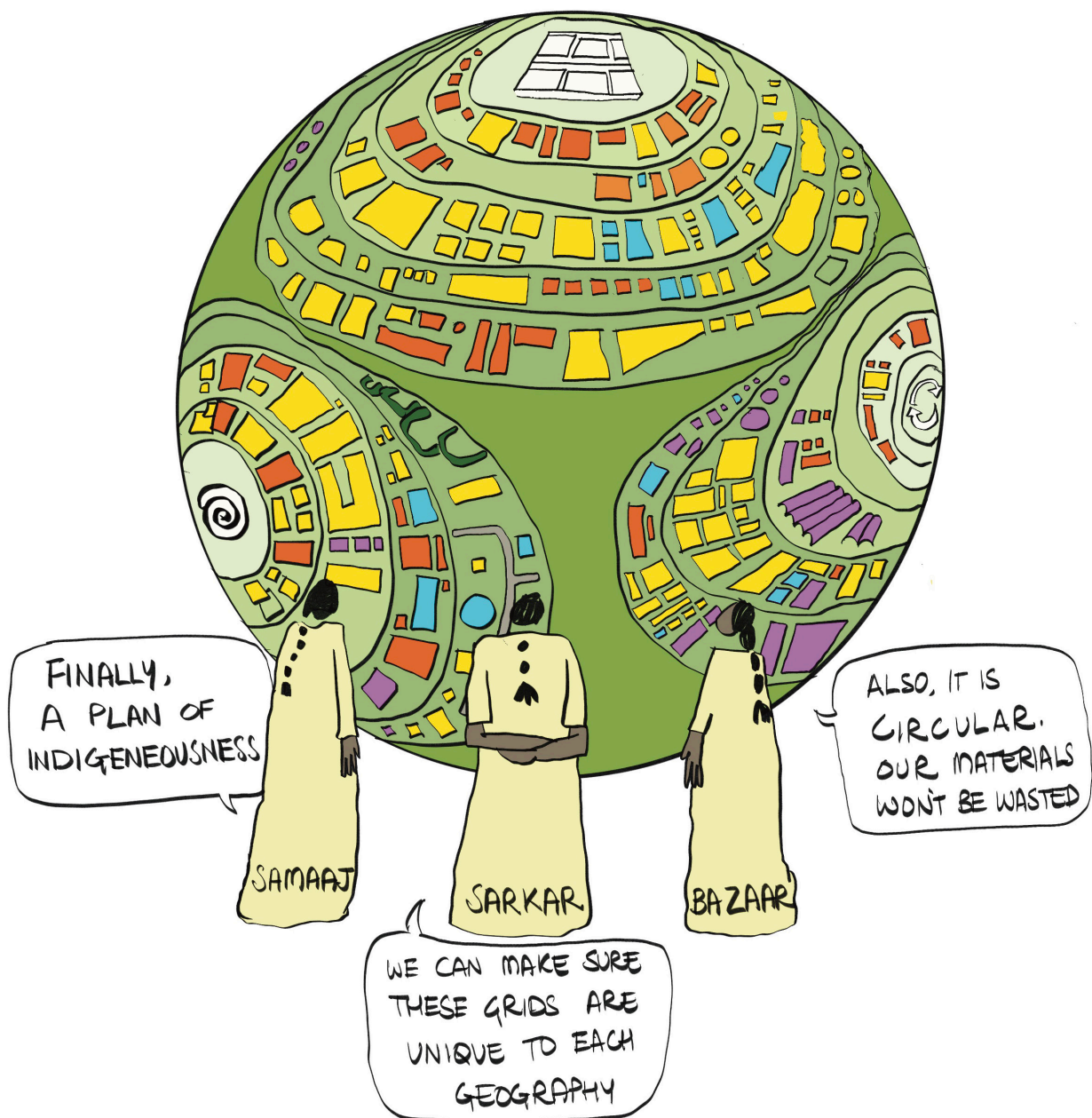
A city grows when society, government, and markets come together in harmony. Actual economic progress happens when urban spaces are co-created through shared purpose and participation.

A. *Planning Across Boundaries*

India's urban planning remains trapped within outdated municipal boundaries, failing to reflect the realities of rapidly expanding urban footprints. Nowhere is this disconnect more visible than in peri-urban areas—the fluid, often unplanned transition zones where urban sprawl meets rural hinterlands. These spaces are flashpoints for some of India's most acute urban challenges: chaotic land use, unregulated construction, water insecurity, collapsing infrastructure, and ecological degradation. Yet they persist in governance limbo—too urban for rural schemes, too rural for urban planning—resulting in fragmented, unsustainable growth that weakens cities and destabilizes their surrounding ecosystems.

India must decisively pivot from city-centric planning to a city-region and ecosystem-based planning paradigm to address this. This entails formally integrating peri-urban areas into governance structures and urban development strategies, utilizing tailored instruments to address their unique challenges. Urban cores and their surrounding regions are deeply interdependent, sharing water sources, waste systems, transport corridors, and housing pressures. Planning must reflect this continuum, rather than treating it as an administrative afterthought. We need an "India Planning Model" that leverages indigenous expertise to craft solutions for mixed-use grids, balancing built density with open and green corridors. Yet, much of the country's planning discourse is influenced by global templates that often don't account for local realities such as two-wheeler congestion, informal street vending, and heritage precincts.

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> In the past, cities have been designed with the thinking, knowledge and awareness of the time, and represent the pinnacle of thinking of that time. That means all our cities should be able to draw from past learning and information, contextualize it to existing topography, and current socio-economic contexts and match it to technology of our times.
>
> -Virajitha Chimalapati

India's diverse regional landscapes present challenges of various kinds, from the flood-prone coastal plains to arid hinterlands and the snow-capped Himalayas. And therefore the demand for context-specific and environmentally sensitive planning models arises. For instance, India's national urban policies often miss the special needs of cold-climate areas. Programs like the PMAY-U don't explicitly address climate-specific construction and barely reach Himalayan towns in cold and hilly parts of the country. Part of the problem is the belief that cold-region urbanization isn't worth the investment. Yet after Article 370 was lifted, Jammu & Kashmir has seen fresh capital flow in, and local communities have shown that they can run projects themselves. To build on this momentum, targeted workshops must be taken up with municipal officials from the Northeast, Jammu & Kashmir, and Himachal Pradesh and other hilly regions to share challenges and solutions, as urban infrastructure is looked at as an investment into the region. Smart-city planners have struggled to apply national guidelines in these places. Therefore, case studies, hands-on training, and policy tweaks are needed, that reflect each region's reality.

Critically, political constituencies and ward-level governance must be realigned with spatial realities to enable proper accountability. When citizens can identify who governs their space—whether in a peri-urban village or an urban ward—governance becomes more apparent, responsive, and ultimately more democratic. This shift is not just about expanding the planning map; it's about building cohesive governance ecosystems that anchor India's urban future in inclusion, sustainability, and long-term resilience, far beyond city limits.

B. Planning Within The Edges

India lacks a homegrown sustainable urbanism model. Current planning borrows western templates ill-suited to our context. While France's 15-minute city and *Auroville's* greenbelt show promise, they haven't scaled across India's socio-economic landscape. Urban densities have long been shaped by inherited land-use patterns and planning legacies, resulting in underutilized infrastructure and sprawling growth. Urban vitality and efficiency depend on having the right mix of residential and commercial densities. When density falls, cities lose their economic edge and begin to decline, underscoring the risks of unplanned urbanisation and environmental neglect.

To optimize urban land and services, priority must first be given to maximizing land value capture within the existing city edges. This includes policy shifts and regulatory measures to maximise the utilisation of existing homes, often purchased and left vacant as long-term investment assets. The issue of affordability becomes paramount and requires major land governance reform. The irony of seeing vast numbers of vacant homes at the same time as increasing inaccessibility to quality, affordable housing for many is stark. It demands deep introspection into questions of who the city belongs to and who it is being built for.

A crucial strategy to minimize the extension of city boundaries is infill development, targeting vacant plots, old industrial sites, brownfields, and underused public land through innovative land management, leveraging public-private partnerships, urban regeneration, adaptive reuse projects, and placemaking initiatives. Redensification through revision of building byelaw and land use, often to promote mixed-use development, can also be deployed as in-situ redevelopment strategies. Infill projects help cities enhance infrastructure efficiency by utilizing existing roads, pipes, and electricity, thereby reducing the cost and time required for developing new infrastructure. These projects can be integrated into local planning regulations, and the government can offer incentives such as expedited approvals or tax benefits.

While brownfield projects are often more challenging to implement, they must be planned for as a natural part of the city's evolution and considered an opportunity to upgrade essential infrastructure and enhance the quality of life for communities, learning from their lived experiences in the specific context.

Cities can capitalize on real estate developers' capacity to deliver projects at speed and scale. For instance, greenfield projects like Palava City demonstrate the potential of integrated, high-density development. Conceived by Lodha Group in 2010, Palava spans 4,500 acres and has already housed over 2,00,000 residents in its initial phases. In Palava, mixed-use neighbourhoods support community management of public spaces and shared amenities, helping to translate master plans into concrete, locally led initiatives. It shows how a developer-led approach can optimize infrastructure, reduce sprawl, and support high-density living.

C. Plan To Action

A critical challenge in Indian cities is the disconnect between planning and execution. While India boasts a wealth of paper plans; from city master plans to transit-oriented development guidelines, their implementation falters due to fragmented governance structures. Municipal "executors/heads" change every few years, disrupting continuity and leaving projects half-realised and underdone. Current statutory master plans, governed by outdated legislation from the 1970s, take four to five years to prepare and become obsolete upon approval. Moreover, these are often devoid of the insights from the real estate world, including the absence of critical data on land economics and market dynamics.

Theoretically, many plans include climate-resilient and environmentally sensitive areas, but these are often ignored in reality. To protect green spaces, safeguard flood plains, and design urban grids that balance development with ecological corridors, it is essential to strengthen institutional mechanisms by establishing clear mandates for urban planners, deploying integrated real-time monitoring systems, and enforcing robust accountability frameworks. The role of politicians in influencing plans becomes imperative here.

Enforcement and management emerge as the anchor for translating plans into reality, and master planning itself requires an urgent overhaul. A dynamic process is needed, one that ties funding to regular updates and embraces micro-level neighbourhood development plans. By embedding data analytics and AI and using existing household-level and mobility datasets, static vision documents can be transformed into living instruments, with future projections that respond to rapid urban growth and market shifts, ensuring plans remain relevant throughout their lifecycle.

Finally, by dissecting small-scale successes from cities nationwide and facilitating peer learning, we can build a robust evidence base across diverse contexts. This approach aids the repositioning of urban planning as a dynamic catalyst for inclusive, sustainable city development, while also anchoring growth in India's rich cultural tapestry and diverse environmental landscapes.

D. Micro-Planning For People And The Planet

Urban and regional planners regard the neighbourhood as the smallest planning unit, essential for addressing local needs through decentralized, participatory processes. Planning approaches now need to be hyper-localized to address social and ecological challenges at a micro scale through a collaborative approach among city authorities, developers, businesses, and communities.

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> A neighbourhood is the fundamental building block of urbanisation. To shape a viable city template, we must continually push for sustainable outcomes within mixed-use neighbourhoods, while also enhancing the interplay between them—to achieve efficiency in nature, materials, energy, and water, and to enable the transition to clean energy. It is a journey without a final form—always evolving, always improving.
>
> - Aun Abdullah

Master developers, working alongside resident associations and local bodies, need structured frameworks to guide growth at the neighbourhood level. They can pilot neighbourhood-level improvements, retrofit streets for walkability, protect commons from encroachment, and integrate green buffers for flood resilience. Innovative collaborations with local business owners can help enhance the economic vibrancy of neighbourhoods while capturing some of this value to contribute to the implementation and maintenance of these interventions. Such placemaking ensures that local needs—such as safe streets, open spaces, and small-scale commerce—are met, and that climate risks, including flooding or heat islands, are addressed through green buffers and climate-responsive design. These micro-interventions can contribute significantly to reducing the environmental impacts of urban development and enhance the climate resilience of communities.

A common flaw in such approaches is the lack of representation and consideration for low per-capita incomes and rural-urban dynamics, which must be addressed as a key inclusionary measure when planning for such projects.

Smaller and climate-vulnerable cities require inclusive, adaptable habitat solutions tailored to their unique social and environmental contexts. These interventions must be designed with community input, ensuring that households from all economic strata benefit from improved services and climate safeguards.

HOW DO WE MAKE MOBILITIES MORE COMPACT?
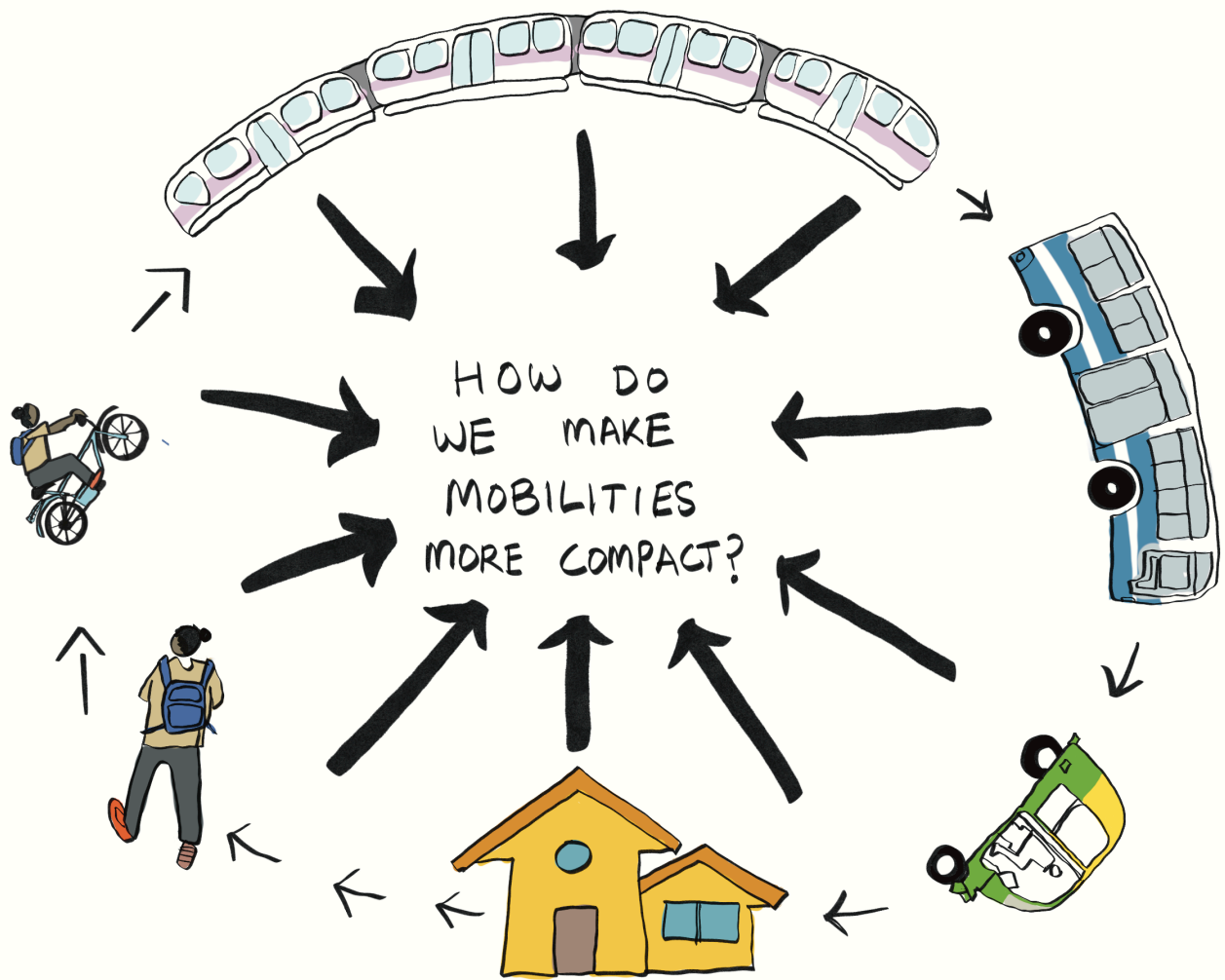
Building compact, connected cities helps reduce land use, encourages walking, improves access to services, and lowers dependence on private vehicles, leading to a more sustainable urban future.

