

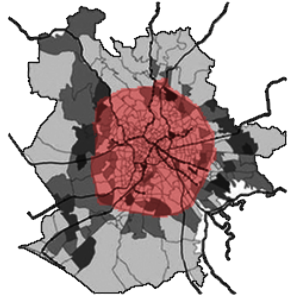
Building Urban Integrated Land use Dynamics

Cities are the 'nerve center' of a growing economy.

By **2050**, India's Urban Population will constitute **50%** of total population.

The statistics shows that there will be pressure on urban land and already stressed infrastructure.

Challenges to proper Urban growth



Static Land use planning

Land use plans are proposed for a horizon year
Rigid Land uses



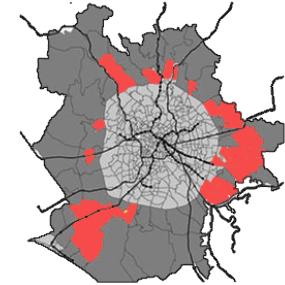
Population growth

Migrations puts pressure on land



Market

Land use plans do not fulfill market needs



Urban sprawl

Investments and needs drive people to land in city outskirts



Infrastructure services

Infrastructure is absent, Excess or Inadequate in old & newly developed land



Environmental degradation

Development at such rate doesn't care much about natural land cover



Law Enforcement

Land is developed not following DCRs within and outside cities

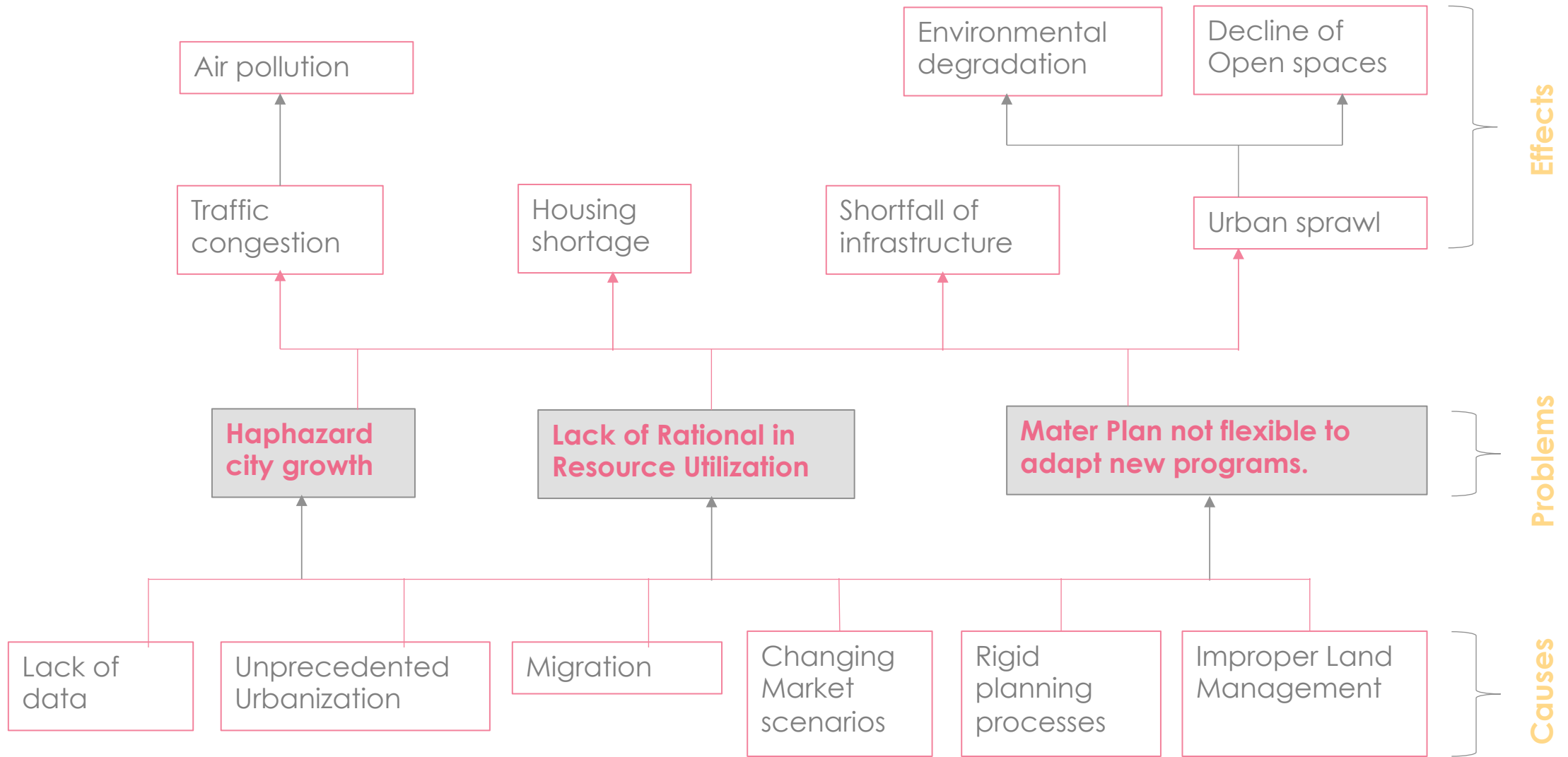
To cater to growing population and development, **'urban land use planning & management'** acts as a base for growth and development.

