INFANT, TODDLER, CAREGIVER-FRIENDLY NEIGHBOURHOOD

POLICY FRAMEWORK

Ministry of Housing and Urban Affairs
Government of India

The Ministry of Housing and Urban Affairs is the apex authority of Government of India to formulate policies, coordinate the activities of various Central Ministries, State Governments and other nodal authorities and monitor programmes related to issues of housing and urban affairs in the country. The Smart Cities Mission was launched by the Ministry in 2015 to promote sustainable and inclusive cities that provide core infrastructure and give decent quality of life to its citizens, a clean and sustainable environment and application of 'Smart' Solutions.

http://mohua.gov.in/

Founded in 1949, the Bernard van Leer Foundation (BvLF) is a private foundation focused on developing and sharing knowledge about what works in early childhood development. It provides financial support and expertise to partners in government, civil society and business to help test and scale effective services for young children and families. Urban95 is the Bernard van Leer Foundation's 30 million euro initiative to make lasting change in the landscapes and opportunities that shape the crucial first five years of children's lives. BvLF has supported programs in India since 1992.

https://bernardvanleer.org/

BDP.

Founded in 1961, BDP is one of the largest interdisciplinary design led firm in Europe and has won over 750 awards for design quality from international and national bodies. BDP established a studio in India in 2010, and has worked on projects at every scale, from city masterplans to detailed public realm design; from concept through to delivery. BDP brings skills involved in the design of great spaces and environments into a single, managed service. The team in Delhi provides masterplanning, urbanism, architecture and landscape design services with access to the combined expertise of all of BDP professionals worldwide.

http://www.bdp.com/

Contents

Abbreviations

ABD	Area Based Development
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
CDP	City Development Plan
CFN	Child Friendly Neighbourhood
DG	Design Guidelines
FBC	Form Based Codes
GoI	Government of India
IGBC	Indian Green Building Code
IRC	Indian Road Congress
ITC	Infants Toddlers and Caregivers
ITCN	Infant Toddler and Caregiver–Friendly Neighbourhood
ITDP	Institute for Transportation and Development Policy
LAP	Local Area Plan
MoHUA	Ministry of Housing and Urban Affairs
MoUD	Ministry of Urban Development
MPD	Masterplan Delhi
NBC	National Building Code
NMT	Non-Motorized Transport
PWD	Public Works Department
RWA	Residential Welfare Association
SCM	Smart City Mission
SCP	Smart City Proposal
SLB	Service Level Benchmark
SPV	Special Purpose Vehicle
SWM	Solid Waste Management
TCPO	Town and Country Planning Organisation
TPS	Town Planning Scheme
ULB	Urban Local Body
URDPFI	Urban and Regional Development Plans Formulation and Implementation
UTTIPEC	Unified Traffic and Transportation, Infrastructure Planning and Engineering Centre

List of Figures

Executive Summary

Every baby is born learning. Each time she is fed, comforted, or plays with others, she makes new connections about how people behave. From her first steps outside the home into the neighbourhood, the places she goes teach her how the world works.

When city leaders make decisions that work for the youngest residents, they are not only guaranteeing a productive, engaged future generation; they are also making decisions that will have a positive impact today; on their older siblings, their parents, and grandparents; their nurses and teachers; their neighbours; and on the local businesses in the neighbourhoods where they live.

What can cities do to nurture positive early experiences and protect against negative ones? How can neighbourhoods and therefore cities support parents to talk and play with children? How can neighbourhoods and cities minimize causes of stress and provide opportunities for rest and relief?

The following five documents aims to provide answers to these questions and provide city managers with the tools and knowledge they need to apply the lens of infants, toddlers, and their caregivers in the planning and management of their neighbourhoods.

Intended audience
These documents prepare city-level stakeholders like urban local bodies, community-based organisations, professionals, and caregivers themselves with the tools that they would need to create a holistic neighbourhood where families can thrive. It also equips city managers with the language of child development, to enable officials to make decisions on their own and to be able to provide a sound rationale for why they took those decisions.

Policy Framework
Lays out the rationale for making improvements to the neighbourhood and explains the objectives of doing so, constituting an overall strategy for the ITC Neighbourhood (ITCN).

The vision is to create an ideal neighbourhood where infants, toddlers, and their caregivers feel safe, explore, play and engage with their built and natural environment. Parents feel at ease that their children are safe outdoors, and communities are inclusive.

Policy Workbook
Links the design guidelines to policy, providing an analysis of current spatial policy and identifying opportunities for change therein according to the needs of families in neighbourhoods. It guides the urban local bodies, local stakeholders and citizens to answer the following questions:
- Which policy framework has the potential to be used for creating an ITC friendly neighbourhood—in long-term and short-term?
- What are the existing guidelines and do they provide enough ITC-friendly norms?
- What institutional framework will help in applying these guidelines at the urban local body and special purpose vehicle (SPV) levels?
- How can stakeholders be involved in the implementation process?
- What kind of policy and implementation framework may be used for application of ITC guidelines?
- Brief recommendations for policy-level amendments for applying ITCN design guidelines effectively

Design Guidelines
Function as the companion to the E&M Metrics section, providing guidance on how to implement ITCN features. While the E&M section talks about "what" to measure, design guidelines answer the question of "how"

one should achieve the benchmarks in the ITCN indicators from Evaluation & Monitoring document.

The guidelines are conceived as a supplement to other urban design guideline packages that already exist for the Indian context, offering pointed insights on what is pertinent to ITCs within current best practices of walkability and pedestrian-oriented urban design.

The design guidelines are organized by the five elements of a neighbourhood, giving the reader an easy-to-navigate list covering the breadth of the public realm.

1. Neighbourhood covers the larger scale organisational factors, such as the overall character, the density, distance and mix of facilities within the area.
2. Streets are mainly mobility-related spaces concerning the practicalities of moving comfortably in the public realm between stops.
3. Parks and open spaces cover common key destinations that matter to ITCs.
4. Social infrastructure cover community facilities.
5. Urban services cover water, electricity, waste, drainage and other environmental factors.

Evaluation & Monitoring Metrics
Provides guidance on metrics for evaluating progress toward the ITCN objectives. While the objectives define broader spheres of "qualities," data indicators and their service level benchmarks (SLBs) tell city managers "quantities." The objectives (in Policy Framework), indicators and design guidelines are aligned so that by implementing according to SLBs and their design guidelines, a city is also fulfilling objectives.

The Evaluation and Monitoring Metrics Document includes a set of 65 baseline data indicators—of which 38 are marked as either

"core" or "supporting." The SLBs within each indicator give a range of categories to guide a neighbourhood from a baseline status of "surviving", to "striving" (intermediate) or the ideal condition of a "thriving" ITC neighbourhood.

Furthermore, the Evaluation and Monitoring Metrics provide a parallel dashboard tool, which offers authorities accurate and simplified comparison across cities. It also explains methods of collecting this data and organizing it into ITC Dashboards to monitor progress. The importance of data-driven, evidence-based planning and management is also discussed here.

Best Practices Compendium
Gives visual examples of successful projects that can be used for discussion both internally and with the public to cohere a shared vision of goals. The compendium draws on global and Indian examples of neighbourhood level interventions that meet the five different ITCN objectives. The compendium highlights key design interventions in each example, how they meet the objectives of creating a neighbourhood for ITCs and how ITC measures are implemented. It illustrates how a combination of components can create a holistic solution and be beneficial to the final result.

We hope that this set of interlinked documents will mobilize city stakeholders to place emphasis on neighbourhoods that give their young children a good start in life, thus helping shape new generations of productive workers and upstanding citizens. When urban neighbourhoods work well for pregnant women, infants, toddlers and young children, they also tend to nurture strong communities and economic development. A city that works for young children ultimately works for all.

Applicability of these documents

WHICH
scale to apply

Neighbourhood

Population
12 -15,000 people

WHERE
to apply

**Pan India
Urban Areas**

Greenfield Areas
Brownfield Areas
Innercity Areas

WHOM
is it useful for

City Level Stakeholders

ULBs
SCM-SPVs
Community Based Organisations
Urban Professionals

Frequently Asked Questions

How does this book relate to the other seven documents included in the Capacity Building Framework?

The 100 Smart Cities Mission Capacity Building Framework Documents include the following Infants, Toddlers, Caregivers-friendly Neighbourhood (ITCN) framework in addition to frameworks for streets, public transport, e-mobility, water and waste water, city health planning, energy and environment, data-driven transportation systems, urban freight, and form-based codes. Each of these subjects has a critical bearing on the quality of life in a city for young families, although the reasons why are not always obvious. The ITCN documents explain in detail which factors of a city are significant to the healthy development of children, why that is, and how to best implement ITC projects and principles where none currently exist.

Why focus only infants, toddlers, and their caregivers?

To focus on the wellbeing of infants, toddlers, and their caregivers does not come at the exclusion of other groups. Young children and especially babies and pregnant mothers are among the most vulnerable groups to the negative impacts urban systems can have on human health, such as air pollution, noise pollution, and dangerous infrastructure. Because of their heightened sensitivity, ITCs are considered to be an "indicator species." In other words, if a city is supporting ITCs' wellbeing, it can be reasonably assumed that everyone else will be supported as well.

Why focus design and planning interventions for ITCs at the level of the neighbourhood?

The neighbourhood is where babies and young children spend the majority of their time. Starting from birth, infants have a limited range of travel stemming from their need for almost constant feeding and sleep. By the time a child is two years old he or she is able to spend greater amounts of time in the public realm but remains vulnerable, and it is generally most comfortable for caregivers to stay close to home. Any planner interested in building healthfulness and equity into their cities must proactively address the limitations in mobility that ITCs have.

My department doesn't focus on kids so why would I care about ITCs?

ITC planning belongs to every department of a municipal institution. The following five documents explain just how important everything from crosswalks, to drainage, to park maintenance, to utilities are to ITC wellbeing. In fact, for ITC planning to be effective, recent case studies have shown that cross-departmental collaboration, and "mainstreaming" ITC concerns are critical to the sustainable success of interventions.

Where can I find more information on ITC planning?

There are a number of resources for ITC planning ideas available on the Bernard Van Leer Foundation's Urban95 program website. The BVLF Urban95 Starter Kit is in a downloadable PDF format, and gives decision-makers and citizens alike a list of projects at various scales that have been shown to have positive impact on children aged 0-5 and their caregivers.
https://bernardvanleer.org/publications-reports/an-urban95-starter-kit-ideas-for-action/

Which cities around the world are considered ITC-friendly?

Many cities boast features that are ITC friendly—sometimes without necessarily stating ITC wellbeing as their goals. The Objectives section located in the Policy Framework document here will give the reader

a sense of what kinds of qualities exist in an ITC space. In general terms, they should be safe, green and unpolluted, inclusive of anyone who wants to use it, easy to physically access, and playful. Streets and spaces from Recife to Copenhagen may satisfy these five objectives all at once. When we look at Best Practice case studies of where ITC needs are being met, we also realize that they are still far from being a systematic part of urban planning. This ITCN document offers guidance at a holistic level for the first time, about how these considerations ought to be included at every level from daily maintenance habits, to national-level policy.

Does this project cover neighbourhoods in informal settlements as well?
The Indian Smart City Mission identifies three types of development for which the ITCN Capacity Building Framework Documents directly addresses: city improvement (retrofitting), city renewal (redevelopment), and city extension (Greenfield development). Within these project typologies, it is likely that unplanned or informal dwellings will be affected, but these guidelines were written from the perspective that they will be implemented in what were at least originally constructed as planned neighbourhoods. For more detail on how neighbourhood is defined, see the opening section in the Design Guidelines document.

How many ITCN indicators proposed in the documents?
There are 65 indicators proposed in this book specifically geared toward measuring the performance of a neighbourhood for ITC wellbeing. The set is broken down into two categories of twenty-five "core" indicators, and forty "supporting" indicators. The Evaluation and Monitoring document also includes an annex providing guidance on a minimum data set required and activities required as a basis for achieving service level benchmarks.

How will this document help city managers at Urban Local bodies?
The information presented in a way that will be especially useful to city managers and engineers working within Urban Local Bodies. Making changes to neighbourhoods is a contentious job—and transformative, sustainable results require the buy-in of a wide swath of stakeholders. These documents are written to give readers both the tools and the confidence they need to propose and carry out ITC interventions. The Policy Framework document and the Design Guidelines will be especially helpful in introducing readers to the language of early childhood development and child and family health as they relate to environmental factors. While the space of the books are limited, they include reference material where possible to direct the reader to further resources.