E. Moving People Around The City

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> From a policy lens, India's urban dreams have leaned towards expansive, car-centric ideals—much like the "American dream". It's now crucial to sensitize communities to the environmental costs, redefine our vision into an authentic "Indian dream," and decisively pivot toward compact, transit-oriented lifestyles.
>
> - Bankim Kalra

To improve the livability and quality of life for residents, Indian cities must facilitate the movement of people in and around the city. Mobility infrastructure and the preferred mode of transportation can have a drastic impact on the physical layout of the town, while also contributing significantly to environmental indicators such as pollution and carbon emissions, and affecting the competitiveness of a city. For instance, Delhi's toxic air today threatens its economic competitiveness, while Jaipur's relatively cleaner environment positions it as a potential alternative.

Cities must embrace compact development models that bring daily needs within easy reach. Higher urban densities not only reduce travel demand but also make low-carbon transportation solutions, such as walking, cycling, and public transit, viable. When homes, offices, and shops are clustered together, shared mobility options become practical. The challenge for Indian cities is not just to make cities compact, but to make them walkable and cyclable in ways that they become the preferred choice for citizens. Basic infrastructure fixes like smooth footpaths, intact tactile paving, and wheelchair ramps must become standard features rather than occasional afterthoughts. Empowering enforcement agencies can ensure that streets remain safe, orderly, and functional.

Compact cities also rely on public cooperation and behavioural change. Promoting shared mobility options and enhancing public transport infrastructure are other key shifts that cities must facilitate. Shared buses at airports, for example, demonstrate how simple, high-capacity vehicles can prevent congestion and keep traffic flowing. Complementary policies, such as parking fees or urban congestion taxes, can disincentivise private vehicle use. A national campaign—leveraging digital platforms to raise awareness about road safety, carbon footprints, and the benefits of shared mobility can help reshape public attitudes.

Systemic failures in urban mobility often stem from fragmented governance structures. Metro and bus networks are typically managed by separate departments, which can weaken coordination and reduce the overall effectiveness of public transportation systems. Investment decisions also reflect this disconnect. For instance, bus rapid transit (BRT) lanes—costing approximately ₹1 crore per corridor—can yield faster and more flexible benefits than metro lines, which require upwards of ₹100 crore per kilometer. Unified transport governance, supported by clear policies and faster

approvals, can enable more efficient infrastructure deployment. Encouraging infill development over peripheral expansion can help fill gaps in the urban fabric and support the vision of a compact city.

However, policy frameworks sometimes create bottlenecks that stall progress. Tamil Nadu's rule requiring bus operators to own their electric buses is one such example. Manufacturers prefer to lease buses rather than operate them, while operators cannot afford to make outright purchases. This mismatch reflects a broader systemic problem. To resolve this, targeted workshops involving manufacturers, operators, and policymakers are essential for developing consensus-driven policy revisions and practical implementation plans.

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> We must get all our cities to adhere to the basic principle of urban mobility: 'move people, not vehicles'.
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> - Srinivas Alavili

Looking ahead, Indian cities must prepare for emerging challenges like managing electric vehicle (EV) battery waste and expanding local sharing schemes. These steps will help optimize existing infrastructure and minimize environmental impacts. By focusing on compactness, unified mobility governance, infill development, and strong neighborhood planning, Indian cities can transform into more livable, resilient, and low-carbon urban systems.

CASE STUDY

SMART CITIES MISSION – *A Catalyst and a Cautionary Tale for Urban Transformation*

Launched in 2015, India's Smart Cities Mission aimed to transform 100 cities through technology-driven, citizen-centric urban development. The mission ignited a surge of innovation across Indian cities, but it also exposed the pitfalls of pursuing numerous fragmented, project-driven efforts. While it catalysed urban innovation and introduced digital governance, the initiative has drawn criticism for being overly project-focused and technocratic, often disconnected from ground realities.

Nearly 8,000 projects were initiated under the Mission, many focusing on easily achievable, visible outcomes—the so-called "low-hanging fruit", but without a unifying vision or long-term strategy. While generating quick wins, this approach falls short of addressing the more profound, systemic issues that cities face, thereby limiting the overall impact and sustainability of urban transformation.

One of the primary critiques has been its "area-based development" model, where interventions were limited to small pockets, typically two to three percent of the city, leading to uneven benefits and allegations of urban elitism. Critics argue that the mission prioritized beautification,

surveillance infrastructure, and "low-hanging fruit" over structural reforms such as affordable housing, inclusive mobility, and water security. Furthermore, special purpose vehicles (SPVs) created to implement innovative city projects have often bypassed elected local governments, raising concerns over democratic accountability and transparency.

Another major issue has been the lack of convergence between smart city projects and existing urban schemes like AMRUT and PMAY-U, which has resulted in siloed implementation and underutilized synergies. The absence of robust outcome measurement frameworks has further hindered the mission's ability to track impact.

Yet, the Smart City Mission offers critical learnings: cities need integrated, city-wide planning over project-centric approaches; technology is an enabler, not a solution; and strong institutional capacities, public engagement, and empowered urban local bodies are essential for success. As India looks toward the next phase of urban transformation under the *Viksit Bharat* vision, the Smart Cities Mission serves as both a catalyst and a cautionary tale, underscoring the need to shift from fragmented innovation to inclusive, systemic reform.

4. URBAN METABOLISM

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> Cities need energy and sustenance; they are metabolic entities, consuming just like the human body does, and excreting just like the human body.
>
> - Jagan Shah

Cities are living, breathing entities. They consume natural resources, such as land, water, energy, and construction materials, and transform them into buildings and infrastructure. In the process, they generate waste, emissions, and heat. Much like the biological metabolism of a living organism, these material and energy flows, constituting the 'urban metabolism' of the city, that needs to be closely monitored, controlled and regulated.

With India's urban population projected to grow from 460 million (2021) to 600 million by 2036, demands on housing, infrastructure, and resource use are likely to increase manifold (MoHUA, 2022[1]; UN DESA, 2018[2]). Cities like Delhi and Bengaluru already face water stress and air pollution, and according to the Centre for Science and Environment, India's material consumption is projected to triple by 2040, driven largely by urban construction. In this phase of exponential growth and urban expansion, understanding and managing urban metabolism in Indian cities is going to be critical to ensuring sustainability, resource efficiency, and climate resilience in city development.

From master plans to appliance choices, every decision holds the potential to shift cities toward greater efficiency, resilience, and circularity. While green building standards and market-led innovations (like fly-ash bricks and heating ventilation & air conditioning (HVAC) systems) are gaining traction, integration of blue-green infrastructure and conscious energy planning remains inconsistent. Incorporating rainwater harvesting, greywater reuse and on-site wastewater treatment into building design can dramatically reduce municipal water burdens.

As a prerequisite to metabolic thinking, city planning will need to pivot from broad sketches to number-driven documents that quantify key parameters such as per-capital water use, non-revenue losses, waste water & solid waste generation, energy consumption, carbon emissions, vehicular movement and others. Central to this shift will be high-resolution, granular data. Inaccurate demand estimates and consumption data lead to chronic demand-supply mismatches. Cities already meter every household for energy consumption, but the challenge is in capturing and continuously analysing that data to drive decision making. Similarly, high non revenue water (NRW) owing to unmetered connections, leaks and thefts lead to system efficiency erosion, while legacy pipelines suffer frequent bursts and leakages. Municipal administrations need dedicated teams to spot and

identify trends before policy tweaks and recommendations are made, and to enable deployment of technical solutions. Such analysis aids forecasting solutions which can potentially cover heat mitigation, district cooling and water security strategies such as dynamic pressure management and decentralized sewage treatment plants. It prepares the city government to act—instead of reacting after problems have escalated. Cities have limited capital and their reliance on state grants restrict adoption of advanced technologies or public private partnership (PPP) models, but data-driven insights can help attract investment. This future-ready approach calls for embedding sustainability across governance systems, from city master plans to the construction of modular, adaptive infrastructure that reduces long-term costs and environmental stress.

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> If you have good data, high resolution, granular data, you can really forecast many things, if not everything.
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> - Jyotirmay Mathur

Beyond materials, circularity must encompass water—from capturing rooftop runoff to repurposing treated effluent, the urban water cycle is as critical as the built-material cycle. And a circular urban economy goes beyond waste management as well. It requires reimagining resource flows from extraction to reuse. Current practices in demolition, design, and material recovery often downcycle valuable components rather than preserve or elevate their utility.

Circularity must become inherent to project inception, driving modularity, disassembly, and material longevity—reviving traditional Indian construction wisdom while innovating with bio-based, renewable materials like bamboo and agri-residues. Aligning with regional bio-capacity, instituting lifecycle metrics, and enabling material reuse through supportive policy, standards, and supply chain ecosystems will be essential. As cities grapple with heat islands, resource scarcity, and rising energy demands, embedding circularity, ecological intelligence, and emotional value into urban design will ensure they remain not just livable— but regenerative.

A. *Circularity In The Built Environment*

With India adding roughly one billion square metres of built space every year and over 70% of its future buildings yet to be constructed [(Global Buildings Performance Network, 2018)](#)[5], the built environment is the next frontier for transformative action. Applying the circularity lens, one needs to shift the operational narrative of 'take-make-dispose', to looking at the entire lifecycle of resources, from extraction to production to use to end-of-life. This thinking applies at every level - product, process, and design, and across scales – be it a city, a house, or another brick in the wall.

Embracing circularity in the built environment can mean many things. At a broad scale, the first step would be to minimise the need for construction by optimising land use efficiency and space utility, maximising the use of vacant real estate, and refurbishing and reusing the existing built stock in innovative ways. The first principle remains – the greenest building is one that's never built.

If buildings have to be built, then they must be designed for resource efficiency, durability, adaptability, and disassembly, while also tracking waste management, water sourcing, distribution and treatment to close the loop on vital resources. It requires designing structures, interiors, and products so that every component can be easily maintained and either reused or repurposed over decades, preserving value and resources. While the use phase impacts in buildings largely emerge from operational energy use, the design and end-of-life stages are where material choices assume prime importance. Providing longevity to materials can help reduce repair, operation, and maintenance of products, which reduces cost burdens on property owners while eliminating additional virgin resource extraction. Today, general technology trends indicate a transition from in situ construction to precast element production or complete building solutions. This approach can offer greater control over quality and material efficiency and can deliver significant circularity and decarbonisation benefits if designed intelligently with appropriate materials.

As materiality in the built environment changes – brick, earth, timber are replaced by concrete, metal, and plastic – the amenability of these new materials to value extraction and enhancement at their end of life needs careful study. With current shifts in development controls, many Indian cities are undergoing densification and redevelopment as many older buildings also reach their end-of-life, leading to growing concerns around the management of construction and demolition waste. This high-volume waste is dumped illegally in the city peripheries, often in ecologically sensitive areas, affecting water bodies and natural greens. While this has so far been seen as a waste management issue, the fact that this 'waste' can have value is still an afterthought and is particularly missing in small and medium-sized towns.

The current approach to materiality often prioritises short-term functionality and aesthetics. With trends getting redefined with astonishing speed and regularity, interior renovations are becoming more popular and frequent, supported by a growing market of cheap, low-quality interior design products. Once they reach the end of a trend or lease, they're torn out and landfilled. Materials are simply broken down and fed into a sorting system, much like mixed waste from households, and later separated at the Material Recovery Facilities (MRFs).

> Circularity thinking requires us to start from the design of the product or the process, and look at the whole life-cycle and its impacts now and in the future. A significant part of the circularity thinking is the retention of resource value in the use cycle for as long as possible. These aspects are not given enough importance in the circular economy discourse in India. Here, our primary focus is on post-life recycling, which is difficult unless it has been thought through as part of the design thinking with regard to circularity.
>
> - Zeenat Niazi

Emerging thinking needs to look at not just the share of secondary materials replacing virgin inputs, but a building-level 'circularity index' encompassing material and resource retention, its adaptive reuse potential, energy and water efficiency. By broadening such metrics to perform a life cycle analysis, authentic regenerative designs can be quantified and incentivised rather than token percentages that only mislead. Circularity needs to be embedded in the urban built environment through design and technology solutions, performance-based policy incentives, and financial mechanisms that favour the use of modular systems and adaptive urban habitat designs. The idea is to embed water & waste cycle thinking into master plans, building codes and infrastructure procurement ensuring that every drop & trash is valued as a resource.

B. Materials Of The Future

Material flows in the built environment are staggering, with buildings consuming humongous quantities of cement, steel, bricks, sand, and aggregates. India is the second-largest producer of bricks globally, with over 140 billion bricks produced annually. Brick kilns alone contribute to seven and half percent of India's total carbon dioxide (CO_2) emissions from the industrial sector. India is also the second-largest producer of cement globally. Construction and Demolition (C&D) waste is a growing concern. India generates 150 million tonnes of C&D waste annually, but less than one percent is officially recycled, according to Central Pollution Control Board (CPCB, 2022).

Land and resources are limited, so it's crucial to consider how much we use and where those materials come from. Traditional building materials like red bricks and river sand compete with farming and hydrological flows of natural river ecosystems, polluting the air and affecting soil health. Given the significance of these numbers and the associated environmental impacts, construction must shift from mineral-based conventional building materials to innovative materials based on industrial by-products and natural, renewable options—like bamboo, agricultural residues, and other bio-based materials—that can be harvested sustainably and return nutrients to the land at the end of their lives. These strategies not only mitigate the demand for virgin resources but can also help in carbon sequestration by locking in carbon in the building structure.

Bamboo is a great example- India is one of the world's top producers, yet it is hardly used in mainstream construction. Now, the use of bamboo is being considered and encouraged. There is enough research to show that combining bamboo with natural resins can create strong, carbon-capturing materials that decompose harmlessly. Many South-east Asian countries have already demonstrated remarkable progress in using bamboo in ways that are both structurally stable and aesthetically pleasing, with applications across residential, commercial, and institutional buildings.

Similarly, with technology advancements, there are methods to transform other natural materials like agricultural by-products—straw, husks, shells—into building blocks or panels, or using hemp to make hempcrete, offering scalable, low-carbon alternatives. Some of these materials are also being tested for use in 3D-printing technologies.

Back in the early 2000s, the use of timber was discouraged in construction due to sustainability concerns, such as the felling of trees and rampant deforestation, often illegal. While a lot of emphasis has been placed on Make in India, a clear preference for cheaper and better-quality timber from Canada has been observed. Technology can play a key role for tracing the source of each tree with the use of quick response (QR) codes and checking whether it is industrialised or felled by individuals. This can be done by tracking the source of timber at the ULB level. This becomes crucial for promoting timber-based construction as new applications, such as cross-laminated timber, may offer significant technical and commercial advantages if backed by appropriate policy and regulatory frameworks, especially for supply chains and storage.

