

# CHILDREN IN THE URBAN VISION OF INDIA





# Children in the urban vision of India



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हरदीप एस पुरी  
HARDEEP S PURI



सत्यमेव जयते



आवासन और शहरी कार्य  
राज्य मंत्री (स्वतंत्र प्रभार)  
भारत सरकार  
MINISTER OF STATE (I/C)  
HOUSING AND URBAN AFFAIRS  
GOVERNMENT OF INDIA


### Message

Children are an important indicator of the prosperity and wellbeing of a society. In India, up until now the contribution of children as contributors and stakeholders in cities tended to be underestimated and not fully understood. Their needs and rights in a city were by and large viewed through and confined to health, nutrition and the education sectors.

The current process of urbanization in India is striving towards shaping cities that are prosperous, sustainable and liveable for all. The child friendly city proposal of Bhubaneswar under the Smart Cities Mission, to Atal Mission for Rejuvenation and Urban Transformation (AMRUT) identifying open and green spaces as fundamental infrastructure in cities, and Pradhan Mantri Awas Yojana and Swachh Bharat Mission striving towards fulfilling the basic needs of shelter and sanitation in cities; all flagship missions have attempted to address the needs of children and families. There is an emerging understanding towards how urban design and planning are instrumental to shaping healthy and nurturing urban environment for children.

It is, therefore, an appropriate time to release the study on "Children in the urban vision of India" presenting ways in which the different flagship missions of MoHUA have mainstreamed the needs of children in the planning and design of cities. The study brings to light the promising ideas and practices different Indian cities are employing under respective urban missions to seamlessly integrate the needs of children and families into design and planning. It can aid other cities in India and globally adopt or develop mechanisms for making children an integral part of urban development and creating happy and healthy cities.

India is truly embracing the New Urban Agenda of "cities for all" because a world fit for children would be a world fit for all.

  
(Hardeep S Puri)

New Delhi  
21 February 2019



# Foreword

The Child friendly Smart Cities (CFSC) initiative at the National Institute of Urban Affairs is dedicated towards mainstreaming the needs of children in the urban agenda. Supported by the Bernard van Leer Foundation, CFSC has been successful in developing and advocating the understanding that cities need to respond effectively to the needs of children, who constitute a third of the urban demographic; who are the current and future human capital; and yet are the most underrepresented in planning of our cities.

This report presents the findings of a review of the current national urban missions in India (Smart Cities Mission, AMRUT, Pradhan Mantri Awas Yojana and Swachh Bharat Mission) and the related guidelines and implementation processes that have helped nudge cities towards being people-friendly. The document highlights the achievements of cities under the various missions particularly from the lens of creating children-friendly urban environments. Facilitated by the progressive guidelines of the urban missions, proposals from some cities have creatively engaged with people including children to prioritize their development themes, leading to interventions that are responsive to the needs of various stakeholders. Presenting the various interventions adopted by these cities, this report also provides recommendations for replication and scaling up of best practices in other cities. It also discusses a Version 2.0 of every mission, and what it would need to have to be children- friendly.

The rationale behind this purposeful reviewing the missions is that these are critical not only for bringing new infrastructure and improved services in urban areas, but they have the wide-spread impact to bring about a country-wide paradigm shift in urban development strategies, making it more inclusive and sustainable. All of the 20 lighthouse cities have included children in their interventions. Bhubaneswar's proposal that was based on the vision of becoming India's first child friendly smart city, has set an example for other aspiring cities.

The Smart Cities Mission with its openness to new ideas has seen a number of innovative initiatives like all abilities parks, smart education, smart anganwadis etc. and an overall agenda to create livable cities; the mission has implicitly recognized healthy and happy children as a measure of a successful city. Similarly, with a mandate of developing children's parks every year in all the mission cities, and identifying children as ambassadors of a Clean India, both AMRUT and Swachh Bharat Mission have given prominence to children in their own respective ways.

This book is a result of the collective effort put in by the CFSC team, particularly Ishleen Kaur, who carried out this excellent research and Kanak Tiwari, Team Lead, CFSC, who has been the driving force behind the initiative's meaningful research and knowledge dissemination. This is the best time to move beyond isolated initiatives to create a policy environment that recognizes children as equal stakeholders and users of cities. Longer and stronger strides are needed to make cities where growing up is fun. For a developing nation, it is imperative to put the spotlight on its developing generation, both fostering each other's growth. India's urban vision of creating smart, sustainable and livable cities for all is synonymous with creating child friendly cities.



**Jagan Shah**  
Director, NIUA



# Abbreviations

AHP	Affordable Housing in Partnership
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
AWC	Anganwadi Centres
BaLA	Building as Learning Aid
BLC	Beneficiary Led Construction
BvLF	Bernard van Leer Foundation
CFSC	Child Friendly Smart Cities
CLS	Credit Linked Subsidy
CSO	Civil Society Organization
GOI	Government of India
ECCE	Early Childhood Care and Education
HFA	Housing For All
HRIDAY	Heritage City Development and Augmentation Yojana
ICDS	Integrated Child Development Services
INR	Indian National Rupees
ISDSS	Integrated Spatial Decision Support System
MoHUA	Ministry of Housing and Urban Affairs
MoWCD	Ministry of Women and Child Development
NCTD	National Capital Territory of Delhi
NDMA	National Disaster Management Authority
NFHS	National Family Health Survey
NGO	Non-governmental Organization
NIUA	National Institute of Urban Affairs
NMT	Non Motorised Transport
NSSO	National Sample Survey Organisation
NULM	National Urban Livelihood Mission
PMAY	Pradhan Mantri Awas Yojana
PPPP	Public Private People Partnership
RFID	Radio-Frequency Identification
RIDE	Recognize. Identify. Design. Engage
SAAP	State Annual Action Plan
SBM	Swachh Bharat Mission
SCM	Smart Cities Mission
SDGs	Sustainable Development Goals
SLIP	Service Level Improvement Plan
TOD	Transit Oriented Development
UN	United Nations
UNICEF	United Nations International Children's Emergency Fund
USD	United States Dollars
UT	Union Territory
WASH	Water Sanitation and Hygiene
WHO	World Health Organization

# About the document



MOHD. DANISH

This document has been prepared by the “Child Friendly Smart Cities” initiative to undertake a fast track review of current urban programs being implemented in India and how they are facilitating the cities to be more focused on the needs of children. These children constitute a significant part of the urban population, yet are the most underrepresented section of the demography.

This document reflects on four flagship missions of MoHUA: Smart Cities Mission, Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Pradhan Mantri Awas Yojana (Housing for All) and Swachh Bharat Mission (Clean India Mission) and their contribution towards creating fulfilling and nurturing urban environments and cities that can be more sensitive towards the needs of children. The rationale to look at these four missions is that all these missions are critical to the infrastructure and services being built across the country.

The document also presents an evaluation of projects and models of implementation adopted by the first 20 winning cities of the Smart Cities challenge. The evaluation comprises of studying specific projects and mission guidelines that contribute towards mainstreaming the needs of children into city planning, design and development. Lastly, good practices pertaining to children have been drawn out from the projects for every mission to understand their replicability and scalability.

Emerging best practices highlighted in this document can shape the understanding of cities in India and globally in creating cities for children using innovative planning and design strategies. We hope that this document would inspire change in the current urban planning and design discourse towards a more responsible and 'children-responsive' urban development in India.

**Kanak Tiwari**

Project Coordinator

**Ishleen Kaur**

Research Associate

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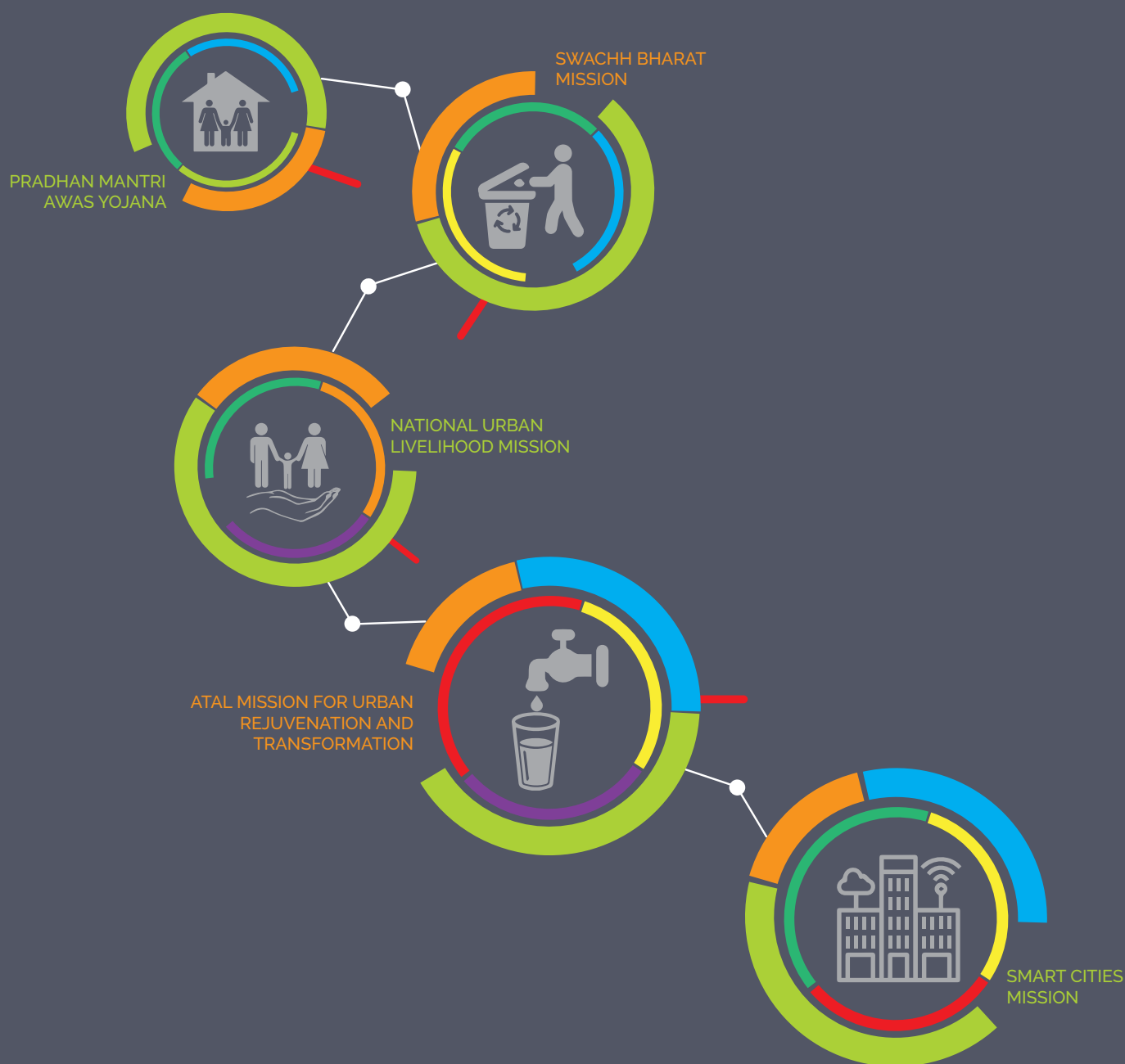






# CHILDREN in the urban vision of India

(Assessing the current urban missions of India on  
their responsiveness to the needs of children)



# 1. Introduction

“Cities have the capability of providing something for everybody, only because and only when, they are created by everybody.”

Jane Jacobs, *The Death and Life of Great American Cities*

Around the world, the perception of “urban development” is undergoing a paradigm shift, from being infrastructure driven to taking a more human-centric approach. Globally, cities are looking at accommodating more and more people, making “urban” the inevitable future. However, with limited resources at hand, depleting at a fast rate, and cities being plagued with high densities, traffic congestion and mounting environmental pollution, the promise of a high quality of life attracting many to urban areas remains unfulfilled.

The realization of changing the way we plan future cities and manage the future of existing cities is crucial for the times ahead. Cities like London and Copenhagen have altered their policy frameworks and city planning to take on a more people centred approach by integrating the needs and aspirations of different users into the city master plans, development norms and design codes. **Emerging urban design and planning concepts like Sociable cities, Age Friendly cities, Urban 95, Happiness Index etc. are all a measure of increasing focus on liveability in cities.** In coming years, this “cities for people” movement is bound to gain global significance.

In India, all the current urban sector policies and programs are directed at making cities efficient and liveable. We are moving towards an urban development model that extends beyond infrastructure and economy to develop cities that are also sustainable and culturally vibrant. With its various urban missions like Smart Cities Mission, AMRUT, HRIDAY, National Urban Livelihood Mission, Pradhan Mantri Awas Yojana (Housing for All) and Swachh Bharat Mission, India is looking at harnessing the large-scale urbanization taking place at a rapid pace. All these missions are collectively instrumental towards creating a template for cities that are better designed, planned and managed. Future Indian cities are not only being envisioned as engines of growth, but also as places for people.

Cities being “people-friendly” is emerging as one of the key focus areas under the larger umbrella of making them smart, inclusive and sustainable. However, little has been done to unbundle the term “people” and understand its constituting elements. **For a city to be responsive to all its residents, it needs to consciously address the different needs of different groups of residents.** For a holistic urban development, it is vital for cities to invest in their human capital.

Smart City People friendly City

**SDG Goal 1: No Poverty** Inclusive

Sustainable Economic Regeneration **SDG**

**Goal 2: Zero Hunger** Healthy Equitable

access Universal accessibility

Age Appropriate Designing Vibrant

Convivial **SDG Goal 3: Good Health and**

**Well-being** Pollution Free Less traffic Playful

Walkable **SDG Goal 4: Quality Education**

Behaviour Change More Awareness

Innovative Technology Oriented

**SDG Goal 5: Gender Equality**

Cities for All Safe and Secure **SDG**

**Goal 6: Clean Water** and Sanitation

Ecological Rejuvenation Natural

Resources Recharge Green **SDG Goal**

**8: Decent Work and Economic**

**Growth** No Child Labour Informed

Decision making Capacity Building

**SDG Goal 11: Sustainable Cities and**

Communities **SDG Goal 13: Climate action** Resilient

Climate Responsive **SDG Goal**

**16: Peace, Justice and Strong Institutions**





## A nation not built around its children is no nation at all.

Like cities, children are the future of India. Of the 377 million urban Indians, 32% (120 million)<sup>1</sup> are children below 18 years of age and around 10% (36.5 million)<sup>2</sup> are children below six years of age. With such staggering share, cities need to acknowledge them as equal stakeholders and create an environment where their needs are addressed, for them to have a healthy and nurturing life. Although various missions acknowledge the importance of designing cities for people, children still remain the most under represented section. Despite their specific needs, they have been clubbed under the larger group of 'people', which is taken as a homogeneous block while designing and planning cities.

For future, it is vital to consider children as a prioritized demographic section in need of attention. The current urban discourse focusing on creating liveable and inclusive cities can only be realized by

taking into account the specific needs of children, who are the most vulnerable and dependent section in urban areas. The vision of a socially equitable and ecologically sustainable urban India can manifest if children are seen as equal participants and a prioritized demographic group. For this, all urban missions and policy initiatives in urban India must target on creating urban environments that minimize the challenges of urban life particularly for children.

Indian cities must become places where growing up is fun, where children can have a voice, better family connections, freedom to move around and explore, have access to education and childcare and to amenities, enabling their overall physical and mental development. In order to be inclusive, sustainable and efficient, cities must first become child friendly. Understanding that the benefits of child friendly cities extends to all of us, they are the way forward.



ISHLEEN KAUR



Graphic by: Shubhajit Bagchi and Soumyajit Bagchi

# 1.1 Child Friendly Smart Cities (CFSC): Vision

CFSC is an initiative by National Institute of Urban Affairs in partnership with the Bernard Van Leer Foundation towards creating cities that are responsive to the needs of children. The initiative specifically looks at aspects of urban policy, planning and design contributing to the everyday lives of children, thus taking into account the role of cities in holistic development of urban children. Generally, the

interrelationship between health and development of a child and the aspects of built environment design and urban planning goes unobserved. Child friendly smart cities project is an effort to reinforce this link with children as active stakeholders in cities and to ensure design and planning of cities are governed by children's needs and aspirations. The project champions children's "right to the city".

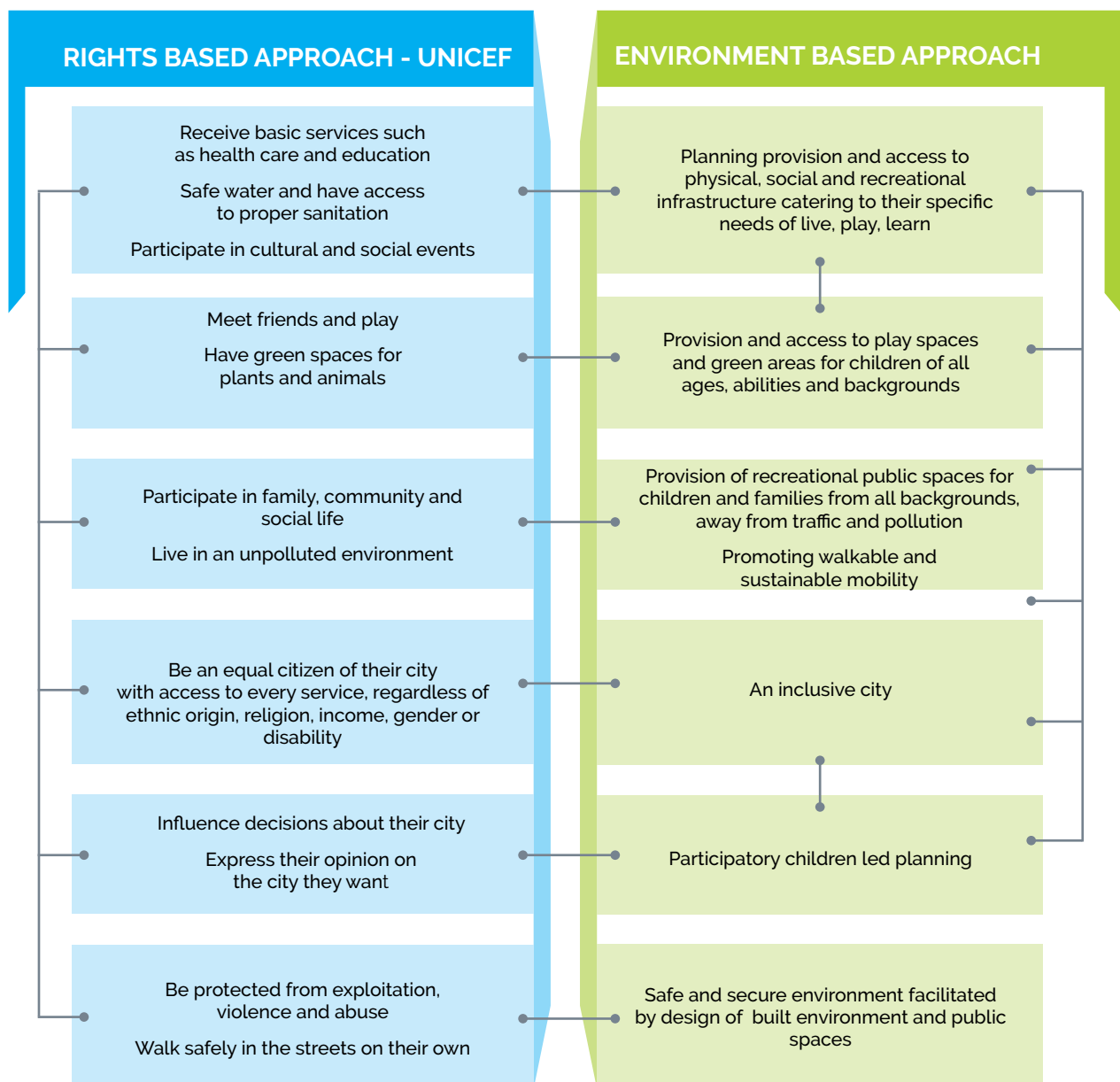
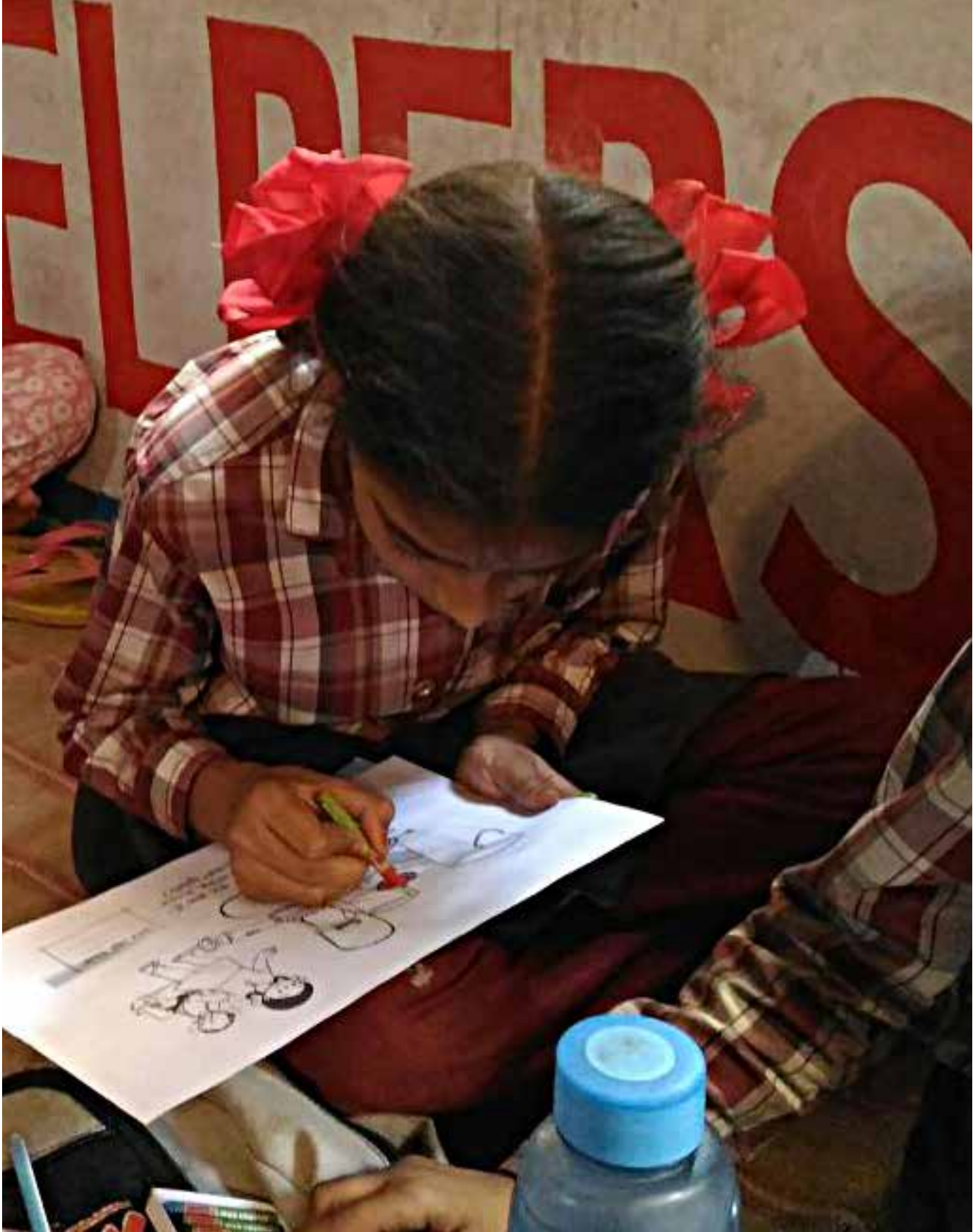
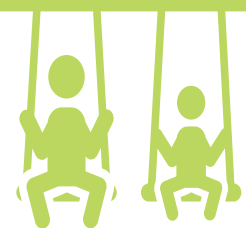


Figure 1: Child Friendly Smart Cities vision: Integration of rights-based and environment-based approach







## 1.2 India in making - Urban Missions

**Smart Cities Mission (SCM)** has adopted a multi-pronged development approach wherein the focus is on pan city technology solutions and area based development. This includes transforming existing areas through retrofitting, redevelopment and greenfield initiatives in identified smart cities. Additionally, the mission emphasizes developing models that incorporate smart solutions, innovation, best practices, and new technology, and that use data and evidence in decision-making.

**Atal Mission for Rejuvenation and Urban Transformation (AMRUT)** has adopted a systematic approach wherein the first step and primary objective is to achieve universal coverage of basic services. Once the first step is successfully completed, benchmarks related to green spaces and sustainable transport will be targeted. Further, in a significant departure from the earlier missions, the autonomy to plan remains with cities and states.



aspects of behavioural change strategy with respect to sanitation and public health, private sector participation, capacity building, and an emphasis on special focus groups.

**HRIDAY** seeks to integrate city development and urban planning with heritage conservation, and focusses on livelihoods, skills, cleanliness, security, accessibility, and service delivery. HRIDAY supports infrastructure projects which link heritage facilities with the city's trunk infrastructure.

**Pradhan Mantri Awas Yojana (PMAY)** mission targets construction of houses up to 60 square meter carpet area with basic civic infrastructure. Slum redevelopment projects and Affordable Housing projects in partnership shall have basic civic infrastructure like water, sanitation, sewerage, road, electricity etc.

**Swachh Bharat Mission (SBM)** has set national level milestones to achieve mission objectives. At the national level, the mission covers both rural and urban areas defining the overall targets. SBM -urban will be supported by comprehensive planning at the city level, which includes city-level sanitation plans, a state sanitation concept and state sanitation strategy. Further, the mission strategy includes

**National Urban Livelihood Mission (NULM)** is an urban poverty alleviation scheme organizing urban poor through grassroots level institutions, creating opportunities for skill development, market-based employment and helping them to set up self-employment venture. The Mission also ensures shelter equipped with essential services to the urban homeless.<sup>3</sup>



## 1.3 Children in Urban Missions

Urban India is evolving every minute. Economy and infrastructure advancement have generated numerous contrasts and complexities of varying levels and scales in cities. With rising opportunities and aspirations of people, the magnitude of challenges and vulnerabilities has also amplified. The promise of a better life attracts many to cities every day; yet, cities have not been able to develop a mechanism to keep pace with the influx and their natural growth. Moreover, scarcity of resources has added to the mounting pressure on the existing services and infrastructure. In effect, urban areas have been struggling to provide basic services and infrastructure equitably among the city dwellers. Complying with the global agenda of embracing urban development at all levels, efficient resource mobilization towards sustainable and inclusive urban policy and planning can lead to lasting transformation of Indian cities.

To address the burgeoning challenges of urban areas, Government of India launched a number of urban missions in the year 2014, targeting critical issues of shortage of housing, lack of infrastructure, depleting green cover in cities and lack of sustainable mobility options. These missions were designed for achieving the vision of planned and inclusive urban development in Indian cities. Since launch of these missions, "urban" India is being seen through a different lens. Cities are being envisioned as well-equipped centres providing quality life with basic amenities, adequate infrastructure and safer, healthier environment for all. These urban missions and related

policy frameworks have been significant in creating a model for better planning and designing of cities, enabling them to be more inclusive and efficient. The reach of these missions has been considerably widespread, with:

- **AMRUT covering 500 cities across India.**
- **Smart Cities Mission focusing on 100 cities across the country with at least one city from each state.**
- **SBM, PMAY and NULM targeting all statutory towns in the country, i.e. approximately 4,041 towns according to the 2011 Census, and**
- **HRIDAY focusing on 12 heritage cities.**

Up until now, the response to needs of urban children has been limited to policies for nutrition, education and health. In the bid to create inclusive and liveable cities, the current policy framework holds possibilities to bring children into the ambit of city planning and design. With this fresh approach, we are moving towards creating cities that are responsive to the needs of children.

Cities need to acknowledge "children" as primary users of the urban infrastructure. The aim shall be to create child friendly cities where their voices, needs, priorities and rights are an integral part of public programmes and decisions. Keeping children at the center of urban design and planning can result in cities that provide safe and healthy environment to live, learn, explore and play, that nurture them and deliver on the promise of quality life for all.



Fig.2: Performance of Indian cities on Liveability Indicators



## 2. Smart Cities Mission



5 Years



20 Lighthouse cities



100 Cities with an overall investment of Rs. 2 lakh crore



Total population of 37 million



Impacting an urban population of 95 million



Including 11 million children and youth (30.3% of total population in first 20 cities)

Smart cities are being envisioned as the providers - of opportunities, growth and a better life. In the national vision of “cities for people”, children form an important section. Considering around 35 million urban children (0-18years), growing up in Indian cities can be provided better life, education and opportunities, “Child friendly” smart cities can lead the way in shaping the future cities of India.

## 2.1 Overview of the mission

Government of India launched “**Smart Cities Mission**” on June 25, 2015 to develop 100 smart cities with a perspective of overall development of physical, institutional, social and economic infrastructure. The vision was to improve the quality of life and attract people and investments to the cities. In the course of five years, a total of ₹Two lakh crore (USD 28.9 billion) has been approved by the Indian cabinet to cater to an urban population of 95 million living in these 100 smart cities.<sup>4</sup>

The primary objective of the **Smart Cities Mission** has been to **promote cities that provide core infrastructure, give a decent quality of life to their citizens and a clean and sustainable environment through application of 'Smart' Solutions.**

Some typical features<sup>5</sup> of the Smart Cities Mission are:

1. **Promoting mixed land use in area based developments** – planning for 'unplanned areas' containing a range of compatible activities and land uses close to one another in order to make land use more efficient.
2. **Housing and inclusiveness** - expand housing opportunities for all.
3. **Creating walkable localities** – reduce congestion, air pollution and resource depletion, boost local economy, promote interactions and ensure security. The road network is created

or refurbished not only for vehicles and public transport, but also for pedestrians and cyclists, and necessary administrative services are offered within walking or cycling distance;

4. **Preserving and developing open spaces** - parks, playgrounds, and recreational spaces in order to enhance the quality of life of citizens, reduce the urban heat effect and generally promote eco-balance;
5. **Promoting a variety of transport options** - Transit Oriented Development (TOD), public transport and last mile para-transport connectivity
6. **Making governance citizen-friendly and cost effective** - increasingly rely on online services to bring about accountability and transparency, especially using mobiles to reduce cost of services and providing services without having to go to municipal offices. Forming e-groups to listen to people and obtain feedback and use online monitoring of programs and activities with the aid of cyber tour of work sites;
7. **Giving an identity to the city** - based on its main economic activity, such as local cuisine, health, education, arts and craft, culture, sports goods, furniture, hosiery, textile, dairy, etc.;
8. **Applying smart solutions to infrastructure and services** in area-based development in order to make them better. For example, making areas less vulnerable to disasters, using fewer resources, and providing cheaper services.

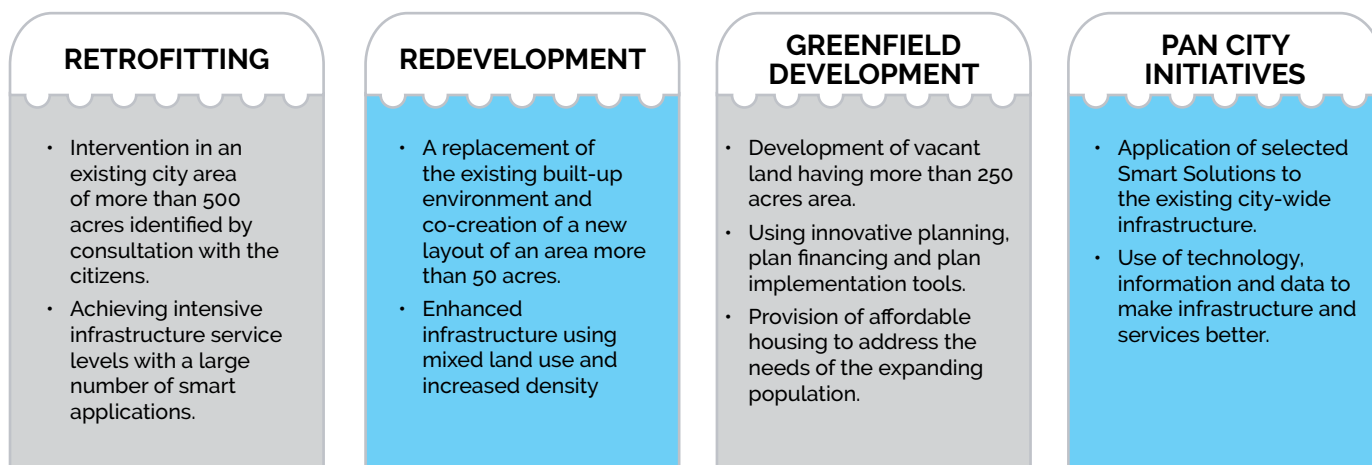


Figure 3: Strategic components of Smart Cities Mission; Source: Smart Cities Mission Statement and Guidelines

The strategic components<sup>6</sup> to guide the implementation of the mission are:

- **City improvement- Retrofitting**
- **City renewal- Redevelopment**
- **City extension-Green field development**

The mission predominantly deals with interventions at two scales. At a local scale, area based development has been prescribed, wherein it mandates the city to propose any area development or renewal project depending on the existing level of infrastructure services and the vision of the residents. This scale of intervention unlocks the urban design and planning opportunities in the designated area; which would subsequently benefit the whole city. At the pan city level, the mission prescribes application of smart solutions using technology, information and data to make infrastructure and services more efficient and accessible to citizens.