Preface

WHY FOCUS ON INFANTS, TODDLERS, AND YOUNG CHILDREN?

The qualities of a child's physical environment impacts his or her health from the first day of life. Babies are much more sensitive than adults; toxic elements disrupt and interfere with their internal processes much more than those of adults. As a comparison, a toddler takes between 40 and 60 breaths per minute, with lungs that occupy a huge proportion of space within their small bodies, while an adult takes 20 breaths a minute. When toxins like lead and fine particulates absorb into the bloodstream of someone still in the first thousand days of life, they insidiously interfere with one's ability to learn by reducing memory and focus: difficulties that can quickly express in depression and mental health issues even at a young age.[1]

When we refer to healthy environments we include mental health and personal and collective well being as part of the most basic levels of survival.

In the same way that climate change is an unjust phenomenon in that its harms are overwhelmingly borne by people who had no role in its creation, the damage done to children's lives by toxic cities is fundamentally unjust. Decisions made about the public realm will burden our children with limitations well before they have made even a single decision on their own, or are able to grasp the risks and react to protect themselves.[2]

The vulnerability of infants as well as the duration that these ills will persist in their bodies and minds, ought to make them an obvious priority stakeholder group for spatial policy.[3] Unfortunately babies and toddlers have not historically been considered stakeholders. Their inability to express their needs and desires is a big reason for that - at least an older child can tell us what she wants from the city.
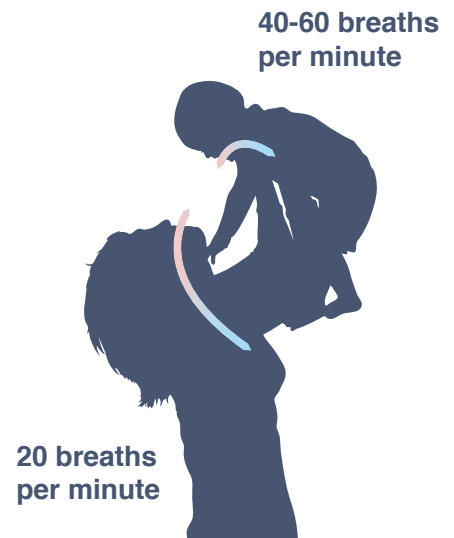
40-60 breaths per minute

20 breaths per minute

Figure 1.1: Breathing Differences between adults and 0-2 year olds

Click here to watch the "Beginning of Life" trailer

Babies and toddlers spend plenty of time outdoors, either as companions to the daily work of a caregiver, as participants in recreation time in parks and playgrounds, or as part of an infinite number of other arrangements that bring them into the public realm on a daily basis.

Babies and toddlers in the public realm are invariably accompanied by a caregiver (usually female, although fathers in many settings take on the responsibility as well); they are a pair but also one. And in the Indian context that caregiver is usually female. To design a public realm that supports the well-being of babies and toddlers requires design that specifically addresses the health and safety of women. The term ITC will be used throughout this document to refer to all the possible combinations of infants, toddlers, and caregivers, as linked individuals in the public realm. When designing for urban childhoods, planners need to be sensitive to the degree to which domestic labour is not restricted to the home. They require an almost constant connection to the city, much more than the typical wage earning bread-winner who 'leaves and returns' home once each day.

With all the dangers posed by the city it may strike the reader as counterintuitive that these documents would focus on adjusting Indian neighbourhoods such that they encourage families to spend more time outdoors, walking. But that is precisely the approach that is urgently needed in Indian cities today. High levels of well-being among populations are what make regions competitive. **By far the most efficient way to improve well-being is to systematically build and maintain health–first infrastructure and services close to where people live.** It is crucial to understand that every one of the harms we encounter in our neighbourhoods today are of our own making, and we are just as capable to undo them.
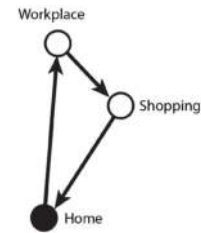

Figure 1.2: The mobility chain of a person who makes a living with daily paid employment.
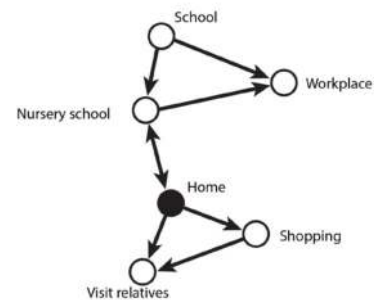

Figure 1.3: The mobility chain of a person whose day includes a combination of paid employment, caring, and home-making.
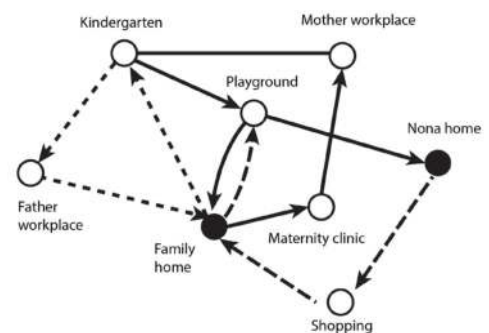
Figure 1.4: The mobility chain of an ITC family: multiple caregivers, each engaged in combinations of paid employment, caring and home-making.

It is a matter of deciding to do so with a clear plan. **Spatial planning is uniquely poised to make major positive impacts in the short, medium and long term to the conditions of our neighbourhoods.**

A neighbourhood can furnish a rich world of imagination and adventure that nurtures a vibrant creative life. One located in the centre of a city can still link children to the natural world with good design choices, allowing them to witness the wonder of eco-systems, and instilling a care for the earth that will last the rest of their lives. A neighbourhood of engaged and curious children will connect parents and strangers in public places where a sense of trust and familiarity knit the fabric of community. This document should be considered a primer to plan and implement the change that is required to get families with young children into the public realm.

By far the most efficient way to improve well-being is to systematically build and maintain health-first infrastructure and services close to where people live.

Notes:
[1] http://www.thelancet.com/commissions/pollution-and-health
Perera FP, Chang H-w, Tang D, Roen EL, Herbstman J, et al. (2014) Early-Life Exposure to Polycyclic Aromatic Hydrocarbons and ADHD Behavior Problems. PLoS ONE 9(11):e111670 https://doi:10.1371/journal.pone.0111670.

Perera FP, Rauh V. Effect of prenatal exposure to airborne polycyclic aromatic hydrocarbons on neurodevelopment in the first 3 years of life among innercity children. Environmental Health Perspectives. August 2006;114(8):1287-92.

[2] Unicef's Convention on the Rights of the Child: https://www.unicef.org/crc/files/Rights_overview.pdf

[3] (The linkage between public health and urban planning remains tenuous in most places).

Click here to watch "Istanbul Mega City Mini Citizens" documentary trailer.

WHO IS AN ITC?

Infants, Toddlers, and Caregivers or 'ITCs' come in all kinds of combinations of ages and genders. The term refers to a grouping of at least two people, the youngest of whom is under five years old. In the photo at right we see a mother and her three-year old child walking side by side. In many cultures, and India is no exception, caregivers are usually women.

The caregiver is not necessarily a mother or father—or at least, not only. Caregivers might be a female nanny, either alone, or accompanying the mother on a Sunday afternoon in a market area.

The ITC unit can be a one-year old and the father, here trailed by the mother who is given some time to walk by herself while the daughter is with the father.

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ITCS COME IN MANY VARIETIES

ITC groups are made up of a frequently shifting cast of family members and neighbours who take on caregiving duties in the course of the day. Here, the grandmother takes the children with her on an errand. The daughter is around three and brother almost six.

© Simon Battisti

ITCs can be big groups of fathers, mothers and adult siblings out for a weekend excursion in the city.

© Simon Battisti

Or sometimes the ITC caregivers are not adults but a group of older children taking care of a younger sibling. Caregivers may come from any background, any age group, and in any number. What matters is that they are responsible for the particular vulnerabilities of themselves as well as those of the 0-5 year-old person whom they are with.

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ITCN DOCUMENT STRUCTURE

Needs	Challenges
- Safe	- Car centric
- Consistency of support	- Full of obstacles
- Quality time outdoors	- Inaccessible facilities
- **Connection to greenery**	- Threat of crime
	- Lack of maintenance
	- Misplaced priorities

Objectives

Inclusive	Accessible	Safe & Secure	Green & Balanced	Playful

Service Level Benchmarks (E&M)

Design Guidelines

Neighbourhood   Streets   Parks & Open Spaces   Social Infra   Utilities

Policy Workbook

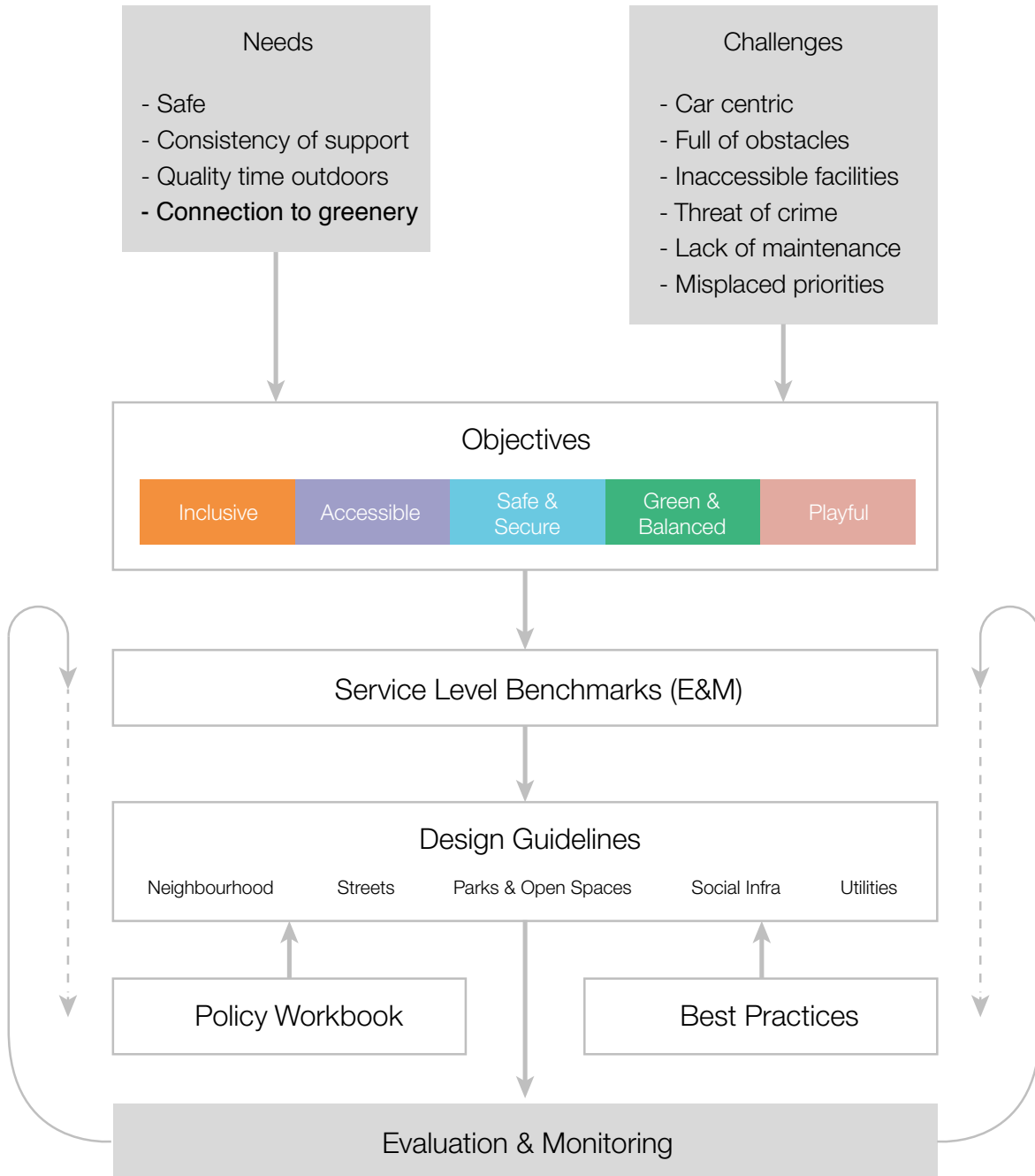## Best Practices

Evaluation & Monitoring

Figure 1.5: ITCN Capacity Building Framework Document structure as a constant cycle of monitoring and improvement.

How to Use these Documents

The Smart Cities Mission, Ministry of Housing and Affairs, Government of India, has taken on the mandate to provide a comprehensive package of urban design measures to support the health and well-being of infants, toddlers, and their caregivers at the neighborhood level to the 100 Smart Cities.