Besides natural resources, a great source for construction materials can be found in industrial symbiosis. This is particularly essential from the metabolic thinking perspective to adequately leverage cross-sectoral synergies, ensuring that what is traditionally considered 'waste' from one industry acts as a resource for another.

For instance, the production of bricks from fly ash from thermal power plants, a notorious high-volume waste with severe environmental impacts, is a great example that replaces red bricks with a greener alternative. The story of fly ash also highlights the 'economic' or value extraction aspect of circular economy models. Thermal power plants, which would once have to pay heavily for handling of fly ash and were mandated to provide fly ash free of cost to brick producing units in a prescribed radius around the plant, now in fact sell fly ash and earn from it. This demonstrates how a combination of regulatory measures and innovative business models can combine to valorise waste and meet market needs.

In Ahmedabad, contractors now look at C&D as a resource and are installing demolition and reprocessing systems within construction sites. While there is progress on C&D waste utilisation, more efforts are required. Currently, recycled aggregates can only be used up to a maximum of 20% in the structural level of construction. Most crushed concrete and tiles can only be used in non-structural items such as pavers or benches, which brings limited value. A selective, careful, conscious deconstruction approach can also help derive materials that are intact for repurposing and can be sold in secondary markets. This is particularly relevant for low-income communities that

can use these for incremental construction at affordable prices. Improved business models, proper guidelines for demolition and waste processing, and a proactive approach to preventing waste and capturing value from C&D Waste upfront can yield better results.

However, to make these alternative materials viable for mass construction, we need standards and supply systems that ensure consistent quality, durability, and ease of use. That means setting benchmarks for lifespan, maintenance needs, and comfort, and building small production systems & supply management networks that match the demand that India has to offer. Green public procurement policies will go a long way in ensuring the market uptake of sustainable technologies. This will also mean navigating the competition with existing and emerging 'non-green' alternatives, which bring in market and taxation competitiveness.

Turning to scientific and technological imperatives, there is immense potential in developing circular-economy ecosystems. Implementing industrial-symbiosis hubs or 'circular corridors' would allow industries to exchange secondary resources and share infrastructure to maximise value retention and enhancement. Achieving this vision requires the creation of institutional platforms and mechanisms that convene stakeholders around focused areas, and rigorous research & development (R&D), particularly in low-cost, renewable construction materials, to facilitate a supply chain and resource flows across urban-industrial landscapes.

By linking construction to bioeconomy resources, we can shift toward the 'green' side of the circular model, which relies on sustainable sourcing based on the land's capacity to produce bio-based materials without depleting ecosystems. This is a way to tap into abundant, underused resources by aligning material choices with local biocapacity while preserving ecological integrity. At the same time, the construction sector has proven to be particularly amenable to absorbing waste materials from different industries – be it using fly ash to make bricks, steel blast furnace slag as an additive in cement, waste plastic in roads, or textile waste to make acoustic panels.

In this way, the built environment presents a unique test bed and a tremendous opportunity to create innovative circular products, capitalising on locally available natural and secondary resources and also responding to local conditions and needs through smart design and application.

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> Our estimate is that India is roughly building about a billion square meters every year. If you start to divide the pie of 1 billion square meter into subcategories, our sense is that about 60% to 70% is happening in the affordable housing sector, and a bulk of that is happening in urban and peri-urban areas as well.
>
> - Satish Kumar

C. Energy Efficiency

The building sector accounts for around 30% of India's total electricity consumption, with significant growth projected due to urban expansion. With rising temperatures, space cooling demand is expected to rise eightfold by 2037-38 (India Cooling Action Plan 2019)[6], placing additional strain on energy systems and increasing greenhouse gases (GHG) emissions if left unmanaged. In such a scenario, conscious energy-efficiency measures must become non-negotiable in every facet of the built environment, starting from master planning through to appliance choice within each home.

Solutions and approaches for this exist and are well understood. For instance, cluster and neighbourhood-level planning and design scales can optimize densities and orient buildings for natural ventilation and shading. This can reduce the reliance on air conditioning from the planning stage itself. However, urban policies in India are yet to integrate blue-green infrastructure, which can minimise hotspots before they form. This leaves the new developments yielding low growth, with inadequate preparation for rising urban temperatures and high energy demand.

Green rating systems have already spurred market uptake of low-carbon technologies such as fly-ash bricks, efficient HVAC units, and solar panels. This is a step towards making sustainability visible, appealing and profitable. Scaling these frameworks and models, with clear metrics and financial incentives, can help surface mainstream technologies and solutions, which are otherwise sidelined due to cost concerns.

Although energy codes such as the Energy Conservation Building Code (ECBC) and *Eco Niwas Samhita* (for residential buildings) exist, their implementation and uptake remain painfully weak. Moreover, while the embodied carbon aspects of building materials have recently entered the code vocabulary and the policy discourse, the primary focus in the construction industry remains fixated on operational energy. Low-carbon materials exist, yet don't find space and prominence in the local supply chains. It is estimated that India has a 20–30-year window to prioritise embodied carbon and avoid the long-term lock-in of carbon-intensive building materials and production processes.

✦ **HEAT-STRESS RESILIENCE:** Heat-stress resilience is becoming a critical concern for Indian cities as temperatures continue to rise due to climate change and rapid urbanization. Current designs may not withstand rising urban temperatures in the near future. India is experiencing a significant escalation in the frequency, intensity, and duration of heat waves, posing severe challenges to public health, infrastructure, and urban planning. In 2024, the country recorded 536 heatwave days—the highest in 14 years—with 181 of those occurring in June alone. This extreme heat led to over 41,000 suspected heat stroke cases and at least 143 confirmed deaths, although independent analyses suggest the actual toll may be higher.[7] The India Meteorological Department (IMD) reported that 2024 was India's warmest year on record, with an annual mean land surface air temperature of 25.74°C, marking a 0.65°C increase above the long-term average. Projections indicate that under a 2°C global warming scenario, the frequency of oppressive heat waves—characterized by high temperature and humidity—could increase eightfold by the end of the century, significantly elevating health risks.[8] These trends underscore the urgent

need for comprehensive heat action plans, climate-resilient infrastructure, and adaptive urban planning to mitigate the escalating impacts of extreme heat events. According to the Centre for Science and Environment (CSE), cities like Chennai have seen a dramatic increase in built-up areas—from 30.7% in 2003 to 73.5% in 2023—intensifying the urban heat island effect and pushing daytime temperatures in city cores up by 0.8°C compared to surrounding regions. Simultaneously, the India Meteorological Department (IMD) has observed a significant geographic shift in heatwave zones, with previously temperate states like Arunachal Pradesh and Kerala now experiencing extreme heat events. This expansion signals a broader and more pervasive threat across India, demanding urgent integration of heat-resilient infrastructure and planning norms into urban development policies. Without these interventions, new developments—especially in the affordable housing sector—risk becoming uninhabitable during peak heat periods, exacerbating health risks and social vulnerabilities. Current affordable housing and infrastructure often lack thermal insulation and ventilation, exacerbating discomfort and health risks for low-income populations. Rising urban heat islands caused by dense concrete surfaces and minimal green cover—intensify vulnerability, especially for children and the elderly. Passive design solutions like orientation, shading, and natural cooling must be mainstreamed across urban planning codes. Without such foresight, today's buildings risk becoming tomorrow's uninhabitable hotspots.

◆ **EMBODIED CARBON:** Despite the availability of innovative low-carbon building materials in India—such as fly ash bricks, autoclaved aerated concrete (AAC) blocks, hempcrete, and bamboo composites—their integration into mainstream construction remains limited. This is primarily due to entrenched supply chain preferences for conventional materials like cement and steel, which benefit from established procurement channels and economies of scale. A study by Transitions Research[9] highlights that the absence of embodied carbon standards, inadequate policy incentives, and a lack of awareness among builders and contractors hinder the adoption of these sustainable alternatives. Furthermore, mid-sized cities, which are experiencing rapid urban growth, often lack access to these materials due to supply chain constraints and limited market availability. While initiatives like National Thermal Power Corporation's (NTPC's) ash-based "Eco-house"[10] demonstrate the potential of low-carbon construction, scaling such models requires concerted efforts to reform building codes, incentivize sustainable practices, and develop robust supply chains that can support the widespread use of eco-friendly materials. Low-carbon materials exist but don't find space and prominence in the local supply chains.

◆ **INDOOR AIR QUALITY (IAQ):** Indoor air quality in Indian homes—especially in low-income urban areas—poses serious health risks, with particulate matter (PM2.5) levels in many households exceeding World Health Organisation standards by three to four times (TERI, 2024[11]; WHO Air Quality Database, 2021[12]). Poor ventilation, indoor biomass use, synthetic building materials, and limited energy-efficient appliances exacerbate the problem. Circular economy practices such as the reuse of low-emission, non-toxic, and modular materials—can reduce off-gassing and improve airflow design. Energy-efficient strategies like solar-passive architecture, natural cross-ventilation, and efficient HVAC systems help minimize indoor heat and pollutant buildup. Studies by the Centre for Science and Environment (CSE, 2014)[13] show that buildings designed with these principles report up to a 30% improvement in indoor comfort and air quality.

Scaling solutions in a meaningful manner will require shared dialogue on macroeconomic issues and joint innovation in businesses through 'triple-sector' models uniting government, industry, and civil society. With new synergistic efforts, Indian cities can embrace resource-efficient and energy-smart designs, robust green policies, and data capturing and monitoring to create urban environments that are data-informed, resilient, efficient, and responsive to citizens' needs today and for generations to come.

Further, it will be beneficial to identify specific opportunities to spur market transformation at scale. For instance, affordable housing relies on subsidised welfare schemes like PMAY-U and rarely meets efficiency or sustainability standards. Developers and buyers prioritise cost over energy-efficient design, appropriate materials, and overall performance, even though these can go a long way in enhancing the quality of life and thermal comfort for residents while reducing the carbon footprint of these houses.

In such a scenario, through targeted interventions, this large-scale construction activity can be directed to deploy low-carbon and resource-efficient material and technology alternatives that enhance the liveability of homes without increasing costs. This can help establish and strengthen green supply chains and bring cost parity by removing barriers to market entry, aggregating demand, and increasing their visibility and availability in the market.

Considering the significance of PMAY-U as the primary vehicle of the Indian government delivering—affordable housing at scale, as well as the limited ability of populations occupying these houses to spend on cooling appliances and retrofits—it becomes crucial to integrate green building measures and appropriate material choices in its implementation. By developing contextual solutions based on available secondary resources and a push for circularity innovation, this may also present an opportunity to tackle waste management issues. Dedicated municipal analytics teams can unlock predictive insights—for example, on district cooling viability or emerging urban heat islands—turning data into preemptive action rather than reactive correction. In addition, there is a latent opportunity to derive multiple benefits for localised socio-economic development through the promotion of regional supply chains and transitioning to a greener economy.

De-jargonize & Digitalize to become De-carbonized.

- Hitesh Vaidya

5. THE SOCIAL ARCHITECTURE OF URBAN FABRIC

Migration patterns are a powerful force shaping the morphology of Indian cities especially the Tier 2 and the Tier 3 cities. As people move in search of livelihoods, education, or escape from climate and agrarian distress, they reshape urban growth from below—often faster and more organically than formal master plans can keep pace with.

Migrants often settle where land is cheap (especially in existing squatted lands/slums) or unclaimed lands, often on the margins—railway verges, floodplains, peri-urban edges—leading to a proliferation of informal housing clusters that become deeply embedded in the city's economic life, even as they remain invisible in planning maps. These settlements grow not just out of housing need but out of a failure of formal systems to account for human mobility as a permanent and structural feature of urbanization. India's migration is increasingly seasonal, circular, and multi-nodal. Workers move between homes, villages and cities throughout the year, creating dynamic labor corridors—between Odisha and Surat, Jharkhand and Delhi, Bihar and Ludhiana. Yet, city systems still treat these populations as transient, undeserving of long-term investment. National housing policies—like PMAY, affordable or rental housing schemes—are still largely metro-centric and focus on fixed, owned units. They miss the mark in smaller cities and growing census towns, where the bulk of migration-linked urbanization is taking place today. As a result, migrants are offered a minimum safety net, rarely an enabling environment to build stable lives, access public services, or claim the full benefits of urban citizenship.

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> Cities today don't meet the affordable infrastructure, amenities and citizenship requirements that migrants need to survive and thrive in the city.
>
> - Mukta Naik

The challenge is not just about shelter, but about dignified belonging. Migrants are key drivers of construction, care work, street economies, logistics, and sanitation—yet their social and spatial integration remains peripheral in urban governance. We must stop treating informal settlements as "problems to fix" and start seeing them as "sites of potential" where inclusive planning can take root. This means investing in portable entitlements, community-owned infrastructure, multi-use housing typologies, and local governance models that include migrants as co-creators of the city—not just recipients of charity.

A truly slum-proof city is not one without slums, but one where no one is forced to live in one for lack of choice.

Cities like urban tapestry reflect the power of collaboration, with each segment bringing together a different action or idea needed to create better, more inclusive urban landscapes through co-creation.

A. *Addressing Social Inequalities*

India's urban slums remain concentrated zones of inequality, shaped by historical exclusion, informality, and poor service delivery. According to the Census of India (2011) and subsequent National Sample Survey Office (NSSO) 76th Round (2018), approximately 65 million people live in slums nationwide, with particularly high concentrations in Odisha (35.2%), Rajasthan (28.8%), Tamil Nadu (26.4%), and Punjab (21.1%). These settlements house large numbers of Scheduled Castes, Scheduled Tribes, migrant workers, and women-headed households, who continue to face barriers to housing security, social protection, and access to public infrastructure. A majority of slum residents lack secure tenure, leading to their exclusion from schemes like PMAY, Ayushman Bharat, or even basic services like piped water and sanitation. While centrally sponsored schemes have provided a funding framework, the real breakthroughs have come from states that have shifted from service delivery to rights-based, in-situ upgrading.

Odisha's JAGA Mission offers a transformative approach that places equity at the center of urban development. By granting land rights to over 2,10,000 households across 2,900 slums, the program has unlocked access to over ₹1,200 crore in infrastructure investment and connected slum dwellers to services without displacement. The use of drone mapping, Geographic Information System (GIS) based data systems, and community partnerships has helped create participatory models that combine tenure security with infrastructure improvement, social inclusion, and accountability.

Tamil Nadu's Urban Habitat Development Board has transitioned from relocation-focused models to in-situ redevelopment, focusing on vertical housing and mixed-use neighborhoods. However, in many relocated sites, especially in peripheral Chennai, issues persist with access to jobs, public transport, and schools—raising questions of spatial justice. In Rajasthan, the *Mukhyamantri Jan Kalyan Yojana* has invested in basic amenities, yet the absence of tenure regularization weakens the long-term stability of these interventions. Punjab's urban centers, especially Ludhiana, Jalandhar, and Amritsar, face the unique challenge of high in-migration into industrial zones where informal settlements lack legal recognition—making it harder to deliver entitlements or build civic infrastructure.

A new policy direction must center slum improvement as a multidimensional instrument for urban equity, inclusion, and climate resilience.

- ◆ First, states must adopt tenure-based approaches that unlock eligibility for social protection, education, healthcare, and urban employment schemes.