To do land use planning **'Data'** is important.

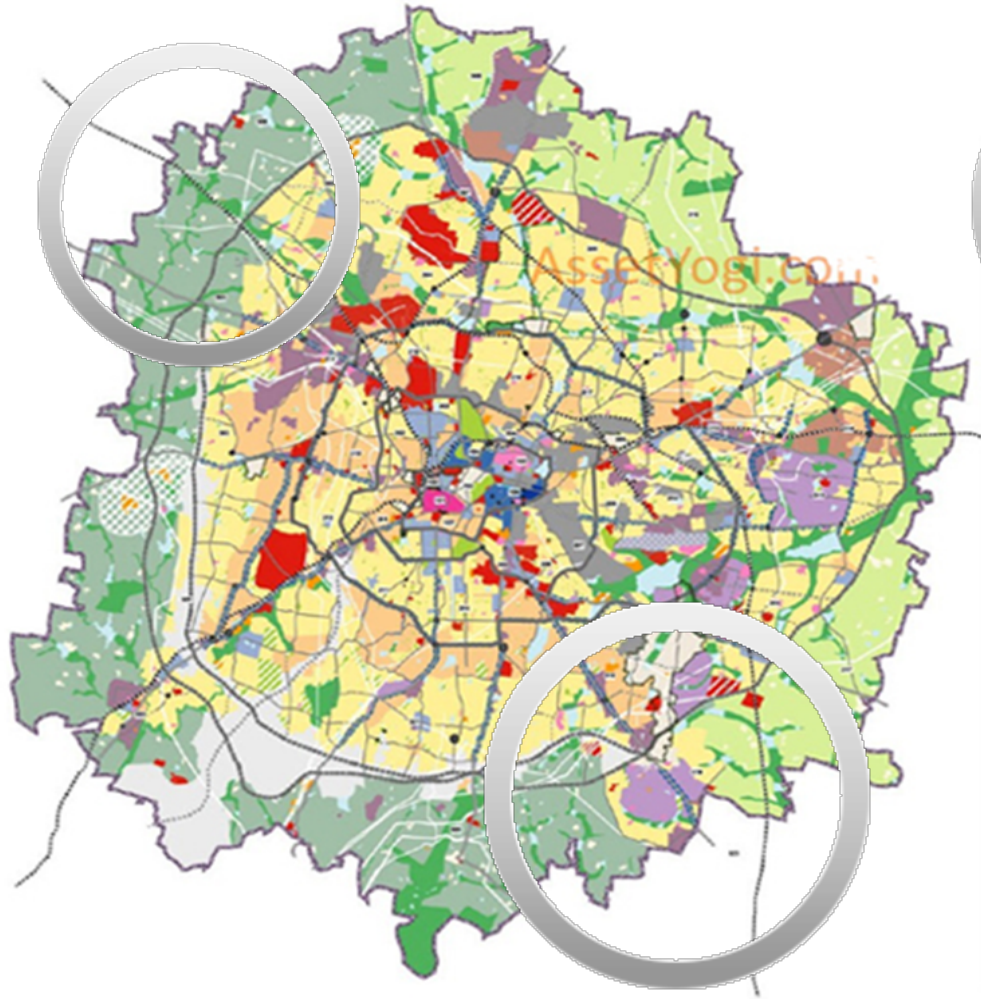


But Land use are updated only when a statutory plan is being prepared for a horizon year which makes it **'static'**.