Large scale citizen participation was encouraged at the proposal building stage of Smart Cities Mission, to understand the common aspirations of the city dwellers and foster a mutually beneficial association, where the city and the residents grow together.

Four years into the launch of this mission, cities have become the testing grounds for revolutionary global technologies integrated with development and upgradation of infrastructure. Importance of data

driven decision making is gaining momentum. The mission's attempt of introducing layers of smartness and technology solutions in the mission cities has been adapted well by the cities. However, for making cities equitable and liveable for all, the mission needs to ensure that all city inhabitants benefit through these technological interventions.

**"It is different for different people."**

- Smart Cities Mission definition

Smart Cities Mission in its definition is flexible. It has not restricted the idea of development to only one project or concept. It clearly states that smart can mean different to different people and different cities. Thus, the mission discards "one solution fit for all" approach and provides an opportunity for developing strategies tailor-made to every city's context. Another highlight of the mission is that it looks beyond infrastructure and ventures into social-cultural and environmental aspects of cities to deliver quality life.

It provides the freedom to cities to prioritize their own focus areas. All the 100 winning cities have come up with original city proposals, reflecting their priority areas and aspirations of their residents. Out of these, some city proposals are avidly focused on humanizing cities.

## 2.2 Smart Cities Mission and Children

Smart Cities Mission has brought about a paradigm shift in the discourse of city planning, design and development with a number of its projects and initiatives focused on enhancing quality of life by leveraging technology based solutions. The mission aims towards kickstarting an equitable development model with a concerted effort towards making all select 100 cities 'liveable' for every resident. With a focused attention towards providing shelter, access to clean water and sanitation, safe public and private spaces, and a decent quality of life for all; the mission is a leap forward towards future cities that are more sensitive and responsive to its people.

As ambiguous as it may be in its definition, it has opened up myriad opportunities for Indian cities to explore global city planning models embracing the idea of "building cities for all". One of these models is a child friendly city which conceives a number of ways in which children can be reinstated in development and their needs are mainstreamed into urban policies, planning and design. **Considering more than 31 million<sup>7</sup> (3.1 crore) urban children (0-18years), growing up in these smart cities can be provided better life, education and exposure to opportunities, Smart Cities Mission has the**

**potential to make "cities for children" the new benchmark.**

All 100 winning city proposals have taken into consideration the aspirations and imagination of city dwellers using participatory exercises. In number of these cities, children and youth have been actively involved in framing the vision and identity of the city, drawing out critical issues that the mission needs to address, thus making them an important partaker in designing the proposal.

The technology component of Smart Cities Mission makes children a major stakeholder of the mission as they are the largest group of smart technology users. Technology adaptive younger generations are going to be the primary users of innovations built into city infrastructure, thus making them instrumental to the success of the mission.

Smart Cities Mission in its implementation, is also unfolding various possibilities for children centred urban development. It is for decision makers and urban professionals to capitalize on this and build cities for the grown up as well as the growing up citizens



Smart cities Jaipur, Guwahati, Ludhiana and Surat actively involved children in the development of their city proposals. Students from schools and colleges participated in blog, logo and painting competitions and expressed their vision for the cities. The entries provided were useful to get some insight into children's thoughts and perceptions of how to make their cities smart.<sup>8</sup>

Entries – School Drawing Competition "My Smart City Jaipur - Vision 2050", Source: Jaipur Smart City Proposal

# 2.3 Smart Cities Mission for children and families

This section looks at the aspects of the mission directly related to children and families, that contribute to their holistic development and overall well-being. (As laid out in Figure 4)

This section also presents some of the city proposals and projects that are centred around or closely linked with children's lives in these cities. These select mission cities have provided innovative and replicable templates of both pan city and area based interventions, that are focussed on reshaping the city environment for children. It gives a brief overview of the best practices in the first 20 winning smart cities which can be scaled up or replicated by other cities.

## 2.3.1 City Wide Approach

The mission provides flexibility in terms of deciding on an overall theme governing the planning and design decisions for a city. The mission also allows the city agencies and citizens to decide the particular needs and areas of improvement in their city and subsequently develop a strategic proposal.

**BHUBANESWAR'S PROPOSAL FOR A CHILD FRIENDLY CITY:** The city has established a child

friendly city centre in the office of the Bhubaneswar Development Authority, where specific innovations in planning, design and technology addressing children's needs are being integrated into all the new as well as redevelopment initiatives.

**PUNE'S PROPOSAL TO BE THE MOST LIVEABLE CITY IN INDIA:** The city has proposed a number of initiatives for enhancing walkability, adapting place making strategies and make neighbourhoods clean, green and fully liveable. These initiatives would ultimately lead to healthy urban environment for Pune's resident families and children.

## 2.3.2 Citizen friendly governance

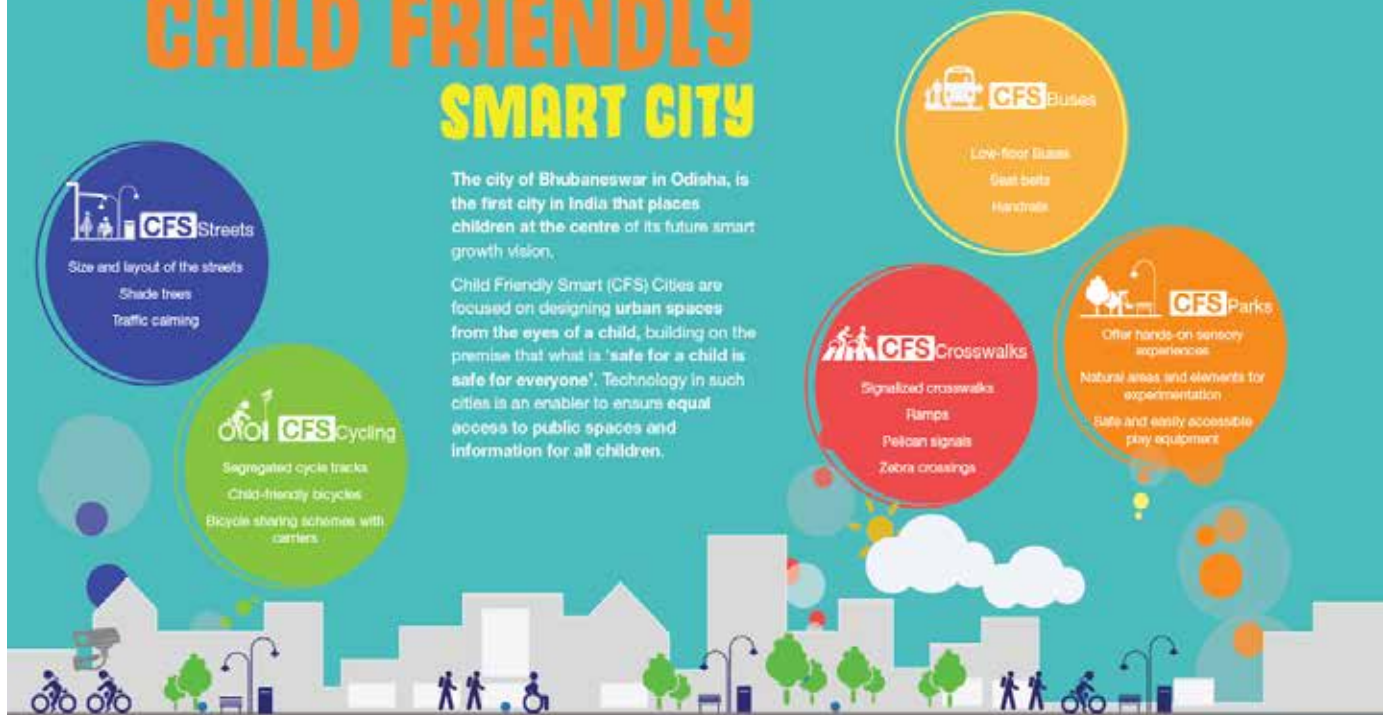
Smart Cities Mission has given prime importance to citizen participation and response in planning and design. A prime example of this is Bhubaneswar, where children have been given equal voice in city development decisions. Other initiatives like City Social welfare centers and ranking of public toilets in Jabalpur show that taking public feedback and consistent community engagement have been given immense importance in Smart Cities Mission.

Figure 4 Thrust areas of Smart Cities Mission impacting children





# CHILD FRIENDLY SMART CITY



## Elements of child friendly city design,

Source: BDA presentation on Urban 95: Perspectives from Bhubaneswar's Smart City strategic plan by Dr. Krishan Kumar, VC

Bhubaneswar was on the top of the list of first 20 smart cities. It was for the first time that a city conceived a proposal keeping children at the center of design and planning. For facilitating the urban development authority, Bhubaneswar Urban Knowledge Center (BUKC) was setup with support from the Bernard van Leer Foundation and National Institute of Urban Affairs. In 2017, the city completed mapping of neighbourhoods in 57 out of its 67 wards, gathering data on the number of children in each ward and the services available to them, such as anganwadis, schools, hospitals, health facilities, parks and access to public transport.<sup>9</sup>

Problems faced by young children were identified including open defecation; parks not being accessible; lack of footpaths, streetlights, and safe places to cross roads; and children in some neighbourhoods needing to use public transport, to get to the nearest school.

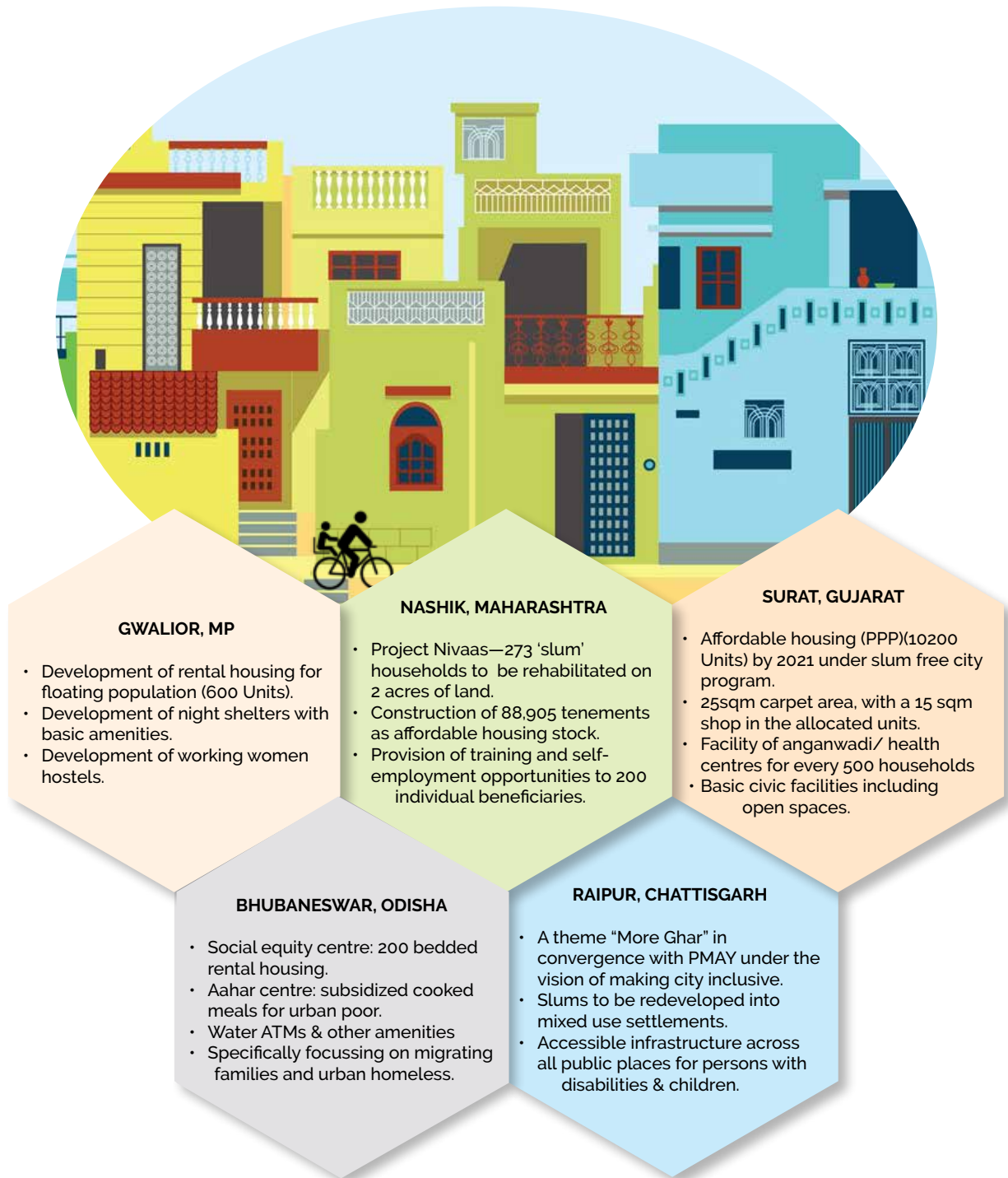
Based on this, efforts were made to encourage key decision makers, city planners, municipal officers etc. to integrate child-specific features in city planning. Training sessions were held to build the capacities of

the key agencies involved in city development, which led to initiatives like:

- Redevelopment of four informal settlements with participatory approach and children led planning.
- Transformation of existing physical spaces into accessible places for children to play and explore nature with modern playing equipment in the parks and sensory park for children with special needs.
- "Safe routes to school" program ensuring safe passage for kids to walk or cycle using traffic calming measures like installing pelican crossing, using art on important junctions near schools and public places ; child friendly buses with ramps.
- Open library at public spaces.
- Focus on women and child health care, aahar centers in the city
- Opportunity for children to design their active spaces and smart playgrounds.
- "Socially Smart Bhubaneswar" an initiative under which 254<sup>10</sup> adolescent girls were trained in self-defense techniques.

## REDEVELOPMENT OF SLUMS WITH ACCESSIBLE PUBLIC REALM

### LIVELIHOOD FOR CAREGIVERS



**Figure 5: Emerging initiatives and projects related to housing and basic infrastructure**

\*Source: Information retrieved from various sources like Smart Cities proposal, Smart Cities- Mission cities web pages and news articles.

### 2.3.3 Living Conditions

Access to adequate housing and healthy living is important for the well-being of families, particularly of children. With deficient housing and inadequate living conditions, children in urban India are exposed to a number of health and development problems. 8.1 million urban children<sup>11</sup> and their families reside in unplanned and deprived areas. These children are exposed to many hardships and diseases owing to lack of a safe living environment and limited access to basic services.

- **Housing**

“Expanding Housing and Inclusiveness” is one of the top agendas of Smart Cities Mission. **According to the mission guidelines, as a strategic component, 15% of the total housing stock<sup>12</sup> created in any greenfield development is directed to be affordable housing, in order to address the needs of expanding population in cities, particularly the urban poor.** The city redevelopment component of the mission also lays major emphasis on the redevelopment of slums into better planned residential areas. With more than 0.2 million (2 lakh) street children in urban India, prioritizing housing for families with a focused attention on specific spatial needs of children for living and playing, is of utmost importance. 73 affordable housing projects are being

implemented in 60 smart cities with a total investment of Rs.17 hundred crore<sup>13</sup>.(Rs. 17 billion) These projects include slum rehabilitation, rental housing, in situ housing upgradation and construction of housing units for economically weaker sections and lower income groups. Out of first 20 Lighthouse cities, 11 cities have taken up affordable housing projects under the mission.

- **Services and Facilities**

Access to basic services of water supply and sanitation in their homes is the first and foremost requirement for children and families to lead a healthy life. Yet, urban areas have been unable to cope up with the rising demand supply gap, struggling to provide the basic minimum. Children are the most vulnerable in absence of these services, with numerous health scares, stresses and everyday survival struggles owing to infrastructure deficit.

With pan city initiatives such as improving water supply and sanitation, and adequate waste management through technological innovations, there is an effort towards efficient resource management and equitable allocation of urban services to all households, with a priority focus on urban poor and migrants.

#### INITIATIVES IN THE FIRST 20 LIGHTHOUSE CITIES FOR IMPROVING HOUSING SITUATION AND LIVING CONDITIONS

Some of the innovative initiatives include:

- 200 bedded rental housing for migrant families in Bhubaneshwar, Social Equity Centers.
- Making Pune slum free by 2025 by creating 20,000 AHU per year.
- In the slum redevelopment project for 8000 slum dwellers, schools, anganwadis and green space over nallah have been given

special emphasis in the Ahmedabad proposal.

- Affordable housing units at Kakinada, Surat, Belagavi and Solapur

» **Other Infrastructure**

- Aahar Centres at Bhubaneshwar
- Under low-income skill development and healthcare- dispensary, maternity hospitals, smart schools and digital learning schools have been proposed in Pune, thus targeting socio-economic transformation of slum areas.
- Building night shelters in Udaipur



### 2.3.4 Health and Well Being

**Health and well-being of children includes not only access to affordable healthcare infrastructure, but also nurturing environment that facilitates their overall physical development, mental growth and stimulates learning.** Encouraging active lifestyle by providing parks at walkable distances, providing children areas for exploring and interacting with nature, making growing up in cities fun and imaginative is as important as access to proper healthcare and nutrition facilities. Smart Cities Mission facilitates all these in the following ways:

- **Developing green, natural play areas in the city**

The mission has mandated cities to refurbish the existing greens and natural areas and develop new open spaces and green areas. In recent times, major urban centres of India have shown a considerable decline in the green cover and natural features like rivers, forests, wetlands have been damaged or encroached. Children living in dense overcrowded settlements are the most affected by lack of open green areas. With this mission, cities have introduced a number of projects of rejuvenating greens, river front development as well as developing parks.

Under Smart Cities Mission, there are currently 160 projects in 60 cities for creating green corridors, development and innovative use of open spaces, designing walkways and cycle tracks, riverfront development and eco-restoration projects. The total investment in this is around Rs.7 thousand crore (Rs.70 billion)<sup>14</sup>.

### Emerging best practices in the first 20 lighthouse cities include:

Theme-based parks like nature park, beach park and riverfront green areas are being developed in some of these cities, such as children science park in Belagavi and science centre at Kakinada, themed nature park in Coimbatore, happiness areas in New Delhi, river front parks in Guwahati, and Indore and lake front development at Jabalpur. All these projects provide an opportunity for exposure to nature, while

also creating awareness on preserving natural features of the city.

**Redevelopment/ Retrofitting of existing parks (city/neighbourhood) and open spaces.** All 20 lighthouse cities have a component of refurbishing the existing parks and play areas. For instance, Bhubaneswar has proposed redevelopment of three parks with pathways, drinking water taps, children play equipment's, splash pool, watch tower, open gym, portable e-toilets etc. Udaipur has proposed modern playing tools for children in the existing parks.

- **Reducing Environmental Pollution**

"India, with 14 out of 20 of the world's most polluted cities in the world, stands as one of the most vulnerable countries."<sup>15</sup> Along with preserving and developing open spaces, the mission cities are also putting emphasis on reducing pollution and urban heat island effect in city areas to promote a clean and healthy environment. Monitoring and reducing environmental pollution is beneficial for everyone, particularly young children who suffer the most from its ill effects. At least 1 lakh children below five years died in 2016 in India due to health complications associated with high outdoor and indoor air pollution, according to the report titled 'Air Pollution and Child Health'<sup>16</sup>. Sophisticated technologies and smart solutions encouraged by Smart Cities Mission can be instrumental in monitoring and reducing the exacerbating environmental pollution.

- **Health Infrastructure**

One of the core areas of Smart Cities Mission is to improve quality of life, especially for the urban poor. This includes ensuring access to not only the basic services but also social infrastructure like affordable healthcare. At present, out of pocket private expenses on health comprise 64% of total health spending in India. Compared to a rural household, an urban household spends 5 times more on diagnostics, 2.6 times more on medicines

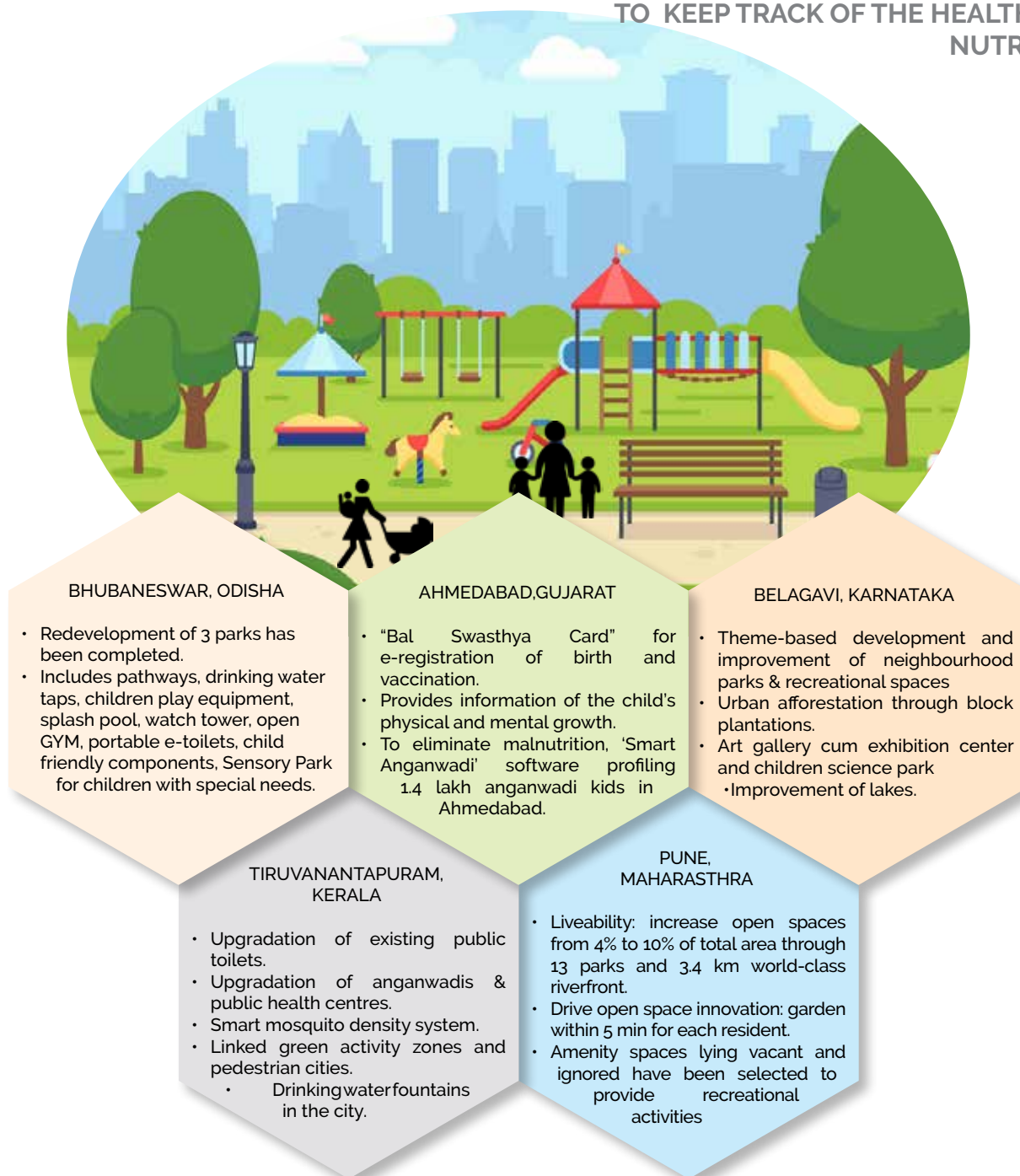
## PROVIDING ACCESSIBLE, AFFORDABLE AND EFFECTIVE HEALTHCARE SYSTEM

INNOVATIVE APPROACH TO DEVELOPING  
INCLUSIVE AND UNIVERSALLY  
ACCESSIBLE OPEN SPACES

## HEALTH AND WELLBEING Best Practices

CREATING LIVEABLE CITIES WITH  
SUSTAINABLE PRACTICES ENSURING  
LESS POLLUTION

USING TECHNOLOGICAL SOLUTIONS  
TO KEEP TRACK OF THE HEALTH AND  
NUTRITION



**Figure 6: Emerging initiatives and projects related to health and well being**

\*Source: Information retrieved from various sources like Smart Cities proposal, Mission cities web pages and news articles.



**All abilities park at Visakhapatnam**

Source: Concept Design "All abilities park", Vizag Smart City, Greater VISAKHAPATNAM Smart City Corporation Limited

### **ALL ABILITIES PARK IN VISAKHAPATNAM - AN EXAMPLE OF INCLUSIVE PARK FOR CHILDREN WITH DISABILITIES**

Visakhapatnam has taken up a project, to develop a new 'All Abilities Park'.<sup>18</sup> This project is aimed at displaying the city's strong emphasis on enhancing the social infrastructure of the city (in this case for improving health and wellness of all its citizens) which includes differently-abled. The salient features of the park include:

- Opportunity for all park users to engage in structured and unstructured play in a scenic location facing the Bay of Bengal.
- Dedicated space with multiple levels of play, which will allow children with different level of abilities to participate in a safe and managed environment.
- Active encouragement to visitors to engage in activities, including: climbing, crawling, swinging and water play.
- Focus on expanding the skill sets of the participants and encourage physical activity with participants of mixed levels of abilities.
- Other such examples for integrating play areas for children with disabilities are sensory park in Bhubaneswar, park for disabled in Hyderabad.



and 2.4 times more on doctors' fees.<sup>17</sup> Smart health under smart cities aims to cut down this expenditure majorly by providing accessible and affordable health infrastructure like mobile health clinics, diagnostic centres and health care hubs.

### Emerging best initiatives in the first 20 lighthouse cities include:

**Smart cities have come up with various initiatives to monitor and improve the health infrastructure with a special focus on women and children healthcare. There are various initiatives like:**

- 'Bal Swasthya Card'<sup>19</sup> for e-registration of birth and vaccination launched for every new child born in Ahmedabad. The health smart card will

also provide information of the child's physical and mental growth and will keep track of vaccination dates.

- Smart Sanitation City Project in Pune<sup>20</sup> will include toilets with specialized sensors that extract information from waste. These sensors will be able to detect disease outbreaks. The sensors will also be able to look for vitamin deficiencies and other indicators to assist with public health activities.
- E- Healthcare system and wellness centres at NDMC, Indore and Belagavi.
- Upgrading the primary health centers at Belagavi and health infrastructure at Udaipur.
- Upgradation of eateries for hygienic street food in Kakinada.



Children getting mid day meals in schools, Source: Pixabay



### 2.3.5 Learning and Education

Besides creating infrastructure, Smart Cities Mission has provided cities the opportunity to commence educational reforms using smart technology and e-learning. Some of these have promoted inclusiveness for the disadvantaged sections of the society by providing comparable education infrastructure to them. Inclusive education has been the objective to facilitate improving quality of education through technological innovations and multi media based learning techniques particularly in government schools.

As per the mission guidelines, education is a part of the core infrastructure of a city. All cities have been mandated to adapt contextual solutions using technology to improve the quality and access to education

#### Emerging practices in the first 20 lighthouse cities for improving education status are:

- Smart classrooms and smart campus have been introduced in government schools. Kochi, Coimbatore, Udaipur, Jaipur, Visakhapatnam

and Jabalpur have undertaken installation and management of smart classrooms in government run schools. Some of these cities are also using local languages to make learning more comprehensible for children.

- Smart cities proposals of many cities look at providing schools within 15 minutes walking distances. Udaipur and Devanagari, have a target to achieve 100 % literacy rate. Ludhiana has proposed a digital library in its smart city proposal to ensure access to books by everyone.
- Smart Anganwadis: Cities like Ahmedabad and Surat have come out with a concept of i-SEE (Integrated Smart Early Education)<sup>21</sup> anganwadis focusing on “learning through play” with an effort to create colourful, children friendly environment, encouraging cognitive development in children.
- A number of initiatives for encouraging skills like music, sports, technology and performing arts in children are also being introduced in a number of smart cities.



#### SMART ANGANWADI PROJECT-VADODRA

The number of 0-6-year old children registered at the anganwadi centres in Vadodara is around 60,000, of which 35,000 are aged 3 to 6 years. Vadodara Municipal Corporation (VMC) is in the process of installing television and computer sets and other supporting infrastructure required at anganwadi centres. A curriculum has been designed in the form of animations and audio-visuals to help enhance the cognitive learning of young children.<sup>22</sup>

Besides this an app<sup>23</sup> has been developed:

- a. To monitor and report Anganwadi activities related to reduction of under-nutrition.
- b. To track delivery and consumption of milk, fruits and laddu.
- c. To monitor progress of kids on monthly basis (weight & height).
- d. For real-time reporting of kid's progress (towards nutrition from under-nutrition)

Source: <https://digitallearning.eletsonline.com/2017/10/smart-education-for-anganwadi-children-in-vadodara/>

## 82 PROJECTS OF UPGRADING TO SMART CLASSROOMS OR RETROFITTING EXISTING SCHOOL INFRASTRUCTURE

ENHANCING EARLY CHILDHOOD CARE FACILITIES, BY UPGRADING AND DEVELOPING MODEL ANGANWADI CENTRES

## LEARNING AND EDUCATION

### Best Practices

MAKING EDUCATION INCLUSIVE AND ACCESSIBLE

DEVELOPMENT OF SPORTS AND PERFORMANCE INFRA TO ENCOURAGE OVERALL LEARNING

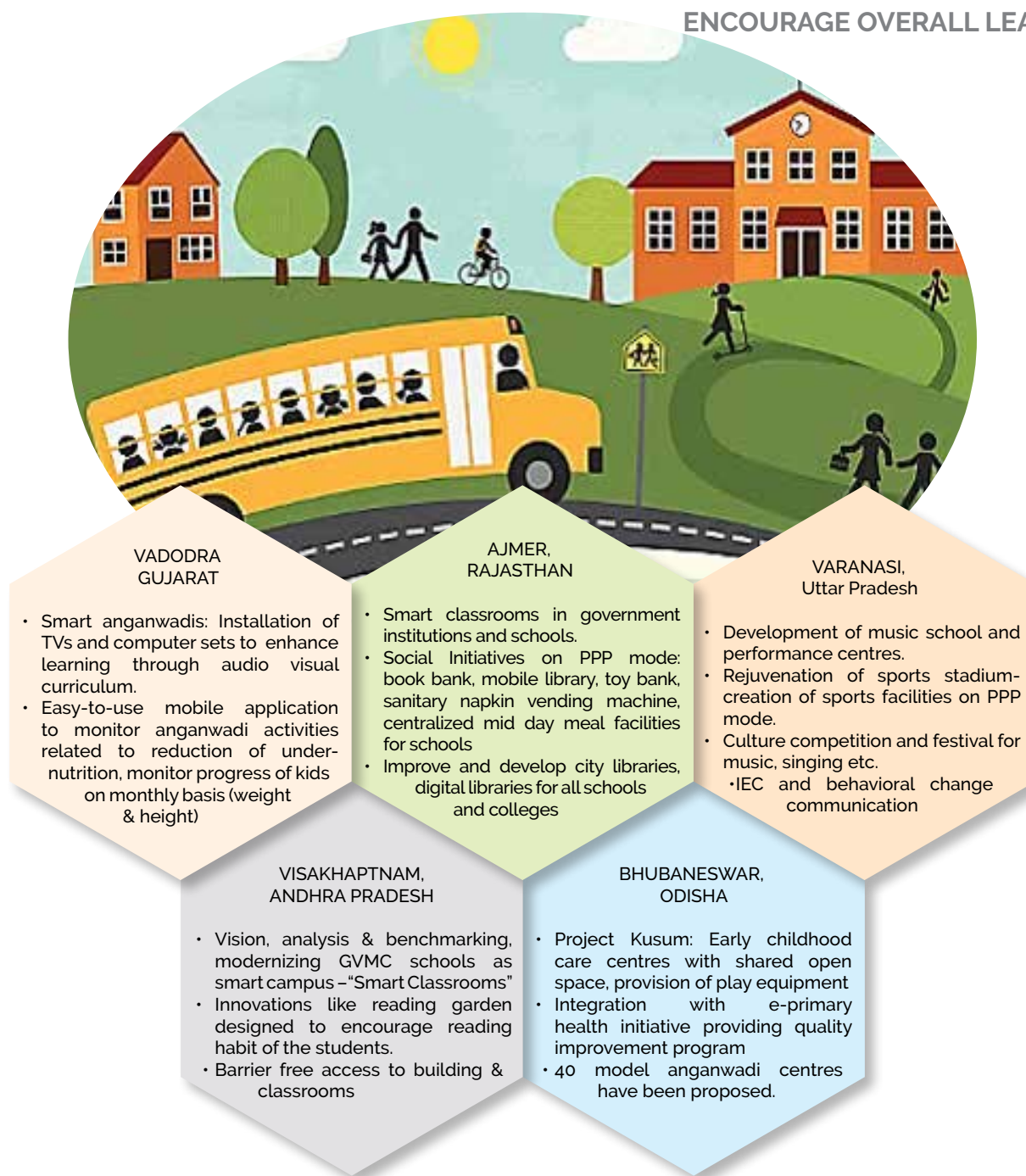
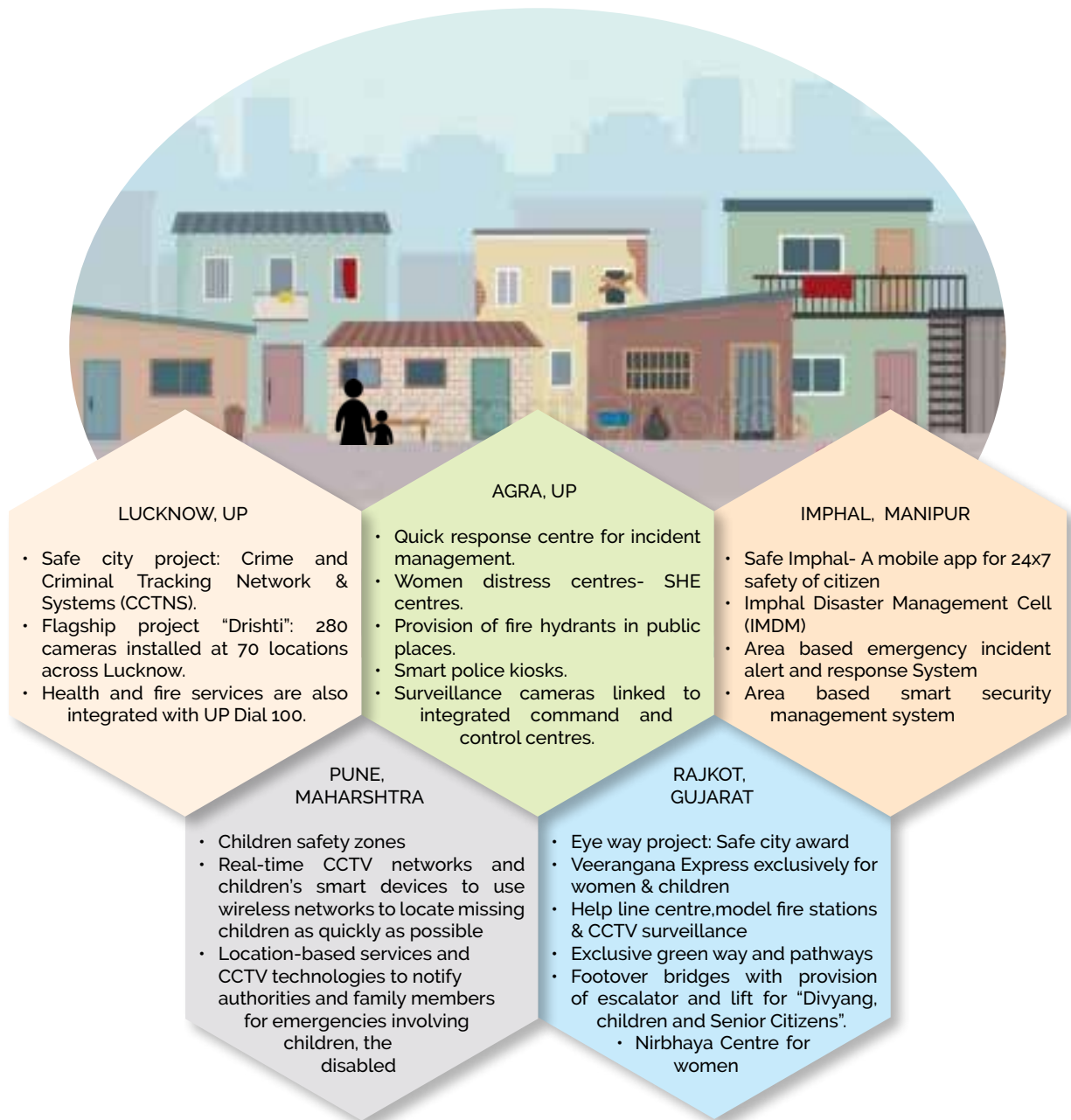


Figure 7: Emerging initiatives and projects related to learning and education

\*Source: Information retrieved from various sources like Smart Cities proposal, Mission cities web pages and news articles.