- ◆ Second, interventions must integrate care infrastructure—such as childcare, eldercare, and decentralized health access—into slum upgrading plans to reduce the care burden on women.

- ◆ Third, birth registration and digital inclusion campaigns must be embedded at the settlement level, particularly in migrant-heavy areas, to ensure children and youth are not excluded from school admissions, Public Distribution System (PDS), and health coverage.

- ◆ Fourth, peri-urban governance reform is urgently needed: many slums now fall outside municipal boundaries but are rapidly urbanizing. States must adopt flexible, anticipatory governance frameworks to bring these areas into the fold before infrastructure deficits become entrenched. With strong examples like Odisha, there is a clear roadmap to follow—one that t reats slum dwellers not as beneficiaries, but as rightful urban citizens shaping their own futures.

CASE STUDY

JAGA MISSION – *Odisha's Slum Inclusion Blueprint*

Urban India has long grappled with the invisibilization of slum settlements, treating them as temporary, illegal, and outside the purview of formal planning. This has led to generations of marginalization for millions of urban poor—particularly Scheduled Castes, Scheduled Tribes, migrants, and women-headed households—who face persistent insecurity, inadequate services, and systemic exclusion. In most cities, informal settlements are denied land rights, basic amenities, and integration into urban governance systems, perpetuating cycles of poverty and vulnerability.

Odisha's JAGA Mission, launched in 2018, radically reimagines this narrative. As the world's largest slum land titling and upgrading initiative, it recognized slums as legitimate urban neighborhoods and residents as rightful citymakers. By granting land rights to over 2,00,000 households across more than 2,000 slums, JAGA has legally secured the tenure of some of the most vulnerable communities in the state. But its ambition goes beyond land. Through extensive slum mapping, community mobilization, and participatory planning, the mission empowers residents to co-create their neighborhoods. Upgradation is done in situ, providing paved roads, toilets, drainage, lighting, and water, without displacement. This model restores dignity, voice, and agency to communities that had been historically ignored or evicted.

What sets JAGA apart is its equity-centered, multi-sectoral design. It understands that urban poverty is not just about housing, but also intersects with work, the care economy, identity, and access to basic services. By leveraging digital tools, including geospatial mapping, to identify land ownership for real-time monitoring, and embedding community institutions within the process, JAGA has created a transparent, accountable, and participatory governance model. The city governments are engaged not just as implementers but as facilitators of inclusive development, enabling bottom-up decision-making and sustained community ownership.

The scalability and replicability of the JAGA Mission lie in its integrated, rights-based framework. It provides a compelling alternative to eviction-led or relocation-heavy slum strategies commonly practiced in Indian cities. By focusing on tenure security, infrastructure co-creation, and community empowerment, JAGA offers a blueprint for building cities that are inclusive by design, not by exception. As India looks toward a more equitable urban future under the *Viksit Bharat* vision, the JAGA Mission demonstrates how states can operationalize the right to the city, making visible those who have long lived in its shadows, and ensuring that urban transformation leaves no one behind.

B. *Building Social Connections and The Economy of Care*

India's evolving migration landscape and the steady shift toward nuclear family structures have exposed a widening intergenerational care gap, particularly in low-income and migrant households. Women, who are most often both primary earners and primary caregivers, shoulder a disproportionate burden—navigating informal, precarious livelihoods while also providing care for children and the elderly in the absence of public infrastructure or community support. Data from the Longitudinal Ageing Survey in India (LASI, 2017–18) and the India Ageing Report 2023[14] reveal the growing urgency of this issue: over 138 million Indians are aged 60 or above, and this figure is projected to double by 2050. Yet, urban systems remain ill-equipped to respond, with minimal investment in geriatric services, child care, or neighborhood-level caregiver support—factors that directly limit women's economic empowerment and reduce cities' overall productivity.

The India Ageing Report 2023, jointly released by the Government of India and United Nations Population Fund (UNFPA), offers a timely roadmap—highlighting the need for localized, community-based elder care, digital literacy programs, and expanded social protection systems. But without targeted efforts in urban informal and migrant-heavy settlements, these strategies risk bypassing the very populations who need them most. The G20 policy paper on Leveraging the Care Economy underscores that care infrastructure is not simply a welfare priority—it is foundational economic infrastructure. Women in India continue to perform nearly nine times more unpaid care work than men (NSSO, Time Use Survey 2019)[15], a reality that remains largely unaccounted for in mainstream urban planning and economic policy. It's important to understand that an advancing India, needs to make such structural investments, that not only support inter-generational well being but also, a care-responsive economy as critical determinant to thriving populations.

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>
> Can we envision a care economy where care providers, families with children, the elderly, marginalized communities, gig workers, and migrants thrive inclusively and equitably ?
>
> - Dr. Priyanka Kochhar

There is an urgent need to reframe urban policy through the lens of the care economy—one that recognizes, supports, and invests in the often-invisible labor sustaining India's urban growth. Migrant families, especially those in slums or informal settlements, operate across geographies: while adults migrate to cities for construction and other informal work, children and elders are often left behind in villages with little institutional support. Meanwhile, caregivers—mostly women—juggle domestic labor, childcare, eldercare, and income generation, without access to public infrastructure or protection. These realities remain largely absent from mainstream urban planning.

To address this, urban policy must move beyond basic service delivery and build integrated care systems—linking social security, child development services, health, housing, and digital access.

Migrant households need portable entitlements, financial and digital literacy, and inclusion in SHG networks that can offer both solidarity and economic opportunity. Embedding migrant families—especially women and caregivers—into the fabric of urban social and economic programs is not only a matter of justice, but of productivity. Recognizing their unpaid and underpaid care work is essential to designing cities that are equitable, resilient, and future-ready. Indian cities thrive on relationality with deep bonds among neighbours, institutions, and nature.

Facilitator-led and co-creative processes allow communities to imagine and build their futures together. Moving away from extractive systems toward people-centered frameworks will help Indian cities become true engines of low-carbon prosperity. Adolescents comprising India's largest youth cohort, are uniquely positioned to shape their environments but lack forums for meaningful participation. Urban frameworks must address their cognitive and social needs, turning playgrounds, schools and academic institutions into learning labs for climate resilience. Early childhood care, parental well-being, and neighborhood collectives also play crucial roles in nurturing a generation.

Indian cities must reconnect with their heritage to become more inclusive and sustainable. While reimagining cities of the future, rooting urban design in local culture and religion can guide climate-friendly behaviours. And devising new "neural pathways" in public education can reinforce these habits. Public spaces should be intentionally shaped to make walking, cycling, and social interaction the easy defaults.

C. Urban Biodiversity– Reclaiming Nature in the City

Most cities have grown at the cost of their ecological base—lakes have become parking lots, groves have been razed for real estate, and biodiversity is often dismissed as incompatible with infrastructure-led development. Yet, the loss of biodiversity in urban settings is not just an environmental concern—it directly impacts public health, climate resilience, food systems, and even cultural identity. Urban biodiversity is a powerful but overlooked lever in the fight against extreme heat, flash floods, and pollution. Green cover in Indian cities has fallen drastically and the grassland ecosystem is shrinking owing to ambiguity in understanding their constitution. It has immense ecological and economical potential, yet it is missing in the discourses and practice. This loss carries a huge cost; it has implications for everything from air purification to mental health.

Indian cities are home to a range of biodiversity-rich micro-ecosystems: mangroves in Mumbai, rocky scrublands in Hyderabad, wetlands in Kolkata, sacred groves in Bhubaneswar, and hill ecosystems in Shimla. Many of these are under threat from encroachments and weak enforcement of zoning laws. Urban biodiversity, however, isn't just about preserving "green spaces"—it's about recognising the interdependence between ecological systems and urban life. Lakes, wetlands, native trees, grasslands and pollinators like bees and butterflies, even street dogs and urban birds form part of an interconnected web that supports life in cities. Loss of biodiversity reduces the capacity of cities to self-regulate—whether through controlling heat islands, reducing water runoff, or maintaining air quality and soil health.

> Development lies in the symbiosis of the village and the city. This isn't anything that is out of the ordinary; the symbiosis already exists. No city can survive without villages. As you travel outside Delhi, you will see most farmers have now stopped farming, and they are becoming real estate developers.
>
> - Gaurav Shorey

Recent efforts in cities like Pune, Chandigarh, and Bengaluru show the value of integrating biodiversity into planning. Pune's Biodiversity Park on the banks of the Ramnadi River restored not just habitat but public access to nature. Bengaluru's citizen-driven mapping of tree species and butterfly parks highlights how decentralized stewardship can unlock co-benefits for both humans and ecosystems. Tools like Local Biodiversity Action Plans (LBAPs) and India's National Biodiversity Mission offer a starting point—but require serious investment, cross-sectoral collaboration, and community ownership to move from paper to practice.

Crucially, urban biodiversity needs citizen science and ecoliteracy to flourish. Residents can become co-managers of their ecosystems—mapping trees, reporting illegal felling, and advocating for biophilic urban design. Schools and colleges must embed biodiversity into curricula, supported by hands-on urban ecology labs and bio-blitzes. Urban biodiversity is also deeply emotional and cultural: sacred groves, community ponds, and city forests form part of people's memory and identity. By protecting them, we protect the emotional scaffolding of urban life.

To build future-ready, liveable cities, biodiversity must be treated not as a luxury, but as a foundational urban service—like roads or water. As climate change escalates, investing in green infrastructure (like native urban forests, green roofs, and ecological corridors) and blue infrastructure (like restored lakes, urban streams, and wetlands) will be vital. Cities like Singapore have embedded biodiversity into their core planning—India can do the same, but it will require shifting away from grey infrastructure alone towards an integrated "green-blue" urban metabolism.

B. PATHWAYS TO GREEN URBAN FUTURES

To unlock the true potential of urban development, India must shift its focus from a project-centric mindset to a problem-driven approach rooted in citizen needs. Cities must clearly identify and prioritize the critical challenges they must solve for their residents. This demands a bottom-up planning process where towns articulate their unique aspirations and contextual realities, enabling tailored, locally-led solutions rather than relying on standardized templates. Only then can urban interventions become genuinely transformative, inclusive, and aligned with the broader goals of sustainable development and improved quality of life.

India's urban future must be reimagined as a tapestry woven with ecology, economy, and emotion threads—each integral to creating cities that are not just liveable but flourishing. This chapter of urban transformation must be authored with empathy, equity, and innovation, ensuring that every town, regardless of size, becomes a thriving node in the *Viksit Bharat* 2047 story.

This chapter captures that imagination—a new urbanism that moves from fragmented service delivery to integrated, circular, and climate-responsive ecosystems. It draws from the insights of practitioners and the pulse of on-the-ground change, from the energy-efficient housing solutions of Indore to the decentralized, zero-waste initiatives of Alappuzha. These stories show that with the right investments in governance, data, mobility, and green infrastructure, India's urban centres—particularly its emerging towns—can become the cornerstone of a *Viksit Bharat* 2047. In this future, cities are not just spaces of survival, but platforms of possibility—where ecological integrity, economic vitality, and human dignity and emotions co-exist. India's urban future demands fundamentally rethinking of how cities are financed, governed, planned, and lived. To build resilient, inclusive, and climate-responsive cities, reforms must address key systemic levers — from strengthening municipal finances through instruments like municipal bonds to embedding technology and data-driven governance at the core of urban management. A new emphasis on urban workforce skilling, education reform, and behavioral change among citizens is equally critical. Shaping the "India Story" around a new climate grammar, fostering diverse collaborations, and aligning growth to planetary boundaries will be pivotal to creating future-ready urban ecosystems. This section outlines the strategic areas where targeted policy action and innovative planning can

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Shifting the urban narrative requires changing consumption patterns in mobility, food, fashion/clothing, and more toward conscious and sustainable decisions - a complete systemic shift in what we prioritise and how we consume and produce.

- Sunita Purushottam
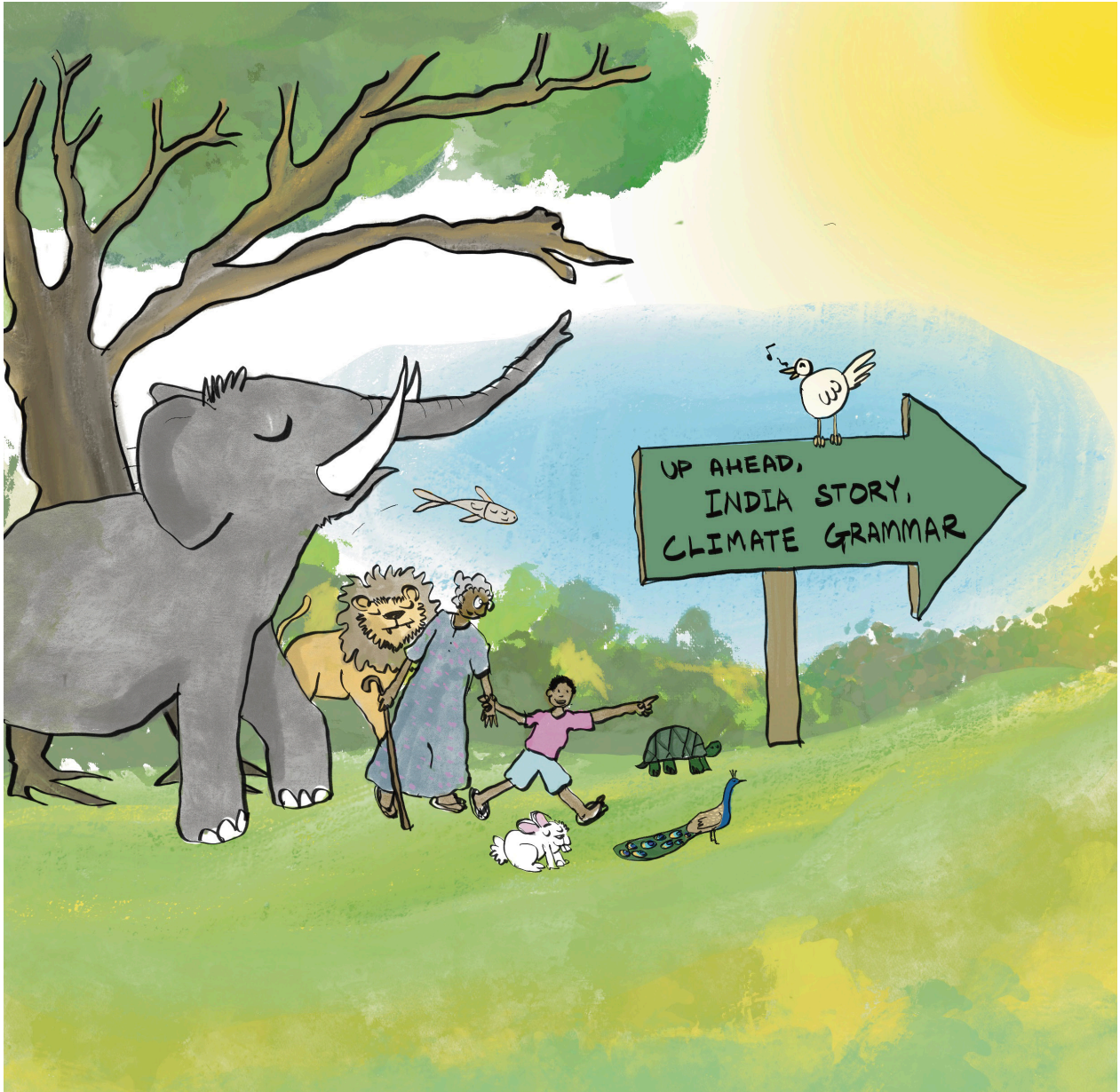
India's Story needs to be marked with a Climate Grammar for reimagining India's future through innovation, equity, and resilience. The path to climate justice must also honour coexistence with nature, animals, and all life.