These documents equip city level planning and engineering officials, Resident Welfare Associations (RWAs), designers with the

tools that they would need to create a holistic neighbourhood where families will thrive. It will also equip city managers with the language and rationale of child development, to enable officials to make sound decisions on their own and to be able to defend their thinking in front of an audience. It is broken into the following five documents:

Policy Framework
lays out the rationale for making improvements to the neighbourhood and explains the objectives of doing so, constituting an overall strategy for the ITC Neighbourhood.

Design Guidelines
are the companion to the E&M section, providing guidance on how to implement key ITCN features.

Policy Workbook
links the design guidelines to policy: providing an analysis of current spatial policy and identifies opportunities for change according to the needs of families in neighbourhoods.

Evaluation and Monitoring Metrics provides Service Level Benchmarks to assess the existing conditions and progress of neighbourhoods.

Best Practices Compendium
will give visual examples of successful projects that can be used for discussion both internally and with the public to cohere a shared vision of goals.

Infants, Toddlers, and Caregivers

The neighbourhood is where generations of children thrive and grow. The following framework contextualizes the focus on infants, toddlers, and caregivers within the neighbourhood, and connects its relevance as a planning unit within the Smart Cities Mission. This section sets out a vision for an ITC Neighbourhood (ITCN), followed by the critical objectives of this approach.

WHY FOCUS ON THE EARLY YEARS

In 2018, estimates put India's population at 18% of the world total. Besides, India is one of the youngest countries in the world. Children between the ages 0-4 make up 9.7% of the population of India (2011 Census). Much of this population is or will be living in cities over the next decade.[4]

Both in India and abroad, city building has traditionally prioritized economic productivity to the exclusion of much else. The unobstructed movement of people and goods in cities has underlaid the one-dimensional pursuit of national economic growth. Women, children, household work, learning, and daily play are not included in GDP creation. The needs of a child below the age of five could be considered to be at odds with that single objective.

Investing in this population and helping them build the capacities to participate in future economic growth and the cultural life of India will undoubtedly be the best investment for a sustainable future. This is the narrative around 'growth' that should become part of the national conversation. It is not enough to reduce the infant mortality rate in a country. For a state to have a promising future, it is also essential that we recognize that children need to thrive.

18% of the world's population is in India

9.7% of this is between 0-4 years

Focus on the needs of Infants, Toddlers and Caregivers in the planning of Smart Cities in India is part of what can fulfil the goals of sustainability, inclusion, health and safety.

Notes:
[4] Census of India, 2011

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Children under the age of five access their physical surroundings through and in interaction with their caregivers, who in the Indian context are usually female (including older siblings, grandmothers, and hired help as well as mothers). Infants, toddlers, and their mainly female caregivers make for one of the most powerless groups in Indian society. One whose daily mobility needs concerning safety, pace and radius of movement is vastly different from that of workers (usually overwhelmingly male) in a city in India. Infants, toddlers, and caregivers use the public realm of a city every day — its streets and open spaces — more than any other group. And yet they are the group whose needs are most often ignored by planners and designers.

Focusing on the needs of young children in the planning of Smart Cities in India is part of what can fulfill the initiative's stated goals of sustainability, inclusion, health, and safety.

From the height of an average three-year-old at 95cm, the view of a city street mostly consists of vehicle tires and exhaust. This is not the adult view. The world is experienced in fundamentally different ways for small children, which seems obvious when pointed out, but is not factored in any of the standards, tools, or effective common knowledge of city planners and engineers.

ITC makes for the most powerless groups in society — Infants, toddlers and their caregivers (mainly women)

© ggbaroon64

Infants, Toddlers, and Caregivers use the public realm of a city — more than any other group. Yet they are the group whose needs are most often ignored by planners and designers.

ITC NEEDS FROM A CITY

List of Needs

- Need for feeling safe; both caregiver and child
- Repetition of supportive behavior
- Spending quality time outdoors, on a regular basis
- That space is best when its green

The rich synaptic connections between neurons in an infant's brain are created in-utero and develop most intensively in the first thousand days of life. When a child is deprived of interaction and stimulation, their neuron growth is radically stunted.

The human infant is one of the few mammals for whom brain and physical development take place mainly outside the womb. From an evolutionary standpoint, this ensures that the infant adapts to the physical and emotional environment it is born into to ensure its successful survival. That development is most intensive within their first thousand days, slowing within five years, still continuing to develop afterwards but at a much slower pace.

Early childhood is the life phase when patterns are 'hardwired' into our behavior and those brain connections that are used more frequently become the paths that sensory material take more readily.[5] A baby who is raised in the dark will lose the retinal cells that detect colour even if they are born with normal eyesight. Studies on children who have suffered severe neglect demonstrate the importance of the earliest years in the starkest terms.

The effects of air pollution and poor sanitation are the most severe on children within the first thousand days of their lives.

© BvLF

THE NEED FOR FEELING SAFE: BOTH CAREGIVER AND CHILD

The physical safety of women and children go hand-in-hand. Young children take all their cues about whether exploring something, tasting something, touching something is a good idea by looking at the expression on the caregiver's face or the caregiver's bodily response. An anxious response from the caregiver is a huge deterrent to a toddler.

Our cities are and also are perceived as unsafe to its female inhabitants and for other caregivers.[6] Stressors from the built environment such as loud horns, speeding vehicles, lack of pedestrian facilities add to a caregiver's anxiety. Nationally reported incidents of crime against women add to the perception of a city being unsafe for them. This fear-based exclusion limits their access and mobility within a city. It is not uncommon to find many parks and open spaces in Indian cities occupied by men and youth, and less by women and young children. A woman with a child is often more anxious when she has to move on a city street than if she was by herself or if she stayed at home.

A sense of being physically unsafe (especially as transferred from the caregivers' anxiety about safety) leads to raised alertness and hyper-vigilance. This anxiety, which when sustained over a period of time, leads to an inbuilt high cortisol reaction in the body. This is directly related to lowered immune system responses and a reduced capacity to explore and learn. It is also associated with hyperactivity and other anxiety responses in young children.[7]

The threat of physical harm has a massive emotional impact on women and the children in their care. It leads to anxiety, lowered immune system responses and in children, a reduced capacity to explore and learn.

Notes:
[5] UNESCO defines Early Childhood as from birth to eight years of age.
https://en.unesco.org/themes/early-childhood-care-and-education
[6] National Crime Record Bureau (NCRB) 2016 - A total of 338,000 incidents of crime against women were recorded in 2016 against the total of 329,000 crimes against women in 2015

© flickr

REPETITION OF SUPPORTIVE BEHAVIOR

It is not only food and cleanliness that keeps human babies alive but also the quality of their interaction with others. The difference between survival and thriving is based both on the caregiver created environment and the physical built environment.

The most significant events in the lives of small children are those that take place daily and repeatedly, in the most ordinary ways. For example, what and how they are fed, daily hygiene, the quality of the air they breathe and the water they drink, what, how and with whom they play.

Responsive, playful, meaningful and calming interactions with their caregivers, perceived safety, are opportunities to explore their capabilities and their surroundings. Through repetitive daily interactions, that take place in the home and its immediate vicinity and its people, this life-stage creates a foundation for enhanced cognitive function, a sense of safety in future relationships, community cohesiveness and a sense of mastery in relation to the physical environment.

The most significant life events for small children are ordinary activities that take place daily and repeatedly.

For more details, there are a number of resources online. See :
http://www.developingchild.harvard.edu/

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INFANTS AND TODDLERS REGULARLY NEED QUALITY TIME OUTDOORS

For young children, everything is an opportunity to learn, primarily through using their bodies to walk, balance, run, jump, climb, roll or fall. It helps small children learn the strength and limits of their capacities and the risk they would need to take. Infants and toddlers are easily stimulated and overwhelmed, and therefore they need small doses of exciting things to see, touch and listen to, at their height. We need to integrate outdoor play into the flow of urban life, which is to say, in their ordinary daily activities and not only as a special event, like a planned trip to a playground.

Being exposed to nature has been repeatedly found to be beneficial in reducing stress both in adults[8] and children[9] and better for the overall mental health of a population[10] with the most significant effects on the youngest ages. Recognition of the importance of outdoor play and immersion in nature for holistic child development goes back to the very beginning of early childhood education. Friedrich Froebel, the influential 19th-century German scholar, who coined the term kindergarten, emphasized the role of the garden and the importance of nature in (child) development.[11]

Safety need not mean restriction, yet cities impose maximum limits on young children to keep them from harm. Safety concerns being applied even in play-grounds have resulted in spaces that are boring[12] and therefore under-utilised. There are many organisations worldwide that are re-designing play spaces for children to be more engaging and adventurous.

"Playful exploration contributes to children's resourcefulness."
Stead and Kelly (2015)

"Play in outdoor environments can make a positive contribution to wellbeing across age groups and socioeconomic backgrounds."
The Routledge Handbook of Planning for Health and Well-Being

Notes:
[7] National Scientific Council on the Developing Child. (2005/2014). Excessive Stress Disrupts the Architecture of the Developing Brain: Working Paper 3. Updated Edition. https://developingchild.harvard.edu/wp-content/uploads/2005/05/Stress_Disrupts_Architecture_Developing_Brain-1.pdf
[8] Martyn, P., & Brymer, E. (2016). The relationship between nature relatedness and anxiety. Journal of Health Psychology, 21(7), 1436–1445.
https://doi.org/10.1177/1359105314555169

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© pixabay

CHILDREN NEED GREENERY

Not just as a special trip to a local forest but on a regular basis, children thrive when they are in contact with nature and natural materials. Consistent exposure to nature has been found to have immense positive benefits on the health of children, right from their intra-uterine life. As infants with their mothers, nature proves calm and a slow pace of stimulation that is not overwhelming to the senses. Toddlers between the ages of two and five benefit most from being exposed to nature as a way to enhance their sense of understanding of their own body and build a sense of competence, as well as use imagination in play, without the need for toys and equipment.

In the early years as well as when older, children need to feel free to use their imagination to play with natural materials. Environments with a variety of textures that they can explore – trees to climb, leaves to run in, stones to build imaginary structures with – are the most beneficial to the growing brain, both structurally and emotionally. Green spaces have repeatedly been found to reduce stress in children and adults and also improve mental health.[13]

"Urban trees and vegetation help decrease stress and aggressive behaviour in cities, and have been linked to crime reduction."
NACTO Global Street Design Guide

For more details, there are a number of resources online. See :
https://naturalearning.org/wp-content/uploads/2017/09/Benefits-of-Connecting-Children-with-Nature_InfoSheet.pdf

https://www.ornes.nl/wp-content/uploads/2010/08/Play-in-children-s-development-health-and-well-being-feb-2012.pdf

Notes:
[9] Nancy M. Wells, Gary W. Evans, 2003. A Buffer of Life Stress among Rural Children. Environment and Behaviour, https://doi.org/10.1177/0013916503035003001
[10] Jo Barton and Jules Pretty. What is the Best Dose of Nature and Green Exercise for Improving Mental Health? A Multi-Study Analysis. Environmental Science & Technology 2010 44 (10), 3947-3955, DOI: 10.1021/es903183r
[11] https://www.naeyc.org/resources/pubs/yc/jul2017/outdoor-play-child-development
[12] http://pediatrics.aappublications.org/content/129/2/265
[13] Studies of green spaces and health have demonstrated stronger evidence for mental health benefits, and for stress reduction, compared with other potential pathways to health (reviewed by de Vries, 2010; Gascon et al., 2015)