#### PREPAREDNESS THROUGH TECHNOLOGICALLY MONITORING PRE DISASTERS POST DISASTER SITUATIONS

#### INTEGRATED COMMAND AND CONTROL CENTRES MONITORING TRAFFIC, POLLUTION AND DISASTERS



**Figure 8: Emerging initiatives and projects related to safety and security**

\*Source: Information retrieved from various sources like Smart Cities proposal, Mission cities web pages and news articles.

### 2.3.6 Safety and Security

Safety and security of children is one of the top priorities under Smart Cities Mission. The mission guidelines direct mission cities to ensure safety and security of vulnerable sections of society like children. In response to the increasing crime rates, road accidents and unprecedented events of disasters, cities have come up with various technological and strategic solutions like:

- **Command and control centres for overall surveillance and traffic management in all the smart cities**
- **CCTV surveillance systems in major public places of the city**
- **Disaster prediction and control mechanisms**
- **Air quality monitoring systems**

These technology-based solutions can assist cities to advance to a level where everyday vulnerabilities of urban children can be perceived and prevented in an effective way.

#### Emerging best practices from the 20 lighthouse cities are:

- Safety and security- Radio Frequency Identification Card (RFID) for children in government schools in Udaipur.<sup>24</sup>
- Technology based surveillance at all major public places including corporation schools in Ahmedabad
- Disaster management and mitigation centre and children helpine -Jabalpur 311<sup>25</sup> at Jabalpur.
- Integrated Command & Communication Centre (e-Gov + disaster management system) at Vishakhapatnam.
- 400 smart poles<sup>26</sup> in Bhopal having surveillance cameras and environment sensors.
- Command and Control Centres have been proposed in all the lighthouse cities. 7 cities<sup>27</sup> out of the first 20 have already set up these centres.

### DEDICATED CHILDREN SAFETY ZONES<sup>28</sup> IN PUNE SMART CITY

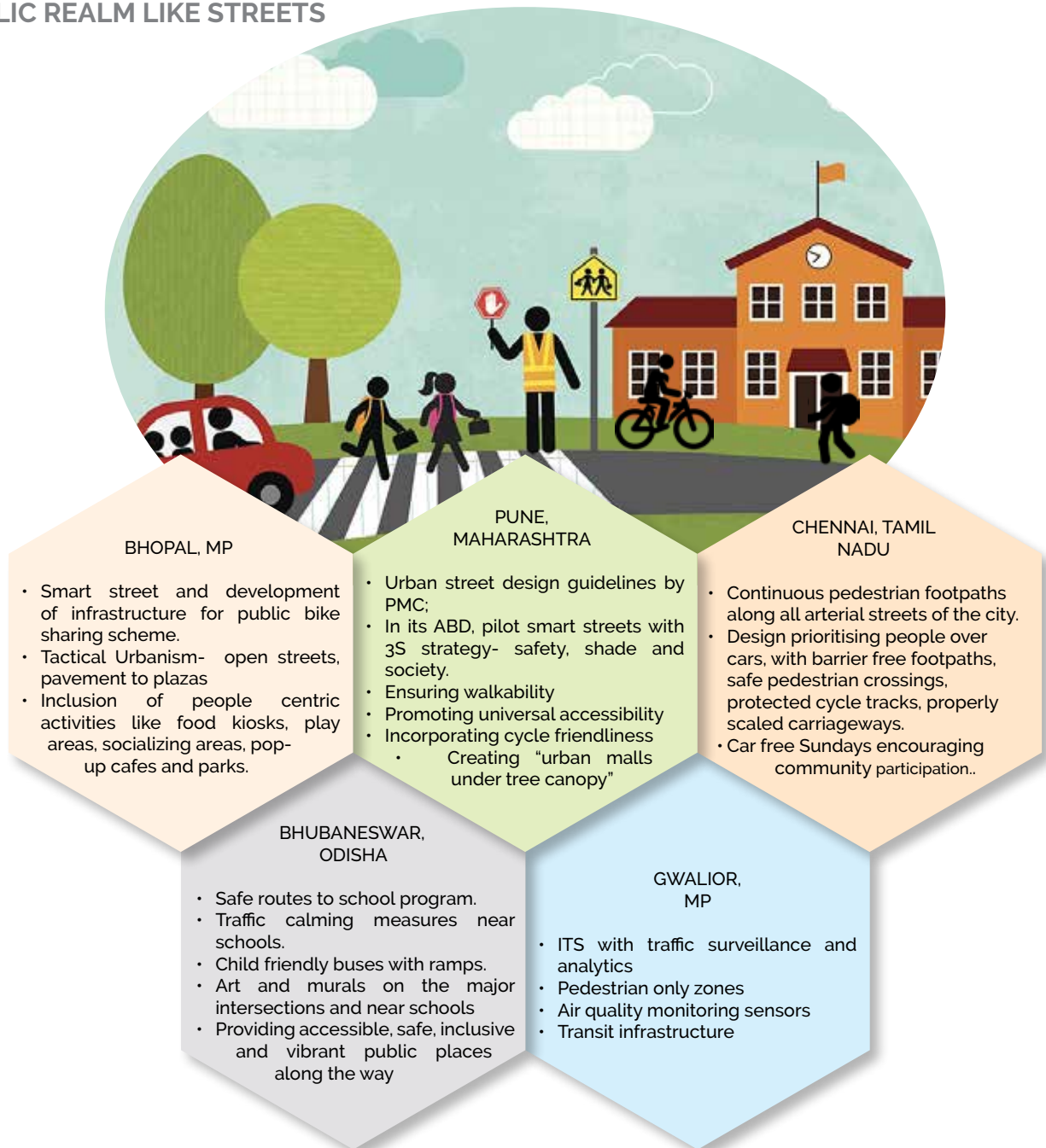
These zones would function on technology based safety measures such as:

- A multiple-input and multiple-output (MIMO) wireless infrastructure mesh network with 100% CCTV coverage
- Smart devices so that when the user leaves a designated safe zone or pushes its emergency button, an emergency alert is sent to guardians, police, fire departments and CCTV control Centres.
- Location-based services and CCTV technologies to notify authorities and family members for emergencies involving children and the disabled.
- Real-time CCTV networks and children's smart devices to use wireless networks to locate missing children as quickly as possible.



#### INCLUSIVE AND UNIVERSAL ACCESS

#### TECHNOLOGY AND DESIGN TO CREATE VIBRANT AND SAFE PUBLIC REALM LIKE STREETS



**Figure 9: Emerging initiatives and projects related to mobility**

\*Source: Information retrieved from various sources like Smart Cities proposal, Mission cities web pages and news articles.

### 2.3.7 Mobility and Transport

With increasing number of cars on roads of Indian cities, the independent mobility and everyday freedoms of urban children are hugely restricted. Smart Cities Mission has stressed upon improving the public transit systems with an increased emphasis on creating pedestrian and bicycle friendly infrastructure.

**Almost all the smart city proposals have included components of bicycle sharing, creation of cycle tracks and dedicated pedestrian road space.** There have been a number of projects to make these cities more walkable and bicycle friendly and safe for pedestrians. However, very few initiatives specifically target children as a user group. Nonetheless, these initiatives can provide a more conducive environment for enhancing independent mobility of children in these cities.

#### Emerging practices to improve the sustainable transport and facilitate pedestrian movement adopted by first 20 smart cities include:

- Improved walkability through urban design  
Smart city Pune has come up with urban design guidelines<sup>29</sup> to make streets safer and more walkable.  
In the ABD projects of Jabalpur, Jaipur, Ahmedabad, Pune, Bhopal and Bhubaneswar there are proposals for:
  - » Provision of walkways, cycle tracks, multifunction zone, tree-lined sidewalks, mid-block crossings, mid-block pedestrian refuges.
  - » Barrier-free footpaths incorporating universal design; universal access to all public transport along all major corridors; safe intersection design and raised pedestrian crossings
  - » No vehicle zones
  - » Place making and pop up recreational zones
- **Bicycle Friendly Infrastructure**
  - » Ludhiana has proposed to become the '**Most Bike-Friendly City**'<sup>30</sup> in the country, taking advantage of the fact that the city is the

largest manufacturer of bicycles. Developing a dedicated bicycle highway along the city canal and applying innovative and indigenous solutions like manufacturing of bamboo bicycles have been proposed.

- » Among the lighthouse cities, Bhopal, Jaipur, Kakinada, Bhubaneswar, Coimbatore, Chennai, Devanagari, Jabalpur and NDMC have initiated "Public Bicycle Sharing"<sup>31</sup> system with associated infrastructure like bicycle lanes, e-Sharing mechanism etc.
- » A few cities have undertaken technology-based safety mechanisms like Surat's IT- MAC<sup>32</sup> (Integrated Transport-Mobility Admin Center) and Traffic Control System & Area Surveillance Network, signage and bulletin boards in Kakinada, smart signalling, traffic surveillance & CCTV surveillance in Vishakhapatnam.

#### • Connectivity

- » Smart city proposal of Jaipur has proposed improved coverage of city's transportation network to the education hubs.
- » Similarly, Udaipur has proposed to create parks at 5 minutes walkable distance in the newly proposed residential areas.



**"SAFE ROUTES TO SCHOOL" PROGRAM - BHUBANESWAR SMART CITY** Road safety and independent mobility of children has been cared for by incorporating measures<sup>33</sup> like:

- Activity Areas
- Child friendly crossings
- Signage for School zone
- Street vendors near schools for children
- Cycles for children
- Ramp for prams
- Survey of school going children

### 2.3.8 Child Friendly Smart Cities Initiative at National Institute of Urban Affairs - a countrywide change driver

Child Friendly Smart Cities (CFSC) is an initiative at the NIUA, supported by Bernard van Leer Foundation (BvLF), to promote and build child-friendly cities in India within the urban agenda of building smart cities. The goal of this initiative is to mainstream the needs of children in the urban policy and planning framework of Indian cities under key theme areas of **public health, safety and security, transport and mobility and living conditions** through strategic activities focused on identifying and addressing children's needs in a holistic manner and consequently **incorporating child-friendly aspects into city planning and design**.

NIUA works closely with MoHUA, urban local bodies, civil society organizations and urban professionals. NIUA has advised the ministry during the formulation of urban missions, on integrating aspects of child friendly development in the mission guidelines.

Under its CFSC initiative, NIUA was also involved in setting up of the child friendly smart city center in Bhubaneswar Development Authority to develop knowledge and advocacy for building Child Friendly Smart Cities in India

Knowledge products on important subjects concerning children such as data on urban children, global best practices for child friendly cities and city level indicators for assessing the infrastructural gaps and provisions relevant to children, have been developed under the CFSC initiative. These knowledge products have been shared extensively with government as well as non government agencies through Smartnet and CFSC website.

CFSC has also undertaken numerous capacity building exercises with decision makers, professionals from city development authorities and civil society organizations through exposure visits and workshops towards understanding the role of urban planning and design towards creating child friendly cities.

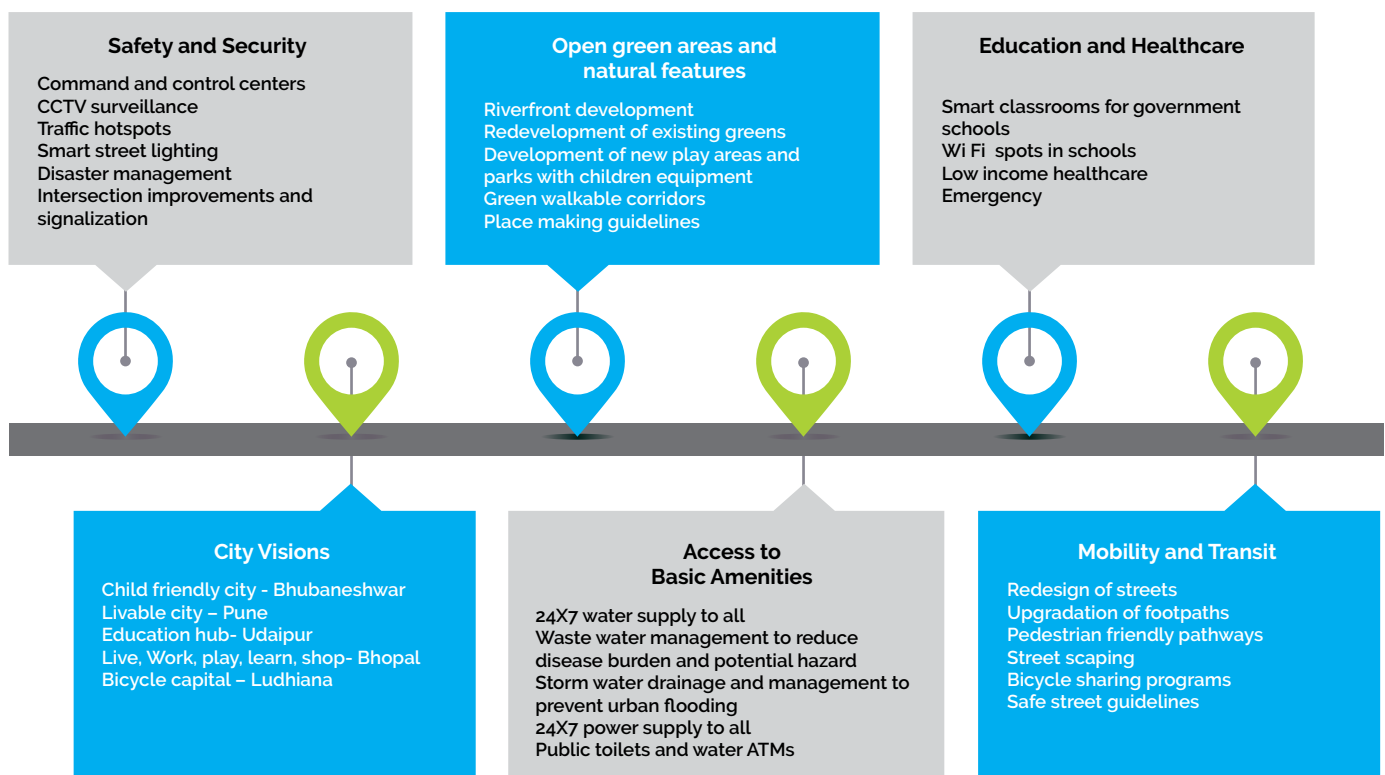
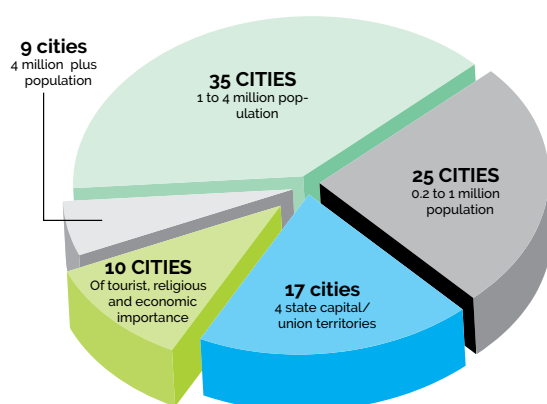


Figure 10: Development areas impacting children under Smart Cities Mission

## 2.4 Recommendations – Towards Child friendly smart cities

Smart Cities Mission with its flexibility and autonomy to ULBs and city residents has set in motion a number of diverse projects for housing, health and education, safety and security, green mobility, water supply and sanitation, and environment. All of these projects impact children and families in one or the other way. This gives the mission cities an opportunity to focus towards creating amenities and city spaces addressing the diverse needs of children of all age groups, abilities and socio economic backgrounds.

Smart Cities Mission has been successful in tapping the ongoing urbanization process by including existing megacities as well as the upcoming “million plus” urban agglomerations that are transforming at a rapid pace. This leaves a lot of scope for guiding the urbanization process towards being responsive to people, particularly to children and families.



**Figure 11: Number of smart cities based on population**

With its technology driven approach, the mission can strive to make children a major stakeholder and end user of the revamped infrastructure and city spaces with newer technologies. Technological innovation can also empower children in cities by highlighting their unfulfilled needs through data. Technology can be instrumental in collating disaggregated data on children at the city level for enabling data driven

informed decision-making by city agencies, which so far has been an overlooked aspect. Despite of making a headway towards making cities smart, the mission implementation is beset with a number of challenges. The digital divide and technology handicap of families and caregivers especially those from economically weaker sections, prevents them from taking advantages of initiatives like mobile based applications and online information platforms.

Technology can help in making informed upgradation to the city infrastructure, however, the importance of planning and design cannot be overlooked, particularly with respect to the built environment for children. The mega infrastructural projects and large-scale development proposals under the mission can lead to forced evictions and exclusion of the poor and marginalized. Loss of homes can adversely affect children the most. Also, besides the focus on development of infrastructure, mechanisms for monitoring the quality of services and infrastructure also need to be established. All this would ensure a sustained effort towards creating cities for children, synonymous to creating “cities for all”.

This section lists out recommendations for inclusion of children in the proposed projects while they are being implemented by the mission cities. By being “child friendly”, these cities would inevitably become “smart”. It also explores the possibility of a “Smart Cities Mission 2.0”, with children at the core of urban development.

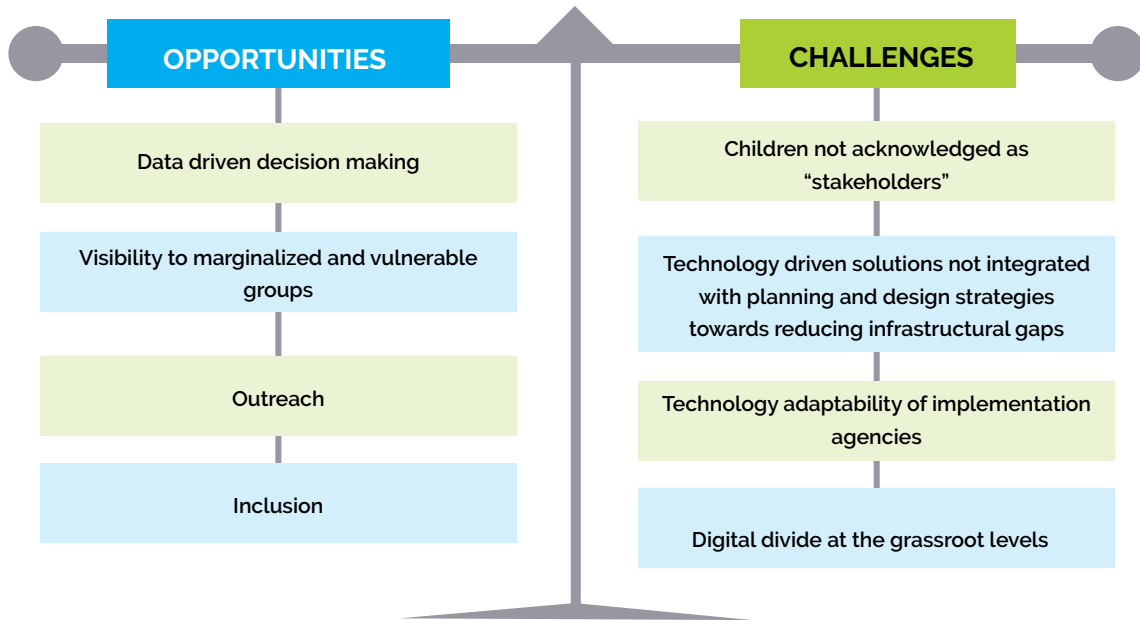
**The mission cities can integrate following key aspects :**

### 1. Age - appropriate child friendly open areas

There are a number of proposals for open area development and retrofitting under Smart Cities



Figure 12: Opportunities vs Challenges



Mission. This is a chance to look at making these areas accessible and engaging for all the age brackets of children. **The different needs of infants and toddlers(0-3 years), young children (5-10 years), adolescents(10-14 years) and youth (14-18years) need to be incorporated in the design and planning of play areas and parks. Besides children, these areas must also be responsive to the needs of expecting mothers and caregivers accompanying children.** Facilities like child friendly kiosks, toddler zones, active play areas for adolescents, sitting spaces and basic infrastructural elements like Water ATMs and child friendly toilets adhering to the space requirements and anthropometrics of children can make a huge difference in providing a more enabling and barrier free environment for all.

## 2. Housing for children and families

There is a strong need for inclusion of housing needs of children and families in the projects proposed by mission cities. Almost all the mission cities have children and families living in impoverished conditions in streets or in obsolete and overcrowded housing. **Smart cities must look**

**at not only providing affordable housing stock, but also enforcing essential “quality of life” standards for space, ventilation, light, densities, play areas etc. in the design and planning of housing.** Safe environment with basic infrastructure and support facilities like crèches and day care centres can be included in these housing schemes..

## 3. Pollution free ambient environment

Mission cities are keenly looking at reducing use of non-renewable energy resources and minimizing the carbon footprint. Technology solutions adapted by different cities can aid in improving the quality of air and water, thus reducing the vulnerability of children to various respiratory diseases and water borne infections.

Besides technology, design and planning solutions like mixed use, walkable neighbourhoods and efficient transport can also contribute towards providing a healthy environment for children. **Cities adapting these measures must monitor the change in the environment pollution levels and propagate the best practices for other cities to follow suit.**

#### 4. Children as equal participants

According to UN's "Child friendly city framework", a "child-friendly city" should be a multi-dimensional and comprehensive concept, where, children are active agents and their opinion influences the decision-making processes. Smart cities mission has stressed upon employing a participatory approach for proposal development stage and in deciding upon the area based interventions in mission cities. However, participation needs to be evolved beyond consultative exercises to actual mechanisms where citizen led planning and management is encouraged

For children, it can be fostered through children led planning of neighbourhoods, designing of their own play and learning environments, having children and youth parliaments to involve them in the city administration and functioning or crowd sourcing apps regarding the issues faced by them. The participation process must be a continuous engagement and not a one time effort. For instilling a sense of belonging some of the responsibilities towards infrastructure must be delegated to children, caregivers and the community

#### 5. Complete Streets for children

Smart cities, through a number of interventions, are aiming towards improving street conditions and traffic situation. However, mobility needs of children and removing barriers to their movement have not been given due consideration in most of the smart cities projects. **A holistic integrated approach like mapping high footfall nodes for children (schools, parks, local shops etc.) and making all streets child friendly through sensitive design and infrastructure is required.** Making streets pedestrian and bicycle friendly with proper lighting and signage, providing safer transport modes, and ensuring safety from traffic has already been taken up by these cities, but it is important to design from the perspective of children. **Concepts like Urban95 developed by**

URBAN95

**Bernard van Leer Foundation can be instrumental in understanding children's experience of moving around in a city.** Addition of children responsive design elements and technologies can be a giant leap towards achieving universal accessibility in our cities.

**Urban 95: If you could experience the city from 95CM – the height of a 3-year-old – what would you change?**

Urban95<sup>34</sup> is Bernard van Leer Foundation's, initiative to make lasting change in the landscapes and opportunities that shape the crucial first five years of children's lives. Out of the four components<sup>35</sup>, one of the components is mobility for families, making it possible for caregivers and young children to walk or cycle to healthcare, childcare, a safe place to play, and a source of healthy food. Urban 95 concept reinstates that the spatial needs of young children are different from those of older children and adults. Babies and toddlers:

- experience the world at a much smaller scale and have a dependent and far shorter range of mobility than the typical city dweller.
- are particularly vulnerable to air and noise pollution.
- need to travel regularly to early childhood services such as well-baby clinics and childcare.
- are always to be found with their caregivers

Thus, Urban95 is rooted in the belief that when urban neighbourhoods work well for pregnant women, babies, toddlers and young children, they also tend to nurture strong communities and economic development.

## 6. Data-driven decision making

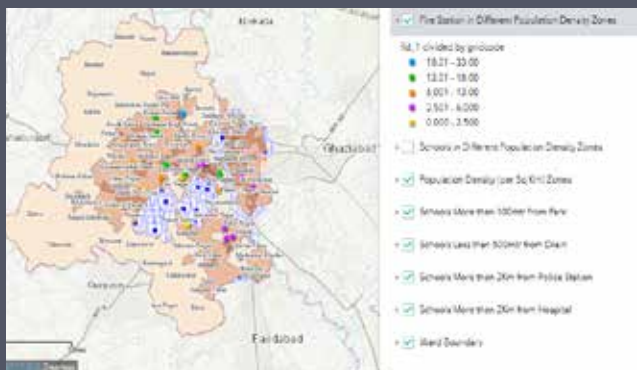
There has been a considerable improvement in the availability of data on children in the past two decades in India, mainly through major household surveys and Census. However, this data is not updated and disaggregated based on age, socio economic background or at the level of city and is therefore unable to find a

### Interactive Spatial Decision Support System (ISDSS)

NIUA has developed an Interactive Spatial Decision Support System (ISDSS)<sup>39</sup> to demonstrate how readily available technology (GIS) and data can be combined to create interactive decision support system to take timely, accurate and effective decisions especially in crisis situations. This is a pilot application and NIUA would keep on upgrading the platform with additional data and analysis results.

This application is covering Delhi and has been divided into two parts based on the availability of inputs and resources - Core City Level & Ward Level. The city level data of major services has been captured for 204 wards within the core areas (out of 272 wards in Municipal Corporation Area). Infrastructure for children such as schools, police stations/chowkis, hospitals/nursing homes, fire stations, road network, traffic lights, drains, green belt & parks, industries has been mapped using GIS. The levels of vulnerabilities, schools are facing in terms of availability of services have been represented in the theme based queries (designed keeping in view of 3 disaster scenarios, flooding, earthquake and fire)

Recently, an additional 1831 new schools, 5508 anganwadis, 29 night shelters and 37 ambient air quality monitoring stations were also added to the platform.



place in urban policy and program formulation. **App based technology and online data dashboards can help in identifying gaps in children related infrastructure and can bring to light an overall status of children at the city level. This data can be regularly monitored and updated by the associated city departments.** Mapping this data using a GIS based platform can give a reasonable idea of geographical locations of gaps and deficiencies in infrastructure and provisions in relation to the density of children. A more extensive mapping exercise can also include the qualitative aspects of infrastructure,

### Recommendations for Smart Cities Mission 2.0

For the next term of Smart Cities Mission, it needs to reinvent the perception of “smart”. Future smart cities need to understand that “smart” goes beyond technology and address more essential goal of developing sustainable, liveable and people friendly cities. These cities need to leapfrog towards understanding and addressing the different needs of their residents based on their age group, gender, socio-economic conditions and cultural aspects. In pursuing these objectives, they can be enabled and supported by technology. Then, these cities would effectively work for all.

#### • “Children” as stakeholders

Data shows that children (0-18 years) constitute 32% of the urban population of India. India also has 20% of the 0-4 years population of the world ,making it crucial for Indian cities to provide for early childhood care and protection.

The sheer number of children living in cities, facing multiple vulnerabilities and restrictions, makes them a priority demographic group. Their needs must be acknowledged and included while designing and formulating urban programs to bring about a larger change in the way cities develop.

Cities that improve children's development,

health and access to opportunities and ensure that facilities extend not only to young children but also to the mothers and care givers would be child friendly “smart” cities in the true sense.

### • Resilient cities for children

The National Urban Agenda commits to “strengthen the resilience of cities and human settlements, including through the development of quality infrastructure and spatial planning by adopting and implementing integrated, age- and gender responsive policies and plans and ecosystem-based approaches mainstreaming holistic and data-informed disaster risk reduction and management at all levels, reducing vulnerabilities and risk, especially in risk-prone areas of formal and informal settlements, including slums, enabling households, communities, institutions and services to prepare for, respond to, adapt to, and rapidly recover from the effects of hazards, including shocks or latent stresses.”<sup>36</sup>

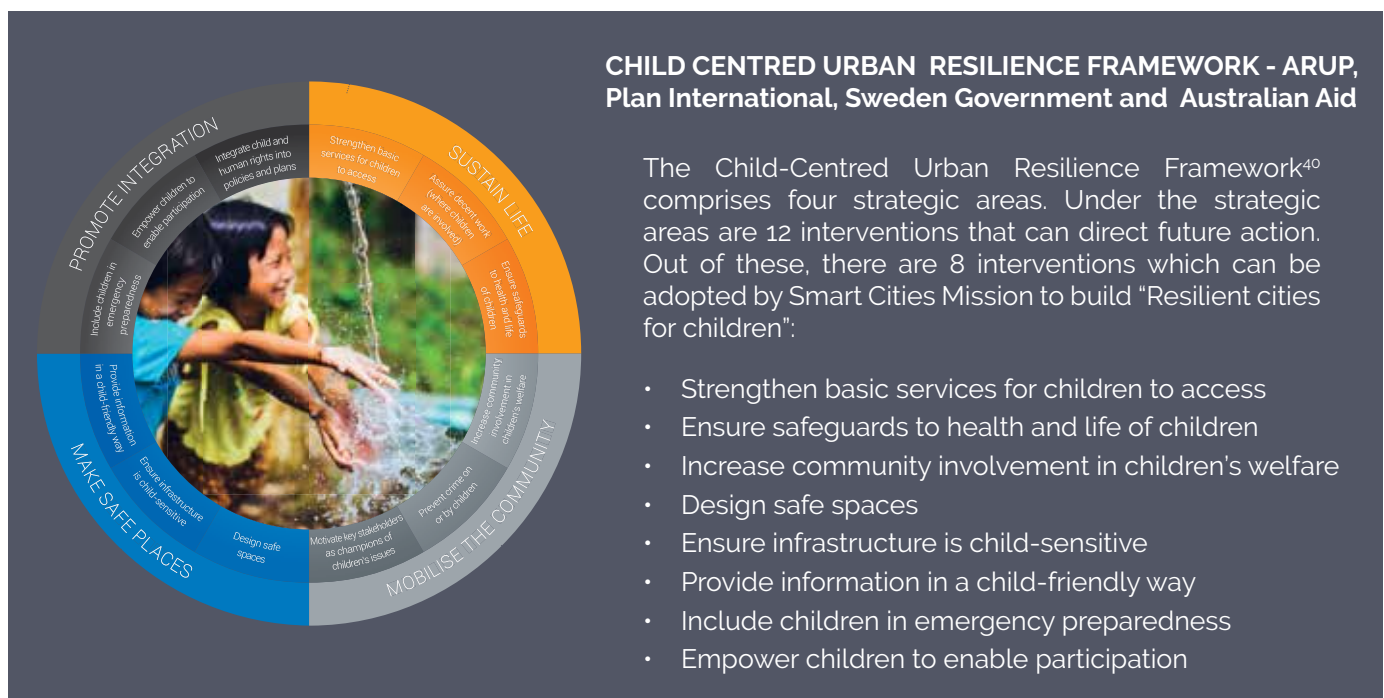
The technology component of Smart Cities Mission must focus on prediction of disasters and can also support effective response and restoration systems. Developing individual or family resilience

along with the resilience of the community and the city is crucial to make future smart cities resilient. Different and urgent needs of children need to be brought into the ambit of making communities and cities resilient to disasters. Smart Cities Mission 2.0 must also include cities in eco-sensitive zones or cities susceptible to disasters (in coastal and hilly regions).