To put simply, our goal should be to change climate discourse from a peripheral, elite policy debate to one that is visceral and central to addressing India's future. We need to reverse engineer the tools, networks and platforms to achieve that vision.

1. NARRATIVE SHIFTS– CRAFTING THE NEW "INDIA STORY"

India's urban development story must now be reframed through the lens of a "Climate Grammar"—a new narrative framework that positions cities not as sites of crisis, but as platforms for climate solutions, social equity, and economic renewal. Indian cities are at the frontline of transformation, where the choices we make about housing, mobility, energy, and care systems will determine the planet's future. By rooting urban planning in ecological intelligence, relational infrastructure, and community agency, we can move from extractive models of development to regenerative, inclusive urbanism.

Programs like the Smart Cities Mission have evolved to prioritize data-driven, participatory governance, while initiatives under the AMRUT and PMAY-U schemes are embedding resilience and inclusion in housing and urban services. India is also home to a growing movement of women-led climate enterprises, youth-driven circular economy initiatives, and urban innovations that span clean mobility, decentralized water systems, and public health infrastructure. These models are increasingly referenced by global partners—from UN agencies to South-South learning platforms— as pathways for cities in the Global South navigating the triple crisis of climate change, inequality, and rapid urban growth.

What sets India apart is its ability to scale with empathy—combining technological innovation with social imagination, and aligning national missions with local leadership. The country's urban future is not only about reaching SDG targets; it's about shaping a new grammar of development—where cities are not extractive machines, but living ecosystems of care, climate action, and collective resilience. As the world searches for replicable, equitable urban pathways, India's city-building story stands as both a model and a movement.

India intends to emerge as a *"Vishwa-Guru"* in inclusive, green, and resilient urbanization, driven by a unique blend of grassroots innovation, state-led reforms, and community-owned models. From the JAGA Mission in Odisha, which has granted land rights and dignity to over 2,00,000 slum-dwelling households, to Indore's zero-landfill model, Indian cities are demonstrating how urban transformation can be climate-smart, socially just, and locally grounded. These efforts aren't just about infrastructure—they're about building cities that work for people and the planet.

CASE STUDY

MAKING CLIMATE POLITICAL – *Odisha's Ground-Up Model for Climate Democracy*

For many citizens, climate change discourse feels abstract and like a distant theory. In Odisha, however, it has become a political priority through interlinked initiatives that began with one key insight: people may not understand "climate change" as a concept, but they understand its impact—failing crops, drying ponds, rising heat, and erratic rain. The issue wasn't awareness, but the lack of language and platforms to translate everyday distress into systemic political demands. Historically, India's climate discourse has been technocratic and disconnected from grassroots concerns. Bridging the gap between science, citizens, and the state was essential.

In response, a coalition of civil society and media institutions—including Socratus Foundation, Sambad Group, and Bakul Foundation—launched a multi-pronged strategy under Earth Again *(Punascha Pruthivi)*. Central to this was Odisha's first Climate Manifesto, co-created with 50+ experts and grounded in insights from Climate Panchayats held across all 30 districts. These panchayats engaged 10,000+ citizens and reached over two lakh people via print, TV, and social media—democratizing climate dialogue across constituencies. The lived experiences were translated into actionable insights, mapped across ten climate-sensitive themes using GIS and satellite data. This culminated in the launch of the People's Climate Atlas of Odisha, a digital, constituency-wise repository of localised climate vulnerability and resilience.

The impact was tangible. By the 2024 state elections, major parties like the Biju Janta Dal (BJD) and Bharatiya Janta Party (BJP) had incorporated key recommendations from the Climate Manifesto into their platforms—a marked shift from earlier manifestos that barely mentioned climate. More than 130 Members of Legislative Assembly (MLAs) participated in the process, with over 20 legislators raising climate-sensitive issues in the Assembly, many directly informed by panchayat discussions. The Governor of Odisha formally released the Climate Atlas, recommending it for district-level governance planning. Programmes, such as *Punascha Pruthivi* on Sambad TV, continues to deepen climate literacy by blending emotional narratives with scientific and social data; reaching citizens where they are.

The scalability and replicability of this approach lie in its convergence of science, storytelling, and citizenship—building momentum through participation and data democratization—not by high-cost infrastructure or top-down mandates. Odisha's model positions climate as a political imperative, offering a replicable framework for integrating climate into manifestos, informing development visions, and fostering resilience from the ground up. As Odisha's Vision 2036 evolves, this foundation ensures climate justice remains both policy-relevant and politically indispensable.

2. PEOPLE-POWERED CITIES: RETHINKING ENGAGEMENT FOR IMPACT

Behavior change and citizen engagement are critical drivers for advancing sustainable, inclusive urban development. Beyond infrastructure and policy, cities must mobilize everyday practices, habits, and cultural norms to shift toward climate resilience and equity. This requires designing large-scale campaigns that go beyond awareness to spark deep, long-term shifts in how people consume, manage waste, conserve energy, and participate in civic life. The most effective campaigns are not just instructional—they are immersive, co-creative, and emotionally resonant, blending strategic communication with behavioral nudges, neighborhood-based activation, and digital feedback loops.

A powerful, often underutilized lever in this transformation is the role of artists, storytellers, and cultural practitioners. Cities like Mexico City have pioneered the use of urban labs and creative collectives to bring together policymakers, citizens, and cultural workers in reimagining public life—from transforming waste narratives through street murals to creating performances that challenge water wastage and inequality. These approaches root climate action in place-based identity, emotion, and imagination—making sustainability not just a technical goal but a shared cultural project. In India, similar models can be nurtured by embedding artists and creatives within city planning teams, ULBs, or even Smart City Missions, to co-design civic campaigns that resonate across class, language, and generational divides.

Shifting citizen behavior at scale requires treating cities as "living laboratories of change". Schools, markets, religious spaces, and public transport hubs can become nodes of engagement—where campaigns are localized and sustained through repetition, storytelling, peer influence, and visual cues. Informal workers, women's collectives, and youth networks can act as catalysts of behavioral transformation, if equipped with the right tools and recognition.

> For me, the fight for clean air has been personal. I've seen my own children suffer through toxic air, from being born premature to coughing fits, missed school days, and being forced indoors when they should have been playing outside practising for their tournaments. No parent should have to watch their child struggle to breathe. This is not just about pollution levels or policies; it's about protecting lives. Clean air is a basic right and no one should have to ask for it.
>
> - Bhavreen Kandhari

CASE STUDY

CITIZEN COHORTS – *From Awareness to Action on Air Quality*

India's air pollution crisis has reached a tipping point, with chronic exposure contributing to millions of premature deaths and widespread respiratory illness. Yet despite growing awareness, collective citizen action has often been slow to mobilize. For people, barriers such as fragmented information, lack of time, and completing daily responsibilities have created inertia, even as air quality deteriorates across urban and peri-urban centers. Compounding the challenge is the hyper-local nature of pollution: different neighborhoods experience varying pollutant loads depending on factors such as traffic, construction, garbage burning, or proximity to industrial sites. With limited access to real-time, granular data and unclear channels for redress, citizens often find themselves disempowered, even when they are aware of the risks.

Into this vacuum have stepped citizen-led collectives, such as Warrior Moms and the Lung Care Foundation, which have demonstrated how organized local activism can drive change. These groups utilize hyperlocal data, storytelling, petitions, and digital campaigns to pressure municipal bodies and state authorities into action. By leveraging personal narratives and neighborhood-specific evidence, they make air pollution visible, not just as an environmental issue but as a public health emergency. Their campaigns emphasize collaboration, with

parents partnering with ward councillors or MLAs, turning their lived experiences into evidence-based demands. From school zones to market areas, these cohorts monitor violations, document visual proof, and amplify it through social media, demanding responsive governance. Though often modest in scale, these initiatives have helped shift air quality into the national policy conversation.

The scalability and replicability of such efforts lie in their simplicity and emotional resonance. Unlike top-down awareness drives, citizen cohorts function as decentralized, distributed networks, adaptable to the unique pollution profile of each locality. If just 60 neighborhoods in Delhi or Tier 2 cities synchronized campaigns—with shared templates for engagement, community data platforms, and direct health messaging—the momentum could catalyze a systemic response. India can draw inspiration from models like China's "Blue Sky" initiative, which combines citizen pressure, data-driven enforcement, and a zero-tolerance approach to emissions near schools and hospitals. Going forward, India's air quality response must treat citizens as co-producers of change—mobilizing doctors, mothers, youth, and civic leaders into a coherent, place-based movement. For clean air to become a reality, data must meet demands, and awareness must translate into organized, persistent action.

3. LEVERAGING COLLECTIVE WISDOM THROUGH DIVERSE ECOSYSTEM ENGAGEMENT

The world today confronts a cascade of 'wicked problems'—those that are systemic, interconnected, and defy linear solutions. Climate change, social fragmentation, exclusionary urban development, and ecological degradation are not issues to be solved by singular expertise or siloed mandates.

What we need is collective wisdom—the intelligence that emerges when diverse minds, experiences, and disciplines converge with a shared sense of purpose. From shaping placemaking experiences to co-authoring climate narratives, platforms can turn problems of the world into shared cognitive challenges, giving citizens both language and agency to respond. The efficacy of such methods lies in how we dissolve rigid boundaries between expert and public policy and everyday life. We've found that when ordinary citizens deliberate on policies designed for them—especially in climate, housing, waste, or mobility—they bring forth insights not captured by technical analysis alone. And when artists, foragers, architects, chefs, and activists share their lived and practiced knowledge they reconfigure the collective perception of resilience and adaptability. It is equally critical to understand that to influence structural change, we must influence the influencers. Philanthropists, policymakers, city leaders, and communicators must begin to speak a language that reflects planetary boundaries, regenerative economies, and relational urbanism. Citizen communications—co-designed with the communities themselves—are game-changing in this regard. By bringing the right people into well-designed spaces, supporting them to prototype new imaginaries, and disseminating practical, repeatable tools, we shift public narratives and policymaking alike.

The vision of a flourishing society on a thriving planet calls for systemic, intergenerational, and deeply creative work—where ecology, economy, and emotion are not separate pillars, but co-constitutive elements of planetary commons.

A flourishing city is not one that only invests in infrastructure—it is one that invests in cultural capital, citizen agency, and the imagination to live differently.
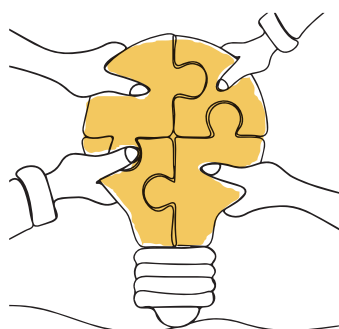
4. UNLOCKING CLIMATE RESILIENT URBAN FUTURES THROUGH STARTUP-LED WASTE AND RESOURCE INNOVATION

India's rapidly expanding cities stand at a critical juncture—facing the dual pressures of escalating urbanization and increasing environmental stress. Traditional, top-down service delivery models are proving inadequate in meeting the complex, place-based challenges of urban waste management, water conservation, and resource circularity. To navigate this transition, India must urgently shift toward decentralized, innovation-led models, harnessing the potential of its dynamic ecosystem of startups and Micro, Small and Medium Enterprises (MSMEs).

These entrepreneurial actors bring agility, contextual intelligence, and a culture of experimentation—traits that are often difficult to embed within municipal institutions. Across the country, startups are already developing decentralized solutions: from localized MRFs and leak detection systems to low-footprint composting and bio-methanation units. MSMEs are turning waste into wealth, enhancing resource efficiency, creating green jobs, and reducing the pressure on landfills. However, these innovations remain fragmented and face systemic barriers to scale.

While, the sector witnesses significant data and infrastructure gaps such as poor waste characterisation, opaque data systems, and inefficient segregation at source. ULBs, particularly in hilly and landlocked cities, struggle with spatial constraints, while budgets remain skewed toward collection and transport, leaving little space for innovation. Yet the moment is ripe for transformation. Sector-specific Extended Producer Responsibility (EPR) and Environmental, Social, and Governance (ESG) mandates, coupled with Corporate Social Responsibility (CSR) investments and growing interest in SHG-linked delivery models, are creating tailwinds for localized, climate-aligned innovations.

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> Tata Trust is aligned with national goals & priorities; aspiring for cities that are livable and inclusive & equitable, while economically contributing, spatially equal, with increased participatory governance, where every resident has a decent living and working space.
>
> - Shikha Srivastava

5. TECHNOLOGY & DATA-DRIVEN GOVERNANCE: POWERING SMARTER, FLOURISHING CITIES

India's rapid urbanization demands a fundamental shift toward technology-enabled, data-driven governance to improve service delivery, urban planning, and disaster resilience. Leveraging real-time data streams from Internet of Things (IoT) devices, AI analytics, and GIS mapping can enable cities to anticipate challenges and respond efficiently. For instance, integrating spatial data into local area plans allows for holistic solutions that address water management, traffic flows, and heat mitigation at the neighborhood level. However, success hinges on building institutional capacity for data governance that prioritizes inter-operability, transparency, and citizen-centric applications. According to the NITI Aayog's National Strategy for Artificial Intelligence (2018), empowering Urban Local Bodies (ULBs) with robust digital tools can dramatically enhance decision-making and resource allocation (National Strategy for Artificial Intelligence, NITI Aayog, 2018)[16].

A clear policy framework for open data is essential to democratize urban planning, making master plans publicly accessible, spatially explicit, and easy to understand. Transparency strengthens accountability and fosters citizen engagement, turning residents into active stakeholders. Cities like Pune and Surat have pioneered such approaches by publishing geo-tagged infrastructure data, improving public trust, and enabling targeted interventions. Furthermore, private sector participation can be amplified when municipalities adopt clear outcome-based frameworks aligned with economic development zones such as AI hubs and industrial corridors. This alignment drives sustainable urban growth by unlocking investments, fostering innovation, and ensuring that urban infrastructure evolves with the city's economic ecosystem (McKinsey Global Institute, 2010)[17].