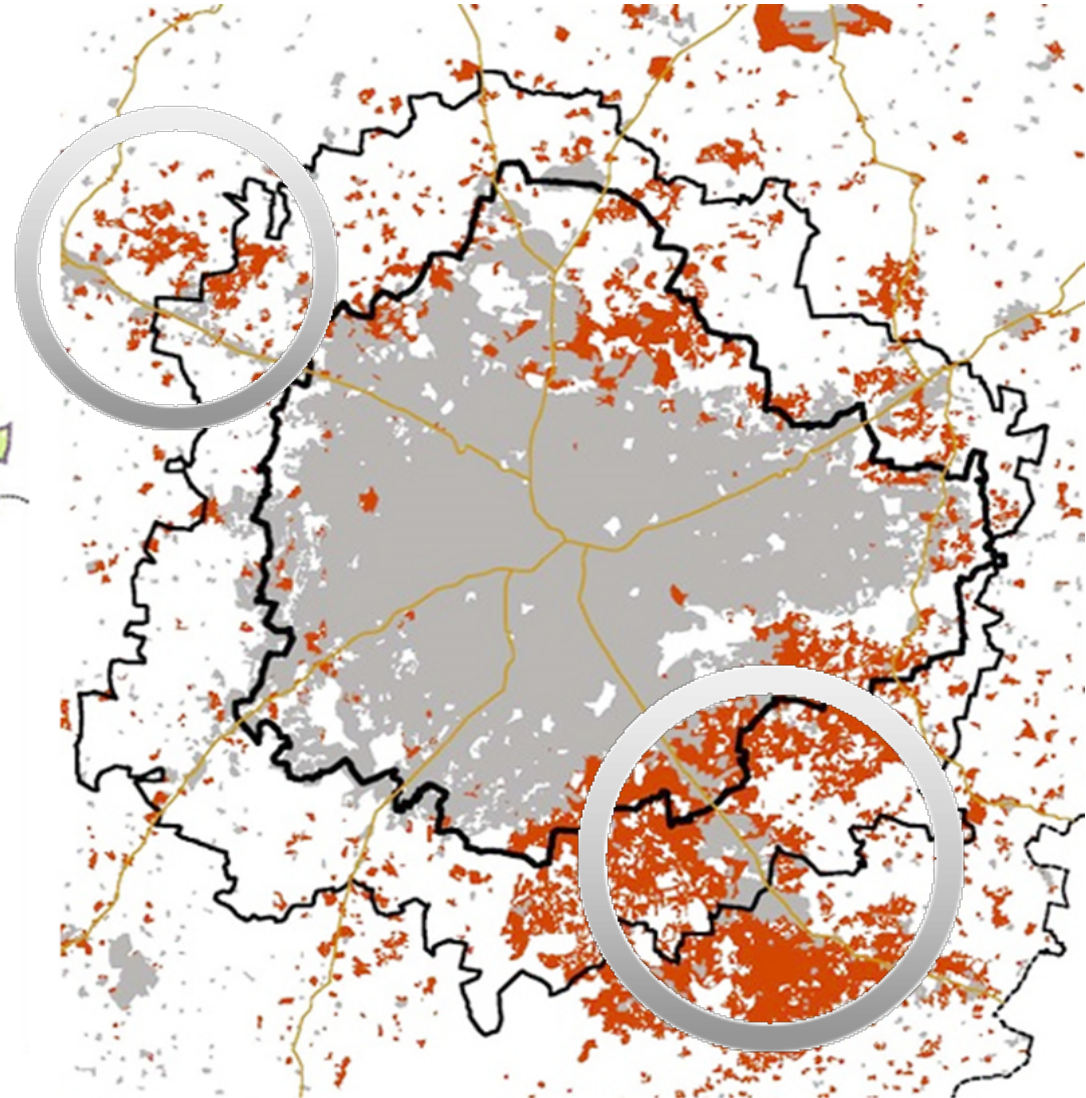
Problem tree diagram



Unattended *growth*



Bangalore Master Plan- 2015

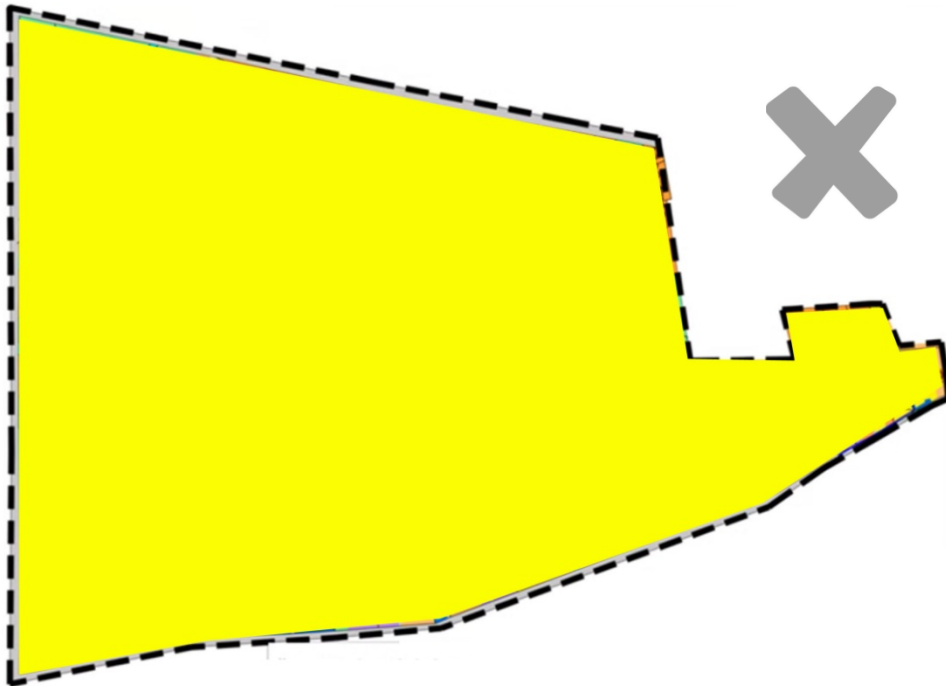


Increase in Urban area till 2012

Superficial *land use plans*

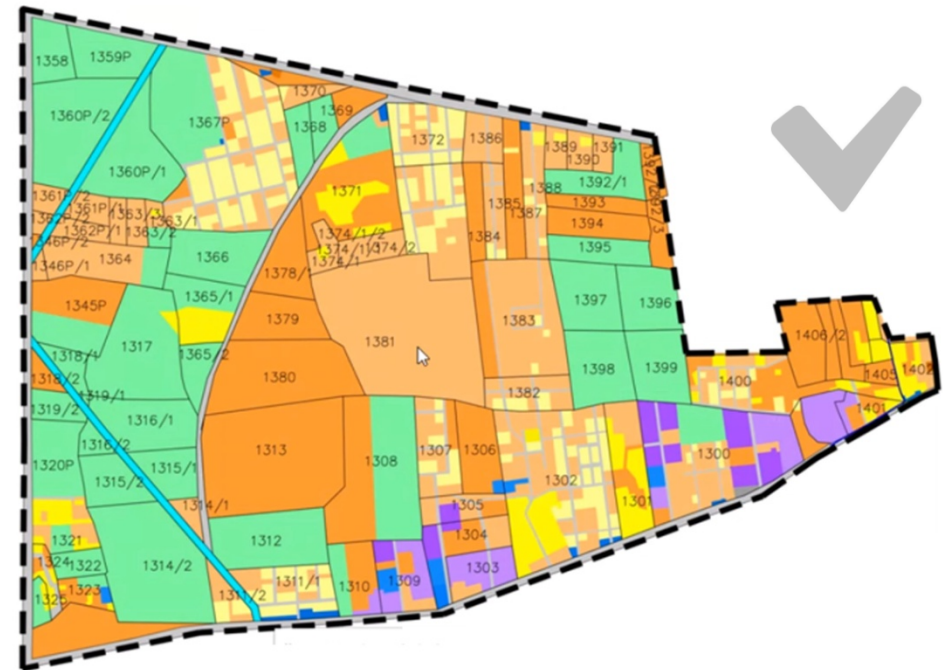
Present scenario:

Traditional Land use plans show the **Gross land use**