### • Factoring climate change resilience in designing, planning and management of cities

Climate change is a mounting global crisis that has the potential to undermine many of the improvements already achieved in terms of urban children's health, nutrition and development.

**Smart cities need to incorporate strategies for reducing the adverse impacts of climate change and make sure that the projects undertaken under the mission pose minimum danger to the environment.** Building climate change resilience should not only include initiatives towards building sustainable and climate responsive building and design codes, but also touch upon the larger aspects of food systems, eco systems





and water systems that exist in cities. When all these aspects are integrated with city planning and infrastructure upgradation, cities would be able to provide better health and well-being for children and families, building their adaptability and resilience to climate change.

- **Cross-sectoral convergence**

Smart Cities must foster cross-sectoral collaborations and convergence across various other schemes and programs being implemented in urban areas targeting hunger, poverty, inequality, health, gender equality, land, water, and climate change with respect to children. **ULBs being the nerve centre for all the city functions including built environment and infrastructure, basic services, health and nutrition, education and safety etc. must have the technical and financial capacity to collectively work towards building cities for all. All the different programs and schemes being implemented in a city must be integrated smartly with the Smart Cities Mission.**

**A transparent and accessible monitoring system showcasing city progress on various fronts must be evolved.** This would prevent replication or conflict among the various projects taken up by different city departments.

- **Capacities of small urban centres**

With 42.6 percent<sup>37</sup> of the national urban population living in million plus cities, Smart Cities Mission needs to build capacities of the ULBs and city officials in these cities to guide the urbanization process through the urban programs.

**With every 4th child living in urban India<sup>38</sup>, the need to prioritize the aspirations and expectations of children into the building of these cities is necessary. For this, it is important to sensitize and build capacities of the decision makers and city implementing agencies towards the social, economic and environmental benefits of developing healthy and happy cities for children.**



# Global Best Practices that can be replicated in Smart Cities



## Smart neighbourhoods

15-minute neighbourhoods is being adopted as a planning strategy to foster increased health and wellness, reduce vehicle miles travelled, and increase the social cohesion of neighbourhoods in many cities of United States. In a 15-minute neighbourhood, people can access their basic needs (parks,

food, etc.) within 15 minutes of walking, biking, or transit.

As an example, Boulder's child and youth-friendly city initiative which supports initiatives in urban areas of transportation, parks and nature, housing and sustainability has 15 minutes neighbourhood as one of its main component.



## Recreation

"BhuFeSto"- Bhubaneswar Smart City

"BhuFeSto" is an international storytelling festival curated by Bakul Foundation, a volunteering movement leading efforts at reading promotion and storytelling across the State. The parks are being given a festive look and are being developed into theme parks through art

installations into theme parks that evoke the world of stories.

A unique feature of the festival and a special highlight of the festival is that it is an inclusive festival with special storytelling sessions for children with hearing and visual disabilities.



## Environmental Pollution

Open data Camp: Pollution Party, Bangalore: DataMeet hosted the 5th Bangalore Open Data Camp: Pollution Party spending time to look at the growing problem of pollution by spending two days examining the role of data. The aim of the meet was to explore the role of these data collection network

in a growing citizen and private sector monitoring role. The meet focused on building data collection networks and installing sensors transcending state/ city borders to get a real sense of pollution problem. This also included a sensor building workshop for kids aged 12-17 years to build environmental sensors for detecting air pollution.



## Community participation

The Waterloo Region Children and Youth Planning Table<sup>43</sup> is a community-wide partnership of approximately 70 organizations including service providers, researchers, planning bodies and funders serving children and youth, prenatal to 18-ish, and their families.

It aims at combining community data into one data platform that can be viewed through smart web and mobile applications governed by data-sharing agreements will allow the community to develop the social policies, strategies, and programs needed to create a community ecosystem for child and youth support.





## Education



**Magic room:** Interactive and multi-sensory technologies transform an ordinary classroom into a "Magic Room"<sup>44</sup> where children with attention deficit disorder, autism, Down Syndrome and other neuro-developmental problems can play and learn in what researchers are calling a new kind of smart space.

After seven years of collaborating with therapeutic schools and institutions in Italy, scientists from Politecnico di Milano developed the Magic Room for two therapeutic centers in Milan and Rome. The study showed double and sometimes triple improvement in cognition, communication, relationships, motor skills, and emotional expression.



## Health



**Guaranteeing children's right to health, Seoul<sup>45</sup>**

Seoul implements five major projects designed to protect the health of children:

**Family dentist system** for students and children of low-income households

Providing mandatory vaccination services to all citizens for free and expanding optional vaccination services for marginalized people

Medical support child zone for developmentally disabled children

Expanding the subsidy of outpatient medical costs for expatriate workers and children of other marginalized people

Opening a fun, enjoyable Saturday children's health club.

Besides this, it also provides essential medical services in communities like operating public medical support centers aimed at easing the community health divide, expanding medical services for marginalized people etc.

## Early childhoods



**Urban thinkscapes<sup>46</sup>** in Philadelphia A team of US-based psychologists and educators have launched a project called Urban Thinkscape, which aims to turn everyday public spaces into a chance for kids to learn more through play. The researchers hired designer to build four different game installations into the public spaces of the

Belmont neighborhood in West Philadelphia. There's a puzzle wall running along a street, which aims to develop kids' spatial and math skills. a wooden deck features icons that kids can use to tell their own stories, stimulating their narrative skills and socio-emotional skills. a hopscotch-like game of shoe prints called "jumping feet" helps kids learn to identify patterns, which in turn aids their attention and emotional development. and a metalwork panel installation asks kids to find hidden shapes, strengthening their natural curiosity.



## ICT based mobility platform



**An Open Platform for Children's Independent Mobility - CLIMB<sup>47</sup>**

CLIMB aims to enhance independent and active mobility of children aged 6 to 10 by making the daily journey to school a safe, fun, and social experience. It is a technological platform that:

- Enables collecting information and thus providing an up-to-date and consistent view on all conditions affecting children's mobility.
- supports the whole community (parents, teachers, children, volunteers) in daily operation of children mobility initiatives and services
- makes use of personalized and intuitive tools and gamification techniques to increase awareness and promote behavioural changes.

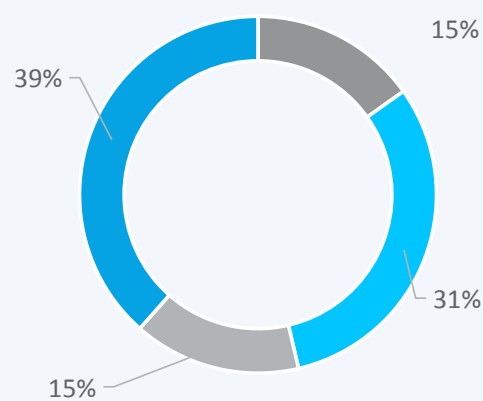
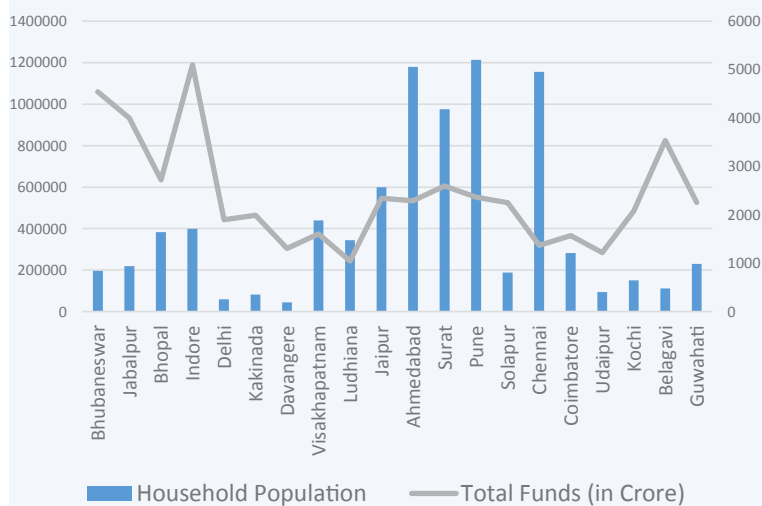




The total outlay for 20 lighthouse cities is  
**Rs. 48065 crore, impacting out of  
which 30.3% are children**

Project milestones for 20 lighthouse cities  
(until July 2018)

Household Population and Total funds allocated in first 20 lighthouse cities



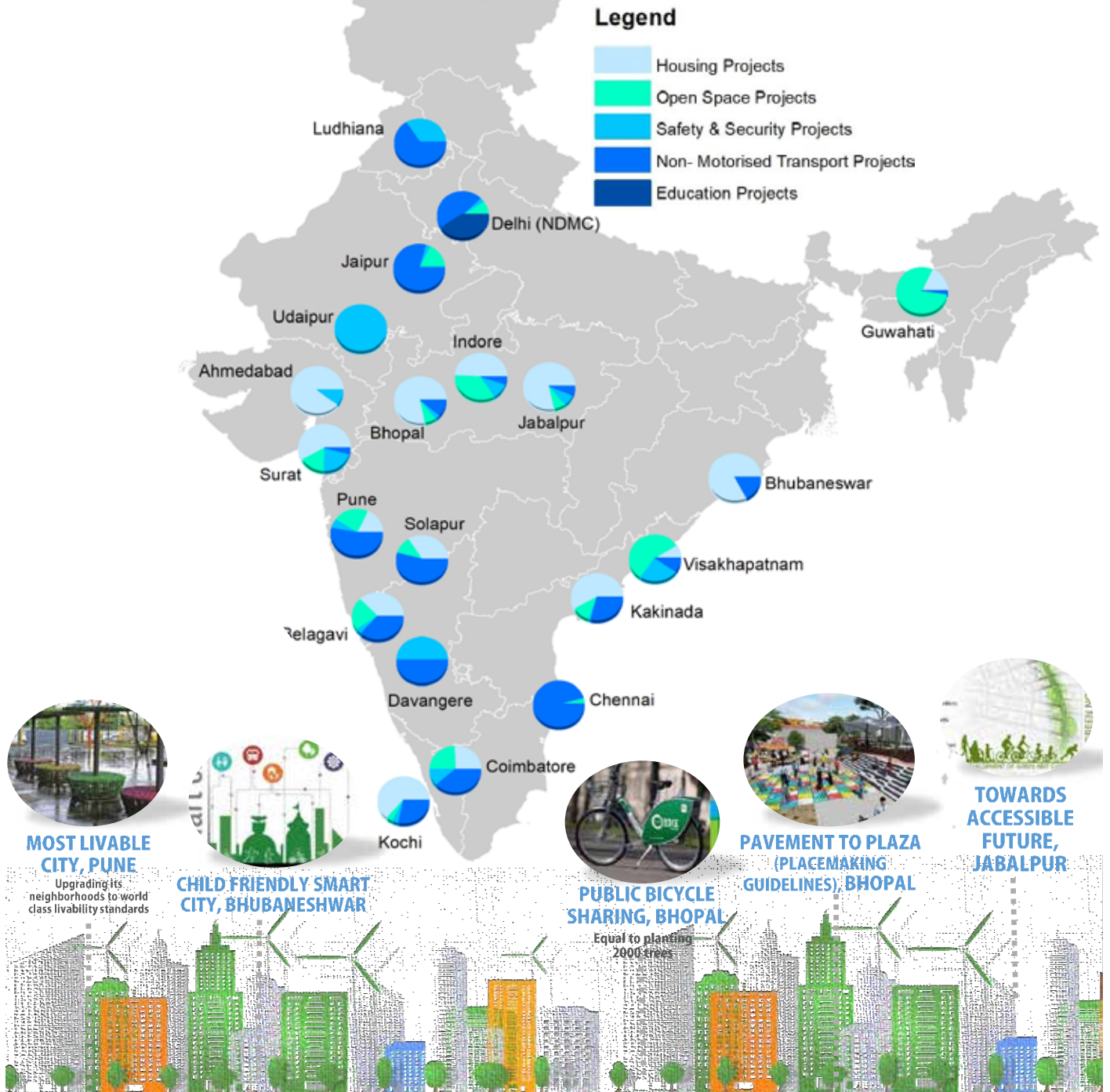
■ Work completed ■ Work order issued  
■ Tender issued ■ DPR preparation

Number of ABD projects across various themes

Key Component	Ahmedabad	Belagavi	Bhopal	Bhubaneswar	Chennai	Coimbatore	Devanagari	Guwahati	Indore	Jabalpur	Jaipur	Kakinada	Kochi	Ludhiana	NDMC	Pune	Solapur	Surat	Udaipur	Visakhapatnam	Total Projects
Preservation of ecosystems and access to open spaces																					114
Improved health and education services																					48
Improved living conditions for the urban poor																					38
Improved security and safety																					22
Improved walkability and sustainable mobility																					89
Reduced pollution																					43
Assured access to basic services																					145

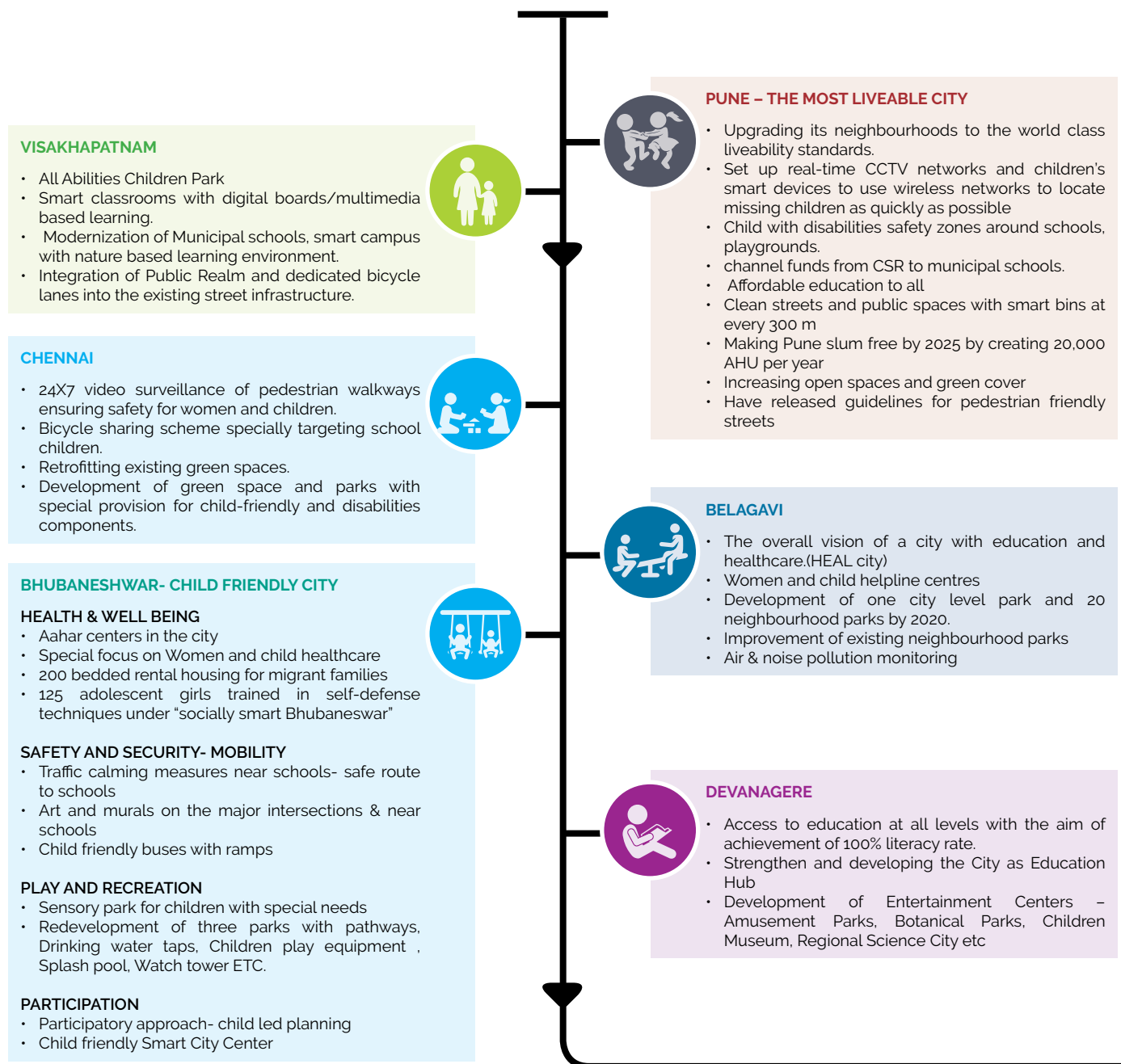
# Smart Cities Mission

Distribution of funds across various thematic areas in 20 Lighthouse cities



# Towards Child Friendly Smart Cities

Projects and pan city initiatives in 20 Lighthouse cities<sup>48</sup> related to children, contributing to their holistic mental and physical growth, and creating a safe and nurturing environment for them facilitating healthy living, vigorous playing and creative learning.



#### JABALPUR

- Development of Sports cluster
- Smart classrooms with Wi-Fi and smart facilities for schools.
- PROPOSAL BUILDING: Girls from visually impaired school participated in the consultations held for designing the proposal.
- Air quality monitoring sensors



#### UDAIPUR

- Education Hub – Area based development
- Parks at 5min walking distance.
- Smart classrooms in government schools- have been setup in 19 schools.
- Safety and security- Radio Frequency Identification Card (RFID) for children in government schools in Udaipur
- Children play areas and equipment's in the parks



#### KAKINADA

- E-Pathshala: digital podium, interactive pad, interactive board, interactive projector, visualizer, information kiosk, touch LED
- Adequate primary education facilities within a 15 minute walking distance in most residential areas.
- Installation of environmental sensors and disaster management interventions.



#### INDORE

- Smart Classrooms And Healthcare
- 16% of area based development earmarked as No Vehicle Zones
- River(Kahn) Front Development and creation of usable public Open spaces for Recreation and Leisure providing opportunity to explore nature.



#### BHOPAL

- Live, Work, Play Learn, Shop – smart city concept for Bhopal where the importance of place making has been specifically acknowledged.
- Equal learning opportunities for children from all backgrounds by providing an array of private and government schools.
- More than 2000 students from schools consulted for proposal building
- Public bike sharing program across the city



#### AHMEDABAD

- CCTV surveillance at all major public places
- In the slum redevelopment project for 8000 slum dwellers, schools, Anganwadi and parks have been given special emphasis.
- Expansion of public realm through plazas and walkable spaces
- 'Bal Swasthya Card' for e-registration of birth and vaccination was also launched for every new child born in Ahmedabad. The health smart card will also provide information of the child's physical and mental growth and will keep track of vaccination dates.



#### NEW DELHI

- Happiness zones with children activity areas
- Transforming toilets into smart amenity centres with Women and child friendly public toilets
- Setting up e- learning and virtual labs in all NDMC schools
- Setting up centralized student's health e-records



#### JAIPUR

- Improved coverage of city's transportation network to the education hubs
- Proposed knowledge cities and a science center.
- Counselling of women on antenatal care services, increasing skilled birth attendants for delivery, postnatal care, immunization of infants, nutrition.
- 'Health of the Urban Poor Program' already implemented in 6 wards
- Increasing green cover from a current 2.3 m2/person to 3.0 m2/person.
- Barrier-free footpaths incorporating universal designs.
- Proposal-building. More than 800 students participated in the blog, logo and painting competitions and expressed their vision for the city



#### LUDHIANA – THE BICYCLE CAPITAL OF INDIA

- Shared streets and no vehicle zones
- Dedicated bicycle highways
- Safeguarding rights of pedestrians and bicycle users through street design
- Healthier and more active lifestyle
- Noise free zones near schools



#### KOCHI

- Creation of green walkways and plazas
- Redevelopment of existing parks and open spaces.
- Upgradation of facilities - Basic services, Digital classrooms, Libraries, Eco-toilets, Sports kits etc.
- Providing more Anganwadis, public schools and Higher Educational institutions







### 3. Atal Mission for Rejuvenation and Urban Transformation (Amrut)



5 Years



500 Cities



The 500 mission cities are to develop 200 parks with elderly and child friendly features.



Benefiting approximately 60% of urban population



Targets to provide 139 lakh water tap connections



A total outlay of 1 lakh crore rupees

For ensuring cities that are nurturing and conducive to an overall development of children, it is important to fulfil fundamental needs of clean water, adequate sanitation and healthy environment to live and play. AMRUT mission, focuses on creating infrastructure in the mission cities for an efficient service delivery, ensuring that all households in the city have access to basic services.

### 3.1 Overview of the mission

India is a thriving economy. Its cities are emerging as global urban centres which need world-class amenities and quality living standard. As these cities develop and grow, they are confronted with numerous challenges. People living in these cities are faced with frequent health scares owing to lack of reliable water supply, raw sewage flowing through open drains and solid waste piling up in the open. In recent years, haphazard urban growth has also triggered rapid depletion of green cover, congestion and abysmal levels of environmental pollution. All these issues have to be tracked to make our cities liveable as well as globally competitive.

It has become imperative for Indian cities to provide and sustain a balanced development reaching all sections of society, the first step for which is ensuring fulfilment of basic needs by delivering inclusive and efficient services to all. With this objective, Atal

Mission for Rejuvenation and Urban Transformation (AMRUT) was launched in June 2015, covering 500 cities across the country.<sup>49</sup>

For children, AMRUT means water in their homes, saving them and their families from the long haul of daily struggles of standing in queues. It means a healthy environment, with clean toilets and adequate disposal of waste. It means playing outdoors and have equal access to the city and its services.

AMRUT mission targets on achieving universal coverage of basic services like water and sanitation and enhancing the liveability across cities by developing well-maintained open spaces and finding sustainable transport alternatives. The broader vision of (AMRUT)<sup>50</sup> mission is to:

- **Ensure that every household has access to a tap**

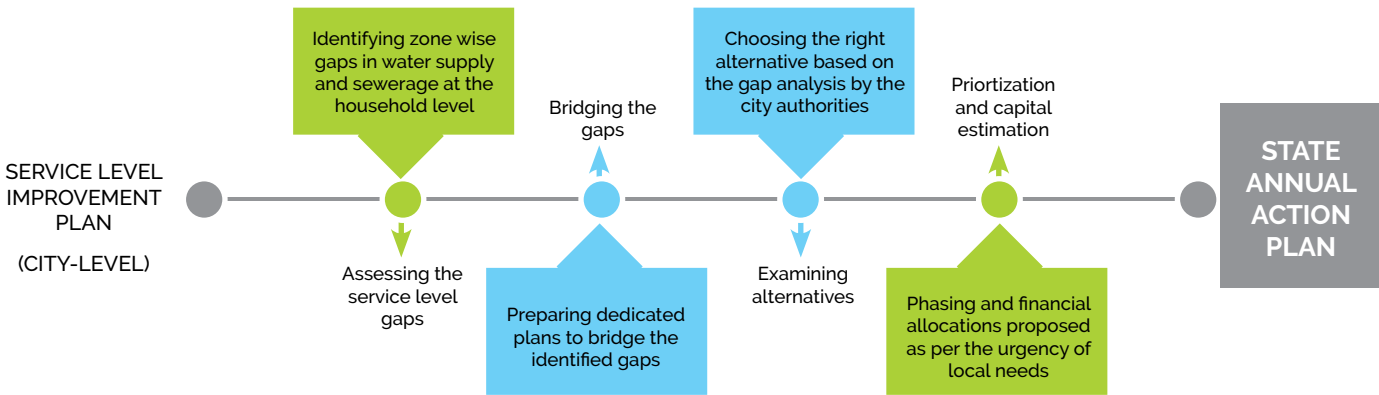


Figure 13 Step-by-Step approach of AMRUT mission, Source: AMRUT Mission Guidelines

with assured supply of water and a sewerage connection;

- Increase the amenity value of cities by developing greenery and well maintained open spaces (e.g. parks);
- Reduce pollution by switching to public transport or constructing facilities for non-motorized transport (e.g. walking and cycling)

AMRUT was rolled out following a step-by-step approach wherein cities were mandated to prepare

Service Level Improvement Plans (SLIP) highlighting the gaps in the areas of water supply, sewerage, drainage, open spaces and transport infrastructure. Subsequently, states took up the preparation of Annual Action Plans (SAAP) taking into consideration all the city level plans, stipulating timelines and capital investments.

Thus, city level bodies extensively analyse gaps and plan for provisions, while the state prioritizes and monitors the implementation of these plans.

## 3.2 Implementation progress of the mission

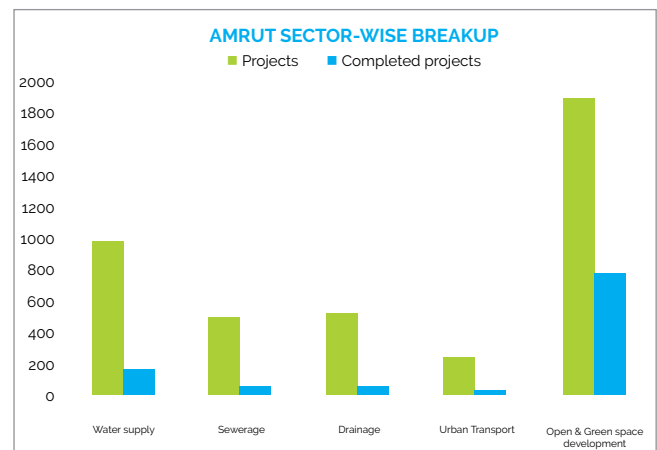
AMRUT, with its outlay of Rs. 50 thousand crore (500 billion) for 500 cities has seen a moderate progress. Three years into the mission, only 13 percent<sup>51</sup> of the budget had been released up until July 2017. In the first year of AMRUT, only 20 states qualified for reform incentive grant and in the second year, only 16 states qualified.<sup>52</sup> With a systematic assessment process in place, AMRUT has ensured funding of good and necessary projects. Following this process, 4097 projects<sup>53</sup> have been taken up by 500 mission cities for services to reach every household.

Till 24th December 2018, work on 1035 projects worth Rs.2388 crore (23.8 billion) were accomplished. Sector wise break up of the projects under AMRUT mission is as follows:

- In the water supply sector, contracts for 965 projects worth Rs. 29 thousand crore (290 billion) have been awarded and 154 projects worth Rs. one thousand crore (10 billion) have been completed.
- In the sewerage and septage management sector, contracts for 491 projects worth Rs. 21 thousand crore (210 billion) have been awarded and 40 projects worth Rs. 520 crore (5.2 billion) have been completed.
- In the drainage sector, contracts for 516 projects worth Rs. 2 thousand crore (20 billion) have been

awarded and 51 projects worth Rs. 81 crore (810 million) have been completed.

- In the urban transport sector, contracts for 244 projects worth Rs. 7 hundred crore (7 billion) have been awarded and 18 projects worth Rs.41 crore which have been completed.
- In the green spaces and parks sector, contracts for 1881 projects worth Rs. one thousand crore (10 billion) have been awarded and 772 projects worth Rs.4 hundred crore (4 billion) have been completed.



**Figure 14 Sector Wise Progress,**

Source: Press Bureau of India, December 2018

## 3.3 AMRUT Mission for Children and Families

AMRUT mission has prompted cities to reengineer their urban service delivery, develop open and green spaces and provide sustainable public transport systems thus lending a great opportunity for enhancing quality of life of urban areas.

Children are the most vulnerable to challenges of modern urban life, being exposed to harsh living conditions owing to lack of basic services, absence of green spaces, and continuous exposure to pollution. The fundamental focus of AMRUT is towards addressing gaps in basic needs of urban families and other residents. AMRUT mission could thus play a crucial role in improving quality of life for children and families in the mission cities.

The following mission components contribute towards upgrading the urban environment and enhancing children's experience of growing up in cities:

### 3.3.1 Providing Basic Services

Having access to basic services like water supply and toilets in their homes and walkable streets with covered drains is a major contributing factor towards enhancing the living conditions and health of children in cities.

AMRUT mission envisions achieving universal

coverage of basic services conforming to the service level benchmarks set by Ministry of Housing and Urban Affairs (MoHUA). The mission has mandated following targets :

- **Clean water supply to every household**

The mission mandates cities to not only identify the gaps in coverage of water supply, but also identify the gaps in per capita quantum and quality of water supplied (potable and non-potable) at the household level and water storage capacities at the city level<sup>54</sup>.

Based on this gap analysis, cities are directed to ensure provision of clean and continuous water supply, rejuvenation of water bodies for augmenting drinking water supply, recharging of ground water and special water supply arrangements for difficult areas such as hill and coastal cities, including those having water quality problems. (e.g. presence of arsenic, fluoride)

This has led to inclusion of left out families in the water supply network. For families with children, it has ensured:

- **Survival and healthy living, reducing the disease burden among children arising from consumption**

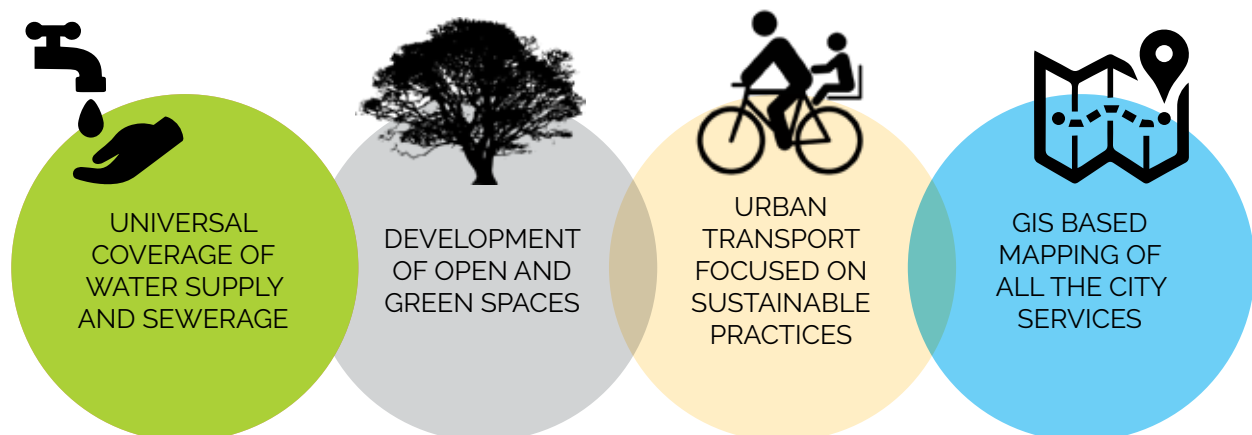


Figure 15 AMRUT mission thrust areas relevant to children and families



**of water from contaminated sources.**

- **Judicious use of resources, thus encouraging conserving for future generations.**
- **Ensuring universal access even in the difficult geographical terrain with sparsely distributed households.**
- **Monitored quality of water ensuring better health, subsequently leading to better overall development.**

With a reliable source of water, urban children and families are safeguarded from a number of water borne diseases. Children living in informal settlements and unauthorized colonies, where collecting water requires daily struggle of queuing up in front of the water tankers can instead take part productively in school and play.

- **Upgradation and laying of Sewerage Infrastructure**

Indian cities are grossly lacking when it comes to disposal system for black water. Due to absence of an adequate sewage collection and treatment system, the natural water systems and ground water in majority of the cities have been severely affected. This has snowballed into multiple problems ranging from destruction of natural ecosystems existing in cities to mounting disease burden and acute shortage of usable water.