Unregulated expansion, particularly in Tier 2 and 3 cities, is putting unprecedented pressure on resources like water, land, and energy. A lack of coherent boundaries blurs urban-rural distinctions, straining infrastructure and environmental resilience. Sometimes manipulated air quality or flood risk baselines disrupt progress of the efforts, without delivering actionable solutions. India must move from reactive, short-term fixes to preventive, data-driven approaches, such as sensor-enabled heat-action dashboards and decentralized renewable energy systems, to safeguard citizens. Media and education also play critical roles: journalists with scientific literacy can raise climate awareness, while curricula that integrate indigenous ecological knowledge can nurture sustainability mindsets. Only through breaking down silos across sectors and fostering dialogue among science, policy, and society, India can build resilient, low-carbon cities that protect both people and the planet.
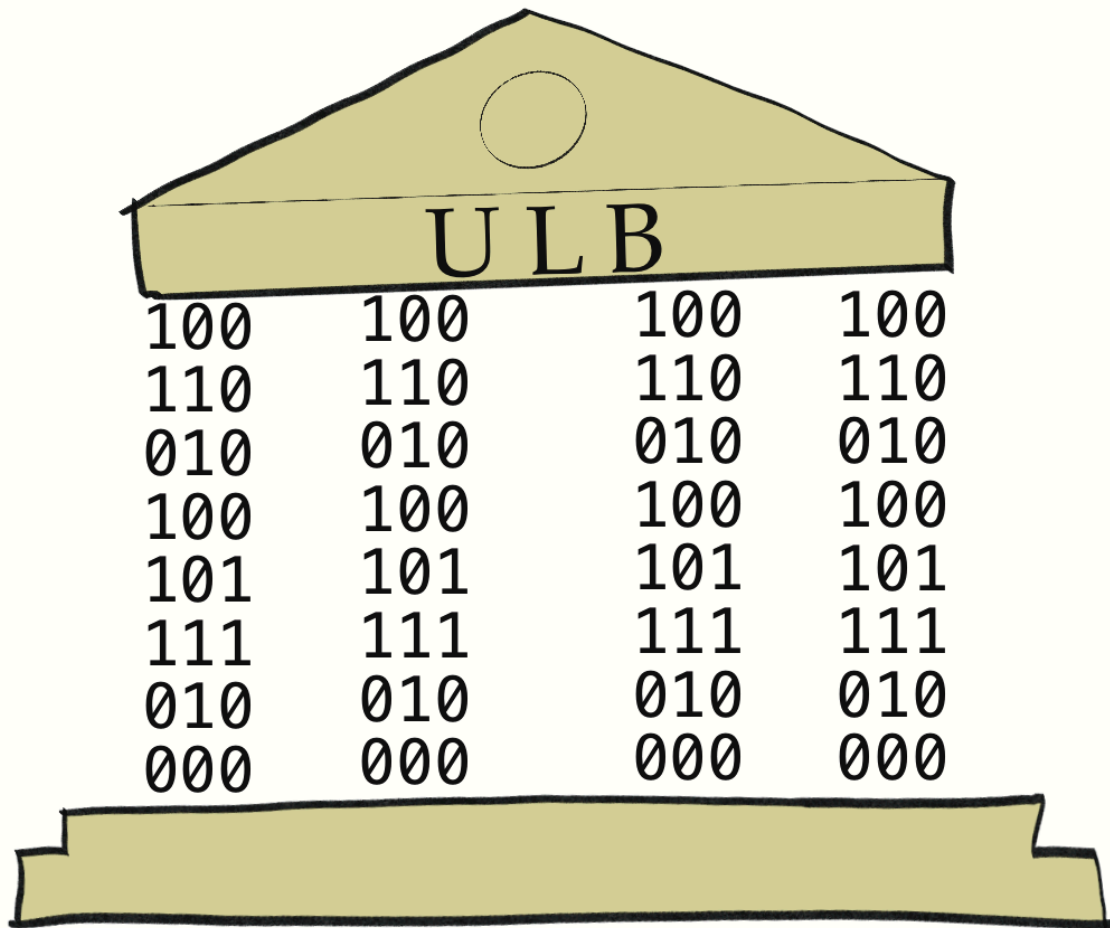
> Data can be represented in a fair way. As a future possibility, city specific satellites will soon be a reality.
>
> - Asutosh Acharya

CASE STUDY

FROM HAZE TO CLARITY – *Rajkot Gets a Real Time Air Quality Makeover*

Like many rapidly urbanizing Indian cities Rajkot, a Tier 2 city in Gujarat of over 2.1 million people, has faced severe air-quality challenges from increasing vehicular traffic, industrial emissions, and waste incineration, compounded by inadequate environmental data availability. Historically dependent on a single continuous ambient air quality monitoring system (CAAQMS) located in North Rajkot, the city lacked the spatial resolution needed to detect intra-urban pollution variations and identify pollution hotspots, mitigate risks, or design climate-resilient infrastructure in a data-informed manner.

To address this gap, Aurassure, a climate intelligence platform, deployed its Air View+ hyperlocal air quality monitoring network in early 2023, installing a network of 30 IoT-enabled sensors across 150 km². These nodes captured over 61 million one-minute observations of $PM_{2.5}$ and PM_{10}, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), CO_2, volatile organic compounds (VOCs), and meteorological indicators, all processed in real time via Google BigQuery and Vertex AI pipelines. Dynamic dashboards, hotspot maps and timely alerts revealed critical seasonal and spatial patterns. Winter $PM_{2.5}$ levels in North Rajkot peaked at 90–120 $\mu g/m^3$, significantly exceeded permissible limits, then fell to 30–50 $\mu g/m^3$ during the monsoons. Industrial zones like Kothariya and the Nakrawadi landfill consistently registered high levels, while central green-belt wards recorded comparatively better air quality. These insights enabled Rajkot Municipal Corporation to proactively enforce dust suppression measures, heavy vehicle restrictions, and green buffer development under its Clean Air Action Plan. By winter 2024, $PM_{2.5}$ at the 12 worst locations had fallen by 30–45% and PM_{10} by up to 70%.

This platform translates complex environmental data into actionable insights, usable not just by municipal governments but also by healthcare providers, logistics firms, insurers, and civil society. Beyond air quality, it supports urban heat island (UHI) mapping, evaluates the impact of greening and heat-mitigation programs and has informed the development of Rajkot's Net Zero Plan. In economic terms, Aurassure's work has already generated projected cost savings exceeding ₹8 crores over three years, through reduced maintenance, better & targeted pollution control measures, and risk prevention.

The scalability and replicability of Aurassure's model lie in its modular design, cloud-based intelligence, and multi-sector utility. It presents a next-generation urban resilience tool that can be rapidly adapted for cities across India and the Global South. As India gears up for climate-smart urbanization, platforms like Aurassure offer a blueprint for real-time, people-centric, and evidence-based governance, one where environmental justice and data justice are intertwined.

6. R&D FOR SUSTAINABLE URBAN GROWTH: BRAINS BEHIND THE BRICKS

To move beyond fragmented progress, market leaders must proactively define their role in fostering upstream material research, collaborate with policymakers to harmonize sustainability objectives across ministries, and invest in modular, disassemblable circular urban built environments. This systemic shift will help unify various national missions and ministries around a shared long-term vision of cities as low-carbon, resource-efficient engines of economic growth.

As per India's R&D expenditure eco-system report[18], investment in R&D remains stubbornly low— just 0.6 – 0.7% of GDP, far below the targeted 2%—with the private sector contributing a negligible share. While sectors like automotive channel significant funding into EVs and green hydrogen, real estate and construction remain laggards. CSR funding often skirts fundamental experimentation. This leaves most of the building material segments—outside of big cement, steel, and glass players— without dedicated innovation budgets. Promising bio-based alternatives like bamboo composites or agro-residue bricks, struggle to break into the mainstream supply chains due to high cost premiums and lack of scale. Resultantly it confines their adoption and use to elite markets mostly. Meanwhile, the broader construction industry remains informal, fragmented, and risk-averse.

Emerging prefabrication technologies offer efficiency but are constrained by logistical inefficiencies— transporting modular components beyond 50–100 km erodes their viability. To address these structural limitations, a government-supported network of local MSMEs, with clear forward and backward linkages, is essential. This includes building regional supply chains, R&D infrastructure, and certification systems that legitimize new materials.

Market leaders must go beyond compliance and actively shape the future: by investing in upstream research, co-defining standards, and supporting modular, climate-resilient design. Such a coordinated shift can help align India's fragmented urban and industrial missions, transforming cities into hubs of low-carbon growth, resource efficiency, and distributed innovation.

7. WORKFORCE MAPPING & FUTURE–READY SKILLS
BUILDING URBAN CAPACITIES

Urban transformation hinges not just on infrastructure but on the people who design, implement, and sustain it. Yet the urban workforce—spanning governance, infrastructure, service delivery, and innovation—remains fragmented, under-mapped, and underprepared for the scale of disruption ahead.

A clear direction in systematic mapping of the urban workforce is essential to identify capacity gaps and misalignments, particularly within local government, para-statal bodies, and service delivery ecosystems. This must also address institutional barriers such as bureaucratic rigidity, role ambiguity, and limited incentives for leadership in urban innovation. Programs must align with emerging domains such as climate resilience, digital governance, circularity, and data-driven planning, while ensuring inclusion of women, informal workers, and youth from peri-urban and underserved areas.

This shift calls for deep reforms in both formal education and skilling ecosystems. Curricula should be redesigned to embed sustainability, ecology, circular economy principles, and systems literacy as foundational knowledge. Interdisciplinary learning models—spanning environmental science, urban planning, systems thinking, development studies, and public administration—are critical to build a cadre of professionals ready to work across silos and sectors.

Further, educational institutions and technical training centres must become sandboxes for community-rooted innovation, offering hands-on learning opportunities tied to real urban challenges—from managing heatwaves and waste to deploying decentralized water, energy and mobility systems.

Investing in 'climate-relevant human capital' is not just a social imperative—it is the backbone of future-ready, resilient urban systems.

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We need to envision an alternate institutional model for delivering development and an alternate skill set model for the delivery. When these two things come together, the capacity to deliver activities will prevail.

- Srinivas Chary Vedala

Urban Local Bodies are key drivers of transformation, identifying workforce gaps and mapping regional skill needs. By leveraging data-driven insights within a connected ecosystem, cities can enable targeted skilling and build a resilient, future-ready urban workforce.

8. KEYS TO A SUSTAINABLE FUTURE: STRENGTHENING URBAN ACADEMIA & INSTITUTIONAL CAPACITY

Urban academia in India is navigating a complex tension between delivering foundational training and adapting to the rising urgency of sustainability imperatives. At the undergraduate level, curricula usually remain overloaded with core technical subjects—drafting, plumbing, and services—leaving little room for evolving modules like resource efficiency, climate-responsive design, and circular construction. Faculty members, often young and overburdened, lack both the time and specialized training to effectively teach emerging subjects. Although institutions like the Council of Architecture offer five-day workshops, logistical challenges prevent multiple faculty members from attending simultaneously, rendering these well-intentioned programs ineffective. As a result, initiatives such as Leadership in Energy and Environmental Design (LEED) Labs by the Green Business Certification Institute or the Solar Decathlon continue to remain extra-curricular, despite their relevance to mainstream skill development.

To embed sustainability into academic practice, institutions must rethink both structure and culture. Core curricula should be restructured to integrate sustainability and circular economy principles as non-negotiables. Interdisciplinary learning models—like the School of Planning and Architecture's integrated design studio across architecture and construction modules, anchored in a common project—offer an actionable pathway. Summer schools and intensive learning modules must be normalized outside regular semesters, and teachers must be incentivized to co-create and document case studies, such as those featured in Springer's forthcoming volume on green certifications and resource efficiency. Regulators and universities must coordinate academic calendars to ensure training does not clash with operational needs, fostering a continuous professional development culture.

Institutional partnerships will play a catalytic role. Cities should engage local colleges, civil society organisations (CSOs), and MSMEs not only as training grounds but as problem-solving allies—co-developing smart lighting, sustainable mobility, and waste management solutions. The over-reliance on short-term Project Monitoring Units has diluted ownership and weakened bureaucratic buy-in for Missions like SBM-U, AMRUT, and National Clean Air Programme (NCAP). Capacity building must move beyond episodic training toward institutional collaborations rooted in local problem-solving, backed by robust data systems, feedback and compelling narrative framing to build sustained support.

India's urban future cannot ignore the city-region linkages. Urban-rural integration must replace outdated dichotomies by mapping material flows—such as tracking brick kiln emissions and linking

them to regional construction supply chains—to build holistic solutions. Municipalities, especially in small and medium towns, struggle with digital governance and underutilize their growing budgets. A national capacity-building conclave could spotlight these towns, build pride, and catalyze a culture of transparency, digital accountability, and innovation. Encouraging PPP models, pro bono engagement by urban professionals, and institutional linkages between municipalities and regional engineering colleges can deepen systemic resilience.

To operationalize the vision of "Cities as Economic Vehicles," government schemes like the new Urban Challenge Fund must be leveraged to incentivize cities to build integrated, outcome-driven project pipelines. Targeted reforms under beneficiary-led construction (BLC) should promote sustainable materials and performance-linked grants for innovations. At every level, consensus building—facilitated by academia, civil society, and orchestration architecture—is vital to translate technical capacity into urban transformation. India's academic and civic ecosystems must act now to shape the resilient, green, and inclusive cities of tomorrow.

9. MOBILIZING FINANCE AND RESOURCE

Strengthening municipal finance systems is critical to unlocking the full potential of India's urban transformation. However, as highlighted in Janaagraha's Municipal Finance Brief, city governments remain fiscally constrained—own-source revenues contribute less than 37% of total receipts across most ULBs, with some states like Manipur as low as 5%, and only a few like Punjab reaching 74%. To improve financial resilience, reforms must focus on enhancing revenue generation (e.g., efficient property tax collection through GIS mapping), increasing fiscal autonomy for local governments, and institutionalizing transparency through tools like the Cityfinance.in portal, which hosts audited financials of over 3,300 ULBs nationwide.

Expanding access to municipal bonds offers an important avenue to finance large-scale infrastructure. Yet uptake remains limited—with total municipal bond issuance in India still under ₹3,500 crore, and another ₹3,000 crore in the pipeline. To scale this, cities need structured capacity building, simplified regulatory frameworks, and peer-learning mechanisms to replicate successful models. Building technical capabilities at the city finance level can help municipalities become credible, market-facing institutions.

India must also embrace innovative financial instruments to address growing urban challenges. Green bonds can fund low-carbon infrastructure, while blended finance models—combining public funds with philanthropic or private capital—can de-risk investments in social infrastructure like water, waste, and health systems. Public-Private Partnerships, when designed with clear risk-sharing and accountability frameworks, can further mobilize long-term capital for essential services. Together, these reforms and innovations can strengthen municipal finance ecosystems, enable more

inclusive infrastructure development, and position Indian cities to meet their social and climate goals more effectively.

Many small and medium-sized cities in India continue to view borrowing or using financial instruments like municipal bonds as a sign of fiscal weakness rather than strategic investment. This stems from a 'perception of lack'—a lack of internal capacity, creditworthiness, or stable revenue streams. However, this perception often masks untapped potential. Most cities underutilize service-based revenue generation—from water tariffs to user fees—failing to design systems that can self-sustain or attract private and philanthropic capital. What's urgently needed is the dissemination of success stories—case studies of cities that have leveraged bonds, created income-generating services, and built credibility in financial markets. Peer learning, backed by state-level incentives and technical support, can unlock this inertia and enable fiscally smart urban planning.

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> Our urban development model is megapolis centred. Small towns and cities need specific and contextual policies, operation models, capacities and finances for better development outcomes.
>
> - Snehit Prakash

At the same time, embedding climate finance into city budgets and planning frameworks is essential for building adaptive infrastructure. Many cities, particularly those rich in natural ecosystems, face rising threats from urban heat, water scarcity, and erratic weather, exacerbated by unplanned growth. Capital investments without parallel allocations for operation, maintenance, and citizen engagement often result in underused or decaying infrastructure—turning potentially transformative projects into white elephants. Budgeting for behaviour change campaigns, maintenance contracts, and climate-proofing measures ensures not just resilience, but financial sustainability—by enhancing user participation, asset longevity, and service reliability.