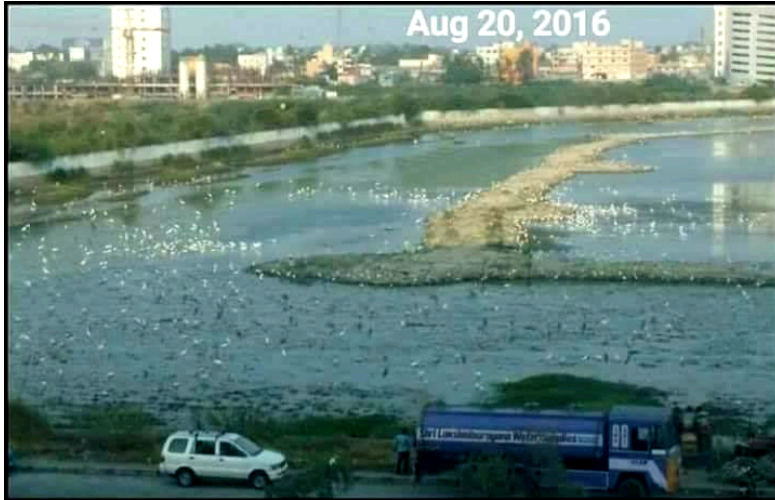
Ideal scenario:

It should show the **plot level land use** and get updated with change .

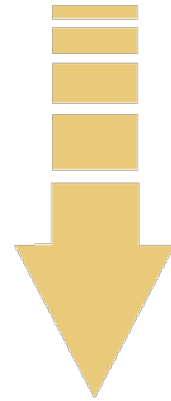


Supports in planning to upgrade the infrastructure and road

Abrupt *land use change*



Actual Land cover in 2016: Pallikaranai Marshland



Land cover in 2017: Urban Built-up

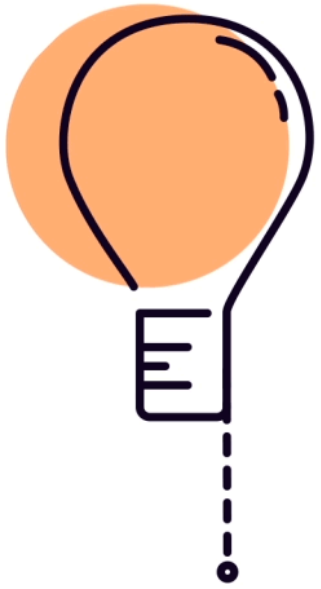


Urban Flooding every year



*A shift required from **‘static land use’** to **‘dynamic land use’** to enable cities growth.*

For this, the data should be collected from daily transactions in the urban ecosystem and updated at a frequent interval.