AMRUT with a number of interventions related to sewerage and septage management<sup>55</sup> focuses majorly on gaps in coverage of latrines, connected to a safe disposal system and separation of drainage and sewerage at the household level. Based on this gap analysis, it has been mandated for cities to refurbish the old systems and adopt decentralized mechanisms for black water disposal.

Technology promoted by Smart Cities Mission and base infrastructure being laid under AMRUT have provided an opportunity to the mission cities to relook at the sewage collection, disposal and treatment mechanisms best suited to their situation.

For children, this could be a catalyst for significantly reducing the disease burden by:

- **Curbing the disposal of sewage into open drains, thus ensuring low exposure to multiple health hazards.**
- **Also, reducing the risk of polluting the natural water systems and ground water reserve existing in these cities that become contaminated due to untreated waste water disposal or badly maintained sewer lines. These water resources are extensively tapped for drinking water, thus exposing children to various life threatening diseases.**

- **Drainage Infrastructure**

For urban children often living, playing and moving alongside open drains, construction and improvement of the drainage system can lead to:

- **Reduced threat of diseases or falling into open drains, which in turn limits their independent mobility.**
- **Reduced risk arising from urban flooding which can pose a threat to children and families specially those living in informal settlements.**
- **Better management of water logging at the neighbourhood, and subsequently at the city level.**

### **2.3.2 Development of green spaces and open areas**

Developing green areas in a city is directly associated with the playing and learning needs of children, contributing majorly to their overall development. These are the only areas in a city where children can afford to move about and run freely and be in touch with nature. In a city otherwise bustling with traffic, green and open spaces provide quality environment for children and families. Developing open spaces and green cover in a city is one of the priority areas under AMRUT. The mission has directed ULBs to make action plans to increase green cover in all the 500 cities to 15% in 5 years from the launch.<sup>56</sup>

The mission has also mandated ULBs to assess the

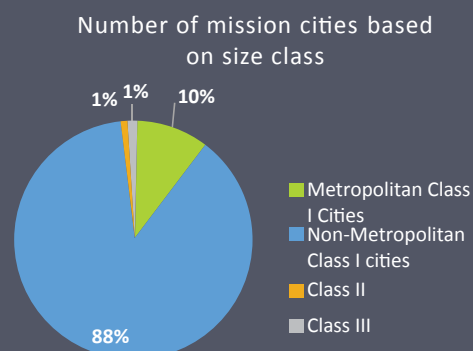
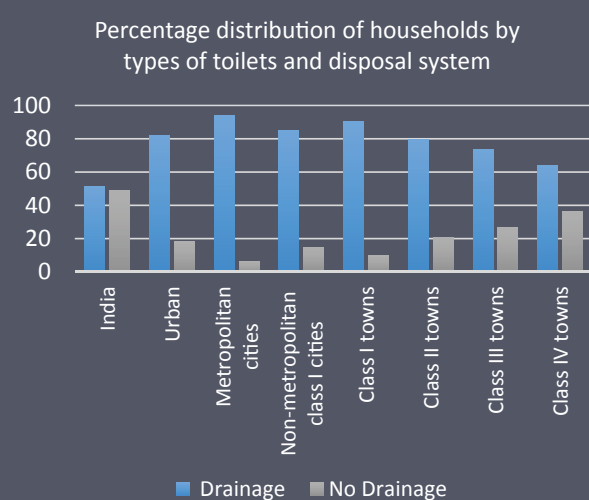
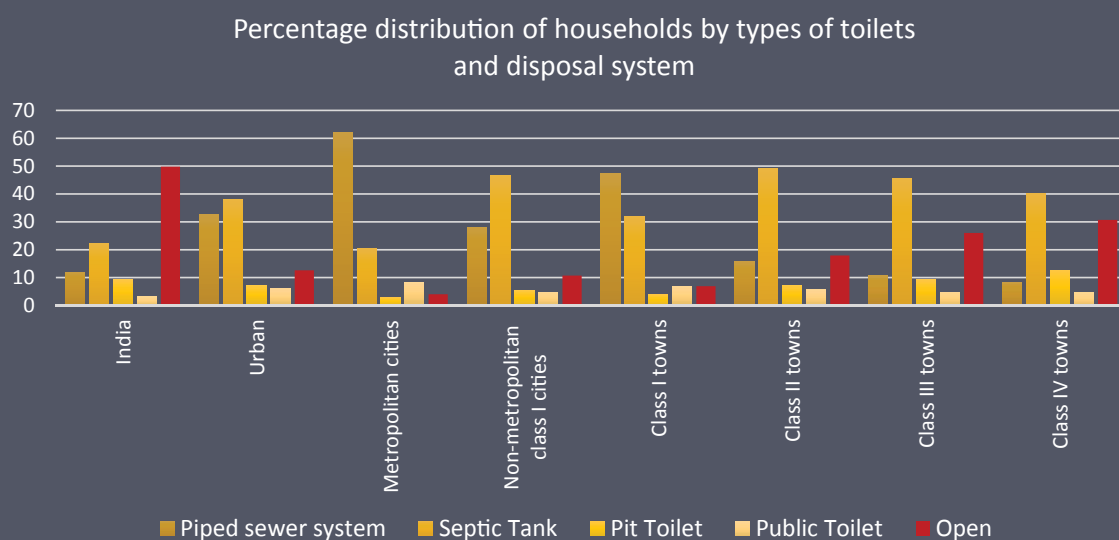
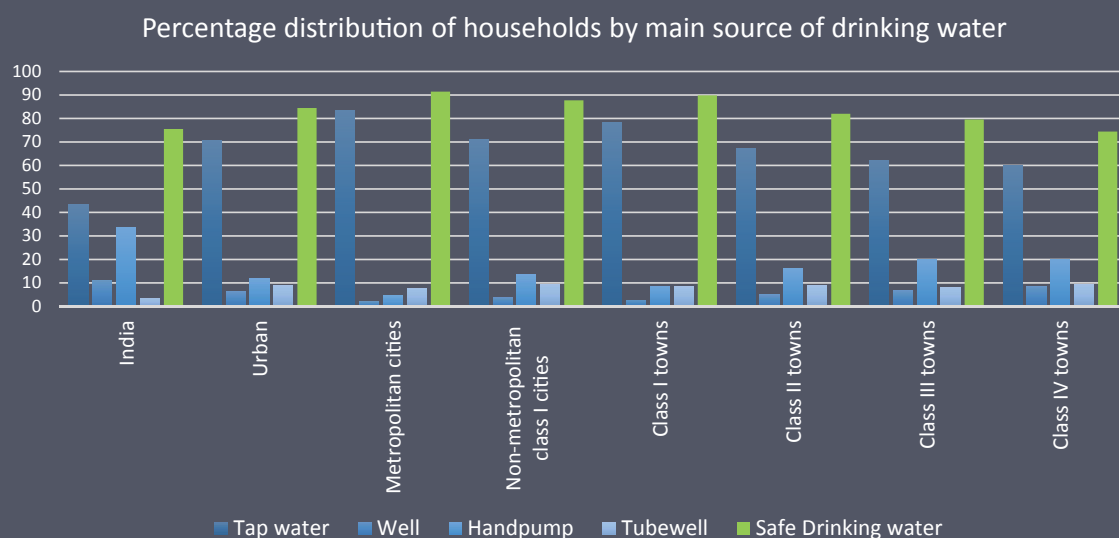


Figure 16: Status of basic services in urban India

Source: Urban India (2017), Status of demography, economy, social structure, housing and basic infrastructure

existing situation of organized green spaces and revive them in consideration with the specific needs of children and families. This assessment looks at the following aspects of a green/open area:

### Planning level assessment<sup>57</sup>

- a. Per person open space availability in the city.
- b. Proportion of area under the categorization of parks as per URDPFI Guidelines e.g.: Housing Area Park (HAP), Neighbourhood Park (NP) Community Park (CP), District Park (DP), and Sub-City Park (SCP).
- c. Quantitative aspects of existing parks like geographical distribution across the city, encroachments.
- d. Space for new parks to be developed in the city
- e. Design level assessment
- f. Qualitative aspects of existing parks like child and elderly friendly features; staffing, maintenance & equipment issues.
- g. Park wise inventory of facilities and amenities
- h. Physical condition of parks in the city including boundary wall, fenced area, facilities of public conveniences, piped water supply, dustbins etc.
- i. Provision of Well-planned play area encouraging physical activity equipped with child friendly play equipment, snack/ ice cream parlours/ kiosks etc.
- j. Aesthetics component like well-illuminated, landscaped – manicured with water bodies/ fountains etc.
- k. Existing parks having accessibility issues
- l. Any guidelines for horticulture: types of trees and plants, etc.

Under AMRUT, cities have been directed to establish institutional frameworks for development and maintenance of organized green space/ parks, which includes reviewing all policies, plans; scheme documents, holding discussions with concerned officials and citizens, conducting physical assessment of city parks to understand the status and undertaking overall assessment of parks and open/ green space in terms of physical activities resources, family facilities including child friendly

play equipment's, available general services and facilities, and, aesthetics.

It is also specified in the guidelines to establish a system for maintenance of these parks, playgrounds and recreational areas relying on People Public Private Partnership (PPPP) model.

AMRUT as a mission has identified open green areas and play spaces for children as a basic need of families living in cities. Their planning, design and maintenance has found place in a national mission; highlighting the importance and relevance of developing green open areas in making cities liveable for all.

### 2.3.3 Promoting alternative sustainable urban transport

AMRUT mission guidelines underline preparation of city mobility plan also looking into the adequacy and quality of existing public transport services. The mission stresses on adoption of non-motorized transport alternatives and creating more walkable cities. Under this component, the mission prescribes elements for making streets accessible and safe for children, such as footpaths/walkways, sidewalks, foot over-bridges and facilities for non-motorized transport (e.g. bicycles). Some of the strategies adapted by the mission are user friendly such as provision of barrier free pedestrian facilities, increased walkability deterring sedentary lifestyle among children and reduced pollution levels, thus ensuring safe and cleaner urban environment for everyone.

### 2.3.4 Urban Reforms

AMRUT prescribes an eleven-point reform milestones framework to improve service delivery, mobilize resources and make municipal functioning more transparent. States are incentivized for incorporating these reforms into the city level machinery, encouraging them to become more efficient in urban management. Reforms like developing city-level plans and web pages for ULBs for better outreach etc. have been instrumental in bridging the gap

**"Sensible Greening" of public spaces- Urban Development Department, Maharashtra**

- Under the Atal Mission for Rejuvenation and Urban Transformation (AMRUT), mission cities have been tasked with the responsibility of turning public areas into vegetable gardens, tree farms, nature parks and urban forests.

**A 'forest' of 2,500 trees in the heart of Chinchwad**

- 'Oxygen Park', the garden and recreation centre with 2500 indigenous plants and trees.
- A complete and one-stop recreational park for people of all age groups will have a yoga centre, an open gym, a dedicated jogger's track and children's play area.

**An inclusive green growth approach: Municipal Corporation Bilaspur**

- Strategy to achieve a five minute walk to a park or green spaces by building new parks in park-deficient areas.
- Upgrading street, footpaths walk ways into green spaces through additions such as new trees, public art and water fountains.
- A robust public engagement process where local community groups, residents welfare association, educational institution and business community are actively involved in this transformation

**Projects under parks and open spaces: Kochi, Government of Kerala**

- Butterfly Parks, Nutrition Parks, Conservation of flora and fauna, Rain Garden, Climate Mitigation Garden
- Sturdy Play equipments, Open Library, Gender Neutral Toilets, Seed and Sapling banks

**Action plan on Augmentation of green spaces in Srinagar city: Town Planning organization**

- Understanding the nature and pattern of green space distribution across city.
- A minimum of 15% surface area of any development project shall be earmarked for the development of organised green spaces
- The existing per capita green space cover in Srinagar city will be upgraded to 4.5 SQM by 2020.

**17 new parks by 2020: Bhubaneswar**

- An overall development, including provisions of benches to sit on, jogging path, lighting, children's play area, paver tile platforms for differently-abled persons, skating ring and open gyms.
- Management of 30 parks

**Policy for parks: Greater Chennai Corporation**

- A benchmark established for parks constituting 70% greenery and 30% of furniture, play equipment, walking tracks.
- Increasing the green cover from the existing 2% to 33% as per the National Forest Policy
- 38 parks under AMRUT scheme

**Figure 17: Parks and open spaces initiatives under AMRUT**

Source: SAAPs 2017-20 of mission cities



between city dwellers and authorities, making cities more accountable towards resident families. The reform enabling reassessment of building norms and standards provides an opportunity for altering byelaws keeping children's needs paramount.

### 2.3.5 Other aspects of AMRUT that support inclusive development

AMRUT has acknowledged that the pursuit of a better life for urban dwellers doesn't stop at provision of taps and sewerage connections. Other necessary infrastructure like greens and sustainable transport have also been targeted concurrently; following a systematic process of prioritization and phasing of projects. The following aspects of the mission can be oriented to contribute towards creating cities responsive to children's needs:

#### 1. Designing child friendly zones and infrastructure in city parks.

For the first time, an urban program in India has given immense importance to designing green play areas for children. AMRUT has devised a template for green spaces and parks for assisting ULBs in preparation of SLIPs for rejuvenation of urban greens<sup>58</sup>. The assessment of parks under AMRUT is based on elements such as:

- » **Physical activity resources:** paved pathways, kabaddi & badminton courts, free play areas etc. for encouraging physical activity.
- » **Family facilities:** such as child-friendly play equipment, picnic spots, dustbins, park furniture including benches and garden tables, pathways / green areas with trees etc.
- » **General services:** boundary wall/ fenced areas, public conveniences, tube well/ piped water supply (for irrigation and drinking water facilities), illumination, parking space and area for composting and semi-pucca huts with seating.
- » **Aesthetics:** enhancing overall park aesthetics by providing attractive entry gates, illumination using LEDs, fountain area, landscaped manicured area, flowers and shrubs, water

bodies with aquaculture (wherever possible), and accessibility to all of these.

**As per mission guidelines, 2.5% of the funds allocated annually to every city must be directed towards creating one children's park every year in all AMRUT cities, thus reinforcing children's right to play.**

#### 2. Building resilience of physical infrastructure

Up until now, resilience of cities has been focused on buildings. Little has been done to build the resilience of physical infrastructure such as water supply and sewerage systems, drainage, and transport infrastructure. Disruption of these systems at the time of a disaster affects the response time as well as post-disaster restoration, with children being the most susceptible if sudden collapse of city systems happens. AMRUT prescribes building resilience against disasters by including disaster-secure engineering and structural norms in the design itself. This ensures a sturdy support infrastructure for timely and uninterrupted response and restoration in the event of any disaster, safeguarding children and families from disruption of life and associated struggles.

#### 3. Integrating operation and maintenance in plans

AMRUT has gone a step ahead and included operation and maintenance within the initial phase of project planning. For the entire infrastructure being created, there is also a component of expenditure and institutions/agencies responsible for operation and maintenance.

AMRUT specifically addresses the operation and maintenance of open areas and greens and recommends a PPPP(public-private-people partnership) model, making the users and stakeholders responsible for its upkeep. This can encourage new models of participation from the community and encourage them to be more responsible towards the infrastructure they use,

fostering a sense of belonging.

#### 4. Encouraging out of box thinking and action

AMRUT in its guidelines specifically mentions a 'decisive break with the past' approach<sup>59</sup>, with more room for alternative planning and design strategies.

Low cost options coupled with smart solutions

like water quality monitoring systems, emergency response systems, citizen safety systems etc. have been proposed by all the mission cities. The mission can support fresh and innovative approaches towards creating children's play areas and parks, improve city scapes and introduce age-appropriate elements, using design and planning strategies.

## 3.4 Recommendations - fostering urban environment and infrastructure for children and families

AMRUT lays the foundation towards making urban areas liveable. It can establish an ecosystem equipped to not only fulfil the most fundamental needs of a household, but to be the foundation for successful implementation of all other urban missions.

With basic infrastructure in place, mission cities are better equipped to move on to the larger goal of providing quality of life for resident families. This section includes recommendations for the current implementation in mission cities and the next version of the mission- AMRUT 2.0, which would help developing better cities for children.

- **Addressing Limitations in Implementation: Achieving Speed + Scale with Quality**

All the 500 mission cities have been given five years to achieve universal coverage of basic services. However, with different capacities of ULBs, the feasibility to achieve this goal in the targeted time can be a little daunting.

All the components of AMRUT mission are visibly measurable in everyday lives of children, it is important to keep a tab on the quality of infrastructure being created at all levels of implementation. A monitoring and evaluation

system with defined benchmarks for quality of infrastructure must be established by the mission. This can make sure that the infrastructure developed under the mission is inclusive, well built, long lasting and resilient.

- **Mapping provisions and gaps in essential infrastructure**

One of the objectives of the mission is to develop common digital geo-referenced base maps and land use maps using Geographical Information System (GIS) and master plan formulation to guide the future urban development in all 500 cities.

This provides the opportunity to cities to create sector-wise urban database of different users including children. Mission cities must undertake mapping exercises to analyse the gaps and areas requiring immediate attention in context of children related infrastructure. This can provide a clear assessment of gaps and action points for ULBs. The database so created can also help in evaluating and monitoring the impact of infrastructure deficit on health of children and families, thus providing a city level baselining for prioritizing future development areas. Mission cities must also map out slums and degenerating areas in a city, to reach out to the most vulnerable

urban pockets struggling for bare minimum.

- **Building capacities and institutionalizing accountability**

AMRUT gives autonomy to cities and states to choose and prioritize their areas of intervention and design strategies. This can play an important role in bringing children's need to the fore in all the mission cities. Innovative capacity building exercises like exposure visits, workshops, seminars, research studies to orient city officials towards concepts of inclusive planning.

Under its urban reforms, AMRUT has encouraged ULBs to have e-governance platforms, enabling citizens to access services like birth registration, information on child welfare committees and laws at city level etc. These can be made more robust

with information about schools, various standards and norms of facilities and different programs associated with children.

- **Revision of building bye laws**

To bring about changes on ground, it is important to alter the norms and standards governing development of built environment in cities. AMRUT provides this opportunity by directing cities to review building byelaws periodically.

**This provides an opportunity for reassessing and altering byelaws keeping children's needs paramount. There are many guidelines and design tools like BaLa indicators and disaster resilience guidelines developed specifically for children associated built environment and infrastructure, which can be easily decoded**

#### CFSC London Exposure visit in October 2018



Understanding the need to gather better understanding on how cities can cater to the needs of children, a study tour to London was organized as part of CFSC initiative on 22nd Oct and 23th Oct. The study tour included knowledge-sharing sessions with experts from UK and field trips to a number of good initiatives in London city. It was planned with an intention to learn how London city has carried forward some of its innovative planning, urban design, and community development strategies and further adopted to better respond to needs of children at city, borough and neighbourhood

scales. The focus area included parks and play spaces, living environment, early childhood facilities, and schools and child-care centres. The participants of the trip included senior government officials from collaborating institutions such as Delhi Development Authority, Smart cities mission, Delhi Commission for protection of Child Rights, South Delhi Municipal Corporation, Bhubaneswar Development Authority and representatives from Master Plan of Delhi 2041 project at NIUA.

One of the participants from Dr. Alok Singh, Director (Horticulture), South Delhi Municipal Corporation went ahead and redeveloped an existing open area into a children's park using innovative design elements and play spaces for all age groups with a right mix of adventure and safety.

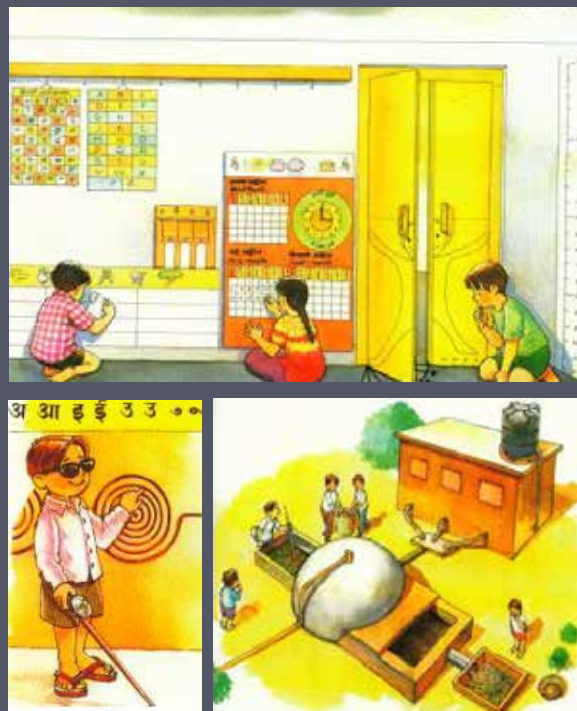


## BaLa Indicators - Effectively using building as learning aid in elementary schools

Building as Learning Aid (BaLA)<sup>61</sup> is an innovation that can help India's schools become more child friendly. UNICEF has supported this initiative to see how school space, both indoor and outdoor, can be developed as a learning resource and can help transform school infrastructure under the aegis of the Right of Children to Free and Compulsory Education (RTE) Act 2009.

BaLA is a tool to promote learning, curiosity, care and concern, wonder and lifelong learning. It helps children to practice and revisit concepts. It also helps learning to take place everywhere - in the classroom, the corridor, the verandas, the outdoors, etc using design elements. These indicators are based on development milestones of children and use built environment elements to enhance learning, such as understanding the physical world using classroom maps, outdoor maps, visual illusions, symmetry, learning ways of interacting with language using pin up boards and display systems, book corners, visuals and activity based elements like kitchen as learning space, mock up

post office for developing life skills and mini herbal garden using waste water, inviting more birds and bees and natural learning materials for nurturing the natural environment.



into guidance documents like **Urban Building Byelaws (UBBL)**.

- **Addition of children related indicators to Ease of Living Index for assessing cities**

Ease of Living framework<sup>60</sup> currently comprises four pillars namely Institutional, Social, Economic and Physical which are further broken down into 78 indicators across 15 categories (governance, identity and culture, education, health, safety and security, economy, affordable housing, land use planning, public open spaces, transportation and mobility, assured water supply, waste-water management, solid waste management, power, and quality of environment). Ease of living Index 2.0 must have indicators for

specifically assessing the built environment and infrastructure in cities with respect to children of all ages and abilities.

AMRUT is not limited to any area or any one kind of solution, but focuses on tackling infrastructure gaps across the city to make urban areas more liveable.

All in all, AMRUT has initiated a movement towards drawing attention to the needs of children in Indian urban setting by focusing on the normative needs of water and sanitation, and children parks in all 500 cities. It has enabled cities to create child and family friendly urban environment focusing on the many facets of their growing up years.





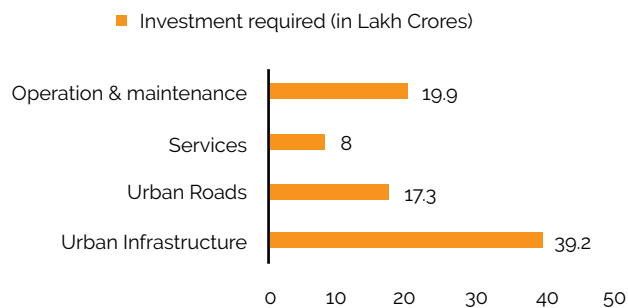
Figure 18: AMRUT convergence model with other flagship missions





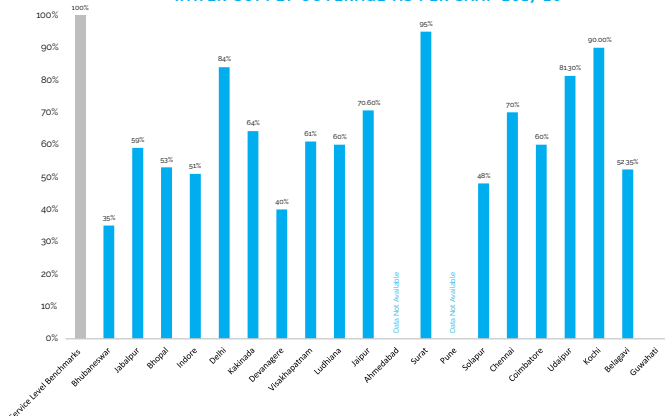
# AMRUT

## Investment required (in lakh crores)

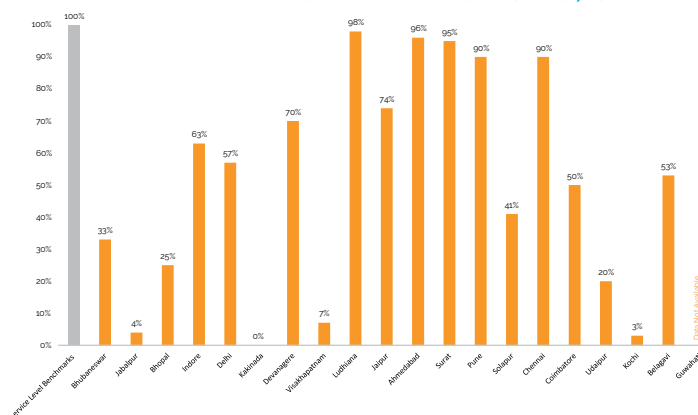


The total outlay for AMRUT is **Rs. 50,000 crore** for five years from FY 2015-16 to FY 2019-20

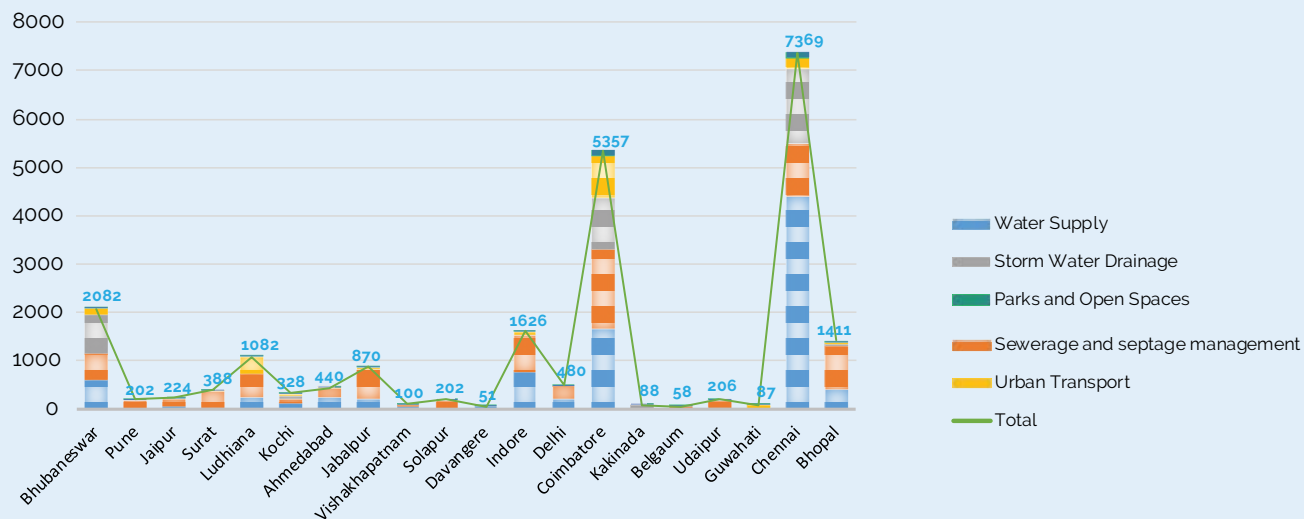
WATER SUPPLY COVERAGE AS PER SAAP 2017-20



COVERAGE OF SEWAGE NETWORK AS PER SAAP 2017-20

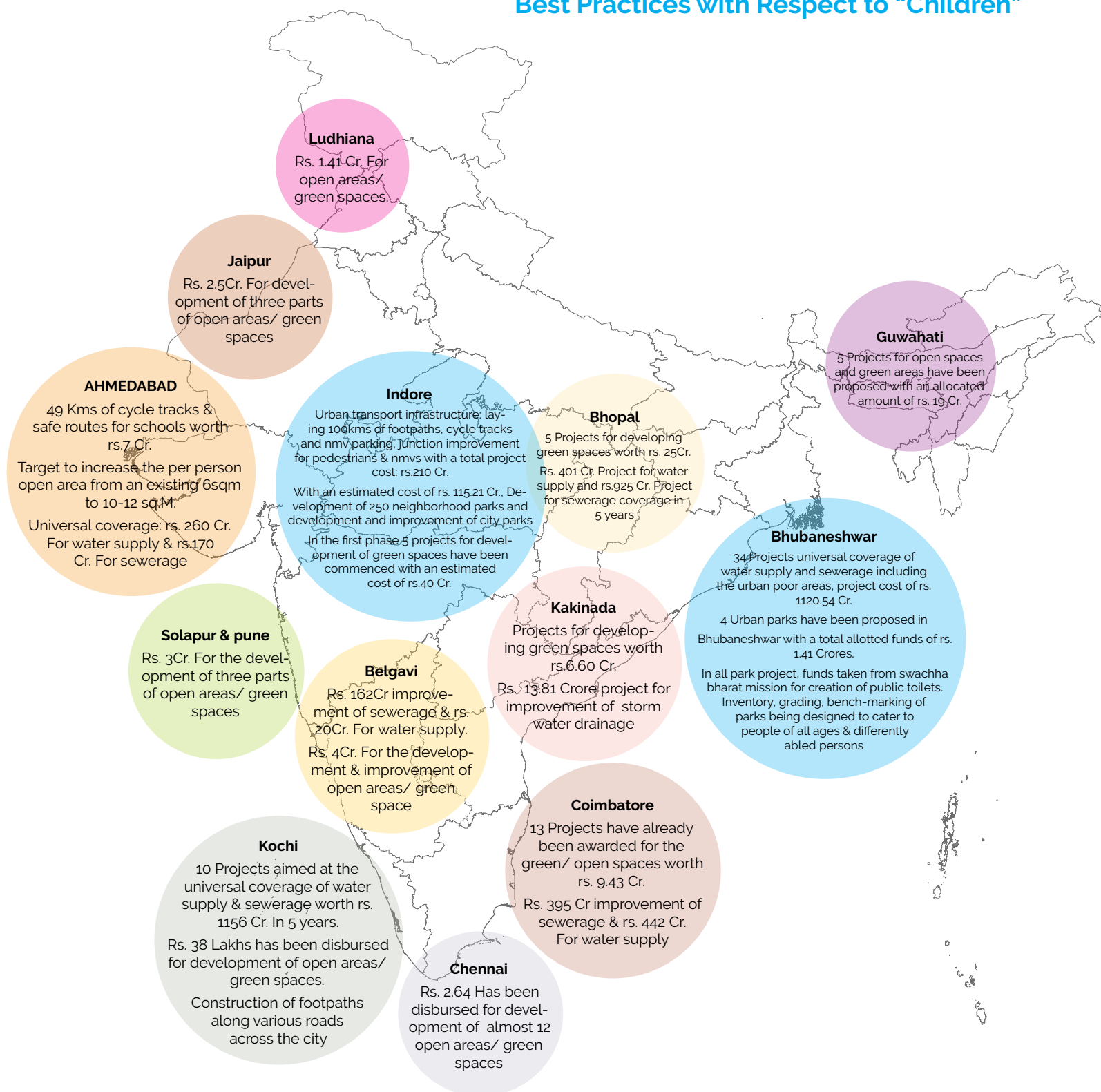


## CITY WISE SECTOR WISE FUND ALLOCATION (Amount In Crores)

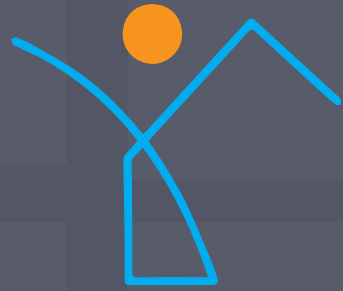


# Atal mission for Rejuvenation and Urban Transformation

## Best Practices with Respect to "Children"







## 4. Pradhan Mantri Awas Yojana (PMAY)



Housing for all by 2022



Addressing a housing shortage of 10 million, out of which 2 million are specifically for urban poor



4041 urban centres



A total outlay of 3.3 lakh crore rupees



14.9 million in congested and .99 million in unserviceable (katcha) houses



Around 6 million houses sanctioned till 2018

Having a safe and stable shelter encourages an active participation of families and children in the social, educational, economic and community aspects of urban living. Being deprived of a shelter not only compromises children's overall health, safety and learning outcomes, but also cripples their development and well-being in the long run.

PMAY (Housing for all) program has been launched by the government to fulfil housing needs of homeless and urban poor, safeguarding the interests of families living in vulnerable conditions.