WALKING RANGE AND ACCESS BY AGE
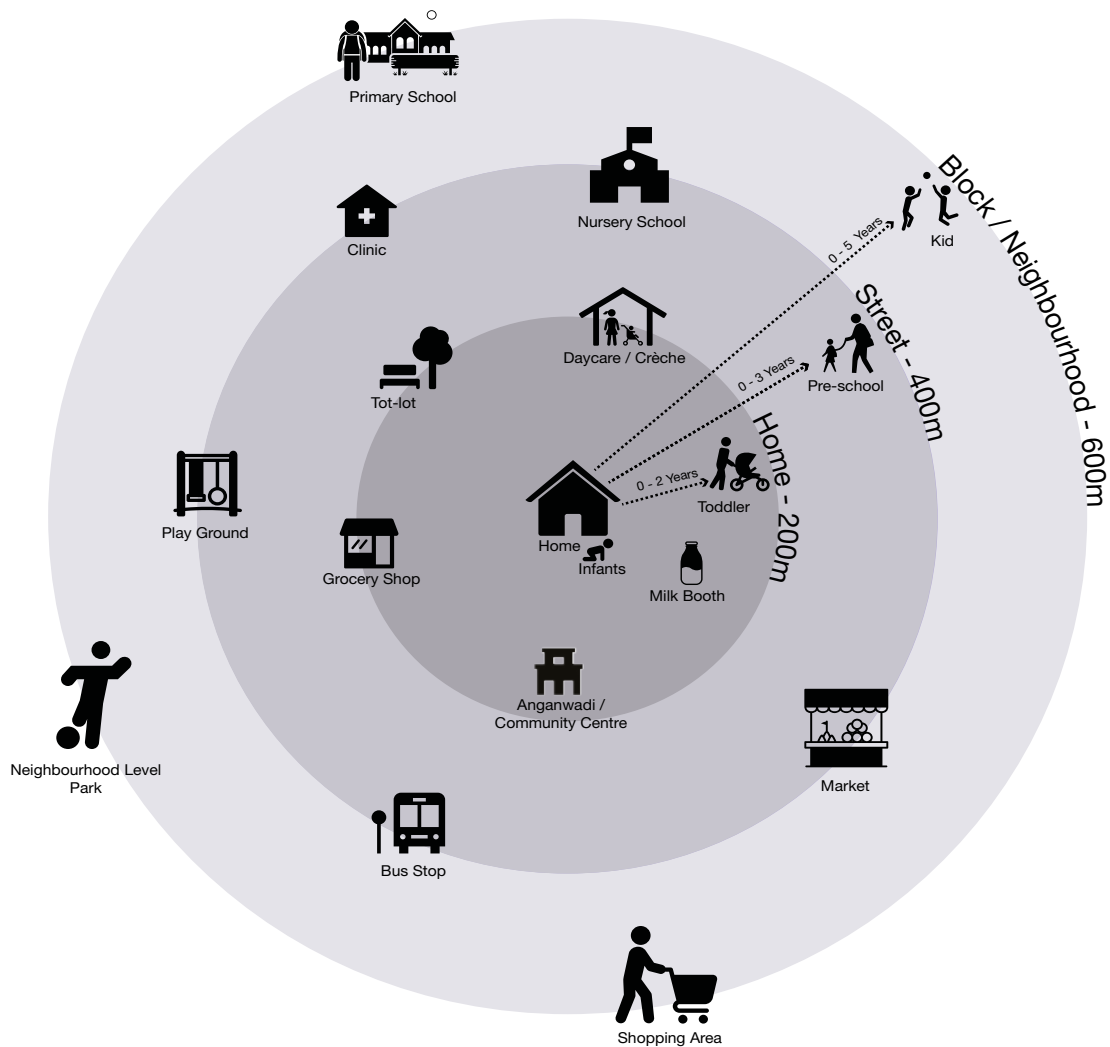
Figure 1.6: Location of amenities linked to child's physical development

This diagram shows the hierarchy, and the range and access of services for children linked to their mobility and age. The progressively expanding worlds of children below the age of five: the home, the street, the block and the neighbourhood. The walkability of the very young, either independently or with caregivers in strollers or bikes is limited to services that are under one kilometre from their home.

The Neighbourhood

As a child grows, her reach into the city increases in stages. In early infancy, the home forms the centre of the child's world. This expands to the street, then to the neighbourhood and, finally to the city.

SCALE OF THE NEIGHBOURHOOD

For very young children, life is experienced at a small scale. The focus of their world are the streets and spaces in front of their homes, and immediate facilities surrounding their homes, such as parks and schools, that can be independently and easily accessed. There have been a number of studies conducted worldwide that have reviewed the access of services and facilities through the perspective of young children. (See sidebar). These vary based on a child's need and age. (See Fig 1.6)

 "The likelihood of a child using a destination declines beyond about 800m from their home. This restricts their range and access to amenities to below one kilometre."[14] Taking this range of access for a young child as maximum one kilometre, from any one point to the other, we can define a zone that covers an area of roughly 60-80 hectares that contains all the community facilities and amenities within easy access for a young child. Most metropolitan cities in India have an average density of 200-300 people per hectare, as defined by URDPFI.[18] This corresponds to a population of twelve to fifteen thousand people living within this zone, which in Indian planning norms, equates to a 'neighbourhood unit'.[19]

The neighbourhood unit, in this context, becomes the ideal template to plan and implement the change in our built environments to cater for ITCs, and thus forms the main focus of this study. By thoroughly improving one's neighbourhood for families with young children, we create a roadmap to scale across an entire city.

© www.populationconnection.org/united-states-stop-incentivizing-childbearing-tax-advantages/children-450925/

Toddler Walkshed - the distance that a curious and perpetually-distracted toddler can navigate city streets on foot in 10-20 minutes.[15]

Popsicle Test - success of a neighbourhood determined if a small child can walk to a store, buy a popsicle, and return home before it melts.

Playshed - within 800 feet of every residential lot, there should be a "Civic Space designed and equipped as a playground" [16 & 17]
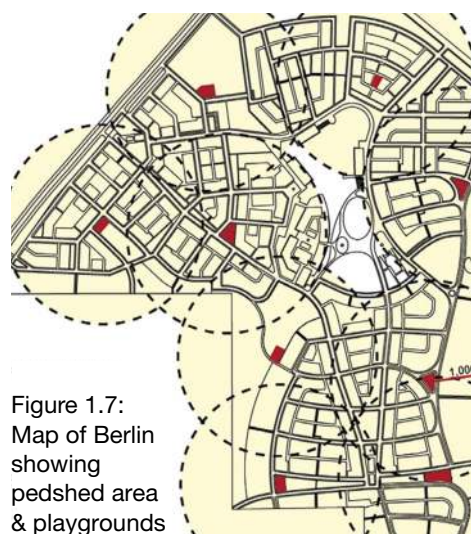

Figure 1.7: Map of Berlin showing pedshed area & playgrounds

NEIGHBOURHOODS IN PLANNING TRADITIONS

The closest thing to an ITC neighbourhood in the popular imagination is probably the post-war suburban unit in the west.

Suburbs offered specifically young families a strong connection to nature, fresh air, community, and the utmost sanctity in which to raise children; all the aspects that we consider central to the ITC Neighbourhood approach. But for all the safety and climactic control designed into them, suburban housing typologies were fundamentally anti-urban. They were intentionally un-walkable because of their reliance on the car for mobility.

The post-war suburban typology's precursors came from British rural residential planning, one of the prime examples of which can be found today in Lutyens' Delhi and other low-density single-family neighbourhoods.

The appeal of the car as a moving bubble of comfort, clean air and safety remains incredibly appealing today across the world, and just as much a marker of belonging to the middle class. That pattern of consumption has overwhelmed the streets of Indian neighbourhoods faster than anyone could react.

Ironically many of the features that we think of today as being desirable and even passively 'smart' design are found in the layout of the early traditional Indian neighbourhoods called mohallas. Mohallas had no rigid boundaries and were full of lively public space. In between the clusters were open spaces known as chowks which contained wells, religious places, or a banyan tree, and served as sites for social gatherings, rituals, celebrations, and dialogues.

Smart City Guidelines discuss ideas like holistic "urban eco-systems," "sustainable environment," "safety and security of citizens particularly women, children and the elderly," and "health and education," all of which were present in strong degree in an

Kids, with families enjoying in a community garden space, in a typical scene from a post-war American Suburb.
© Scurlock Studio Records, Archives Center, National Museum of American History, Smithsonian Institution

© Pilar Maria Guerrieri, Maps of Delhi

Figure 1.8: *Mohallas*, traditional Indian neighbourhood clusters

urban form invented quite organically, centuries ago. The mohalla also contained efficient circulation — walkability and the accessibility of the community to the local city centre and public services. In terms of climatic control as well, the design and layout of buildings and dwelling units was based on vernacular design strategies that were well-tested and adapted to the harsh, dry climate of the region.

The city plans as we find them today are also organised into a 'Corbusian' cellular system of sectors based on the 'neighbourhood unit' concept. Each sector or neighbourhood unit is the same size: 800m x1200m, which was determined on the parameter to provide all public services and facilities within a 10-minute walking distance of the residents. A planned sector can vary between 3,000 and 20,000 people depending upon the size of plots, topography of the area, and urban design considerations. Each sector is turned inward spatially, with four vehicular entries, a decision intended to maintain a tranquil and serene environment conducive to the enrichment of life.

In addition, the presence of schools, healthcare, shopping, and work opportunities in distant locations has encouraged a lifestyle pattern where residents travel great distances for basic needs. This further decouples the link to the local.

Neighbourhoods and the kind of local public life that they are able to support when designed well are successful when they provide a healthy, safe environment, a sense of community and place, and a good quality of life. **A rich and accessible mixed-use plan which includes residential uses with commercial and institutional spaces helped in doing that: it reduces the need to seek services outside the neighbourhood, allowing local roots to strengthen.** At the same time, zoning that encourages a mix of income levels in the neighbourhood ensures access to development for all.

In between the clusters were open spaces known as chowks which contained wells, religious places, or a banyan tree, and served as sites for social gatherings, rituals, celebrations, and dialogues.

Women in a village gathering
© melgupta/flickr

Many of the features that we think of today as being passively 'smart' design are found in the mohalla layout.

For more details, there are a number of resources online. See :
https://www.researchgate.net/publication/325566340_How_mohallas_were_formed_Typology_of_mohallas_from_the_viewpoint_of_spatial_formation_and_the_urbanization_process_in_Varanasi_India

Current master planning does not focus on building such a sense of locality, and there are insufficient public spaces to draw people or allow them to build local relationships, nor are there sufficient schools and amenities within walking distance.

One reason for that dearth of care to the richness of the local may be the lack of ward-level planning. The current planning documents do not reflect grass-roots feedback on the needs of the local community. These can vary by neighbourhood: in existing urbanized areas, community needs may require changes in floor area ratio, in nature of economic activity or service and infrastructure requirements. In contrast, in newly-urbanizing wards, community needs and voices will act as a signal of future demands for key planning aspects like economic activity, housing and social and physical infrastructure. The absence of ward plans means that planners do not have a planning output that is closest to communities, which is most flexible and responsive to the changing needs.

In addition, presence of schools, healthcare, shopping, and work opportunities in distant locations has encouraged a lifestyle pattern where residents travel great distances for basic needs. This further decouples the link to the local.

Figure 1.9: 'Corbusian' sector plan for Chandigarh - Post Independence Sectoral Neighbourhood Planning

Notes:
[14] Healthy Active by Design, Heart Foundation (2017)
[15] Eric Feldman http://planplaceblog.com/2015/01/20/child-friendly-cities/
[16] http://www.placemakers.com/2014/11/13/berliner-kinder-berlin-and-its-playborhoods/
[17] Smart Code 9.2 https://transect.org/codes.html
[18] URDPFI Guidelines(vol.1) 2014, Chapter 8, page 283
[19] URDPFI Guidelines 2014, Chapter 5, page 140

The Six Major Challenges Neighbourhoods pose to ITC wellbeing

Citizen attitudes make challenges cyclical.

1 Neighbourhoods are uniformly and overwhelmingly car-centric.

2 That results in the pedestrian way being full of obstacles, with overall limited safety when moving in neighborhoods.

"Park the car there, no one is using it anyway!"

3 There is frequently poor access to public facilities because of phenomena like encroachment and deterioration.

Busy areas are safer at all times of day.

4 The threat of personal crime like burglary and assault is ever-present, and women are especially vulnerable.

"Why should we spend on it if no one is there?"

5 Little maintenance, both in the public ways and in public facilities from lack of investment.

6 When there is public investment, there are often mis-placed priorities, such as beautification over perfor-mance in green spaces.

"We are not interested in sitting there *personally*, but it needs to look nice from our kitchen window."

Figure 1.10: Key risks to ITCs health are part of a vicious cycle of attitudes about the public realm, they often start with the car.

Challenges to ITC wellbeing in neighbourhoods today

The challenges affecting neighbourhoods in Indian cities are both global, such as the focus on automobiles over the human scale, and also unique to the Indian context, like maintenance and cleanliness.

KEY CHALLENGES

CAR-CENTRIC

Car dominance permeates from the city to the neighbourhood level in Indian cities. Indian neighbourhoods do not have planned and enforceable speed traffic regulations. Quite often, due to the high levels of traffic congestion on the main routes, internal neighbourhood streets are used as thoroughfares with cars zipping across residential lanes at high speeds, leading to safety issues and noise pollution. Ad-hoc speed breakers added by RWAs are poorly designed and do little to control traffic speed.