So the **IDEA** is,

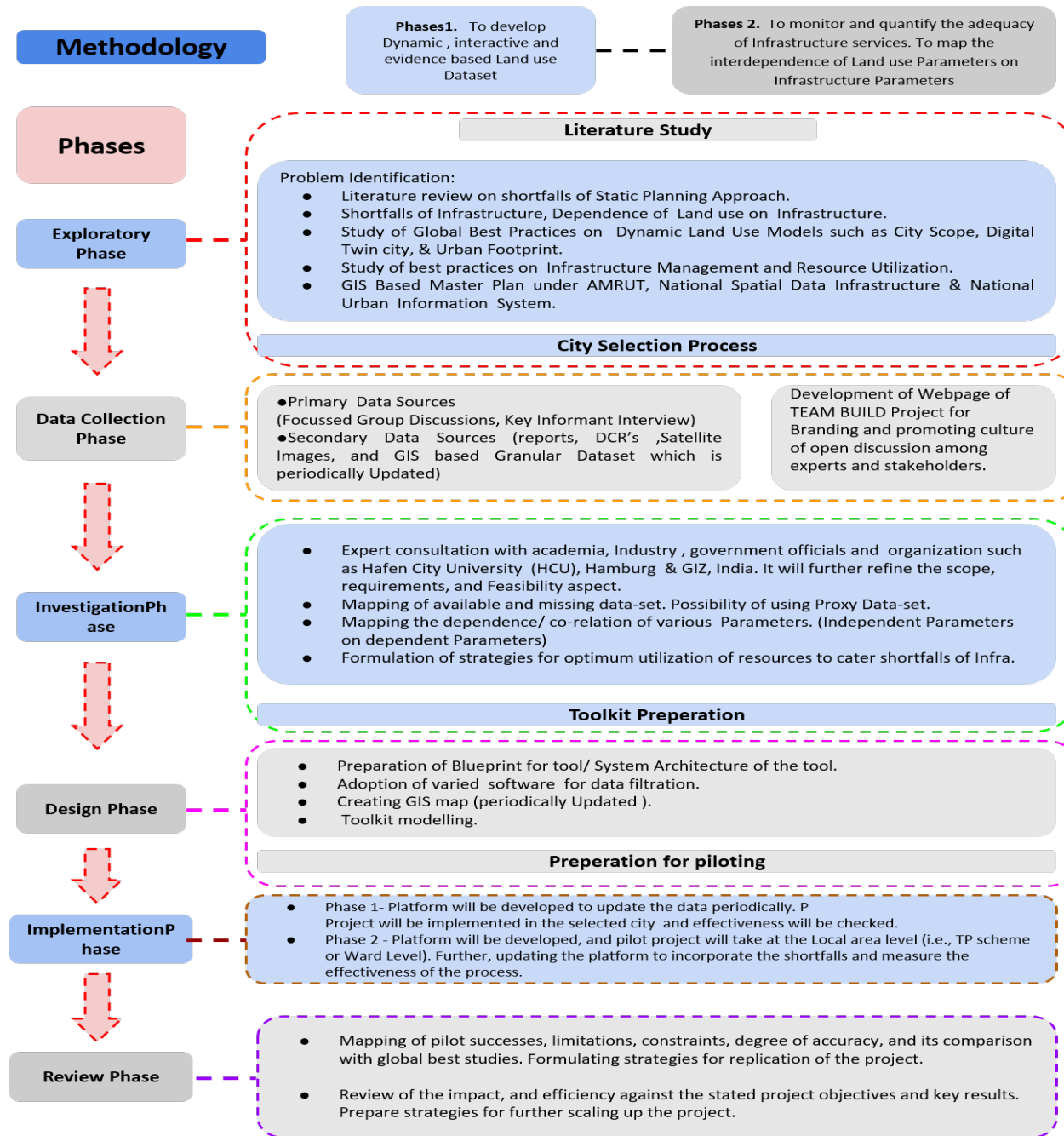
1

To create a dynamic, interactive and evidence based land use model.

2

To monitor and quantify the adequacy of infrastructure services (physical & social) and map the dependence of land use parameters on infrastructure parameters.

Methodology



Expert Consultation



Industry Experts

- Abhijit More and Maitri shah, JACOBS, India
- Dr. Antarin Chakroborty, GIZ
- George Jahnsen, GIZ
- Mr. Ashwani Rawat, Transerve
- Mr. Sushmit Kamal, Transerve
- Mrs. Bindu Nair, HCP
- Mr. Sahil Sashidharan, GIZ