## 4.1 Overview of the mission

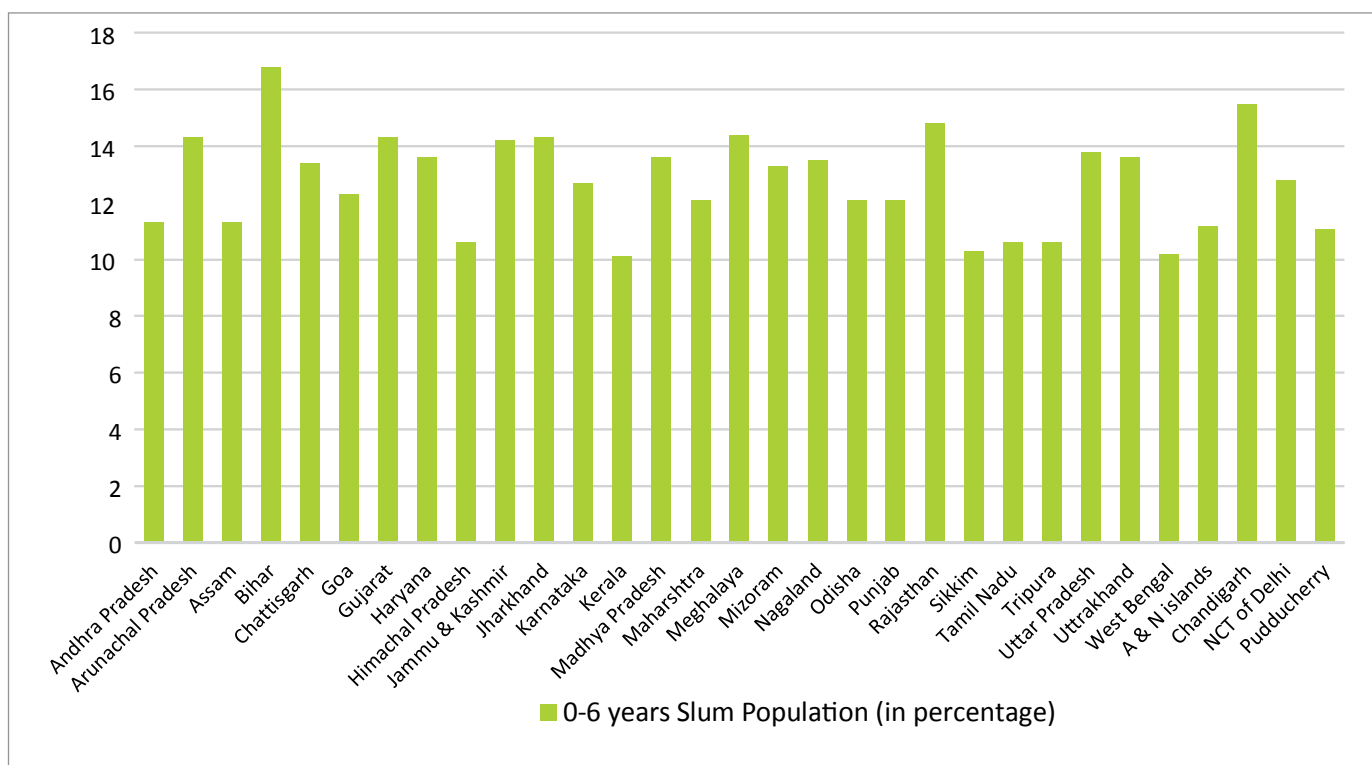
Housing has always been a priority area in the Indian urban development scenario. However, Indian cities have struggled to keep pace with the rising housing demand, particularly for urban poor and families with low income. Existing affordable housing stock and informal neighbourhoods are characterized by poor living conditions, overcrowding, and lack of basic services, making life challenging for everyone. Thousands of children living in these neighbourhoods and on streets are regularly exposed to health scares, safety issues and multiple social problems.

In India, states of Uttar Pradesh, Maharashtra, West Bengal, Andhra Pradesh, Tamil Nadu, Bihar, Rajasthan, Madhya Pradesh, Karnataka and Gujarat together contribute to 76 percent of the urban housing shortage and also have the maximum number of slums<sup>62</sup>. Out of the 128.5 million children residing in urban areas, close to 7.8 million children of 0-6 years live in abject poverty and poor conditions in informal settlements<sup>63</sup>. With no homes, these children are also deprived of the facility of clean water, adequate sanitation and healthy environment to play; exposing them to long

lasting health impacts from a very early age. Their learning and development takes a backseat to the everyday battles for survival.

Providing access to a safe and stable housing is fundamental to counteract the increasing disease burden and multiple vulnerabilities faced by children in Indian urban areas. With access to 'affordable' housing, a number of these challenges would be resolved helping shape an environment where children, families and communities would grow and nurture each other.

Pradhan Mantri Awas Yojana - Urban (Housing for all) is a program running in urban India for bridging the gap between housing demand and supply. The prime approach employed by this program is to provide an opportunity to families to build their own homes by offering them financial and technical assistance. In case of slums, the program has adopted the approach of in situ upgradation of the housing stock or building affordable housing by means of forging public private partnerships.



**Figure 19: State/UTs wise percentage distribution of slum children (0-6 years) population**

Source: MoHUA (2015), Slums in India, A statistical compendium 2015

## 4.2 About the mission

Pradhan Mantri Awas Yojana became effective from June 2015 with a vision to provide affordable housing for 18 million slum households and 2 million urban poor in the country by March 2022.<sup>64</sup> Considering 90% of the housing demand was observed in the EWS category, the mission sought to address the housing requirement of urban poor and the slum dwellers through the following programme verticals:

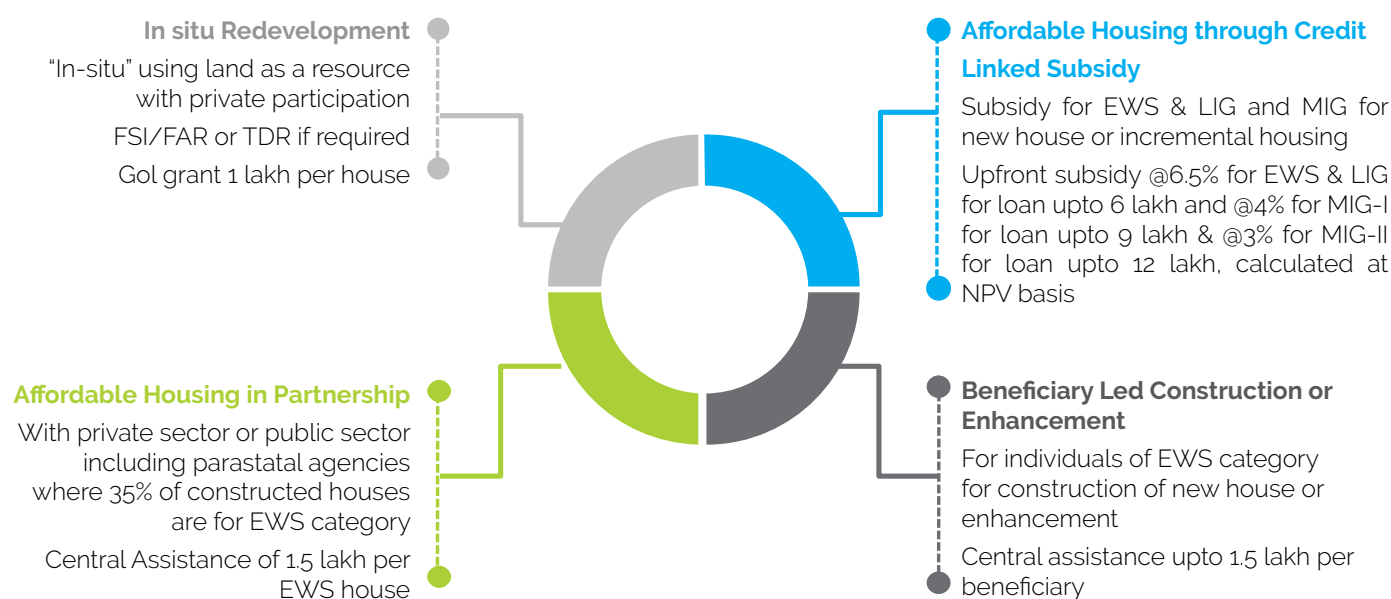
- **Rehabilitation of slum dwellers with participation of private developers using land as a resource.**
- **Promotion of affordable housing for economically weaker section through credit linked subsidy.**
- **Affordable housing in partnership with public & private sectors.**
- **Subsidy for beneficiary-led individual house construction.**

The mission aims to provide pucca houses as well as water connection, toilet facilities, and 24x7-electricity. It has provided an opportunity to identify and address the housing requirements in all the 4041 urban centres. The mission strives for:

1. Eradication of the gap between supply and demand, and improving the living conditions of the urban poor including the slum population;
2. Rise in self-ownership of all-weather, sustainable and disaster resilient dwelling units
3. Gradual elimination of obsolescent housing, and improvement and rehabilitation of occupied units;
4. Empowerment and equity for the marginalized sections of the society.







**Figure 20: Program verticals of PMAY- Urban**

Source: PMAY(Urban) Operational guidelines

## 4.3 Implementation progress of the mission

As per the annual report of the Ministry of Housing and Urban Affairs (MoHUA), 35 Memorandum of Agreement (MoA) have been signed with 29 States and 6 UTs and 4,302 cities have been selected in 35 States/UTs for inclusion under the Mission.<sup>65</sup>

3031 projects for construction of 1.4 million houses for economically weaker section (EWS) in 29 States/UTs were accepted by government under the mission.

As on December 2018<sup>66</sup>:

- 1.2 million (12.45 lakh) houses have been completed.
- 3.5 million (35.67 lakh) houses have been grounded against 6.8 million (68 lakh) houses that have been sanctioned since the launch of PMAY (Urban).
- Every month, more than 0.3 hundred thousand (3 lakh) houses are being approved under PMAY(U) and it is moving at a fast pace as compared to the

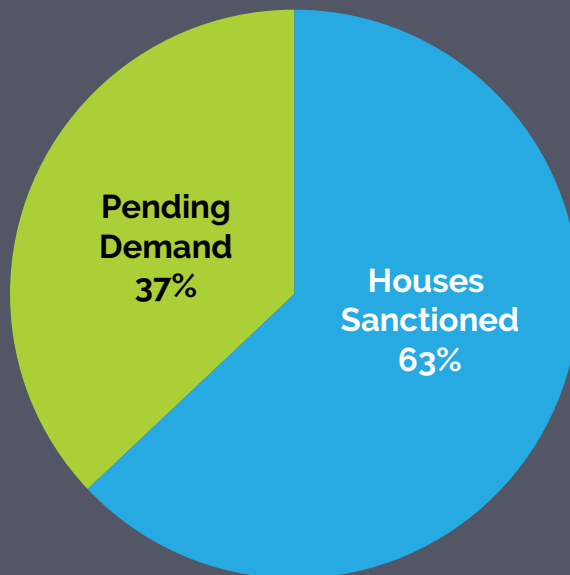
earlier schemes. (PIB, March 2018)

- 24 new technologies for mass housing construction have identified to fast track the implementation.

For rapid implementation of PMAY (U), a National Urban Housing Fund of Rs. 60 thousand crores (6 hundred billion)<sup>67</sup> has been established by the Ministry of Housing and Urban Affairs (MoHUA). PMAY has also subsumed projects initiated under earlier RAY (Rajeev Awas Yojana).

Despite displaying a steady progress, ULBs have not been able to capitalize this mission completely. The speed of construction has not been able to match the speed of urbanization and rampant migration. The numbers have been daunting and in the process, the quality of housing and living spaces envisaged by the mission has been compromised at some places.

## Pradhan Mantri Awas Yojana (Urban)



Urban Housing Demand: **100 Lakh**  
Houses Sanctioned: **63 Lakh**

### HOUSES SANCTIONED UNDER PMAY(U) -IN LAKH

Houses sanctioned under PMAY(U) - in Lakh

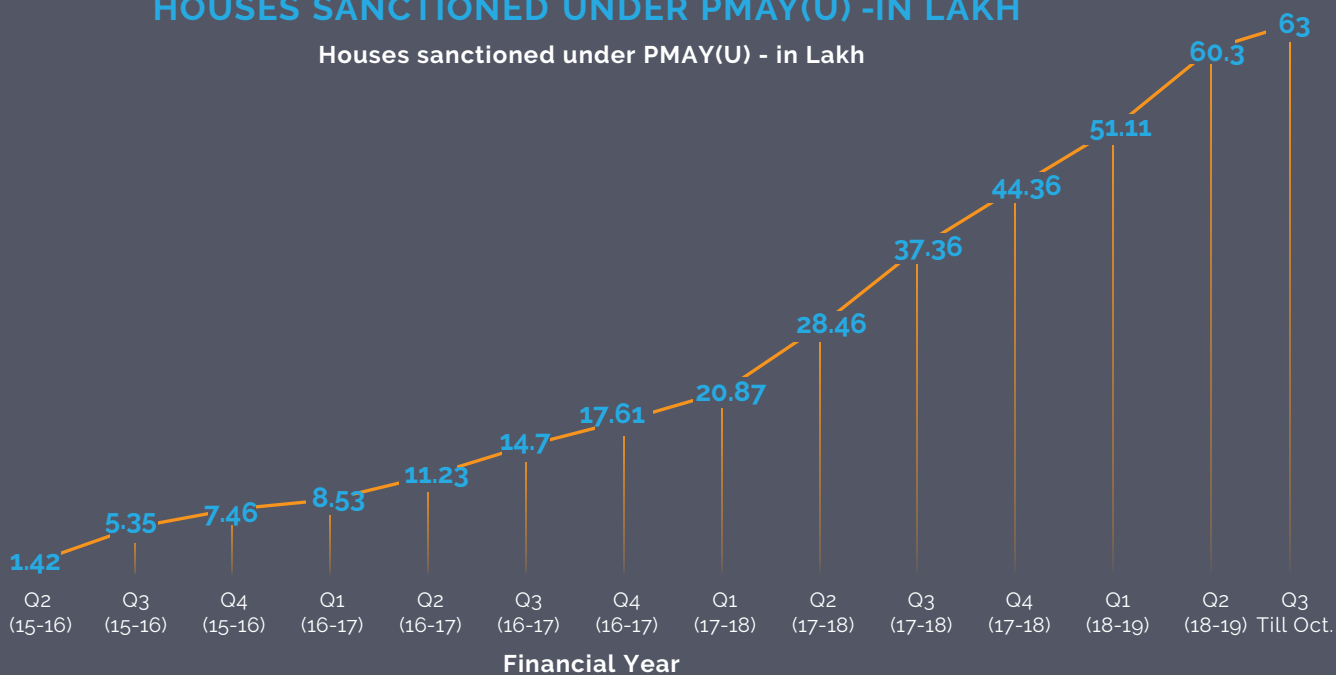
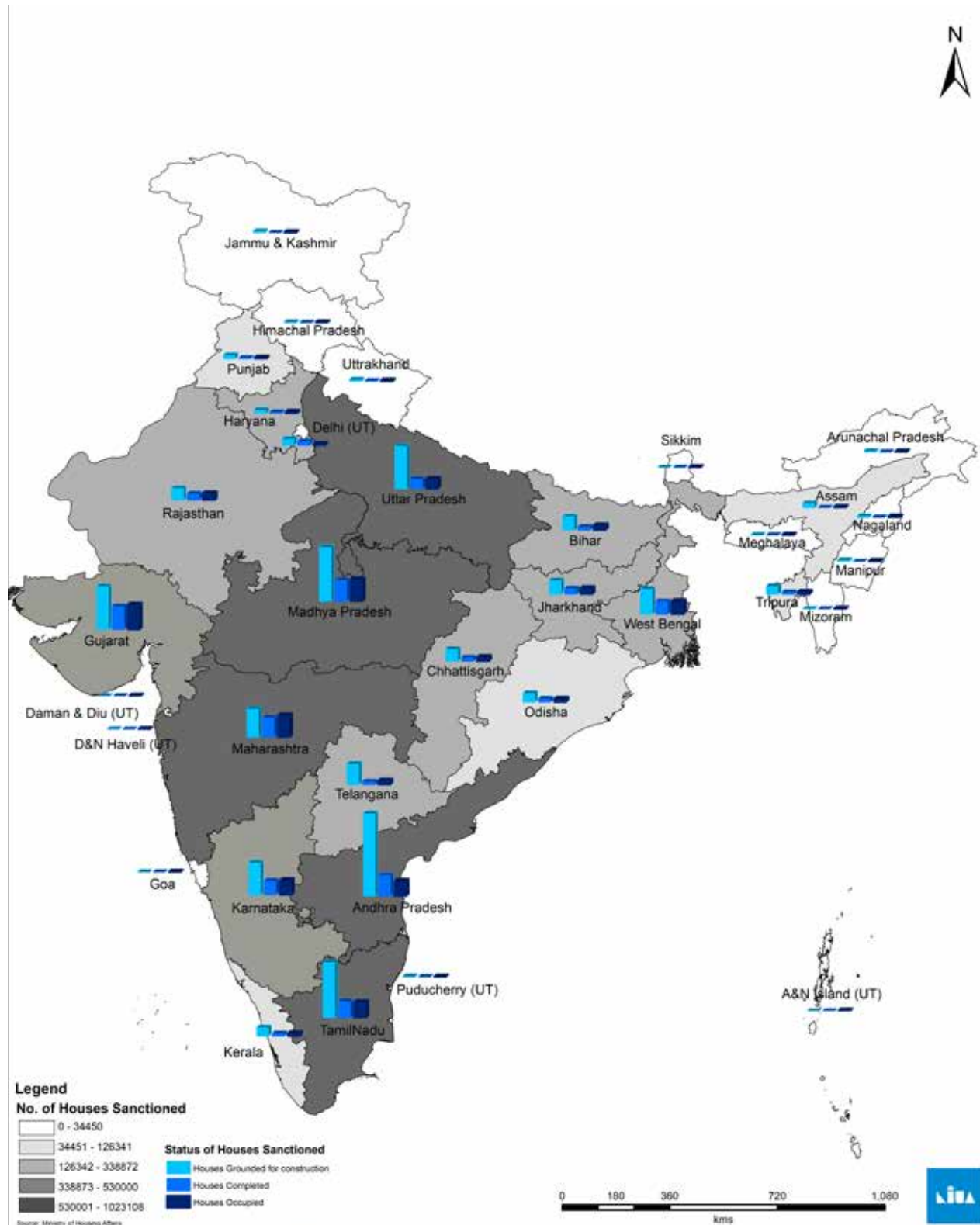


Figure 21: Status of PMAY Urban

Source: Mission Dash Board by MoHUA

## Pradhan Mantri Awas Yojana (Urban) - Housing for All (HFA) State wise Progress (since 2014)



## 4.3 Pradhan Mantri Awas Yojana for urban children and families- An opportunity for growing up in better conditions

Overall physical and psychological development of children is defined by the living conditions and home environment where they spend the most of their time, especially in early childhood years. Every aspect of their growing up, from learning to their health and nutrition, from developing habits to expanding their understanding of the world is closely associated with their home and living environment.

The program guidelines and implementation directives of PMAY have a number of aspects that target families. Moreover, the improvement in quality of life would eventually benefit children. Following are some key aspects and innovative approaches adapted by the mission to address the unmet housing demand in urban areas that can contribute immensely to children and families:

- **TECHNOLOGY SUBMISSION**

Moving beyond the mere provision of dwelling units, the technology submission under the mission facilitates adoption of modern, innovative and green technologies and building material for faster and quality construction of houses. Technology submission also enables preparation and adoption of layout designs and building plans suitable for various geo-climatic zones, assisting states/cities in deploying disaster resistant and environment friendly technologies. **Simple elements ensuring adequate sunlight and air being incorporated into the building layout can lead to a larger impact on the health and overall well being of families and children.**

Houses under the mission have to be designed and constructed to meet the requirements of structural safety against earthquake, flood, cyclone, landslides or any other natural disaster

prevalent in the region, conforming to the National Building Codes or other relevant Bureau of Indian Standards (BIS). This is a big step towards ensuring safety and resilience against disasters, particularly for children who are most susceptible to the associated risks. It also supports preparation and adoption of layout designs and building plans as per the climatic conditions of the area. The mechanism of technology submission envisions development of safe, less carbon-intensive, climate-resilient and disaster resistant housing, which promotes healthy environment for everyone.

**Although technology submission essentially looks at the environmental sustainability and disaster mitigation features of housing design, it can assist in building houses that ensure healthy, safe and stable residential setting for children and families to prosper. It also ensures adequate disaster resistance and structural strength in new housing stock being created, guarding families from constant threats to life and displacement in case of any unanticipated disasters.**

- **INCLUSIVE AND SELF BUILT HOUSING**

PMAY enables in-situ development of slums and construction of houses by people themselves thus giving them an opportunity to model and design their home environment themselves. The freedom to use indigenous materials and building techniques in conformity with the local climate and culture instills a sense of belonging and confidence among the beneficiary families.

"In-situ development" of slums leverages the locked potential of land under slums to provide



houses to the eligible slum dwellers, thus bringing them into the ambit of formal urban development. This has prevented evictions of entire communities to far off fringe areas. **Insitu upgradation and autonomy to design their own homes ensure that the caregivers stay close to their workplaces and facilities, reducing the travel and financial stresses for families and giving children and caregivers more time in company of each other.**

- **HOUSING RIGHTS OF MIGRANT FAMILIES**

The mission particularly emphasizes on the immediate need to create housing for migrant families, thus enforcing the right of migrants to adequate shelter as well as basic services. Considering, the rate of migration to cities is rising steadily, it is very important to provide for basic shelter needs of migrant families and prevent children from these families fending for themselves on the streets.

- **APPLICATION OF MINIMUM DESIGN STANDARDS AND PROVISION OF BASIC SERVICES**

The mission mandates that the size of houses constructed under the mission must follow the minimum habitable space standards of the National Building Codes (NBC). The mission supports construction of houses of minimum 30 square meter carpet area for economically weaker sections and upto 60 square meters for lower and middle income groups with the provision of basic civic infrastructure<sup>68</sup>. This has been increased from the earlier standard of 15sqm stipulated for affordable housing.

***Internationally, in cities like London, the size of affordable housing unit is dependent on the number of bed space, with minimum size ranging from 37sqm for one person to 70 sqm for a***

***family of 4 persons. To address the unique heat island effect of London and the distinct density and flatted nature of most of its residential development, a minimum ceiling height of 2.5m for at least 75% of the gross internal area is strongly encouraged so that new housing is of adequate quality, especially in terms of light, ventilation and individual personal space.***<sup>69</sup>

The mission mandates that all the housing constructed or retrofitted should have adequate toilet facility. **Access to the basic minimum amenities as well as adequate living space fosters a healthy life for everyone in the family, most importantly for children.**

- **OWNERSHIP AND STABILITY**

PMAY makes provision for right to property / house registration in the name of the female head of a household, or jointly in the name of both the male and female heads of the household, thereby ensuring equal rights to the house constructed.

Women and especially mothers getting equal ownership to the house are empowered. Confidence gained by mothers goes a long way in taking the right decisions about the lives of children especially their learning, education and health needs.

- **SIMPLIFICATION OF THE PROCESS FOR SPEEDY CONSTRUCTION**

The mission prescribes mandatory reforms for easing up the urban land market for housing, to make adequate urban land available for affordable housing as well as ensure partnerships between the public, private and the community to play a meaningful role in the provision of shelter and basic services to families.

## 4.4 Revisiting PMAY - Towards Creating Housing for Families and Children

To achieve the ambitious target of constructing 10 million houses, PMAY has to come up with alternative strategies and solutions specific to the varying housing demands of different cities. For this, the first step is to create a city-level data bank of the demand and availability of housing stock and map the neighbourhoods that require retrofitting or redevelopment. The current implementation of the mission needs to respond to the changing housing requirements, by adopting strategies for rental, incremental and social housing to speed up the process of providing quality affordable housing in urban areas. It is also essential to see housing as more than a dwelling unit to a space for individual and community development. By providing adequate and affordable housing, the cities can shape a better future for their children and youth.

- **ENSURING HOUSING STRATEGIES THAT ADAPT TO CHANGING LOCAL NEEDS**

Depending on the housing needs of their residents, the mission cities can determine the approach to tackle the housing crisis. The biggest challenge ULBs are facing in the implementation of the mission is unavailability of serviced urban land close to the places of work.

**Understanding this, rental housing becomes a major breakthrough for a number of these mission cities to ensure an adequate living space for a staggering number who are currently living on streets or in slums. Rental housing can accommodate the workforce migrating to cities. It can be designed to provide flexibility depending on the paying capacities and varied space requirements of families. For families living on streets, it means having a healthy and dignified life, with basic needs taken care of and opportunities for social interaction with other**

**families.** With a robust framework for operation and maintenance, rental housing can be a practical alternative to user-owned affordable housing. Other affordable housing models like incremental housing, social housing or cooperative societies can be adopted by the mission cities to speedily deliver on the target.

Learning can be gathered from the positives of existing housing typologies such as chawls having cluster/courtyard walkups, space for small home based occupations and flexible shared spaces, is required considering these typologies are compact yet accommodate high densities and are affordable. Scaling up such design typologies can help in ensuring an affordable, stable housing supporting livelihood and a dignified life for families.

- **ENSURING EQUITABLE ACCESS TO SOCIAL/ HEALTH INFRASTRUCTURE IN CLOSE VICINITY**

For the mission cities to foster healthy and liveable communities, and plan from the perspective of families and children, it needs to look at an overall neighbourhood design and development mechanism for addressing the collective needs of the community. The mission cities must provide the necessary infrastructure and amenities accessible to the community at walking distances. It is crucial to provide:

- **PARKS & OPEN SPACES:** A variety of open spaces that are easily accessible and meet a range of needs. Liminal spaces also must be included.
- **CHILD CARE FACILITIES:** conveniently located child care facilities like anganwadis, crèches, day cares, health centres and schools.
- **SAFE MOBILITY NETWORKS:** active streets encouraging walkability.

- **FOSTERING COMMUNITY PARTICIPATION AND PROVIDING SECURE HOUSING ENVIRONMENT**

Housing forms a part of family's cultural and socio-economic identity. A neighbourhood is representative of the community bound by culture, social or economic factors. Thus, housing design is subjective and characteristic of the area and people living there. PMAY, therefore, must encourage participation from the community, taking into account their requirements and aspirations from their living space and neighbourhood. For creating inclusive housing models contributing to the health and well being of everyone in the community, it is important to engage children and youth in the design and planning of housing and neighbourhoods. On a local level, children and caregivers can provide useful insights on the specific needs and issues they face in their living areas and surrounding environment, that can then be incorporated in designing a housing that is responsive and tailored to the needs of the family and community.

- **DEVELOPING "DESIGN AND PLANNING GUIDELINES FOR PROVIDING FAMILY FRIENDLY HOUSING"**

PMAY has the potential to create healthy and happy neighbourhoods by providing equitable access to shelter, health, education and recreational facilities. It must have an overall strategy integrating design, planning and financial models for developing family friendly housing that would include people, community, local activities, place and resources along with housing. PMAY must include design and planning guidelines stating essential components of housing and neighbourhoods necessary for supporting community living for families. These guidelines must accommodate needs of all ages, abilities and economic backgrounds. Being affordable must not equate to compromising on the associated needs of playing, learning and leading a healthy life.

### **Scheme of Shelter for Urban Homeless (NULM– SUH)**

The National Urban Livelihoods Mission – Scheme of Shelter for Urban Homeless (NULM– SUH)<sup>70</sup> was launched by the Ministry of Housing and Urban Poverty Alleviation in 2014. It provided policy direction to the Supreme Court's orders on homelessness. The Scheme aims to provide permanent shelter and essential services to the urban homeless population in the country. It sets specific norms and standards for the distribution, location, and design of permanent and all-weather shelters for the urban homeless, who presently have no access to shelter or public services such as health, education, food, water, and sanitation. Further, the Scheme specifies that the requirements for vulnerable homeless groups vary, and hence, the nature of the homeless population in a location should dictate the type of shelter to be constructed. There should thus be separate shelters for men, women, families, and special shelters for older persons without care, persons with mental illness, and recovering patients and their families. The Scheme also provides for convergence of service delivery and provision of entitlements including social security, food, education and healthcare, as well as identity proof, address proof, pension, Below Poverty Line (BPL) cards, ration cards, Integrated Child Development Services (ICDS) centres, free legal aid, and admission to government schools and public hospitals for urban homeless residents.

The mission ensures child care facilities for young children by linking the shelter to the nearest anganwadi centers. A space of 50 square feet per person as the minimum space, adequate bathing and toilet facilities and potable drinking water must be provided for dignified living.

## GROWING UP - URBAN DESIGN GUIDELINES, TORONTO, 2017

The guidelines<sup>71</sup> are rooted in Toronto's Official Plan vision which seeks to create an attractive and safe city where people of all ages and abilities can enjoy a good quality of life. The intent of these city-wide guidelines is to integrate family suitable design into the planning of new multi-unit residential development. The success of new vertical communities will be measured by their ability to meet the needs of a diversity of households including those with children. The guidelines are organized into three scales – the neighbourhood, the building, and the unit.

### Neighborhood Level Guidelines

- Focusing on children's experience of the city
- Promoting range and mix of housing types and densities
- Promoting independent mobility- Transit facilities serving families, Localized Walkable scales, bicycle friendly streets including parking, safe routes to schools and play spaces, eyes on street
- Ensuring access to parks, community facilities, nature.
- Planning Children priority Zones including schools and early childhood care services



### Building Level Guidelines

- Encouraging interactions and active social life.
- Supporting functional and flexible amenity spaces.
- Fostering design interventions such as shared spaces, chance meetings and civic

engagement.

- Designing for the youngest and the oldest including anti-skid floors, hand rails, soft areas, curved corners, alarm bells integrated with creative activities in the neighborhood.



### Unit Level Guidelines

- Providing functional spaces that accommodates a family's needs- Besides defining a minimum dwelling unit size of 30sqm, additional space for family/ community needs.
- Preventing Overcrowding
- Appropriate light and ventilation and thermal comfort.



### Location and Surroundings

- Locating affordable housing close to livelihood opportunities and not in the outer periphery of the city.
- Ensuring access to services such as sanitation, transportation, schools or health facilities by local bodies.
- Avoiding non-compatible uses like industrial sites, dump yards, vector breeding grounds, or heavy traffic corridors in the vicinity.



# IPMAY

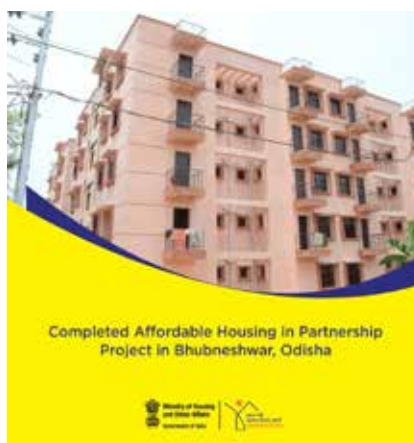
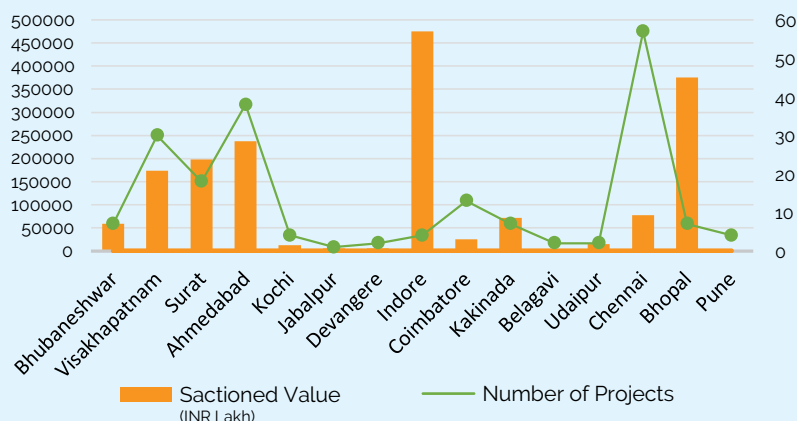
## Best examples in housing in the lighthouse cities

### Slum Upgradation by Surat Municipal Corporation (SMC)



- Socio-economic survey data of the Existing slum scenario in the city as whole and zone wise
- Action plan for slum alleviation project sustainability in terms of Land and finance.
- Work out practical and efficient public private partnership initialize models for slum free city
- Slum Upgradation: SMC would provide most of the basic infrastructure in the existing slums, there by upgrading the living environment.
- Slum redevelopment: SMC intends to redevelop the slum which located on SMC and private land at the same place where they are existing by recognizing and re-densification.
- Slum rehabilitation: SMC has targeted to relocate the slums which are situated in flood prone areas.

### PRADHAN MANTRI AWAS YOJANA



### Beneficiary led Constuction- Bhubaneswar Municipal Corporation (BMC)

- "Beneficiary-led Individual House Construction and Enhancement", for 962 nos. of Slum-Households of Bhubaneswar City, who were living in Kutchra and Semi-Puca Houses.
- A comprehensive, holistic policy framework to address all aspects of housing for the urban poor including slum rehabilitation and redevelopment as well as new housing and rental housing.
- Inclusive mixed housing development



- The Ministry of Housing and Urban Affairs, Government of India has conceptualized a Global Housing Technology Challenge - India (GHTC-India) which aims to identify and mainstream a basket of innovative technologies from across the globe that are sustainable and disaster-resilient. The challenge (GHTC - India) seeks to obtain best available innovative construction technologies from across the globe through a unique competitive process. It aims to transform the eco-system of housing construction sector in the country through lighthouse projects built using advanced proven technologies.

### Convergence with Private sector – Kochi, Kerala

- Under CSR funds one of the private builders in Kochi have taken up the responsibility for funding the housing for around 24 families living around a trench.
- Individual houses along with possession certificates are being allocated to these families using the BLC component of the Pradhan Mantri Awas Yojana (Urban) with basic facilities to give them a dignified life.