As cities grow from being "alternative living spaces" to becoming the primary habitat for a diverse and dynamic population, they must integrate local geography, social equity, and modern technology. Urban infrastructure should reflect evolving needs around gender, accessibility, and climate, not merely engineering efficiency. Physical spaces—from streets to parks, transport nodes to waste systems—need continuous, context-aware redesign. Data tools like AI and GIS can help planners analyze usage patterns, predict pressure points, and adapt public spaces accordingly. To keep up with changing environmental and social realities, cities must become learning organisms—responsive, equitable, and intelligently designed for the future.
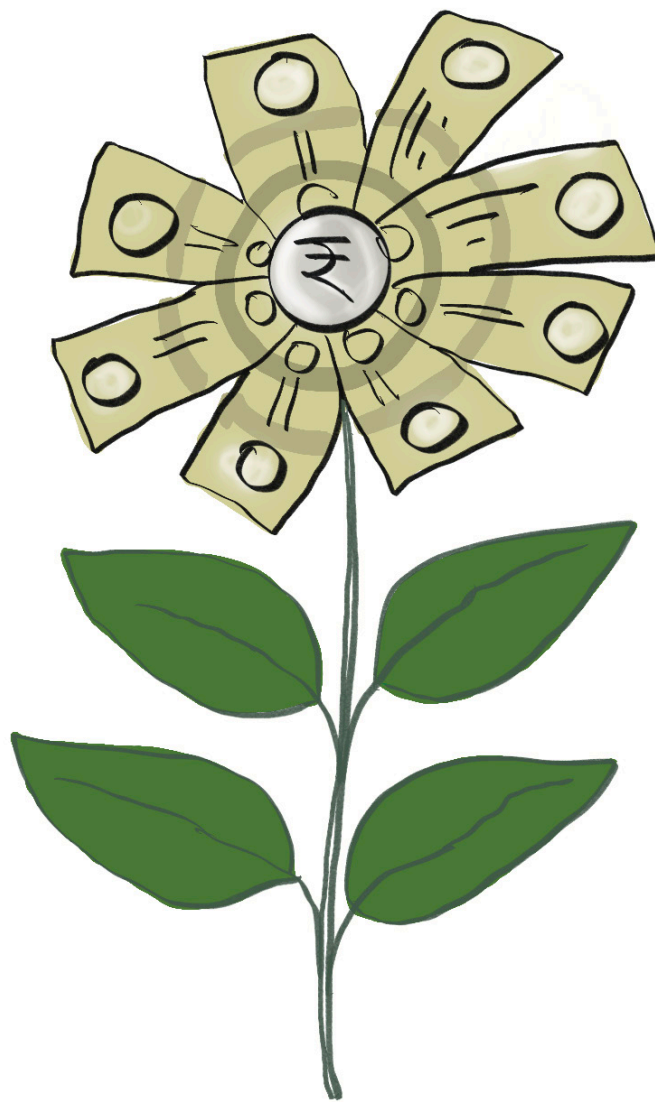
Climate finance is an emerging ecosystem grounded in sustainable resource management. Instruments like green bonds, blended finance, and innovative funding models serve as vital enablers of resilient urban growth.

India is entering a new era of urban transformation, propelled by the dual engines of rising public investment and an evolving philanthropic landscape. As highlighted in the [India Philanthropy Report 2024](19) by Dasra and Bain & Company, public spending has grown by approximately 13% annually, reaching INR 23 lakh crore (approximately $280 billion; 7.9% of GDP) in FY 2024 and is projected to rise to INR 43 lakh crore (approximately $525 billion; 9.1% of GDP) by FY 2029. This expansion, particularly in healthcare, housing, and basic services, reflects the Indian state's growing commitment to inclusive development. However, to bridge critical gaps—particularly around informal settlements, care infrastructure, climate resilience, and urban inequality—private philanthropy must step in as a catalytic force.

The report underscores the emergence of family philanthropy as a transformative pillar in India's development ecosystem. Family giving, which now accounts for 40% of total private philanthropy, is increasingly forward-looking, values-driven, and professionalized. Notably, 55% of philanthropic families are led by women, and 33% involve intergenerational leadership, bringing fresh energy and long-term commitment to sectors like gender equity (40%), climate action (29%), and ecosystem strengthening (39%). Additionally, 65% of families have dedicated philanthropic staff, and a growing share are investing in collaboratives, sectoral capacity-building, and narrative change. The rise of family offices—from 45 in 2018 to over 300 in 2024—signals momentum toward institutionalized, strategic giving, with the potential to unlock INR 50,000–55,000 crore ($6–$7 billion) in additional funding over the next five years.

As Indian cities navigate the converging crises of climate change, inequality, and rapid urbanization, the findings from the India Philanthropy Report point to a powerful opportunity: positioning family philanthropy and diaspora capital as enablers of inclusive, green, and resilient urbanization. Through support for grassroots innovations, informal worker livelihoods, care economies, and youth-driven climate action, India's philanthropists can complement public systems and scale solutions globally. This integrated approach—rooted in collaboration, trust, and systems thinking—will not only accelerate India's journey toward *Viksit Bharat* by 2047, but also establish the country as a global beacon for just, climate-smart urban development.

C.

FROM PROJECTS TO PURPOSE

AN ALT[ERNATE] URBAN VISION

Inclusive growth is a result of the blending of economy, ecology, and emotion.

To truly unlock the potential of urban development, India must move beyond a project-centric mindset and embrace a problem-driven, citizen-focused approach. Urbanisation must be intentional—not just about infrastructure delivery, but also about solving the most pressing challenges that affect people's daily lives. This requires cities to clearly define the problems they are solving for—whether it's unsafe housing, poor mobility, unaffordable services, or lack of public spaces. So that interventions are grounded in lived realities, not administrative convenience.

Such a shift demands a bottom-up planning paradigm, where towns and cities articulate their unique aspirations, constraints, and opportunities. Rather than relying on one-size-fits-all templates, urban planning must enable locally designed, community-led solutions that reflect specific socio-economic, geographic, and cultural contexts. This approach not only improves the relevance and impact of interventions but also fosters trust, ownership, and long-term sustainability.

Purposeful urbanisation is the foundation of a just and resilient future. When cities are planned from the ground up—rooted in citizen voice and contextual intelligence; they evolve from being service delivery units to platforms for human development and dignity. This is the transformation India needs: cities that are not just built, but carefully and collectively shaped to enhance quality of life for all.

1. ALIGNING URBAN DEVELOPMENT TO PLANETARY BOUNDARIES: A SITUATED ECONOMY LENS

India's urban development must undergo a radical rethinking—from growth that extracts to systems that regenerate. As we accelerate toward becoming a predominantly urban nation, our cities must evolve in alignment with planetary boundaries—respecting ecological thresholds on water use, air quality, soil health, biodiversity, and waste generation. The Situated Economy framework offers a compelling lens to guide this transformation. It calls for strengthening the capacity of local communities to reimagine their economies, not in abstract macroeconomic terms, but through the real, lived experiences of people, places, and ecosystems.

At the heart of this vision lies a triad: Ecology × Economy × Emotion. This formula reorients development from the metrics of GDP and global benchmarks to the coherence of daily life, natural rhythms, and community well-being. Cities must be designed not merely as service hubs or consumption engines, but as living ecological systems that generate livelihoods through circular practices—such as decentralized waste processing, treated wastewater reuse, rooftop agriculture, rainwater harvesting and biodiversity restoration. Behavioral change is central to this shift. It

requires deep cultural engagement, drawing from the embedded nature-centric wisdom in our local languages, stories, and rituals; assets that are often overlooked in technocratic urban planning.

Today's sprawling metros—Delhi, Mumbai, Bengaluru—impose enormous hidden environmental and social costs, from groundwater depletion to heat islands and air pollution. Their infrastructure models, often derived from high-consumption Western templates, are increasingly misaligned with India's ecological realities. Instead of copying wartime-era industrial mass production systems, India can pioneer an alternative model of "bounded abundance"—where small-scale, circular, and resource-limited production meets community-defined sufficiency. Urban design must learn from India's village-city continuum, where agricultural, medicinal, and ecological practices (such as Ayurveda, indigenous farming, and community-based water systems) can inform resilient, food-secure, and healthy cityscapes.

Policy frameworks must shift from fragmented "green initiatives" to whole-system, embedded ecological governance. Today's sporadic efforts—LEED buildings, green corridors, or isolated sustainability certifications must evolve into cohesive public movements, backed by mandates and mass participation. Urban policies should institutionalize carbon and material accounting, scale blue-green infrastructure, and incentivize sharing economies that reduce material throughout. Expert bodies advising urban planning should include sociologists, ecologists, anthropologists, and traditional knowledge holders, ensuring that the plans reflect community values and place-based ecological ethics.

Empowering this transition also demands a democratic infrastructure of learning and feedback. Public media, educational campaigns, and participatory digital tools must translate planetary challenges into local action and agency. Only when citizens understand how their choices around mobility, consumption, waste, and energy affect their neighborhoods and the planet, can we cultivate urban cultures of sufficiency and care. India's future lies not in becoming a mirror of Western industrial modernity, but in crafting a unique path: urbanization as regeneration, where climate justice, local dignity, and ecological thresholds converge.

2. BUILDING COHESIVE URBAN MISSIONS FOR FISCAL RESILIENCE

India's flagship urban programs—PMAY-U, AMRUT, SBM-U, and National Urban Livelihood Mission have made important strides in expanding access to basic services like housing, infrastructure, sanitation, livelihood. Yet, they largely continue to operate in policy and operational silos, with fragmented budgets, misaligned timelines, and disconnected implementation strategies. In reality, urban systems are deeply interdependent—housing affects mobility; water access influences health; sanitation links to waste and climate resilience; and all these sectors impact livelihoods and environmental sustainability. Addressing each in isolation undermines both efficiency and long-term impact.

To achieve resilient, inclusive, and climate-aligned urbanisation at scale, India must now move towards bundling these missions into cohesive urban investment platforms. This means structurally aligning planning and financing across housing, water, sanitation, transport, waste, and blue-green infrastructure, creating an integrated urban ecosystem rather than a patchwork of discrete projects. Further, the current model of short-term, grant-based project funding should evolve into pooled, outcome-based financing mechanisms—designed for long horizons, measurable social and environmental returns, and the flexibility to adapt to dynamic urban realities.

A powerful example is emerging from Odisha, where the state is leveraging PMAY-U to ambitiously construct 2,50,000–3,50,000 urban homes by 2030 using sustainable materials and circular waste management principles. These homes are envisioned not just as shelter, but as part of a wider system that includes decentralized wastewater treatment, solar energy, and livelihood linkages. Such initiatives demonstrate the potential of integrated planning, but their success hinges on governance coherence, institutional capacity, and local adaptability—not just financial allocation. The next phase of India's urban growth will require metropolitan planning bodies and state urban missions to function as strategic orchestrators, not merely funding conduits.

Ultimately, India's urban transformation must be defined not by individual infrastructure assets but by the robustness of its governance systems. This calls for empowered local institutions, interdepartmental collaboration, responsive and capacitated leadership, and deep citizen engagement in decision-making. "Smartness" in cities should be redefined—not by the presence of digital sensors, but by the ability of governance systems to anticipate needs, adapt to change, and deliver equitable outcomes. Building cities that are inclusive, resilient, and future-ready requires us to embed systems thinking, sustainability science, and participatory planning at the core of our urban missions. It is only through this paradigm shift—from siloed schemes to synergistic platforms—that India can deliver on its vision of urbanization as a lever for climate justice, economic equity, and human dignity.

> To achieve efficiency in urban design and service delivery, 'Tomorrow's problem is not my problem now', mindset requires a shift.
>
> - Naim Keruwala

THOUGHT LEADER PROFILES

AUN ABDULLAH

Aun Abdullah leads Sustainable Urbanization at Lodha Group and has been instrumental in shaping its sustainability strategy. He drives the group's core ambition: to create an environmentally positive model of urbanisation that places sustainability and ecological regeneration at the heart of how cities are built and lived in. He also spearheaded the Lodha Net Zero Urban Accelerator, focused on embodied carbon, passive design, equipment effi ciency, renewable integration, green mobility, and green fi nance—aiming to make net-zero carbon the new normal in the built environment

ASUTOSH ACHARYA

Dr. Asutosh Acharya is the Chief Climate Scientist at Aurassure, where he's developing an advanced sensor network to monitor weather, air quality and flood risks in India. With a PhD in Atmospheric Science and over a decade of research experience including a postdoctoral research stint at National Center for Atmospheric Research (NCAR), USA, he specializes in climate modeling, risk assessment, aerosol–climate interactions and geo-engineering. He leverages global and regional models (RegCM, WRF, Speedy, CESM-CAM) alongside CMIP and CORDEX datasets, and is proficient in Python, MATLAB, Fortran and visualization tools like NCL and CDO. A CSIR-NET qualifier and INSPIRE fellow, he combines strong statistical expertise with hands-on data analysis. He also leads outreach campaigns to enhance scientific literacy and climate awareness among students

BANKIM KALRA

Bankim Kalra is an internationally recognized urban strategist and expert in Transit-Oriented Development (TOD), known for advancing sustainable urban transformation and integrated mobility solutions. As CEO of the Centre for Green Mobility and Director at Quantum Leap Studio, he leads initiatives promoting walkability, cycling equity, and placemaking for governments and development agencies. With 20 years of experience across India, the U.S., Canada, and the Middle East, he has worked with the World Bank, ADB, and Indian ministries on landmark urban mobility projects. Bankim co-authored India's National TOD Policy (2017) and the TOD Guidance Document for the Ministry of Urban Development. His planning expertise contributed to Bhubaneswar being India's top-ranked Smart City. He has been recognized by the American Planning Association and the Canadian Institute of Planners, and continues to guide cities toward inclusive, resilient, and sustainable futures.

BHAVREEN KANDHARI

Bhavreen Kandhari is a dedicated citizen campaigner advocating for clean air in India and beyond for over two decades. A mother of twin daughters, she is the co-founder of Warrior Moms-a powerful collective of mothers across 14 Indian states, united in demanding clean air to protect their children's health and future. She has been at the forefront of numerous environmental justice campaigns, including My Right To Breathe, Delhi Trees SOS, #ExtinctionRebellionIndia, #FridaysForFutureIndia to name a few. Her work has helped bring critical issues like air pollution and urban deforestation into national focus. As a recipient of the Climate Parent Fellowship by Our Kids' Climate, Bhavreen plays a key role in supporting parent-led, intergenerational climate advocacy in collaboration with Parents For Future Global. She has represented this growing climate parents movement at several occasions such as the UN Climate Change Conferences (COP), the World Health Organization, and other international summits; amplifying the voices of mothers and parents calling for urgent action on air pollution and a just transition to clean, life-saving energy solutions.

GAURAV SHOREY

Gaurav Shorey is an architect and has worked in the sustainability domain for 20 years now. Via his company, Psienergy.in, he works on all domains of greenwash including aspects such as green buildings, energy efficiency, HVAC sizing and optimization, renewable energy, water optimization, ESG consultancy - and training and capacity building as well. Gaurav also serves as a central government Master Trainer for the Energy Conservation Building Code (ECBC) and conducts training and audits in Goa. Through his not-for-profit initiative, Swaraj (www.5waraj.in), he works on deep green issues by engaging with schools and colleges to integrate National Education Policy (NEP) 2020 and explore how hyper-local cultural practices naturally align with sustainability principles. Gaurav also teaches at the School of Planning and Architecture, and lives in New Delhi with his wife, architect Deepanjali Chawla who runs Visarg.in, and their 11-year-old daughter.

HITESH VAIDYA

Hitesh Vaidya brings over 20 years of expertise in urban policy, urban project formulation, and overall programme management. His work with the UN, World Bank, and international agencies has shaped flagship urban missions in India, enhancing governance and infrastructure. At NIUA, he led transformative strategies for sustainable development and poverty alleviation, forging consensus among policymakers and other stakeholders and catalyzed initiatives such as India's G20 Urban 20 agenda, urban-climate evidence based policy communication and the National Urban Learning Platform, which further has supported local action on urbanization, climate, and inclusion.