Academia and Research

- Dr. Chetan Vaidya



सत्यमेव जयते

Government Of India

Govt. Officials

- R Srinivas, TCPO

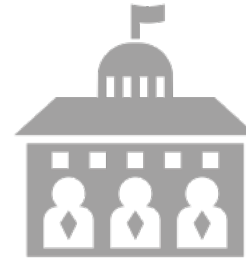
Project *Stakeholders*



Development
Authorities



Municipal
Corporations



State Town Planning
Department



Transport
Department

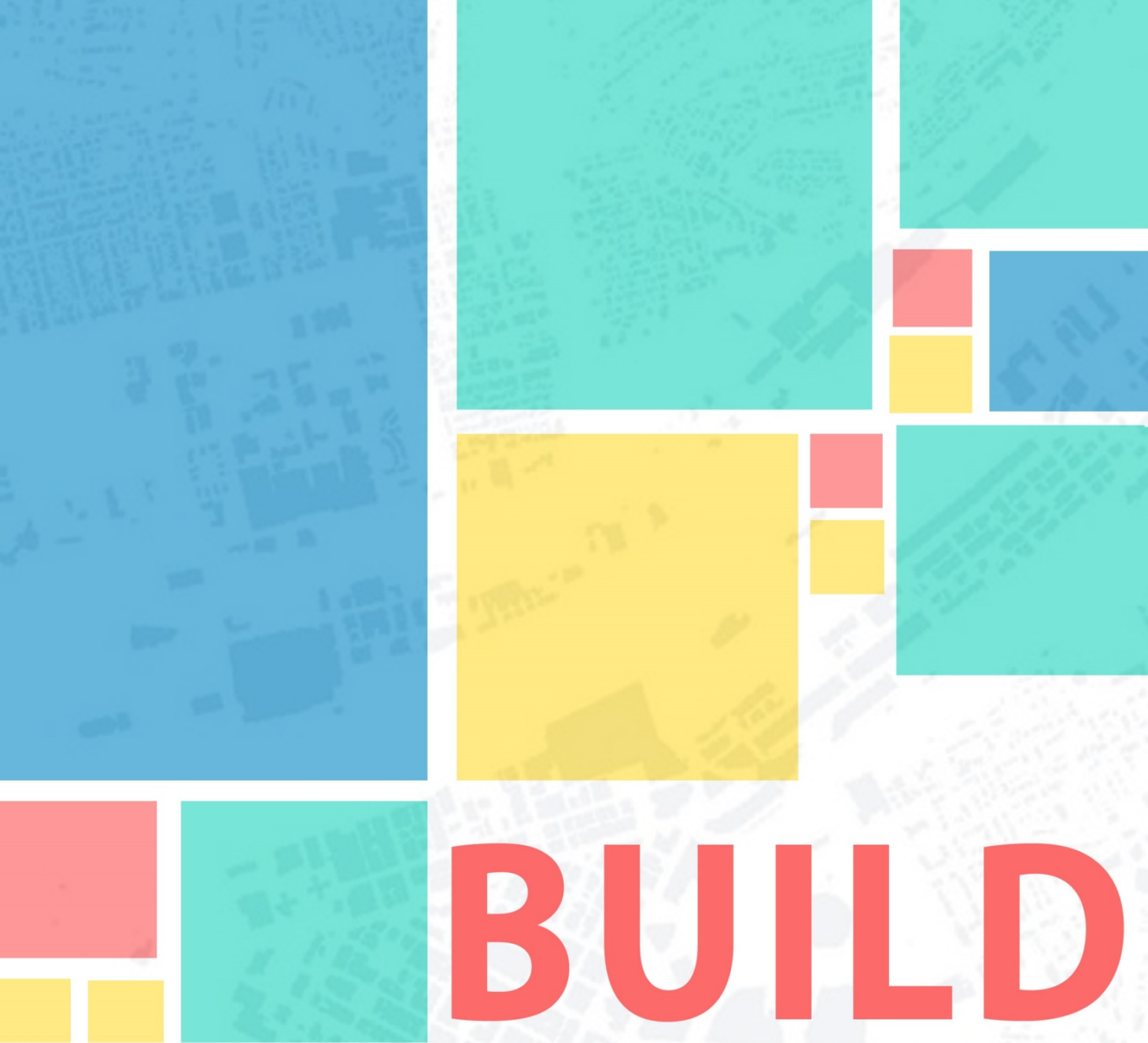


Smart City SPV



Ministry of Housing
and Urban Affairs
Government of India