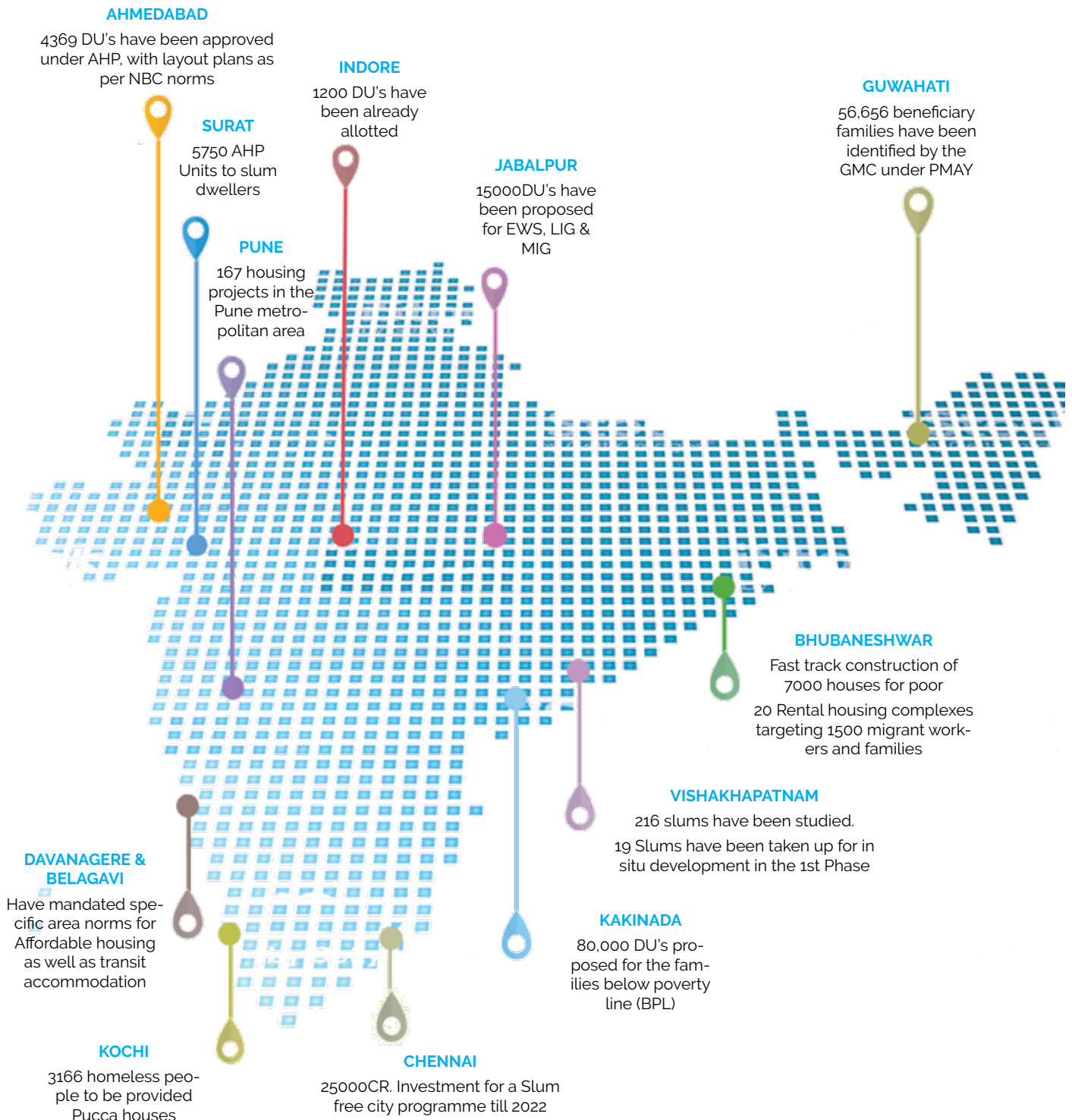
### Nagar Uday Abhiyan- Madhya Pradesh (Indore, Bhopal, Jabalpur)

- ward level committees were formulated in all ULBs for executing the project at ground level and to make sure that all the citizens were covered.
- Demand assessment were done by these ward level committees and the gaps were revised as per the surveys.
- Awareness camps were organized in each ward



# Pradhan Mantri Awas Yojana

## Progress of the first 20 Lighthouse cities in the Pradhan Mantri Awas Yojana





एक कदम स्वच्छता की ओर

## 5. Swachh Bharat Mission



Target of 6.6 million individual toilets and .25 million community toilets and .25 million public toilets by 2019 in 4041 urban centres



7.9 million urban dwellers defecating in open



2767 cities declared ODF until 2018



एक कदम स्वच्छता की ओर



A total outlay of 62 thousand crore rupees



4.32 million individual household toilets and .39 million community toilets have been constructed



Around 88.4 MW waste to energy production

Sanitation is one of the most significant contributor to a child's balanced development. Ensuring clean and sanitary environment to live, play, learn and move around is imperative towards building cities that nurture their children. It is one of the most important aspects that contributes immensely towards the health, well-being and overall development of children.

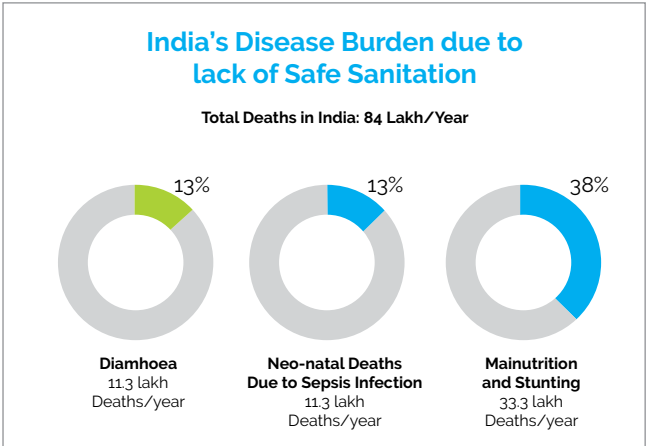
Swachh Bharat Mission (urban) attends to the most pressing issues of mounting disease burden, exacerbating environment pollution and degenerating urban environment arising out of existing sanitation conditions in Indian cities. Children are the major stakeholders and beneficiaries of this program. Sanitation being the underlying cause of the everyday challenges faced by children, SBM is the most forward looking urban program towards ensuring a healthier life for them.

## 5.1 Overview of the mission

As per the report "Overflowing cities" by WaterAid<sup>72</sup>, India is on top when it comes to the number of urbanites living without sanitation with 37.4% of population living without improved toilets and 41 million urban dwellers practicing open defecation. As Indian cities are growing, millions of people are building better lives for themselves, yet there are also people living in impoverished conditions. Rampant urbanization and excessive rural-urban migration has led to more and more people in urban areas living in squalor without clean water, toilets and adequate waste disposal system. They are essentially leading their lives close to drains carrying sewage on piles of solid waste.

The health toll of having no toilets and accumulating waste is immense for children. In India, children under five years of age are severely affected due to this, with diarrhoea killing over 1.2 lakh children<sup>73</sup> every year and about 40 percent<sup>74</sup> of them have stunted growth. The implications of living in insanitary conditions extend to mothers also. Unwell and underweight women living in unhealthy conditions give birth to

underweight babies, who are more vulnerable to infections, are more likely to be stunted, and less able to benefit from vaccines. Thus, the cycle of generations of children growing with adverse health keeps on repeating.



**Figure 22 : India's Disease burden due to lack of sanitation,** Source: NDTV (2018), World Health Day 2018: The Hidden Dangers In The Life Of People Without Toilets

Swachh Bharat Mission (urban) focusing on improving the sanitation situation in urban India is an important





program towards negating these multiple problems and breaking the cycle of living in poor health.

Since its launch on 2 Oct 2014,<sup>75</sup> Swachh Bharat (Clean India) Mission has transformed from a government mission to a national movement, encouraging the states and ULBs, and communities at local level, to aspire and commit towards a cleaner and healthier India. By ensuring construction of household and community toilets, providing better infrastructure provisions in public places as well as supporting a number of innovative solutions for sanitation and solid waste management, SBM is the biggest ever drive for sanitation in India. Over the course of its implementation, it has become a people's movement backed by political will, private and public sector, all joining forces to ensure a "Swachh Bharat" for future generations.

#### 5.1.1 Swachh Bharat Mission- Urban

SBM as a mission has acknowledged that in 4,041 urban areas in India, close to eight million households (7.90 million),<sup>76</sup> do not have access to toilets and

defecate in the open leading to substantial health costs. It has also established that the single biggest source of water resource pollution in India is untreated sewage from cities. Understanding the scale of the challenge ahead for Indian cities and the huge financial implications of not having addressed these issues earlier, has led to a strong and focused commitment from the government of making sanitation in urban areas a priority.

#### 5.1.2 Key thrust areas of the mission

- Elimination of open defecation
- Eradication of Manual Scavenging
- Promotion of Modern and Scientific Municipal Solid Waste Management
- Facilitation of Behavioral change regarding healthy sanitation practices
- Awareness generation about sanitation and its linkage with public health
- Capacity Augmentation for ULBs to create an enabling environment for private sector participation in Capex (capital expenditure) and Opex (operation and maintenance)

## 5.2 Mission Progress

As per NFHS (2015-16),<sup>77</sup> the following gaps were identified in sanitation infrastructure:

- 11% urban households did not have access to latrines and were defecating in the open and 3.7% used unimproved toilet facilities.
- 15% use shared latrines because of lack of space and resources for individual household toilets.
- More than 33% of children's stool or diapers were disposed precariously in urban India.

Four years since its launch, the mission has shown steady progress, having achieved the colossal task of providing 5.3 million urban households

a toilet, constructing around 0.4 million (4 lakh) community and public toilets and having declared 8 states and 3428 cities open-defecation-free<sup>78</sup>

In its vision towards bridging these gaps in sanitation and solid waste management provisions, Swachh Bharat Mission has also managed to address the basic need of a clean and hygienic environment for urban children. From curbing conventional practices like open defecation, to cleaning and maintaining public spaces like parks, schools, streets and neighbourhood, SBM can ensure better quality of life and health for children.

## 5.3 Swachh Bharat Mission for children and families

For children, absence of toilets is more than an inconvenience. With their bodily defenses still developing, it becomes a fight for survival owing to prevalence of a number of life threatening diseases. Moreover, poor sanitation is linked to lower cognitive skills and confidence in children. For children in urban poor families, besides health, it affects their life choices and educational opportunities. This is most evident from the education statistics among the urban poor. Inadequate and insanitary toilet infrastructure in schools affects the rate of attendance and retention, specifically for adolescent girls who drop out because of lack of safe and clean toilets.

To a large extent, poor sanitation is a violation of children's basic rights.

Swachh Bharat Mission is critical to bring about a marked change for children by providing them clean, healthy and stimulating environment. The mission not only looks at improving their live, learn and play settings but also helps in inculcating an awareness of their own role and responsibilities towards the city. This can trigger a deep-rooted behavioural change and awareness in the future generations that cleanliness begins at home.

Following mission directives<sup>79</sup> can be linked to healthier environment for children:

1. For the first time, a mission has given precedence to households with girl children as well as pregnant and lactating mothers. Considering their urgent needs and vulnerabilities such as inability to stand in queues at community toilets for hours or need to use toilets at odd hours, the urgency to provide toilets for them on priority is emphasized by the mission. This step for mainstreaming the needs of girl children and new mothers in an urban mission is a significant step towards more sensitive policy making.
2. Swachh Bharat Mission ensures that all household toilets being constructed under SBM are built with water supply arrangements. In Indian context, toilets without water are not relevant specifically from the perspective of children. Besides, individual hygiene and cleanliness, regular maintenance of toilets renders water supply provision of utmost importance. By ensuring water supply, the mission essentially encourages use of toilets and their proper upkeep, thus discouraging open defecation.
3. The program extends to every household irrespective of whether it is in authorized/ unauthorized colonies, or notified / non-notified slums, thus acknowledging the basic right of sanitation for the most deprived sections. It directs ULBs to ensure adequate provision of toilets on the premises or link to a public/community toilet specifically for migrant families and slum dwellers. In Indian cities, where the quantum of migrant and homeless population is unaccounted, children living in informal and unauthorized colonies suffer the most due to the absence of basic urban services. Thus, ensuring toilets in all the areas irrespective of their legal status ensures the basic minimum for them. This can help in eliminating the existing disparities in Indian cities.
4. The mission ensures that the public facilities constructed under the mission have provision for separate toilets and bathing facilities for men, women and adequate facilities for the disabled (e.g. ramp provision, braille signage, etc.) This is a concrete effort towards addressing the specific needs of different genders and those of people with disabilities. Such considerations can also assist children to some extent.
5. The mission mandates that construction labour in urban areas have access to temporary toilets at all sites in urban areas, buildings, parks and roads where construction / maintenance work is taking



place or where construction labour is temporarily housed. This is very important for their children, especially very young children who stay with their mothers to have a safe toilet and disposal system to discourage open defecation in unhygienic and unsafe conditions close to the building site.

6. In order to address the lack of sanitation infrastructure for slum dwellers, ULBs have been mandated to put up mobile toilets or eco-friendly toilets where it is difficult to provide permanent infrastructure. Moreover, at every public place (banks, post offices, bus stops, petrol pumps, metro stations, hospitals, restaurants, schools, health centres, anganwadis, citizen centres) there should be at least one public toilet available, and that the facility should be kept functional and open for public use. This ensures provision of toilets at comfortable walking distances.
7. SBM aims at achieving 100% door-to-door collection and scientific management of municipal solid waste (MSW). Children are most susceptible

to diseases and infections caused due to lack of cleanliness. Because of adverse impacts on their health owing to presence of garbage and waste in the surroundings of their home or school, their activities and everyday freedoms are also restricted. An effective solid waste management system as proposed by SBM has the potential to improve the health and well being of children and families.

8. To ensure continuous engagement and greater awareness among the citizens, a participatory approach for implementation of the mission has been developed. Smaller, replicable sub programs, designed to cater to different urban scales (such as building, neighbourhood and open space) have been proposed. Depending upon the scale, relevant government departments, local bodies and stakeholders work collectively to facilitate these sub programs and contribute to a cleaner, healthier India

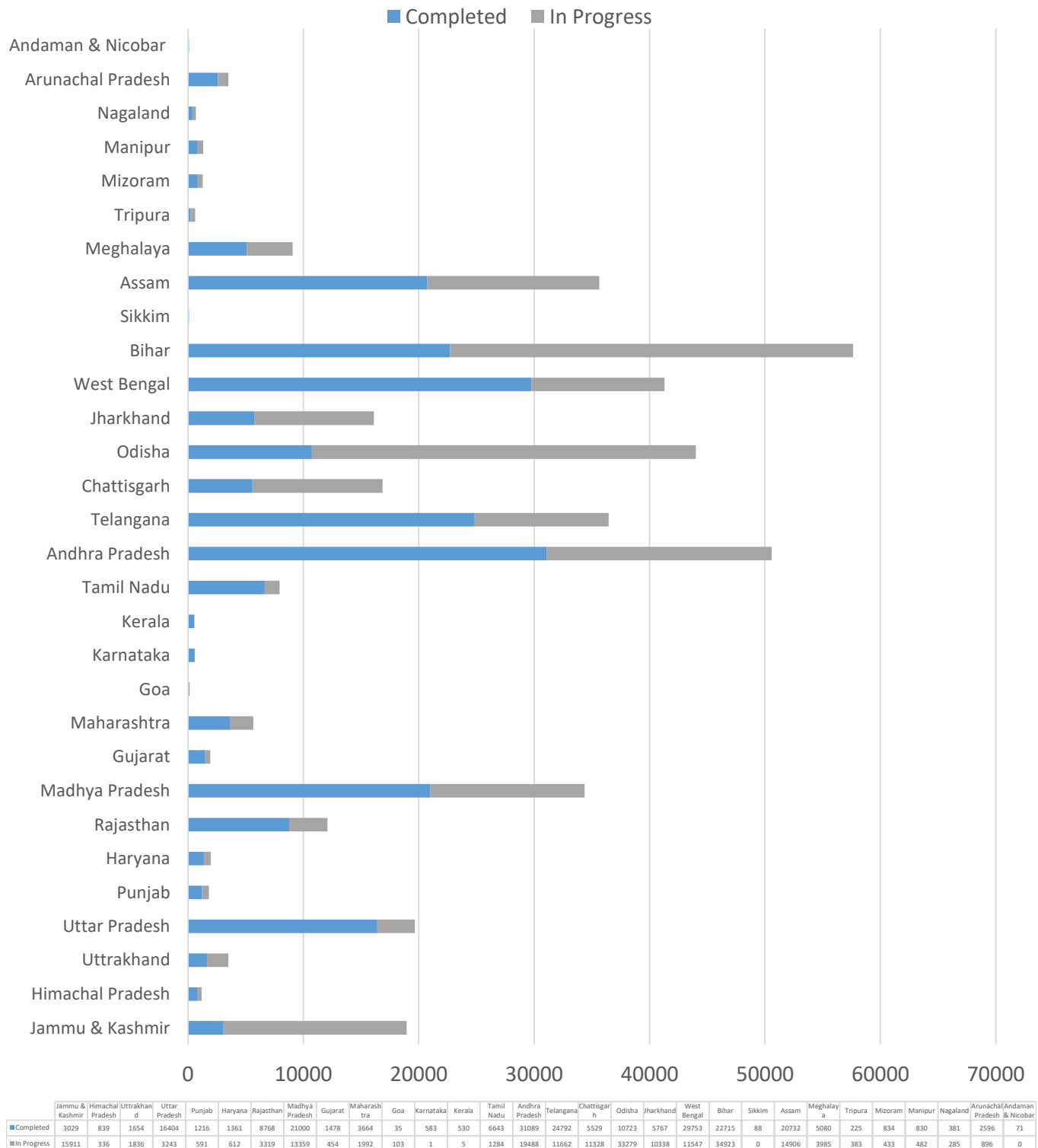


KANAK TIWARI



**Figure 23 : State wise construction of toilets under Swachh Vidyalaya Programme**

Source: MoSPI (2016) Swachhta Status Report 2016 by NSSO



## 5.4 Sub Programs directly benefiting children

### 1. Swachh Vidyalaya

The 'Clean India: Clean Schools' campaign<sup>80</sup> has been launched to ensure that all schools in India have functional and hygienic water supply and sanitation facilities. Under this, provision of adequate toilet facilities has been mandated in all schools ensuring better health and hygiene among children. Enrolment and retention of children in schools, of particularly girls, is anticipated to increase significantly after this step. Additionally, through this sub program, children are expected to be educated about the benefits of developing habits like hand washing and good personal hygiene. Children have been envisaged as agents of change, promoting adoption of hygienic practices at home and in the community.

At the time of launch of the initiative, more than 2.6 lakh government elementary and secondary schools did not have adequate toilet facilities. It was assessed that over 4.1 lakh toilets<sup>81</sup> would need to be constructed or repaired to ensure that every child had access to toilet facility.

Sixty-four Central Public Sector Undertaking (PSUs) and eleven private companies took active part in construction of toilets in schools. Under the Swachh Vidyalaya initiative, 4.17 lakh toilets were constructed in 2.61 lakh schools<sup>82</sup>. This was also a significant leap in the direction of meeting the goal 6 of SDGs for ensuring availability of clean water and sanitation for all.

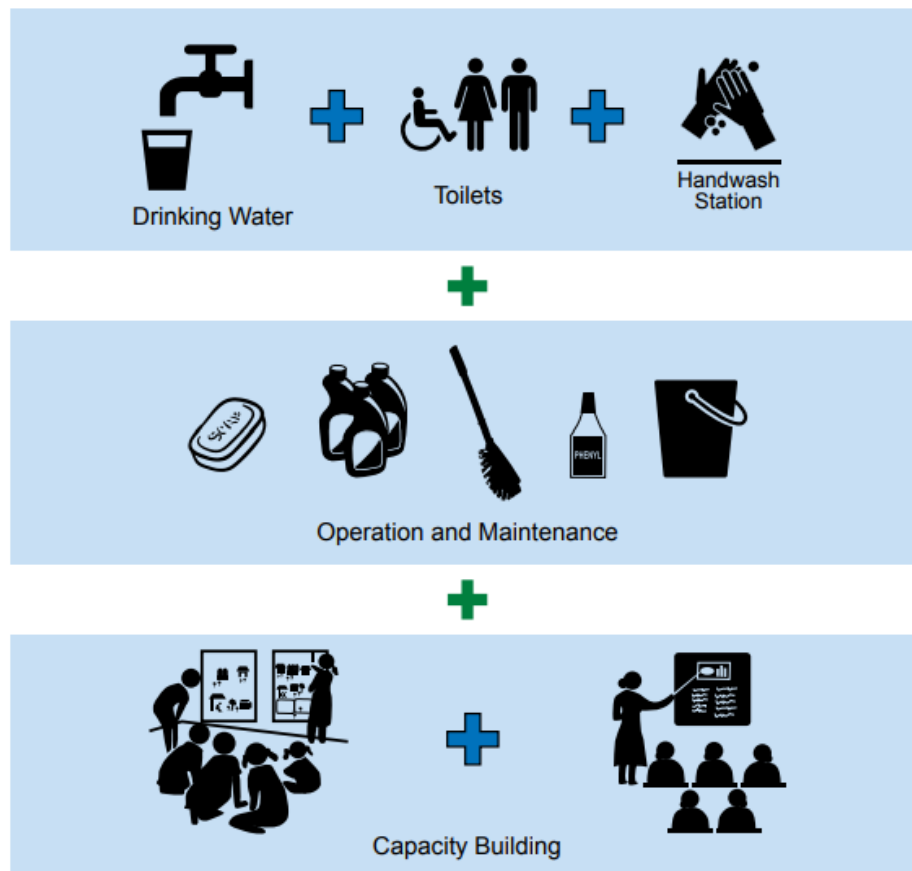
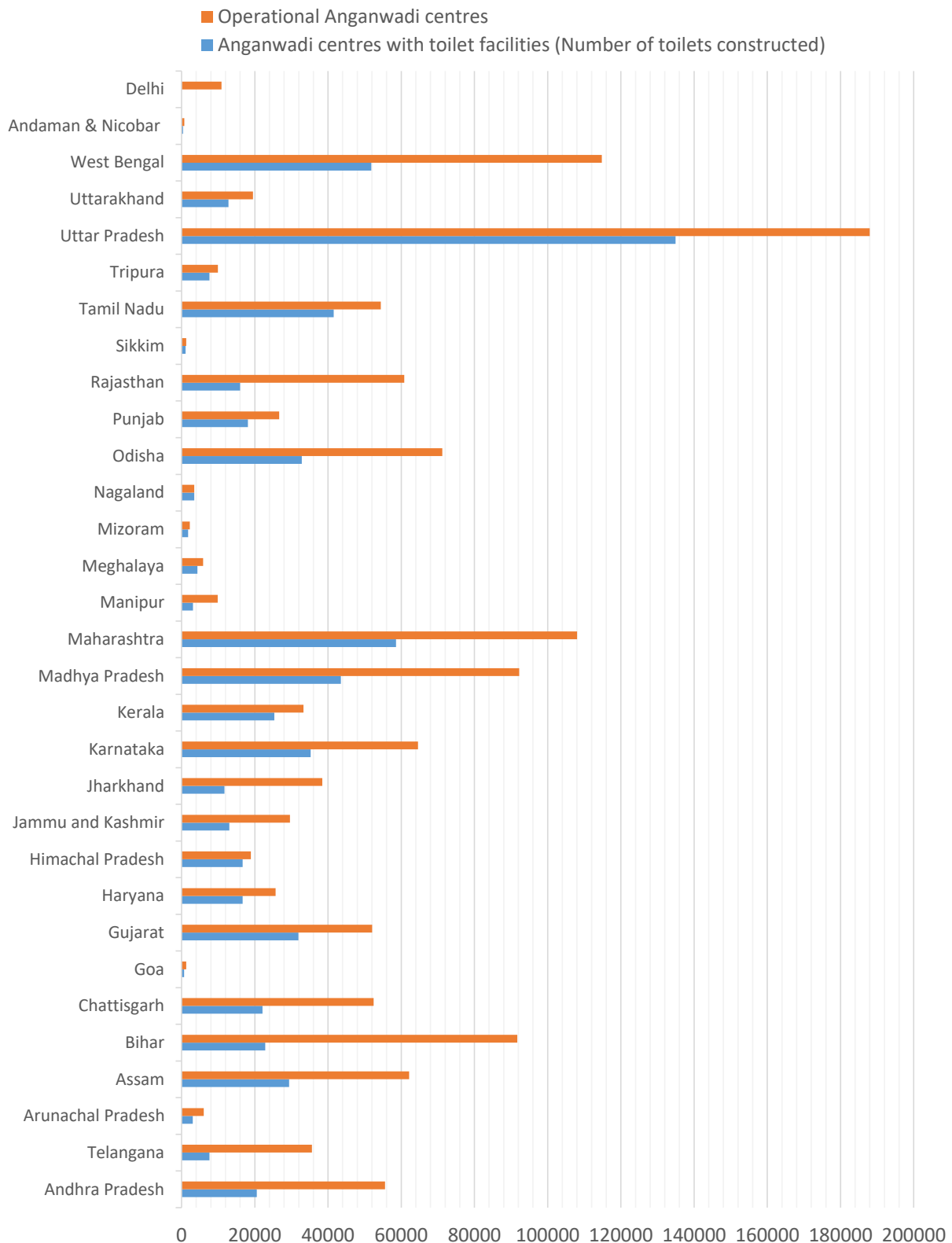


Figure 24 : A minimum Swachh Vidyalaya package

Source: Swachh Bharat Swachh Vidyalaya, A handbook

**Figure 25 : Achievements under Bal Swachhta Mission as 31.01.16**

Source: MoSPI (2016) Swachhta Status Report 2016 by NSSO



## 2. Swachh Neighbourhood

As part of the Swachh Bharat Mission's mandate, guidelines on "Swachh neighbourhood"<sup>83</sup> have been released, laying out citizen engagement options, infrastructure norms, assessment & inspection procedures and checklists, for making neighbourhoods 'swachh' and garbage free.

Each stakeholder group – households, RWAs, hospital authorities, transport authorities, shopkeepers, vendors, office management and staff, students and faculty, bulk waste generators, civic authorities, etc. is held responsible to take ownership of the neighbourhood, contribute and collaborate towards making it a "Swachh Neighbourhood".

These guidelines acknowledge school students as key change agents in society, making them equal and active partners in the journey towards a "Swachh Neighbourhood". Activities like forming a school sanitation and cleanliness committee, observing swachhata hour every week, and issuing a swachhata report card to every student have been proposed to engage children and their parents.



Graphic for "Swachhata se swachhata",  
Source: Swachh Neighbourhood

## 3. National Bal Swachhta mission

Under the ambit of Swachh Bharat Abhiyan, Bal Swachhta Mission was launched on 14 November 2014 (Children's day)<sup>84</sup> with a special

emphasis on healthy environment for children. The following are the key directives under this sub program focusing on early childhood facilities:

- **Swachh Anganwadis**

Sanitation in and around AWCs has been acknowledged as an important component as this is a centre where children below six years, pregnant & lactating mothers are offered health & nutrition services. The key mandates are:

- » The floor of AWC building should be cemented, tiled, or laid in stone.
- » Premise of AWC should be adequately lighted and ventilated.
- » Cracks, rough surfaces, open joints etc. must be repaired as soon as possible and inspected regularly.
- » Regular removal of spider webs from roofs and walls should be ensured.
- » Floors should be cleaned every day along with durries and mats.
- » Holes, drains and other places where pests are likely to gain access must be kept sealed.

- **Clean Surroundings**

- » AWCs garbage should be collected in a covered garbage bin and disposed into a compost pit.
- » Periodic disposal of the refuse/waste should be made compulsory and the garbage bin should be emptied and washed daily with a disinfectant and dried before next use.
- » Avoid stagnation of water around AWC, toilet area & near hand pumps to prevent breeding of mosquitoes.
- » Wastewater from AWC's kitchen can be disposed off safely by making a soak pit or a channel to the kitchen garden.

In order to sustain the efforts, MoWCD emphasized that all the states appoint nodal officers for conducting activities under Bal Swachhta Mission and identify two anganwadi centres for live coverage of all the activities conducted. As a result, following



state-level activities have been reported under Bal Swachhta Mission:

1. State and district level convergence meetings with several line departments to decide on roles and responsibilities for ensuring success of cleanliness drive through anganwadi centres.
2. Sensitization of mothers through mothers committee meeting and announcing health and nutrition days to discuss several aspects of sanitation, cleanliness of children and personal hygiene.
3. Demonstration sessions on cleanliness and food handling for both cooked and uncooked food. Hand washing before and after having food and after using toilets was promoted through several such activities
4. Cleaning of anganwadi centres and nearby surroundings by anganwadi workers and helpers in collaboration with Self Help Groups

Under the Bal Swachhta Mission 6.9 lakh toilets were constructed in anganwadi centres.

#### 4. Swachh Parks

The Standard Operating Procedures for "Swachh Parks"<sup>85</sup> have been issued under SBM providing detailed guidelines for maintaining cleanliness and 'swachhata' in all parks owned by government or private entities. A significant objective of this SOP is to introduce a rating of all parks in a particular

city/town depending upon the level of cleanliness and maintenance. An assessment framework (either for self-assessment or assessment by a third party as decided by the competent authority) has been defined in this document, which can help the concerned authority to assess the parks under its jurisdiction.

Three broad parameters of infrastructure availability, maintenance of park premises and equipment, and feedback from users/visitors have been proposed for assessing/rating parks on overall cleanliness.

Feedback from visitors including children regarding aspects of maintenance of playgrounds, availability and upkeep of toilets, safety of sports and play equipment for children and condition of seating and lighting have been instated in these guidelines.

#### 5. Swachh Survekshan

Swachh Survekshan is being organized by the Ministry of Housing and Urban Affairs (MoHUA) since 2016, under the aegis of the Swachh Bharat Mission for monitoring the implementation of the mission. The most recent one in 2018 assessed 4203 ULBs. Based on the city performance and citizen feedback, the top 3 cleanest cities were Indore, Bhopal and Chandigarh<sup>86</sup>. This exercise of



Figure 26: Changes in areas of evaluation under Swachh Survekshan 2018

Source: NDTV, Available at: <https://swachhindia.ndtv.com/>

evaluating the mission cities annually has been key to promoting a healthy competition among the ULBs and the community to make their cities

cleaner. It has also created an opportunity for cities to learn from each other and replicate the good practices.

## 5.5 Swachh Bharat Mission – Emerging best practices for children and families

Children have been seen as the biggest agents of the change being envisaged by the mission. They are the example setters; also inspiring a behaviour change in their families and communities. Prime Minister Shri Narendra Modi stated in one of his speeches on the third anniversary of Swachh Bharat Mission that:

“There are many young children whose contribution I have seen on social media. Earlier, teachers used to be questioned for making children clean classrooms. Now, this has played a huge role in the movement. The kids are applying this in their homes as well as making sure cleanliness is maintained. If they can do it, why can't adults?”<sup>87</sup>

A number of practices with children at the center, are emerging in the mission cities. Best practices aiming at behavioural change, upgrading infrastructure and built environment and reinforcing a collective effort towards “swachh” cities have been enlisted in this section.

### 5.5.1 BEHAVIOURAL CHANGE STRATEGIES

#### 1. Raising awareness among children

- Waste management workshops have been organized by the Bhubaneswar Urban Knowledge Centre (BUKC), bringing sanitation experts to spread awareness among children on waste management. 100 child leaders from economically weak backgrounds from 20 different slum areas



Walkathon in Bhubaneswar organized by Indian oil taking Swachh Bharat pakhwada to next level

Source: ReportOdisha (2017)

of the city were brought to attend the workshop.<sup>88</sup>

- A walkathon was organized by Indian Oil state office to take the Swachh Bharat Mission to the next level and to generate mass awareness on cleanliness. The event saw active participation from over 500 enthusiastic schoolchildren carrying placards and banners and walking through the streets of Bhubaneswar<sup>89</sup>.



**'Swachhta Ki Pathshala' organised by a city NGO in collaboration with the Bhopal Municipal Corporation, Source: NDTV Swachh India**

- 'Swachhta Ki Pathshala' was organized by a city NGO in collaboration with the Bhopal Municipal Corporation where children from slum areas were given lessons on cleanliness, hygiene and sanitation and trained to become Swachhta monitors. The concept behind "Swachhta ki Patshala" was to address children at a place where they come to learn. These slum children were given lessons on waste segregation, personal hygiene and were trained to perform 'Roko Toko', a practice where children were given whistles to blow whenever they spot anyone defecating in the open.<sup>90</sup>

## **2. Sanitation drives in schools and childcare institutions in various mission cities organized collectively by ULBs, CSOs and private institutions**

- In Pune, schools organized a special cleanliness drive on Gandhi Jayanti, the first anniversary of the mission. Teachers and students picked up brooms to clean the school premises in response to the

Prime Minister Narendra Modi's call for a 'Swachh Bharat'. Students cleaned the school premises as part of the dignity of labour exercise.