The spaces outside homes immediately lead to a street with traffic movement, with no buffer area between the house and the street. The predominance of cars in the immediate space outside homes is one of the main reasons parents no longer let children move out independently. Doors have to be kept closed, and children kept indoors in order to keep them from harm. Their natural desire to explore is restricted. In well to do neighbourhoods, even a trip to the local park is undertaken by a car as there are no usable footpaths, and streets are not deemed safe. In more impoverished neighbourhoods, children walking on unsafe streets leads to a high number of road accidents and deaths.

Another issue is the space taken up by car parking. Existing byelaws for homes and car parking provided within plots/ buildings did not factor in the
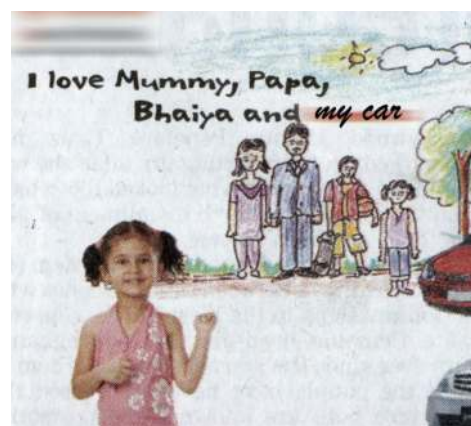
An Indian advert promoting a leading car demonstrates the way car ownership has permeated the Indian family

The predominance of cars in the immediate space outside homes is one of the main reasons parents no longer let children move out independently.
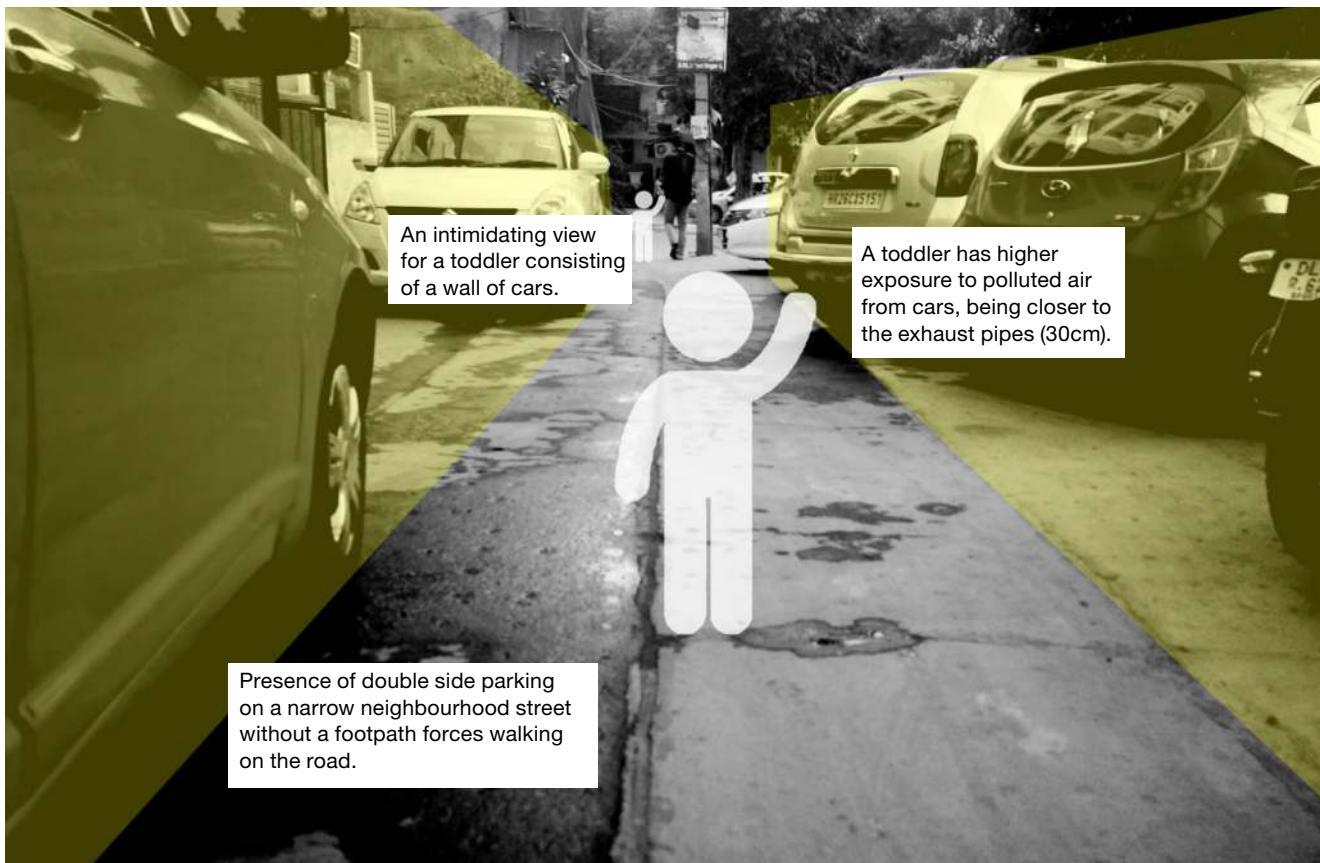
An intimidating view for a toddler consisting of a wall of cars.

A toddler has higher exposure to polluted air from cars, being closer to the exhaust pipes (30cm).

Presence of double side parking on a narrow neighbourhood street without a footpath forces walking on the road.

Figure 1.11: Child's perception from a car-centric neighbourhood (Lajpat Nagar, New Delhi)

unprecedented rise in car ownership in Indian cities. **Car parking on neighbourhood streets also does not have a cost associated with it**. Neighbourhood streets have become congested with cars, and there has been a drastic reduction in designated play areas, parks and open spaces.

A Delhi Development Authority planned neighbourhood at Mandakini Enclave in New Delhi was surveyed to identify the usable open space now versus the original plan drawn up in 1984. The diagrams across illustrate the loss in usable open space, all of which has been given away to parking.

Another survey of Lajpat Nagar, a neighbourhood in New Delhi revealed that the streets are being used for parking on both sides. There is no footpath, and hence pedestrians, infants, toddlers & their caregivers are forced to walk on the street in between parked cars. Additionally, a young child of an average height of 95cm is unable to see over car rooftops making his street experience very different from that of an adult.

A car-centric approach only favours a small percentage of the population, and for use over a short time frame. Children do not drive cars!

Children walk on the road as the space dedicated for footpath (1m) is too little and has been taken over by car parking and entry ramps to homes. Photo of a street in East of Kailash, a neighbourhood in South Delhi

IN 1984

405 GARAGES

34 PUBLIC PARKING SPACES

USABLE GREEN

IN 2012

1874 CARS

GARAGES IN USE AS OFFICES, EXTENSION OF RESIDENTIAL AREAS, SMALL SHOPS ETC.

Figure 1.12: Comparison of plans of Mandakini Enclave, a planned colony in South Delhi between 1984 and today

The grade of park is higher than the road. Additionally it is edged with a wall which is an obstacle for ITCs to navigate.

Figure 1.13: Issue of accessibility for ITCs (Mandakini Enclave, New Delhi)

OBSTACLES AND LACK OF UNIVERSAL DESIGN

The public realm in India is invariably always designed for non-disabled adults, which the very young, the disabled and the elderly find very difficult to navigate. This challenge is particular to Indian neighbourhoods and further augmented by the lack of maintenance of the urban public realm.

Equal access to streets and public spaces will require at the minimum footpaths that are clear and free of obstruction, have ramped kerbs for strollers and wheelchairs, barrier-free access, low height kerbstones, along with toilets and other facilities.

"Cities that have universally accessible street networks and public spaces can improve mobility for everyone, regardless of physical ability or age — pregnant women, parents walking with young children, families walking with strollers carrying young children." (Status of Children in Urban India, Baseline Study) [20]
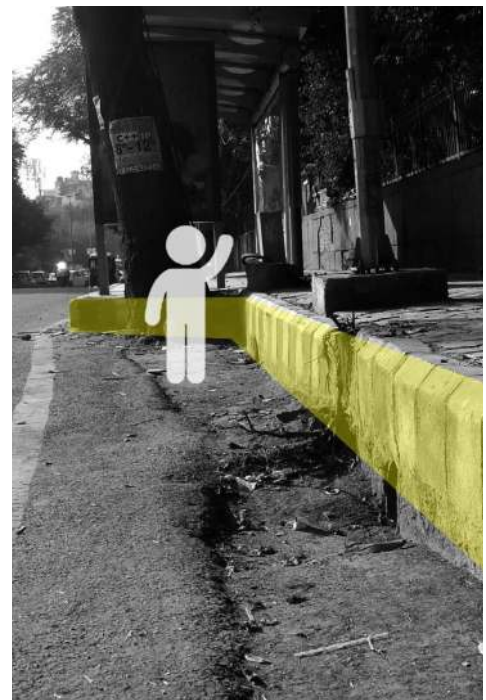

Figure 1.14: Inaccessible public realm for ITCs

The photo above was taken in Mandakini Enclave in New Delhi at an eye level of 95 cm. The height of the kerbstone does not follow design standards, and seems to be have constructed with very little thought.

Children take rickshaws and cars to school as a matter of course in Indian cities
© Wikimedia Commons

POOR ACCESS TO PUBLIC FACILITIES

There is an unequal distribution of urban services, amenities and parks across neighbourhoods in Indian cities. In many neighbourhoods, there aren't adequate services given the current density of population.

Further, the access to existing services is not cognizant of the walking proximity for infants in strollers and toddlers. Because their range of mobility is far shorter, **families with young children travel slowly (either because they are small or because they're looking at everything).** It is harder for caregivers to bike OR take public transport while juggling children and bags. Ideally, this group should be able to walk to where they need to go, close by, along safe, easy and interesting routes.

In many neighbourhoods, urban park or school are beyond the comfortable walking/or stroller distance for a toddler and her caregiver. In such cases, the child will either be restricted in play/learning opportunities available to him, or rely on the car or other such means to access them.

"Safe, walkable and pleasant routes that can access good quality facilities that are within the neighbourhood are missing from our city."

– Parent, Delhi

Families with young children travel slowly—because their legs are short or because they're looking at everything.

For more details, there are a number of resources online. See :
https://3gozaa3xxbpb499ejp30lxc8-wpengine.netdna-ssl.com/wp-content/uploads/2019/01/ST_30_FINAL_.pdf

High boundary walls on both sides of the road make it secluded and is perceived as unsafe for ITCs.

Figure 1.15: Scarcity of safe, dedicated ITC movement zone (Panchsheel Park South, New Delhi)

SECURITY AND THREAT OF PERSONAL CRIME

Crimes against children and women, the predominant caregivers, are at very high levels in Indian cities. The incidences of crime are on the upward trend, rising as much as 50% in one year. [21] These are a result of systemic issues with our built environment and social and economic disparity across our cities.

Within our neighbourhoods, the dominance of automobiles has resulted in homes and therefore people turning their back away from the streets. Street lighting has been designed for cars and roads, and not the footpath. Gated communities, high boundary walls, windows double glazed to handle air and noise pollution have left the streets as playgrounds for automobiles rather than children. **The lack of 'eyes on the street' makes streets unsafe for women and children, both in a real and perceived sense.** Our planned neighbourhoods are also designed around monofunctional uses as the above example shows. Traditional Indian neighbourhoods were very mixed use and it was not uncommon for the street to be the playground for children, looked on by adults meeting up at the local chaiwallah or other such service providers.

The theory of 'Eyes on the Street' by Jane Jacobs advocates the use of high-density mixed-use communities, which are areas with residential and commercial uses, to stimulate street traffic. Increased street traffic, day and night, not only help communities flourish socially and economically, but also acts as self-policing which deters criminal and anti-social behaviour.[22]

Boundary walls make the footpath inaccessible, and the footpath itself is broken and not walkable.

Figure 1.17: Inaccessible walking zone (Panchsheel Park South, New Delhi)

LACK OF MAINTENANCE

Other factors that lead to a lack of safety and security include poor street lighting and ill-maintained and poor quality green spaces, parks, pre-schools and general environment. An audit of Indian parks and open spaces revealed that "**parks were often non-functional, abandoned and had become a sought-after place for antisocial activities. Government records of the parks were outdated as parks were often encroached upon, and used as a parking space or a dump.**"[23]

The neighbourhood of Panchsheel Park in New Delhi when surveyed revealed that even in upscale neighbourhoods, a majority of the footpaths are not maintained. The picture below shows a stretch where the footpath is further fenced off, and the surface uneven and broken.