JAGAN SHAH

Jagan Shah is a distinguished urbanist and infrastructure policy leader with over 20 years in urban development. He currently serves as CEO of The Infravision Foundation, a think-tank advancing India's infrastructure policy and finance. As Director of the National Institute of Urban Affairs (NIUA) from 2013-19, he co-conceived India's Smart Cities Mission and led NIUA's policy work supporting urban local bodies and governments on topics from smart city development and e-governance to water, sanitation, transit-oriented development, municipal finance, resilience, and sustainability. He has been a Senior Capacity Building adviser to the World Bank and Senior Infrastructure Adviser in the UK's Department for International Development. His technical expertise spans urban infrastructure, city policy, smart technologies, and sustainable, resilient growth. An architect trained at SPA New Delhi, University of Cincinnati, and Columbia University, he is also a Trustee of the Board of Clean Air Asia and a Board Member of the Institute for Transport and Development Policy (ITDP).

JYOTIRMAY MATHUR

Prof. Jyotirmay Mathur is a distinguished academic and presently teaching at the Dept. of Mechanical Engineering at Malaviya National Institute of Technology (MNIT) Jaipur. He works in the field of energy planning and modeling, building energy simulation, energy conservation in buildings and life cycle assessment of renewable energy systems. Current activities of Dr. Mathur include studies on adaptive thermal comfort, energy simulation of buildings, modeling of passive cooling systems, and long term energy system modeling penetration of renewable energy systems and building integrated renewable energy systems.

MUKTA NAIK

Mukta Naik is an architect and urban planner with research and policy expertise in the domain of urban poverty, affordable housing, internal migration and sustainable livelihoods. She is currently leading the Policy division at the Centre for Sustainable Urban Livelihoods at the National Institute of Urban Affairs (NIUA). She has led diverse projects including policy research on youth migration and employment in smaller cities, affordable rentals and women's work on digital platforms, and has been part of on-ground initiatives on slum upgradation and participative planning.

NAIM KERUWALA

Naim Keruwala is a sustainable urban development specialist, currently working at NIUA as a Program Director for the CITIIS program. He oversees a US$500 million blended finance portfolio supporting sustainable infrastructure in 28 cities, climate governance in 21 states, and national research initiatives. With 15+ years of experience in policy and social impact, Naim has led systemic reforms in urban governance, development finance, and climate action. His work focuses on building resilient, inclusive, and livable cities through integrated planning and cross-sectoral collaboration.

SHIKHA SRIVASTAV

Shikha Srivastav leads the Urban Poverty Alleviation portfolio at Tata Trusts. Her work addresses the challenges of unplanned urban expansion especially focusing on the most vulnerable urban poor. She has invested her efforts in emphasizing the importance of sustainable development goals, including reducing inequality and promoting sustainable cities and communities.

PRIYANKA KOCHHAR

Dr. Priyanka Kochhar is a leading sustainability expert with over 22 years of experience in green buildings, energy efficiency, and climate-responsive urban development. She is the CEO and Co-founder of The Habitat Emprise and has been instrumental in shaping sustainable building policies in India and globally. Dr. Kochhar played a key role in mainstreaming rating systems such as GRIHA, LEED, and EDGE, and has contributed to revising municipal byelaws to promote resource efficiency. She has worked closely with government agencies, international organizations like UN-Habitat, UNEP, UNIDO, and IFC, and academic institutions on climate action roadmaps, water management, and energy transitions. She serves on several advisory panels related to green regulations and climate adaptation. Dr. Kochhar holds a Ph.D. in life cycle costing of green buildings from SPA, New Delhi, a master's with distinction in environmental conservation from the University of Greenwich, and a bachelor's in architecture from SPA. A respected thought leader, she has lectured widely and published on sustainable urbanization, positioning her as a strong voice for climate-resilient cities.

SANJAY PRAKASH

Sanjay Prakash is the Principal Consultant and founder at SHiFt: Studio for Habitat Futures, a leading green architectural practice based in New Delhi committed to sustainable, energy-conscious architecture. With over 30 years' experience, his role covers all aspects of design and delivery from project concept to construction of residential homes, schools, and resorts. He is co-founder of Future Institute (FI) and Himalayan Institute for Alternatives, Ladakh (HIAL), and senior advisor, Indian Institute for Human Settlements (IIHS). Sanjay has also a keen interest and some experience in Systems Theory and simulation models, and has worked extensively to develop future scenarios and ecological planning methods. His area of practice and research over the last 30 years includes passive and low energy architecture, hybrid air-conditioning, autonomous energy and water systems, bamboo and earth construction, community-based design of common property, and has been known to be an early adopter of computer aided design and bringing a systems orientation to architectural practice in the 1980s in India.

SATISH KUMAR

Dr. Satish Kumar serves as the President and Executive Director of the Alliance for an Energy Efficient Economy (AEEE). With a Ph.D. from Carnegie Mellon, he has led initiatives in sustainable cooling, thermal comfort, and energy efficiency, contributing to India's low-carbon development goals. Apart from the super exciting journey of developing AEEE into a policy think tank and a credible industry platform through a combination of strategic planning and leadership, deep research and analysis and organisation building, he has contributed to the; a) Development of the India Cooling Action Plan, b) Development of State Energy Efficiency Index, c) Leading Energy Management business at a Fortune 200 company, and d) Launch and implement India's Energy Conservation Building Code (ECBC) amongst many others. Prior to AEEE, he was the Energy Efficiency Ambassador and led the Energy Management business at Schneider Electric India, a Scientist at Lawrence Berkeley National Laboratory.

SNEHIT PRAKASH

Snehit Prakash is a Chemical Engineer and a Master's in Rural Management. He has a decade of experience in designing, setting up and operating decentralised solid waste management and sanitation systems. He was part of the team that set up India's first public private partnership in Faecal Sludge Management at Leh, Ladakh. He currently heads BORDA's operation in South Asia. BORDA is a global non-profit which works with municipalities and urban local bodies to co-create and implement resilient and appropriate water and waste management solutions.

SHUBHAGATO DASGUPTA

Shubhagato Dasgupta is a Senior Fellow at the Centre for Policy Research (CPR) and heads the Scaling City Institutions for India (SCI-FI) Sanitation initiative. His research focuses on drinking water and sanitation in India, particularly in smaller cities, examining service delivery challenges and the effectiveness of government programs. With a background in architecture and urban planning, he has held positions at the World Bank, Infrastructure Development Finance Company (IDFC), and Housing and Urban Development Corporation (HUDCO). His work emphasizes pro-poor urban policies and infrastructure planning, aiming to improve urban environmental infrastructure and service delivery financing.

ZEENAT NIAZI

Zeenat Niazi is a senior sustainable development expert at Development Alternatives (DA), trained in architecture and human settlement planning. With over 35 years of experience, her work spans sustainable housing, climate and disaster resilience, and integrated habitat planning aligned with Agenda 2030 and the Paris Agreement. She promotes sustainable consumption and production through circular economy, resource efficiency, and equity in resource access. Zeenat currently researches the intersection of social & institutional learning and nature-based solutions for urban resilience. She is a member of the Steering Committee of the Green Economy Coalition (GEC) in India and the Steering Group of Future Earth Urban Knowledge Action Network (Urban-KAN), and chairs the Working Group on Rural Housing at the Bureau of Indian Standards (BIS). She has served on the MAC of UN's One Planet Network, twice co-chaired Climate Action Network South Asia (CANSA), and advised the Ministry of Rural Development, UNEP's PAGE Programme, and NITI Aayog in India. As Chief Advisor at DA, she mentors initiatives on circular economy and climate resilience. Zeenat is also an amateur birder, a passionate gardener, and cook.

SRINIVAS ALAVILLI

Srinivas Alavilli is a Senior Fellow for Sustainable Cities and Transport at WRI India, where he drives #NammaRaste and #Personal2Public programs to promote public transport and safer street design. Collaborating with government agencies, civil society and corporates, he and the team address integration challenges and last-mile gaps to make public transport reliable, affordable and safe. With a background in computer science, he transitioned from a two-decade career in software engineering to urban governance and civic participation. He co-founded Citizens for Bengaluru and was instrumental in creating public awareness and policy changes via campaigns— #SteelFlyoverBeda, #ChukuBukuBeku, #BusBhagyaBeku that promoted sustainable mobility. During his stint as the Head of Civic Participation at Janaagraha, Srinivas worked on Odisha's JAGA Mission, formalizing slum-dweller participation. He also helped create Ward Samiti Balaga, a coalition of citizens across Karnataka and led the Swachhata tech platform as part of Swachh Bharat Mission of Government of India.

SRINIVAS CHARY VEDALA

Prof. Srinivas Chary is the former Director at the Centre of Environment, Urban Governance and Infrastructure Development at the Administrative Staff College of India (ASCI), which is recognized as a 'Center of Excellence in Urban Development' by the Government of India. Prof Chary promotes startups and innovators in the fields of water, sanitation, FSSM, plastics, SWM and hygiene, facilitating partnerships and encouraging governments to embrace innovations for achieving SDGs. He has extensive experience in urban governance, environment, and sustainable development. He uses a combination of engineering and managerial solutions to re-structure municipal systems, breaking down deep misconceptions and resistance to system and technological innovations. He believes peer learning and capacity building will go a long way in change management. He has used his successes as convincing arguments to break down misconceptions and introduce his ideas to politicians across India.

SUNITA PURUSHOTTAM

Dr. Purushottam has over 25 years of sustainability strategy and environmental consultancy experience in environmental impact assessment; air pollution modelling and meteorology; GHG emissions inventory and carbon offsets; carbon neutrality strategy; waste management strategy; and water risk, technology solutions for sustainability, and CSR. She is the Head of Sustainability at Mahindra Lifespaces, where her strategic vision supports the development of eco-friendly residential and commercial communities across India. She is also Chairperson of the Board, Global Buildings Performance Network (GBPN). She has worked with regulatory bodies in the UK and India on infrastructure development, city planning, and construction projects covering environmental impacts and mitigation. She is well versed in disclosure frameworks such as SASB, GRI, CDP, GRESB, and Integrated Reporting. She has helped companies streamline their sustainability strategy and adopt the right tools for sustainability disclosure. She has also worked with startups on sustainability data management platforms and supported companies in integrating ESG risks into enterprise risk systems.

VIRAJITHA CHIMALAPATI

Virajitha Chimalapati is a conservation architect and oral historian by training with wide ranging experience across India, South, South East Asia working in domains of participatory governance, urban conservation, and community led disaster risk management, especially in historic urban areas. Her current research focuses on the role of culture in participatory climate policy operationalisation, and how culture can expand on the possibilities for participation offered by e-governance and digital governance mechanisms, for urban South Asia. She is currently also working as a Senior Research Analyst within the Sustainable Cities and Transportation team at WRI India, working as a State Anchor in Odisha on various projects around developing frameworks and participatory policy development, focused on early childhood and caregiver centric urban development, public spaces that centre adolescent health and well-being and climate finance, alongside research and writing.
All views are personal

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Preeti Prada Panigrahi is a seasoned public policy strategist and future-focused leader dedicated to building a just, inclusive, and climate-resilient India. With over 20 years of experience, she combines grassroots empathy, institutional insight, and global expertise to drive positive change. Preeti holds a Bachelor's degree in Psychology and advanced Master's credentials in Public Policy from the London School of Economics, with specialized expertise in urban environmental law, child rights legislation, and early childhood development, further enhanced by a leadership program at Harvard University. Her professional journey includes roles at the Bernard van Leer Foundation and Janaagraha Center for Citizenship and Democracy. As Director of Programs at the Socratus Foundation, Preeti spearheads initiatives tackling India's complex challenges, fostering systems thinking, collaboration, and community-driven solutions, while advocating for ethical governance, inclusive development, and citizen empowerment.

MOHAK GUPTA

Mohak Gupta is a sustainability practitioner working towards creating healthy, inclusive, and regenerative human settlements through strategic redesign of the complex relationships between societal, environmental, and economic realities. With over twelve years of experience as an architect and urban development expert, his work seeks to embed climate resilience and circularity in development policy and planning paradigms. He enjoys grappling with wicked problems and complex systems, and his work explores cross-sectoral linkages across sustainable habitats, green technologies and innovation, waste and waste management, ecotourism, livelihoods and entrepreneurship, and resource governance. Mohak works with the Society for Development Alternatives and previously co-founded the InnoNative Design Collective. He graduated in Urban Management and Development from Erasmus University, Netherlands, as an Orange Knowledge Fellow. He is a Climate Reality Leader and has trained in Architecture at the Sushant School of Art and Architecture, India.

DISHA RANJANA

Disha Ranjana is a public policy strategist and narrative weaver at the nexus of governance, sustainability, and inclusive development. Holding a Master's in Development Studies from the National Institute of Technology, Rourkela, India, and with over a decade of experience, she co-creates solutions grounded in local realities and cross-sectoral collaboration. She has contributed to national flagship missions like Jal Jeevan Mission and Swachh Bharat Mission under the Ministry of Jal Shakti and the Ministry of Housing & Urban Affairs, Government of India, focusing on research, strategy, skilling, capacity development, Monitoring & Evaluation, communication, and facilitation. Her journey spans roles with Aide et Action International, United Nations Development Programme, Bhubhaneswar Urban Knowledge Centre, Smart Cities Mission, Bhubaneswar and a handcrafted wellness-based entrepreneurial venture Pulpy Creations. She has worked across themes such as human trafficking, migrant education, child rights, portability of rights & entitlements, Water, Sanitation and Hygiene (WASH), waste management, public health, rural housing, agriculture, climate resilience, and urban development. At the Socratus Foundation for Collective Wisdom, Disha draws on rich field experience and systems thinking to map complexity, surface insights, and enable government, institutions and communities to navigate change—shaping India's green and inclusive urban future.

ABOUT THE ORGANIZATIONS
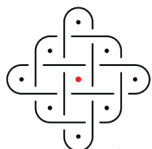
Socratus
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SOCRATUS FOUNDATION FOR COLLECTIVE WISDOM

At the Socratus Foundation for Collective Wisdom, we catalyze systemic change by co-creating solutions to wicked problems—those complex, interdependent challenges that resist linear solutions. We work across communities, governments, markets, and civil society, serving as a bridge between lived realities and transformative actions.

Anchored in our Theory of Change, we midwife collective wisdom to mobilize Resources, generate and share Knowledge, build strategic Networks, and shape compelling Narratives.
Our work encompasses the design and facilitation of inclusive convenings, the synthesis of research and traditional insights, the mobilization of technical and financial support, and the development of communication strategies that influence behavior, shift mindsets, and embed the circular economy principles into policy and practice.

Development Alternatives
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DEVELOPMENT ALTERNATIVES

Development Alternatives (DA), the world's first social enterprise dedicated to sustainable development, is a research and action organization committed to achieving socially equitable, environmentally responsible, and economically scalable progress. Through a combination of technology, policy advocacy, and grassroots initiatives, the group works to build resilient urban and rural ecosystems that foster equity, economic opportunities, and environmental sustainability. DA is committed to advancing sustainability in the built environment by embedding circular economy principles, enhancing resource efficiency, and promoting climate-adaptive design. In line with this commitment, Development Alternatives and partners have embarked on a mission to enable 1 million green homes by 2030 under its flagship campaign - Alt Urban.

NOTES

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