- In Ludhiana, schools under Satya Bharti foundation, observed "sanitation week" marking the important role children can play in building awareness in communities on sanitation and hygiene. The week long initiative, where students staged rallies and enacted skits in support of their "Clean Community Campaign" also raised awareness on the hazards of open defecation and lack of personal hygiene. Students, teachers and community members swore allegiance to a Cleanliness Oath through which they pledged to commit their time and sincere efforts to create a cleaner India.<sup>91</sup>
- In SOS Village Bhopal, 28 children took on the responsibility of cleaning the neighbourhood park to transform it into a place of recreation for around 250 families<sup>92</sup> living in the vicinity. Mothers and co-workers helped these children in collecting plastic and waste around the complex and disposing the same at a common place for recycling.

## **3. Making Swachhta a part of school curriculum**

- Udaipur administration has introduced a cleanliness awareness curriculum for school children in 300 government primary schools of the city. Under the curriculum, a new set of words with the corresponding Hindi and English alphabets has been developed containing pictures and names of different articles related to the importance of sanitation. Innovative methods like 'Ka' stands for Kachara, relating each alphabet with a symbol of a material has been developed highlighting the significance of keeping their surroundings clean<sup>93</sup>.

## **4. Children led campaigns**

- Madhya Pradesh has taken a unique initiative to encourage sanitation related behaviour change

among citizens. Indore Municipal Corporation adopted an approach, which included groups of schoolchildren as whistle blowers to anyone defecating in the open. Such initiatives have worked well for Indore and it ranked first among all cities in the Swachh Survekshan 2018.

- Moreover, as part of the Jabalpur Municipal Corporation's City Guardian Club (CGC), children are educating their elders and family members on issues like open defecation, waste management and water and electricity problems. About 50,000 schoolchildren have joined the Swachh movement as agents of change<sup>94</sup>.

## 5.5.2 CHILD FRIENDLY SANITATION INFRASTRUCTURE

### 1. Pink public toilets for women and children

"Pink toilets" are being set up all across Karnataka in order to make toilets accessible for women and children, following the pink toilet model of Delhi. These toilets are installed with both Indian style and Western style. Low height toilets and basins for children have been provided. They also have a female caretaker who supervises the toilet round the clock. Helpline numbers, ramps for the differently abled, live location of the toilets on a mobile app are among the other facilities. It is also proposed to provide a hygienic space for child care and breast feeding and other facilities for women and girls in these public facilities.<sup>95</sup>

### 2. Namma toilets in Chennai



**Namma toilets, Chennai.** Source: Pattukkottai Municipality, Swachh Bharat, Mygov

In a first of its kind project in India, over 180 self-cleaning public e-toilets have been installed in Chennai. In Indian cities, where public sanitation remains inadequate with rampant usage, these automatic unmanned toilets clean themselves before entry and after use and are equipped with sensors for exhaust fan and light. With its effective biodegradation technology for waste disposal, it provides a scalable comprehensive solution to the problem of grossly inadequate public toilet infrastructure. These 183 public toilets have made sanitation more accessible for all including children.<sup>96</sup>

### 3. Child friendly toilets

In Bhubaneswar, as a part of Project 'Samman', construction of 44 specially designed toilet complexes (264 seats) across the city has been taken up. Out of these, 17 community toilets have already been constructed in the first phase in some of the major slum localities in the city. Respective Ward Sanitation Committees (WSCs) in each of the wards have been handed over operation, maintenance and supervision responsibilities of all these community toilets in order to ensure proper maintenance and upkeep. One of the special features of the project includes child friendly toilets. Each toilet-complex has latrines specifically designed for children, making it safe and convenient for young children.<sup>97</sup>

Surat Municipal Corporation has planned to renovate all its pay-and-use toilets in a bid to make them more user-friendly. Two new aspects are being added to 200 toilets – separate toilets for children and people with disability. Having scored low in the Swachh Survekshan due to instances of open urination and defecation with most number of cases of children, the need for separate toilets for children was understood and incorporated into the existing infrastructure<sup>98</sup>.

### 4. Existing infrastructure accessible for women and children

As a push to Swachh Bharat Mission, South Delhi



Municipal Corporation has taken the initiative of providing free access to toilet facilities at hotels and restaurants in the area. Being home to several big markets, to suffice the lack of public convenience, over 3500 toilets have

been made accessible to women and children. A number of newly constructed toilets under SDMC have diaper changing facilities and toilet seats for children and have a board reading "child friendly" toilet<sup>99</sup>.

## 5.6 RECOMMENDATIONS – Towards healthy and clean urban environment for children

Swachh Bharat Mission is crucial to realize the vision of having universal and equitable access to sanitation and hygiene for all and eradicate open defecation in Indian cities. It has significantly reduced the practice of open defecation by providing improved sanitation to urban households and has prompted behaviour change regarding healthy sanitation practices. However, to have a larger impact, the mission cities need to account for the diverse needs of people of different age groups, genders and abilities and integrate them into design of city sanitation plans. SBM can ensure that the best sanitation and hygiene practices are inculcated right from the childhood.

This section provides recommendations for the mission cities to incorporate sanitation needs of children in the ongoing implementation of the mission. It also suggests some additions in the next version of Swachh Bharat Mission (2.0)

### 5.6.1 Recommendations for the mission cities :

- **ENSURING PROVISION OF CHILD FRIENDLY TOILETS**

Mission cities must ensure child friendly toilets in all high footfall public areas and facilities frequented by children. Children spend most of their time at home, learning centres and parks. Therefore, mission cities must ensure that all the schools and parks have safe and easily accessible toilets for children and care givers. For young children, provision of diaper changing, disposal units and smaller squat plates must be provided

in both men's and women's areas in all the public/ community toilets and in anganwadis, day care centres and health centres.

In informal settlements, the mission cities must ensure provision of child friendly toilets proportionate to the number of children using these toilets at a comfortable walkable distance (400m) for the youngest.

- **INCLUDING CHILDREN IN CITY SANITATION PLANS**

One of the implementation challenges being faced by the mission cities is lack of land to build individual household toilets in dense informal settlements. In number of cases, the space provided for toilets in informal settlements are used for other purposes. Not having access to toilets in their house and using ill maintained community toilets away from their residence becomes a major barrier to children's sanitation needs. This eventually affects their health, quality of life and overall development.

SBM has mandated all the mission cities to formulate city sanitation plans. These sanitation plans must take into consideration the specific needs of children and provide adequate number of seats and facilities proportionate to the number of children. The city sanitation plans must also map the existing informal settlements and employ out of the box thinking to tackle the issue of lack of space; for e.g. shared toilets etc,

- **ENSURING ADEQUATE SUPPLY OF WATER**

**“The problem is not just lack of toilets—it’s a lack of toilets that people want to use.”<sup>100</sup> - National Geographic Magazine**

According to the Swachhta status report by NSSO, the foremost reason cited by people in urban areas for not using toilets is absence of clean water. In Indian context, water plays a major role in maintaining personal and overall hygiene and health. Thus, insufficient supply of water becomes a big deterrent predominantly for children and their mothers. The mission cities must ensure adequate and continuous water supply in all public and community toilets as well as household toilets being constructed, to encourage effective usage.

- **ESTABLISHING OPERATION AND MAINTENANCE MECHANISMS**

Unclean, crowded community and public toilets discourage children from using them leaving them with no other option but to defecate in open.

The mission guidelines state that there should be a provision of 5 year maintenance contracts for the infrastructure created under the mission. However, it is important for mission cities to engage the community and sensitize them towards maintaining the cleanliness and hygiene in shared facilities. The mission cities must develop maintenance strategies, which include regular maintenance regimes and everyday cleanliness exercises especially in toilets of high priority areas like schools, health centres and neighbourhood community toilets. These strategies must ensure maintenance during peak times, to keep the toilet premises hygienic and reduce chances of spreading diseases.

A number of mission cities have installed toilets equipped with newer self-cleaning technology; however, it is crucial to sensitize the users and community towards their responsibility in keeping the facilities clean.

- **DEVELOPING A COMPREHENSIVE STRATEGY FOR TOILETS & WASTE DISPOSAL**

“One household’s toilet use or open defecation has consequences for neighbouring households’ children.”<sup>101</sup>

Problems of sanitation aggravate because of unsafe disposal of human excrement. The chances of contracting an infection increases for children exposed to open drains carrying untreated black water or when they play in open areas that are used by people for open defecation. Waste generated in the form of used diapers and sanitary pads, not disposed off properly also poses a serious threat to children.

Thus the mission cities must develop a comprehensive strategy covering the entire sanitation value chain that includes water supply; containment, safe disposal and treatment of waste; and maintenance of infrastructure. The strategy must also include solutions for everyday practices like proper disposal of diapers and sanitary pads to achieve Open Defecation Free status.

Convergence with schemes like AMRUT that focus on the creation of support infrastructure like sewerage system, treatment facilities etc. is imperative to have complete city sanitation in place.

#### **4.6.2 Recommendations for Swachh Bharat Mission-2.**

- **INCLUDING PROVISION OF CHILD FRIENDLY TOILETS AS A PART OF MISSION GUIDELINES AND CAMPAIGNS**

Only a few cities out of 4041 mission cities have stressed on child friendly toilets. Some of the cities have also recognized the need of baby friendly toilets in anganwadis and in public places.

The idea of children focused sanitation and the necessity to create child friendly toilets must be included as a fundamental aspect in the program

framework, ensuring all public and community toilets being created or retrofitted under the mission have provisions for children and infants. A set of guidelines highlighting the essential elements of child friendly toilets with indicative design options and norms must be developed. These design guidelines must include:

- Specific needs of targeted age groups and their abilities and needs (for instance, baby/ infant friendly features for the caregivers, easy accessibility for children of all age groups and abilities)
- Planning guidelines specifying numbers and location of toilets with consideration to the visibility of the facility and a barrier free approach, proximity to other facilities and activity generators to ensure easy and safe access.
- Building design and layout enabling accessibility and properly maintained surrounding areas. Adequate signage and wall art to promote safety and encourage usage.
- Standards for design and fitting of fixtures based on the anthropometric measurements for instance smaller squat plates, low height urinals and basins, low height soap dispensers etc.



Area revamped with colourful cartoon strips by students of Shaheed Sukhdev College of Business Studies (SSCBS) in New Delhi, Source: NDTV Swachh India (2017), Cartoons To Teach Children Why Not To Defecate In The Open

- Provision of shared parent/children's cubicles with side-by-side adult and child pedestals in spaces that have children-friendly facilities
- Changing tables and diaper disposal facilities in both men's and women's toilets
- Safety measures like balancing and support handlebar at appropriate height and improved pit toilets with a stable base to prevent children from falling.
- Proper ventilation and lighting

#### • **MAINSTREAMING GENDER CONCERNS IN URBAN MISSION GUIDELINES**

There is an alarming lack of separate toilets for different genders in community and public facilities. Only 58.82% of schools have separate toilets for girls, making it imperative for mission guidelines to address gender concerns in the toilets being provided in public areas. The mission must mandate building separate facilities for girls and boys specifically in places frequented by children such as schools, parks and neighbourhood community toilets. This will not only help in eradicating open defecation, but also reduce number of girls that drop out of school.

The mission must also direct the cities to ensure necessary provisions like sanitary pad dispensers, diaper dispensers in public conveniences to address the specific sanitation needs of infants, young girls and caregivers.

#### • **ABOLISHING CHILD LABOUR INVOLVED IN THE COLLECTION AND DUMPING PROCESS**

While SBM has created millions of jobs and there have been convergence exercises with NULM for creating more potential jobs, there is no directive restricting children working at the collection and dumping sites. It is an important point to consider, that while there is a discourse on the health implications of poor sanitation on children, there are hundred of children working as rag pickers at the dumping sites being exposed to numerous health risks on a daily basis.

- **MOTIVATING CHILDREN LED BEHAVIOURAL CHANGE**

According to Swachhta status report 2016, in some households despite having latrine, members of the household did not use them for various reasons. Young males in 1.4 % of the urban households, and young females in 1.2 % urban households, belonging to the age group of 0-15 years did not use the newly provided toilets, a number much higher than the adults (above 15 years). Taboos surrounding toilets and human excreta and strong cultural resistance in some households becomes a major factor for not using toilets.

The government has made tremendous

efforts towards sensitizing children through IEC and campaigns. However, it will take time to instill change in longstanding behaviors influenced by cultural practices. The mission must ensure that hygiene education imparted to children can find its way to families and eventually to the community triggering use of toilets, better waste management and maintaining cleanliness in public shared facilities.

Having "children health sanitation clubs" in schools and neighbourhoods for monitoring the cleanliness status can moderate the general tendency to litter. Educated and aware children would be the real demographic dividend for ensuring a clean urban India.

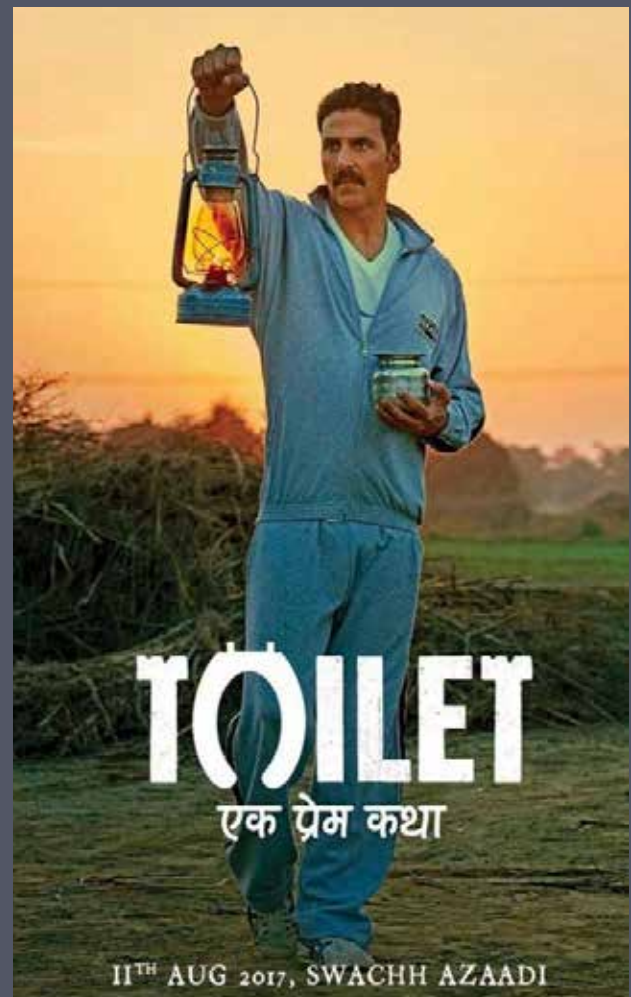
### Toilet -Ek Prem Katha

The film is a satire on the sanitation conditions in smaller urban centres and the rural areas of the country and promptly promotes the eradication of open defecation in the nation. It is based on the subject of sanitation and the need to have a toilet in every household in order to reduce health issues among women and children. Even today in many urban areas, there are so many houses that don't have toilets and it's an important subject.

It is all about educating people and bringing out the hidden truth about people who are unaware and get influenced by these kinds of topics.

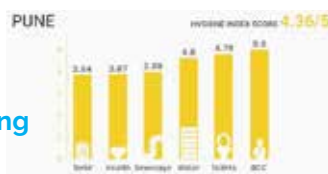
This film was consequential in taking the Swachh Bharat Abhiyaan campaign forward. The film also dealt with problems faced by the women and corruption in the government agencies.

"The best part of our journey has been hearing, reading and receiving all kinds of wonderful information about women taking a strong stand before a marriage proposal can take place. The 'No Toilet, No Bride' rule has taken India by storm." Akshay Kumar





## Hygiene Index- Monitoring and Evaluation

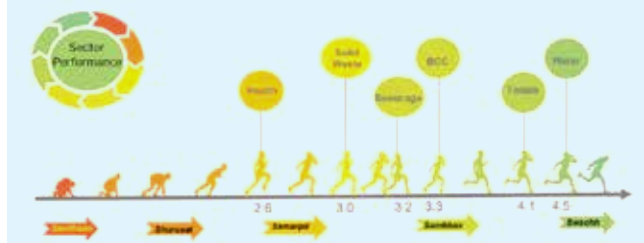


### Pune – Highest performer

The Hygiene Index is a tool that assesses the performance of Indian cities in the water, sanitation, and hygiene (WASH) sectors, identifies gaps, analyses the best practices, and rates every city under the campaign, on a scale one to five. There are six areas of evaluation:

- Solid waste management (SWM)
- Sewage
- Availability and state of toilets
- Drinking water
- Health parameters; and
- Behavioral change communication

Pune Municipality, the other top-performing city, has just over 10 lakh houses, all of which have toilets. The city has enough public toilet seats to cater to an approximate 93% of the floating population, 76% houses directly receive clean drinking water. The sewage system covers almost 100% of the city. The city performs well in terms of efficiency of collection of solid waste and coverage of household SWM services and is disposing its waste in the designated landfill sites.



## Child - friendly infrastructure

### Pink Ladies Toilet, Delhi

On the occasion of International day for the Girl child, National Commission for Protection of Child Rights (NCPCR) in association with South Delhi Municipal Corporation has developed a model toilet for girls, women and children. Facilities at the pink toilet are

separate toilet facility only for women, adolescent girls, children, pink coloured for easy identification by women, low height toilets and basins for children, easy signage, bright and vibrant with proper lighting, availability of lady caretaker 24/7, sanitary napkin vending machines for women, instruction for care of toilet and usage of napkins to be put up in board, helpline numbers to be placed in boards, disable friendly; availability of ramps, private area for child care inside toilet campus, seating area outside the pink toilet, feedback mechanism to share inputs about experience of usage, availability of toilet location in the app.



## A city wide change

### 7 habits for a city wide change, Indore

#### • Garbage to Compost

The different localities of Indore are increasingly becoming self-sufficient in garbage disposal. Wet garbage is separated and used for compost making. More than 700 compost making units are working at gardens, hotels, schools and other places across Indore.

#### • Everyday garbage disposal

This simple change changed the way garbage was disposed in the city. Dry wastes were kept separate from the wet ones making their disposal easy.

#### • Discouraging Use of Polythene

Polythene is considered as a big reason for litter. People of Indore made a shift in their polythene using habits discouraging its use.

#### • Dustbin On The Wheels

This was a novel idea to keep a check on litter. People started carrying small dustbins in their cars so that they don't throw their wastes on streets. Those who chew paan and gutka are seen carrying similar bins in their vehicles.

#### • Awareness Among Children

Teachers in schools and parents at home made it a point to make their wards aware of the dangers of littering. Children living in Indore have become so aware now that if an elder person is seen throwing garbage on streets, the kids try to discipline them.

#### • Public And Social Functions

As a norm, wastage defines the scale of an organised social event - from a public rally to festivity or a religious function. But the residents of Indore corrected this age-old mentality and made a conscious effort to carry out cleaning work after every community event.

## Swachhta Curriculum: Behaviour change and awareness



The 45-lesson hygiene curriculum and teacher-training module will be distributed in 10,000 schools across India with the hope that children will incorporate hygienic habits in their daily routines. The first and the second strand of the program concentrate on Personal Hygiene and Hygiene at Home respectively. The third strand takes the cleanliness lessons outside the boundaries of home, and educates children on how they can contribute in making their school environment healthier. In the fourth and the fifth strand of the Swachhta Curriculum, the campaign looks at informing children about the importance of cleanliness during illnesses.



# Swachh Bharat Mission





KANAK TIWARI







## 6. A Framework to create child friendly cities



## 6.1 The way forward

In the past few years, India has seen a paradigm shift from an infrastructure driven urbanization to developing smart and liveable cities. The urban development discourse has changed from creating isolated project based interventions to a city level integrated development model where different contributing sectors including planning, design, management and governance as well as different projects working together are collectively striving towards building a 'city for all'. This evolving paradigm offers an opportunity to regard "children" as the primary users of the spaces, facilities and opportunities offered by cities. Urban missions and programs deciding the course of urbanization for future cities can enable this.

The current urban missions with their respective focus areas of development, can collectively unlock the potential to lead the urbanization process towards being responsive and inclusive. Keeping children at the centre of this new development agenda would ensure that cities respond to needs of all, even the most vulnerable. Some cities, supported by the urban missions, have already embarked on the path of making more inclusive urban environments as is seen in a number of examples presented in this report. However, by making children the focus of the national missions, a cumulative impact would be possible in bringing about more wide-spread, effective and lasting change in the paradigm of urban development, planning and design in India.

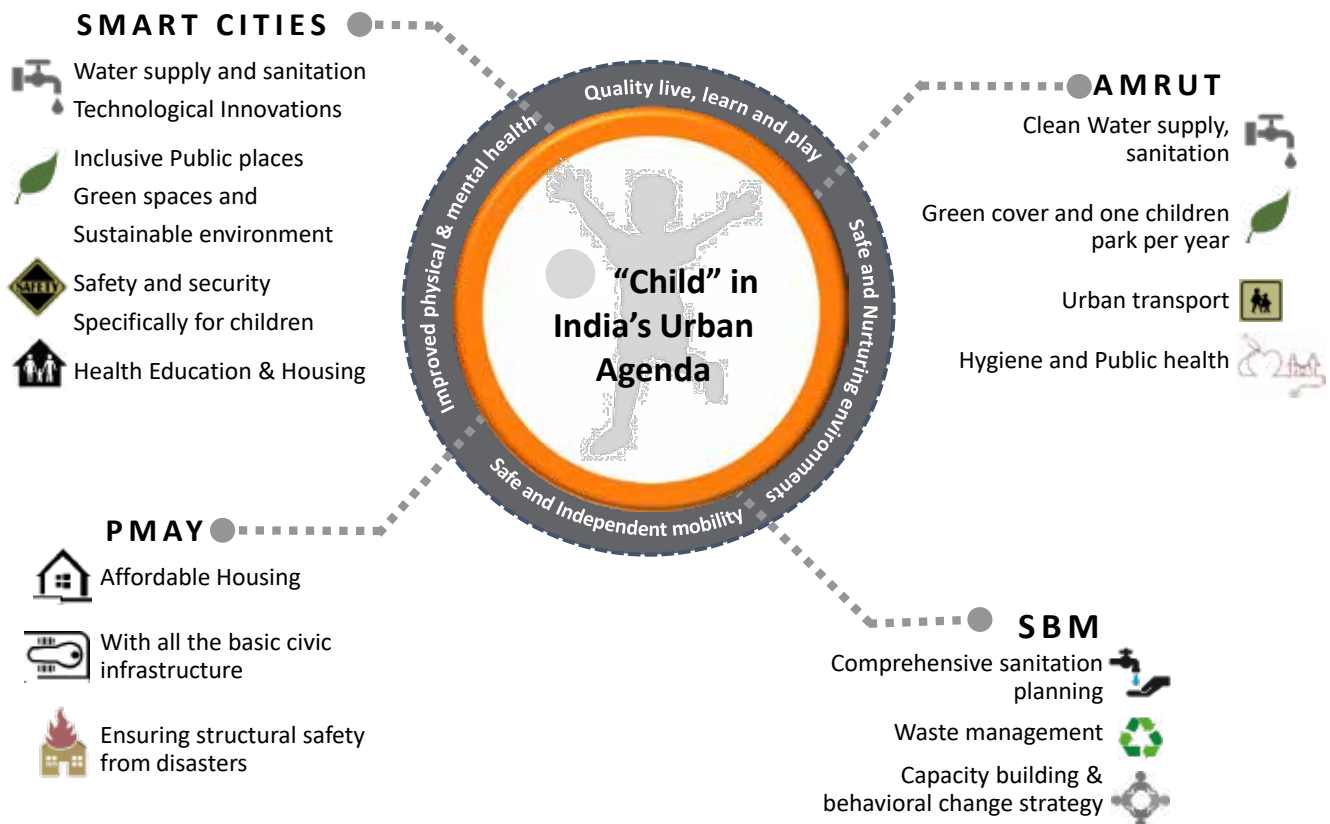


Figure 27: “Child” in India's Urban Agenda: Thrust areas relevant to children in the four urban missions

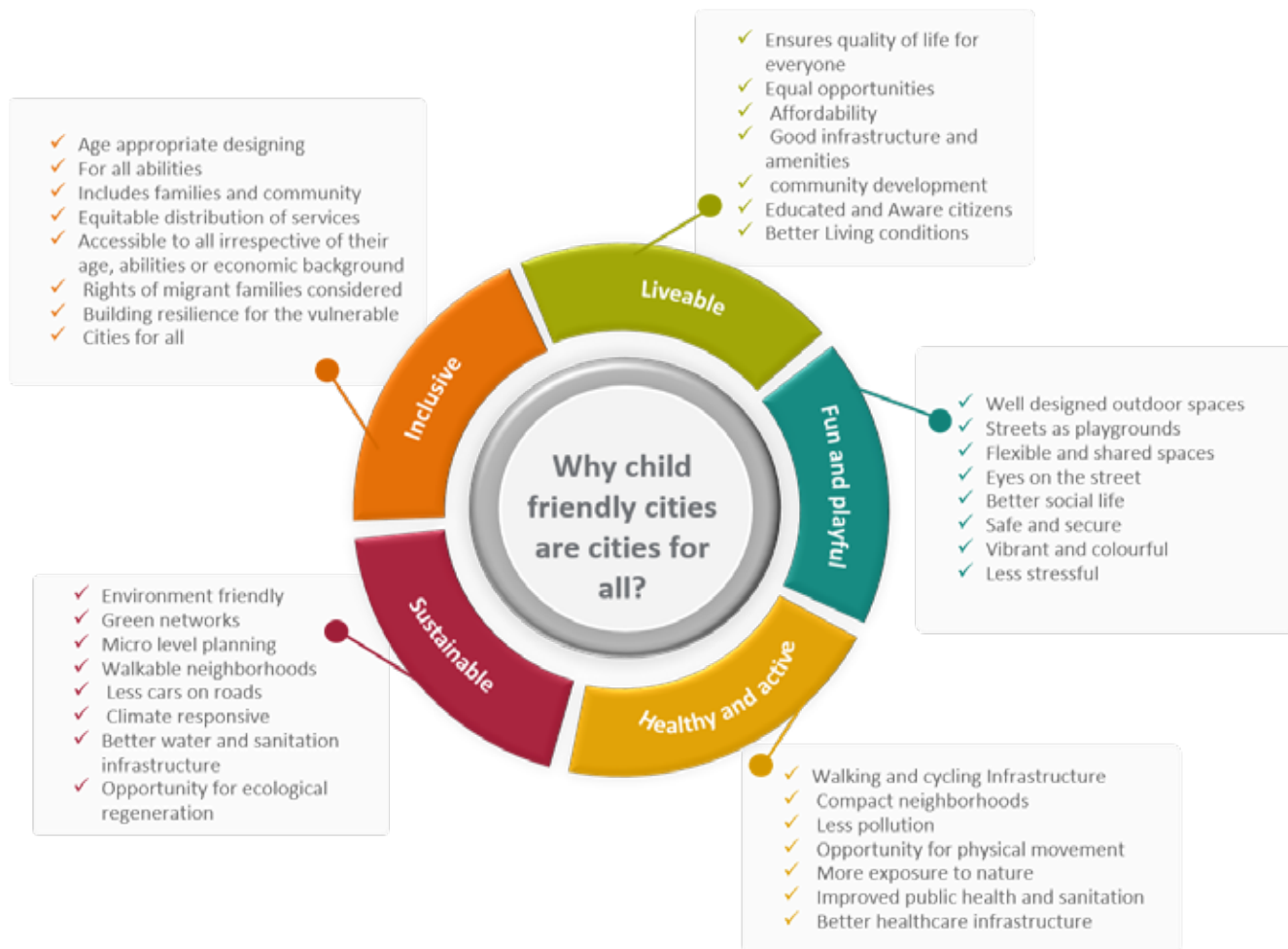


Figure 28: Why child friendly cities are cities for all?

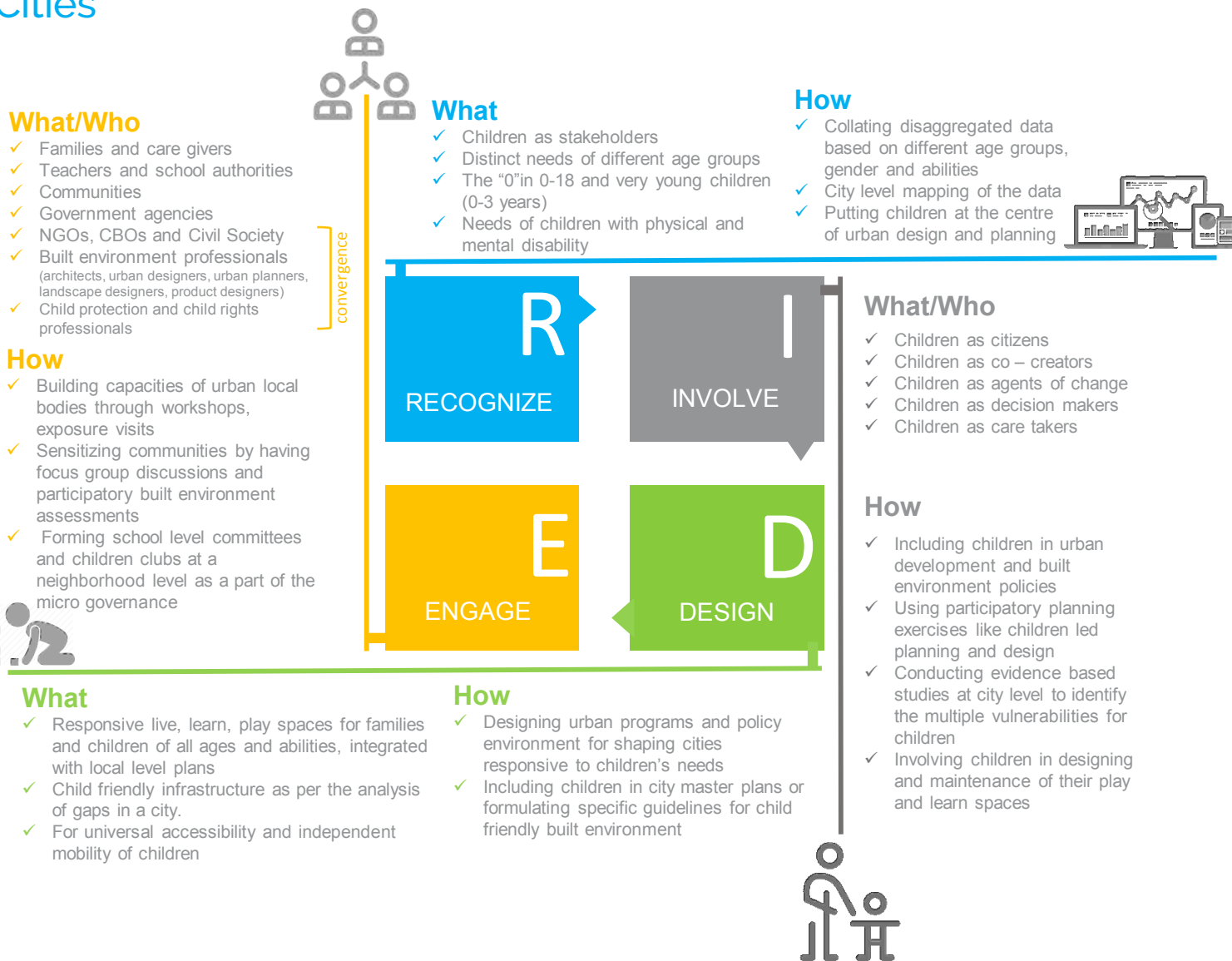
## 6.2 The approach: Cities for children are cities for everybody

Families and people from diverse socioeconomic backgrounds are brought together in a city to live and access jobs, education, and other opportunities. Designing and planning for and with children is the first step to gradually eliminate the existing socio-economic barriers and promote healthier societies, sustainable communities and responsible citizenry. An approach towards planning of cities and designing of the built environment that nurtures children and allows them to flourish in multiple ways, can actually become an approach that converges

solutions to a number of issues. "Perhaps uniquely, a child-friendly approach has the potential to unite a range of progressive agendas – including health and wellbeing, sustainability, resilience and safety – and to act as a catalyst for urban innovation."<sup>102</sup>

Cities created with children in mind are beneficial for all, with a more liveable, healthy, and safer urban environment for all ages, abilities and economic classes. Simple design considerations like creating parks and public spaces for all the ages, having

## 6.3 The R.I.D.E. Framework for developing Child Friendly Cities



unobstructed and barrier free movement, accessible public infrastructure etc. are crucial not only for children but also for people with disabilities and those who are elderly or infirm. India is a young nation. However, the focus on children in urban planning and design context has been subdued but children have to be recognized as the primary agents of change in their families and communities.

In order for children to become effective as agents of change, the focus has to shift from number of

children to number of thriving children to measure success. Can every urban intervention or city plan be assessed to see whether it would contribute to enhanced well-being of the resident children or increase the number of youth and children who have access to opportunities that would help them in realising their full potential as productive citizens and healthy and happy human beings? When this becomes the norm, a city would have truly become one that is not only inclusive and sustainable but also SMART...one that invests in its future.



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