Most neighbourhoods have a further issue with other elements such as stray animals, low hanging electric wires, and so on. All of these elements go towards creating a sense of threat for the very young, making the immediate environment outside their home appear very hostile and inaccessible.

"...There is space available in many of these planned neighbourhoods (DDA) which has the potential to be converted into safe, easily accessible play space for children between 0-5 years..."

- Caregiver, South Delhi

Notes:
[20] NIUA - Status of Children in Urban India – baseline Study 2016; National Institute of Urban Affairs- page 47
[21] NIUA - Status of Children in Urban India – baseline Study 2016; National Institute of Urban Affairs- page 47
[22] http://sppdtoday.blogspot.com/ referencing "The Death and Life of Great American Cities", 1961 by Jane Jacobs
[23] Conference proceedings, Small Children Big Cities, Nov 2014, page 37; presentation highlights by Beena George, Head Liveable City Programme
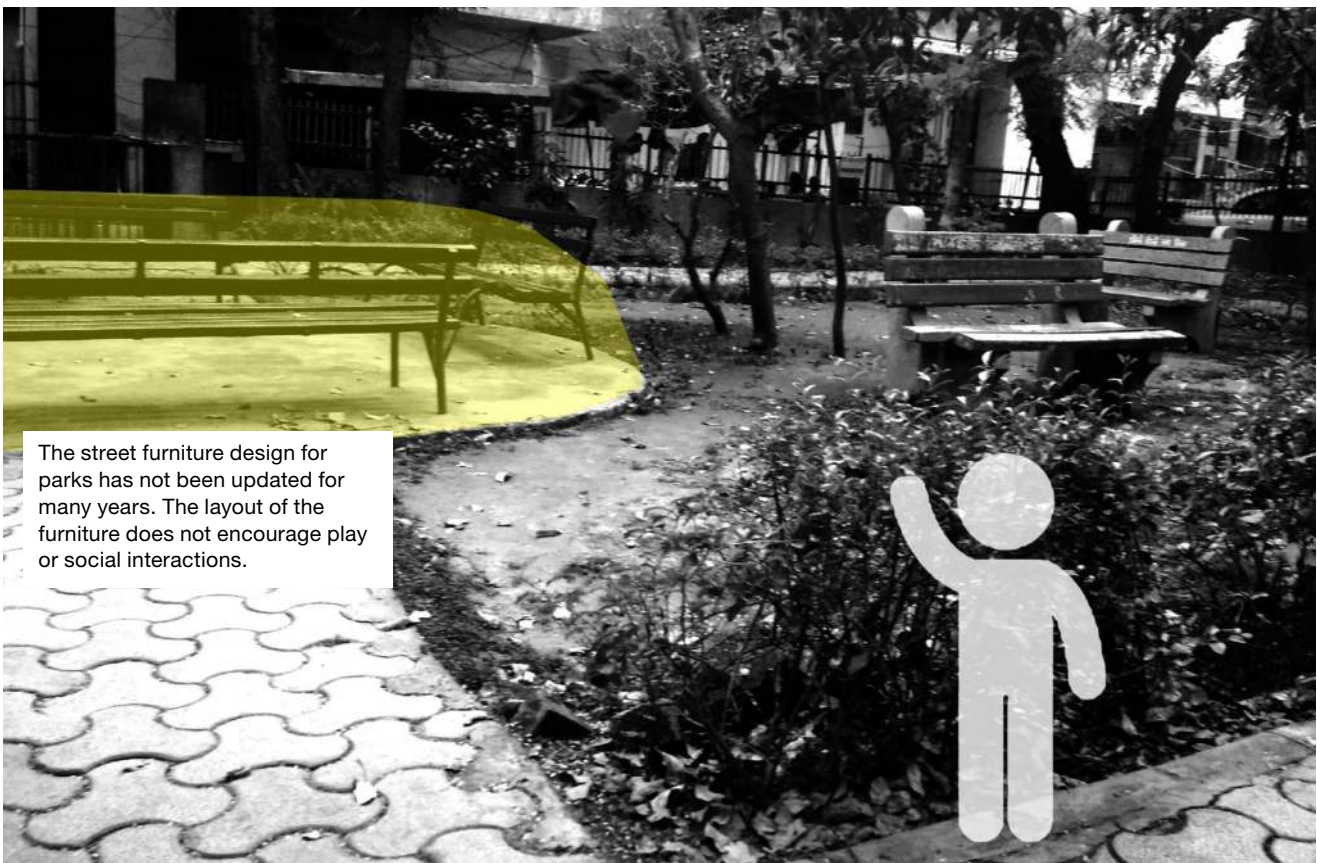
The street furniture design for parks has not been updated for many years. The layout of the furniture does not encourage play or social interactions.

Figure 1.16: Limited play spaces for toddlers and infants in parks (Lajpat Nagar, New Delhi)

BEAUTIFICATION INSTEAD OF PLAY

In Indian neighbourhoods, we often see that children don't have enough space to play. There is a prevailing notion that the provision of parks is a waste of a very precious and expensive land resource that could be better put to use for providing homes or roads. Even the parks that do exist are often designed for and occupied by adults and the elderly.

As outlined earlier, play, both spontaneous and organised, is critical in the development of young children. That this is not recognised or appreciated is evident when looking at parks in Indian neighbourhoods. There is a focus on providing beautifully manicured spaces with some token swings and slides. There is a low emphasis on outdoor play for children under five due to the high priority placed on safety and protection. As a result, play spaces are either for older children playing ball games or neglected vacant lots. These also tend to be more frequently used by boys rather than girls. There is a lack of facilities for both children and caregivers, even things as basic toilets and water, in smaller neighbourhood parts.

"...High emphasis on beautification of open areas which necessarily involves keeping footfalls low or restriced...No system to maintain play areas unless there is a maintenance budget and named owners..."

- Parent, Delhi

For more details, there are a number of resources online. See :
http://msuextension.org/publications/homehealthandfamily/mt201003hr.pdf

Location: Zamrudpur Urban Village, New Delhi
© Simon Battisti

Figure 1.18: Objective of the ITC Neighbourhood

Inclusive
• Listening and responding to needs of residents through engagement
• Even and thorough implementation of interventions
• Transparent processes
• Fair to all, not just "owners"
• Objective, informed by data

Playful
• Attention focusing (not grabbing)
• Enveloping and protecting from distraction
• Challenging
• Committed to culture
• Authored by and memorializing of the childhoods belonging to it

Accessible
• Legible
• Flexible
• Free of physical and virtual obstacles
• Clusters of services/convenient
• Predictable and dependable, well-communicated services

Green
• Comfortable and protected from the elements
• Quiet
• Bio Diverse
• Renewable and non-carbon energy sources
• Future-oriented, green technologies

ITCN

Safe
• Safe to walk/ bike while daydreaming/ mentally distracted
• Structured, demarcated, space is assigned
• Eyes on the street, trust of neighbors
• Slow
• Respectful of privacy

Vision for an ITC Neighbourhood

In an ideal neighbourhood, infants and toddlers and their caregivers feel safe and encouraged with the freedom to run, explore, play and engage with their built and natural environment.

The streets and parks in the neighbourhood are safe from cars, strays and predators. Neighbours and other familiar and trusted service providers, often found in Indian streets, engage and keep a look out for the child adding to a sense of security. Parents feel at ease that their children are safe outdoors.

The neighbourhood is calm and quiet. It is verdant, overflowing with green. Where there are no trees, shade structures keep the walls of buildings and the street cool on a hot day.

This neighbourhood is densely populated with simple, well-managed services that are easy to get to, and are evenly spread across the whole neighbourhood, so that no one is cut off to them or by them.

The routes between homes and key destinations are safe, walkable, and full of excitement and wonder.

Parks are maintained, well used and clean, and full of playful encounters. Parks are inclusive and facilitate interaction across generations and communities.

Objectives

FIVE OBJECTIVES FOR AN ITC NEIGHBOURHOOD

A neighbourhood can provide a backdrop of imagination and adventure that nurtures and draws out the intuitive, creative lives of children.

There are many qualities that a neighbourhood must have for children to thrive mentally and physically. These can be achieved in different ways, through different combinations of elements. The objectives and the results that the vision seeks to bring about, will be identical for all the 100 Indian Smart Cities. If the design guidelines are the tactics, the objectives provide the strategy.

These objectives and the corresponding design guidelines found in Document 3 will provide a roadmap for the city manager to create healthy, stimulating, and desirable neighbourhoods for everyone, by fulfilling the needs of ITCs.

The following five objectives operate in a dynamic interplay and cannot be implemented á la carte. A great playground is only as good as the quality and contiguity of the street network that leads us there — the two must work together. But that is not to say that there is no hierarchy between the objectives. Beginning at the foundation of 'safety' objective, empowers the city manager to make decisions about where to start.

Click here for Young Explorers videos (USA)

Dreaming child
© yohoprashant/ pixabay

Jumprope
© healthiermi/ flickr

© BvLF

– Safe to walk while daydreaming/ mentally distracted
– Structured, demarcated, space is assigned
– Eyes on the street, trust of neighbors
– Slow
– Respectful of privacy

SAFE

A safe and secure neighbourhood is thoroughly walkable by mothers and caregivers holding and guiding young children with minimal stress from the road. If walking is scary and frustrating, prohibiting interaction with people and producing stress, then one is not safe. There may not be a feeling of acute pain or loss of property, but the body is still being harmed. A typical Indian neighbourhood has been retrofited countless times with safety and security measures, mainly to limit crime. However, the passive threats posed by bad streets affect far more people negatively. So the critical choices facing planners thinking about the safety and security of babies and families is: 'safe and secure against what?'

The objective of Safety and Security is all about re-focusing priorities toward walkability. A walkable street is a **slow street**, with **clear demarcation** for different kinds of use. It is a street with limited or slow vehicular access, where the pedestrian takes priority. Indian planned neighbourhoods feature elements like **gates** to control movement. But these limit only to some extent and shift the problem elsewhere. Streets need elements of control that ease movement for both cars and pedestrians, not stop it.

It is critical for city managers to reassess the functionality of the elements that streets contain, according to the needs of caregivers and babies.

Safety is also about elements that keep the public realm visible, so it is critical to ensure **good lighting** designed for pedestrians. Whenever possible, streets should have amenities with active ground floor uses, such that there are plenty of **eyes on the street**. 'Smart' measures for safety like cameras in the public realm need to be careful to **respect the privacy** of citizens as well.

© pixabay

- **Comfortable and protected from the elements**
- **Quiet**
- **Bio-diverse**
- **Renewable and non-carbon energy sources**
- **Future-oriented, green technologies**

GREEN

A green neighbourhood provides climactic protection and comfort for residents throughout the day and night, and through all seasons.

Such a neighbourhood is quiet, with strong measures in place to limit noise from traffic and construction. The streets are tree-lined. This keeps stress levels low. It must be made clear that the needs of ITCs include a calm and even soundscape, especially during certain hours, both from outside and inside the home.

The neighbourhood is **bio-diverse, an excellent host to native plants, animals, insects and birds.** The neighbourhood provides ample opportunities for children to engage with **natural materials** for play. It is where children first come into contact with their natural world.

When planning ITC interventions in neighbourhoods, try to pinpoint projects that fulfil multiple objective simultaneously. **Green**

infrastructure like a flood control berm is permeable to absorb rain. It's also fun and challenging to play on, for younger children, if free of trash and debris. The objective of such a neighbourhood is that it adds a **performative, infrastructural dimension to natural objects, spaces, and experiences that are also playable.**

A green neighbourhood has adopted renewable energy harvesting and distribution technologies. All public amenities as well as street lighting are powered with renewable energy. Homeowners and private business are **incentivized to switch to renewables** through subsidies offered to members of the ITCN.

– Legible
– Flexible
– Free of physical and virtual obstacles
– Clusters of services/convenient
– Predictable and dependable, well-communicated services

ACCESSIBLE

One of the most important and compelling features of Indian neighbourhood planning norms is the provision of public facilities according to the population. Making sure that ITCs have convenient access to the goods and services that they need within a 5-10 minute walk from their home gives a caregiver one good reason not to use a car. The household worker ironically spends an inordinate amount of time in the city buying the things that are required to keep the household running. Their 'mobility chain' contains many short stops. The less the distance between each one, the less time required to accomplish the task, translating to lower stress levels and better physical and mental health.

Reducing short trips in the car is one of the most important thing that prescient neighbourhood-level zoning organisation will deliver. In other words, 'clustering of destinations' to the greatest extent possible is key. Clustering has positive impacts on the rest of the city outside the neighbourhood as well, since there is one less car on the road, one less car parked on the street during the errand.

Making sure that those facilities are legible and easy to find within the city by everyone, and that the services they offer are on predictable schedules, and can be depended upon is a key aspect of a neighbourhoods accessibility.

Accessibility has overlaps with the objective of Safety because they both occur within the realm of mobility. Beyond clustering, it is critical that ITCs are able to access all parts of a neighbourhood easily and conveniently.

This has bearing on things like level changes in the city. Make sure to pay attention to details when designing a universally accessible public realm. Put stroller ramps on stairs and be sure that entrances to parks are easy to get through. Keep the height of sidewalks

Children at a mobile creche close
to a Delhi construction site
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suitable for young kids, introduce **low benches**.
All of these measures will make a huge
difference for comfort and accessibility.

Accessibility also touches on the threat of
stray animals and to make sure that there is
a strategy in place for keeping their waste out
of the public realm with a robust maintenance
budget.

Flexible services can offer huge convenience
to ITCs. **Flexibility** means everything from
itinerant vegetable carts that already exist in
most neighbourhoods, to pop-up and temporary
neighbourhood events. These can be events
such as temporary street closures (to vehicles),
weekend markets, and other such events that
can facilitate a neighbourly interaction. **Flexible
programming should be well communicated
and legible.**

– Attention focusing (not grabbing)
– Enveloping and protecting from distraction
– Challenging
– Committed to art
– Authored by and memorializing of the childhoods belonging to it

PLAYFUL

Play is more than entertainment for children, it is physical and emotional learning, therefore essential for children's wellbeing. **A neighbourhood that wishes to support the healthy development of children must be one where children can be playful virtually everywhere** and parents should feel safe and secure that this is so. On a walk to the neighbourhood shop, a child could find safe and stimulating ways to interact with every corner and nook without fear.

Make sure that there are ways to access nature within the neighbourhood. Studies show again and again that proximity to and interaction with organic materials like sticks and rocks, sand and dirt dramatically open up creativity, sense of calm and agency in the world much more than toys do. This kind of **unstructured play**, which is also in direct contrast to the structure that playschools provide, is much more likely to be challenging, can handle repetition and be more developmentally useful to young children. In comparison, children tend to lose interest in structured playground equipment, which have demands limited uses.

In parks and public spaces, **use simple structures** which can be used for seating and also allow for adventure and challenge. This can be a log bridging two berms or multiple-level seating. In parks, provide plenty of seating and not necessarily all facing each other.

Public art as play provides the opportunity for children to engage with the built environment. Cities today are inundated with images and messages through public art as decoration which clutters visual experience. Take public art seriously. Neighbourhood associations or other small scale institutions could commission arts organisations to enter neighbourhoods and oversee the systematic installation of playable, imaginative, long lasting or short term art work that improves the visual and tactile landscape of a neighbourhood for everyone. Commission sculptors to make baby playground and shade structure interventions.

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 Give children a sense of authorship (not ownership) over play spaces. These can be temporary or permanent and leave a child with the sense of "I helped to create this place, it has a mark from me and it belongs to everyone."[24]

Notes:
[24] https://www.psychologytoday.com/us/blog/freedom-learn/201404/risky-play-why-children-love-it-and-need-it

For more details, there are a number of resources online. See :
https://www.ornes.nl/wp-content/uploads/2010/08/Play-in-children-s-development-health-and-well-being-feb-2012.pdf

Click here: Lectures from the Urban Playscapes Conference in Istanbul

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INCLUSIVE

In an Inclusive neighbourhood, every intervention for safety, green balance, playfulness, and accessibility, are applied in a balanced impartial way, across the **entire neighbourhood**. This objective focuses on taking implementation seriously. An inclusive neighbourhood is **thoroughly and consistently supportive** to everyone who lives in it. It is a neighbourhood whose **structures of decision making and allocation are fair and transparent**.

One of the most important aspects of making sure our neighbourhoods are just, is to **guarantee that public facilities and the public realm serve everyone equally.** The child who lives far from the park, near a noisy road, even in the same neighbourhood, will have lower developmental indicators than the one who lives in the more supportive area. No two streets are the same, nor are any two parks. The ITCN approach must strive to guarantee an even quality across the entire zone, **which doesn't necessarily mean equal spending.**

For this objective, the savvy use of data gathering and analysis is key to monitor progress and understand where gaps exist. **An inclusive neighbourhood uses 'smart' practices and procedures to ensure quality.** These practices are eminently transparent to the public, and **provide opportunity for engagement and feedback,** and may be updated when improvement is needed.

The Indian neighbourhood is home not just to home and business owners, but a spectrum of service workers who also live there semi-permanently or permanently. These people are members of the community, even if they don't pay a rent or mortgage in the same way. Frequently they have children who also spend their lives in the neighbourhood. Explicit and special outreach must be made to this group to ensure that their needs as occupants of the zone are also being met.

OBJECTIVES AT A GLANCE

– Safe to walk while daydreaming/ mentally distracted
– Structured, demarcated, space is assigned
– Eyes on the street, trust of neighbors
– Slow
– Respectful of privacy

– **Comfortable and protected from the elements**
– **Quiet**
– **Wild**
– **Renewable and non-carbon energy sources**
– **Future-oriented, green technologies**

– Legible
– Flexible
– Free of physical and virtual obstacles
– Clusters of services/convenient
– Predictable and dependable, well-communicated services

– **Attention focusing (not grabbing)**
– **Enveloping and protecting from distraction**
– **Challenging**
– **Committed to art**
– **Authored by and memorializing of the childhoods belonging to it**

– **Listening and responding to needs of residents**
– **Even and thorough implementation of interventions**
– **Transparent processes**
– **Fair to all, not just 'owners'**
– **Objective, informed by data**

HOW DO SMART CITIES MISSION FEATURES INTERSECT WITH ITCN?

The purpose of the Smart Cities Mission is to drive economic growth and improve the quality of life of people by enabling local area development and harnessing technology. Area-based development will transform existing areas (retrofit and redevelop), including slums, into better-planned ones, thereby improving the liveability of the whole city.[25] New areas (Greenfield) will be developed around cities to accommodate the expanding population in urban areas in an organised way. Comprehensive development in this way will improve the quality of life, create employment and enhance income for all, especially the poor and the disadvantaged, leading to inclusive cities.

Area based development in a city may contain one or more neighbourhoods which could be retrofitted by adopting smart initiatives. Some of the components of area-based development include:

- **Holistic development of existing and new areas**
- **Quality of life in areas meets citizen's expectations**
- **Walkable localities**
- **Accessibility to park, preservation and development of open spaces**
- **Last mile connectivity to public transport**
- **Citizen friendly and cost effective governance**

The Smart City Mission's focus is on improving quality of life, in particular at the local level. This is essential when planning for babies, toddlers and their families. Babies and toddlers don't travel very far — the neighbourhood is their domain. The neighbourhood represents an everyday landscape, which can either support or limit the physical, mental and social well-being of young children.

Notes:
[25] http://smartcities.gov.in/upload/uploadfiles/files/What%20is%20Smart%20City.pdf
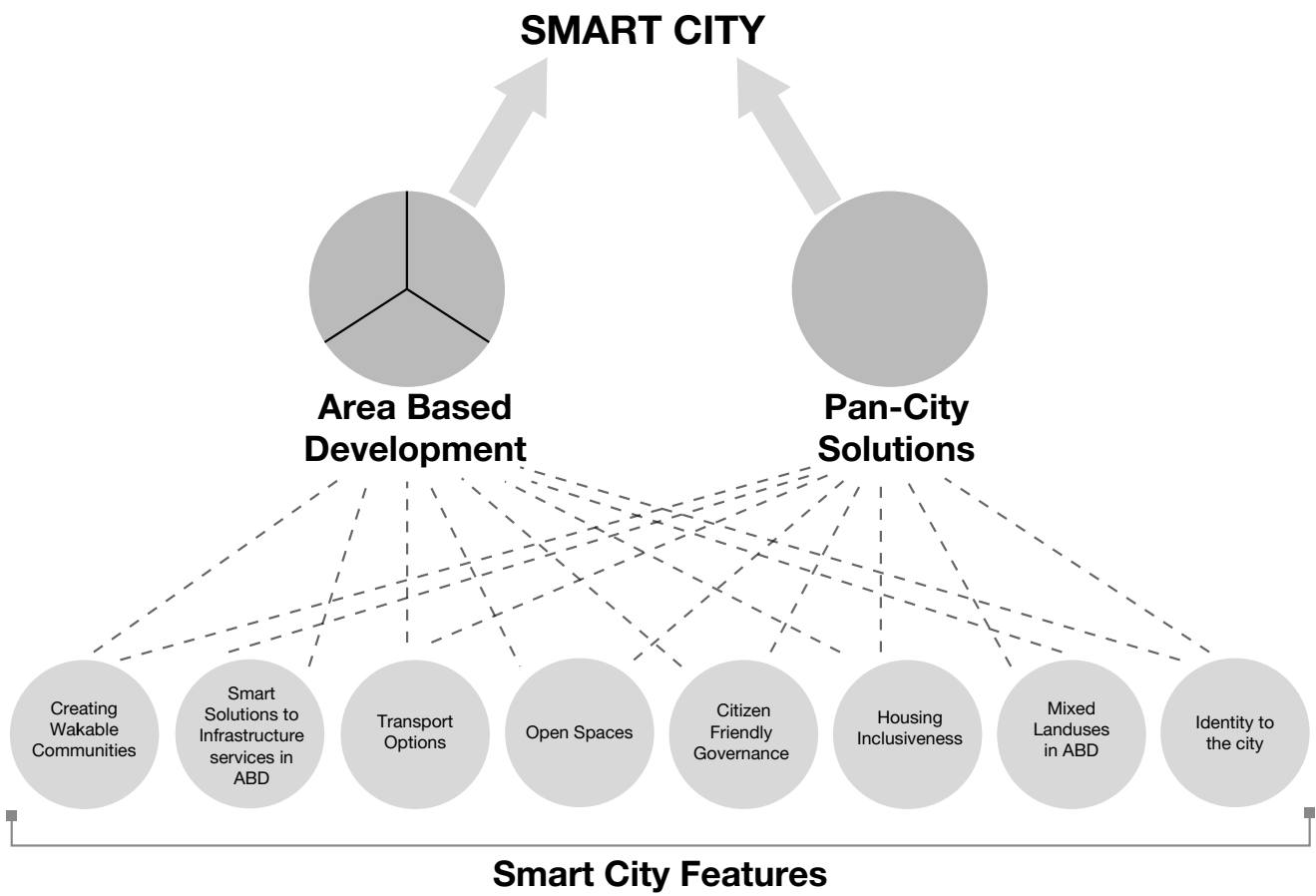
Figure 1.19: Smart City Mission Features

Smart Cities Mission is a key initiative for improving the quality of life of citizens of around 100 cities. The features of Smart Cities Mission coordinate well with the objectives set out for an ITCN as shown in Fig. 1.19

ITCN becomes an integral link to the smart cities mission as:

- **ITC is a unifying lens for sustainable, healthy, safe and inclusive infrastructure improvements.**

- **ITCN is an integral anchor for a network of city improvements, making smart mission milestones more meaning to families.**

- **ITC comes together with smart cities in data-driven decision making, to ensure fair distribution of infrastructure spending, and inclusive actions and benefits for all families.**

- **ITC interventions can catalyse a ripple effect into the neighbourhood - strengthening the impact of lighthouse projects.**

- **Focus on the needs of ITCs in the planning of Smart Cities in India is part of what can fulfil the goals of sustainability, inclusion, health and safety.**

The modular nature of ITCN under the area based development can result effectively in a multiplied pan-city effect.

LINKING SMART CITY MISSION FEATURES TO THE ITCN
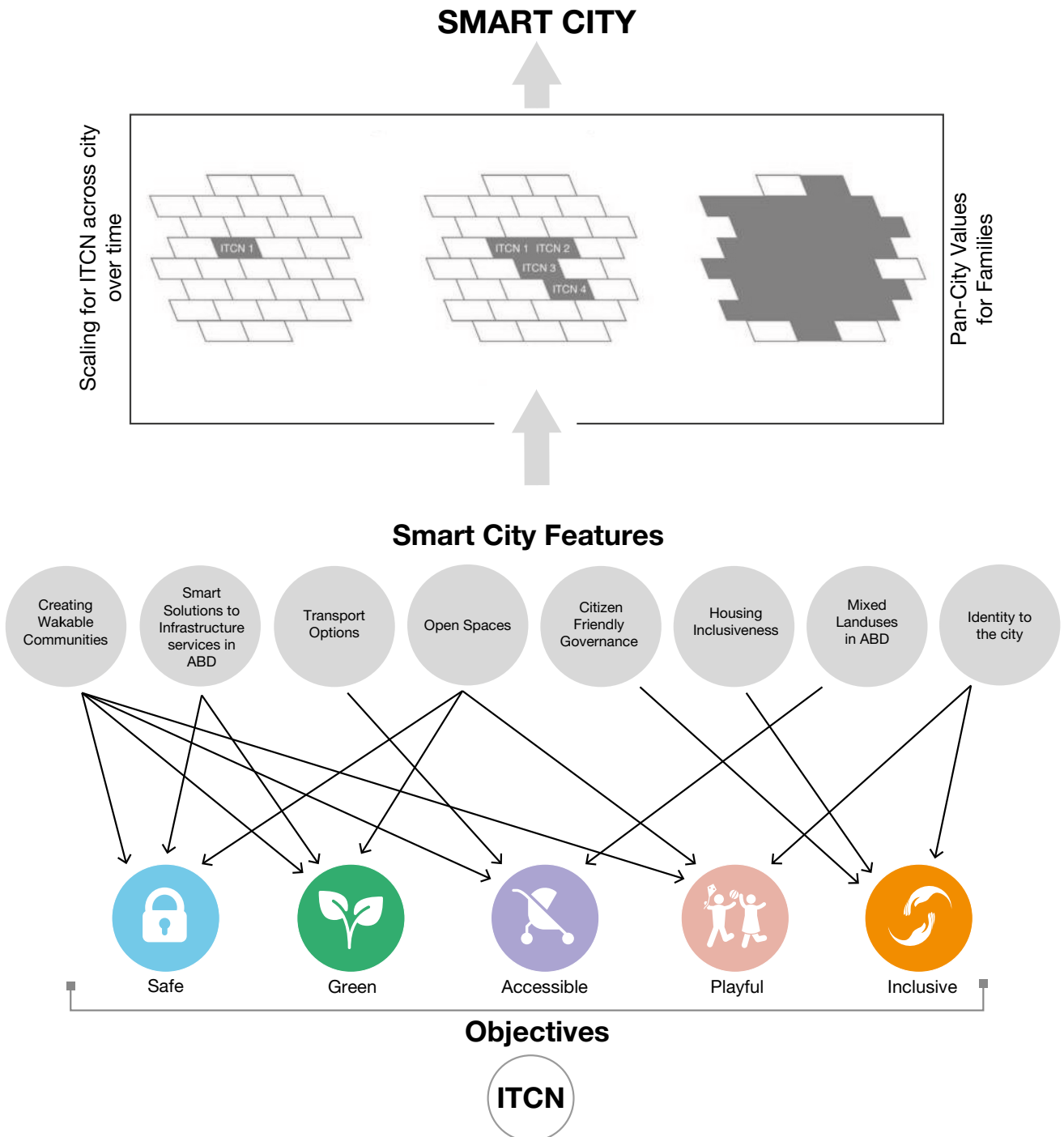
Figure 1.20: Linking Smart City Mission Features to ITCN

Methodology

While objectives define broader spheres of aspirations, indicators and their service level benchmarks tell city managers exactly what they need and how much. The indicators and the objectives are aligned so that by implementing according to Service Level Benchmarks, a city is also fulfilling objectives. For clarity of ordering, the indicators are categorised under the spatial elements of an ITCN.
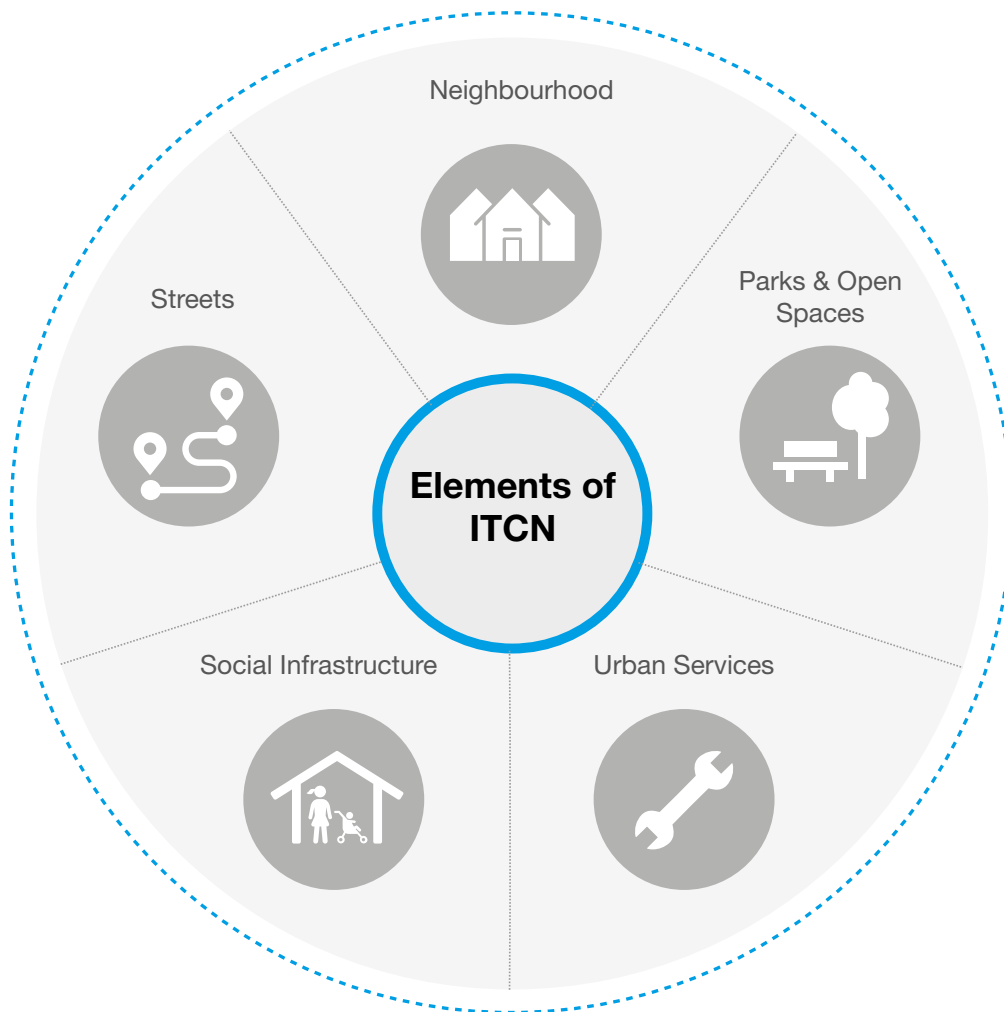
Figure 1.21: Elements of ITCN

Neighbourhood

Neighbourhood covers the larger scale organisational factors, its urban design. This is the process of giving form, shape and character to urban spaces that will influence the overall physical environment.

This will ensure that the distance of the play area and amenities are within reach for most, play areas are not incorrectly located near a busy junction; the neighbourhood is walkable and cycle able, the street has active and aesthetic edges, public spaces are well designed, there are adequate bus stops that are well located, car parking is managed and not obtrusive.

Streets

Streets focus on everyday paths taken by young children to a local urban services and parks.

Guidelines will seek to introduce measures for traffic calming and management, quality of sidewalks, security on the streets, providing ramps for strollers, ensuring well-lit and safe streets, adding informal play spaces within sidewalks, dedicated car-free streets (permanent or temporary), adding wayfinding measures at the correct height for children, adding cycle lanes and safe intersections and management of stray animals, etc.

Parks & Open Spaces

Parks and open spaces are key green destinations relevant for ITCs.

The guidelines under this component will suggest ideas on maintenance, lighting and play equipment and safety features, formal ands informal play zones for each age group, climate protection, protection from strays, safety and comfort of caregivers while assisting infants in parks and so on.

Social Infrastructure

Social infrastructures are the typical places in a neighbourhood that are relevant to and accessed by ITC. These include local amenities and community facilities, health and education services, local shopping and transport and other community facilities.

Urban Services

A neighbourhood can only function if the basic *urban infrastructural services* in it are well maintained and operated with efficiency by the local governance body. These basic services include water, electricity, waste, drainage and other environmental factors.

NEXT STEPS

Having understood the need for considering ITC requirements in a neighbourhood's plan, and the objectives to achieve; the next step is to measure the existing conditions of your neighbourhood. The Evaluation and Monitoring document will assist you with component-wise indicators to establishing a baseline and to identify gaps in quality. Finally, and how to ameliorate those gaps with the assistance of the Design Guidelines.
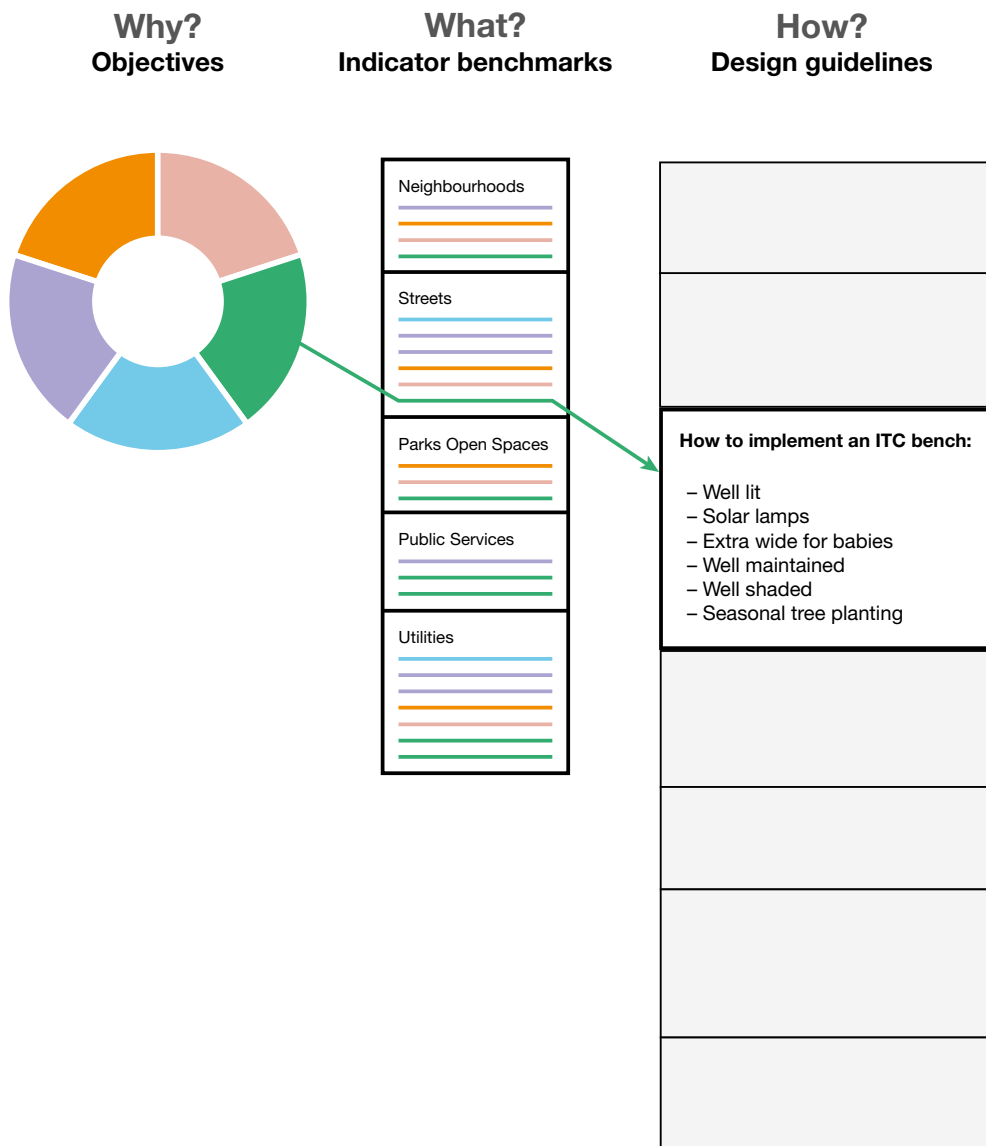

Figure 1.22: Next Steps

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