MoHUA



Building
Urban
Integrated
Land use
Dynamics

Building Urban Integrated Land use Dynamics

Tool Architecture

INPUT



1. Layer stacking for base map

- Boundaries layers
- Transport layers
- Utilities layer
- Cadastral map
- Building footprint
- LULC



2. Population data (existing & projected)

3. Existing Infrastructure

4. Service Level Benchmarks

PROCESSING

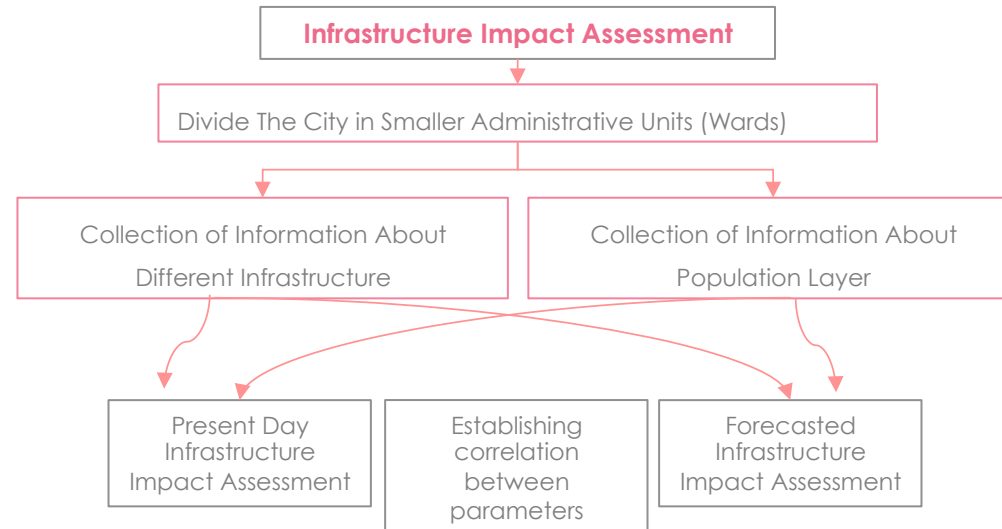
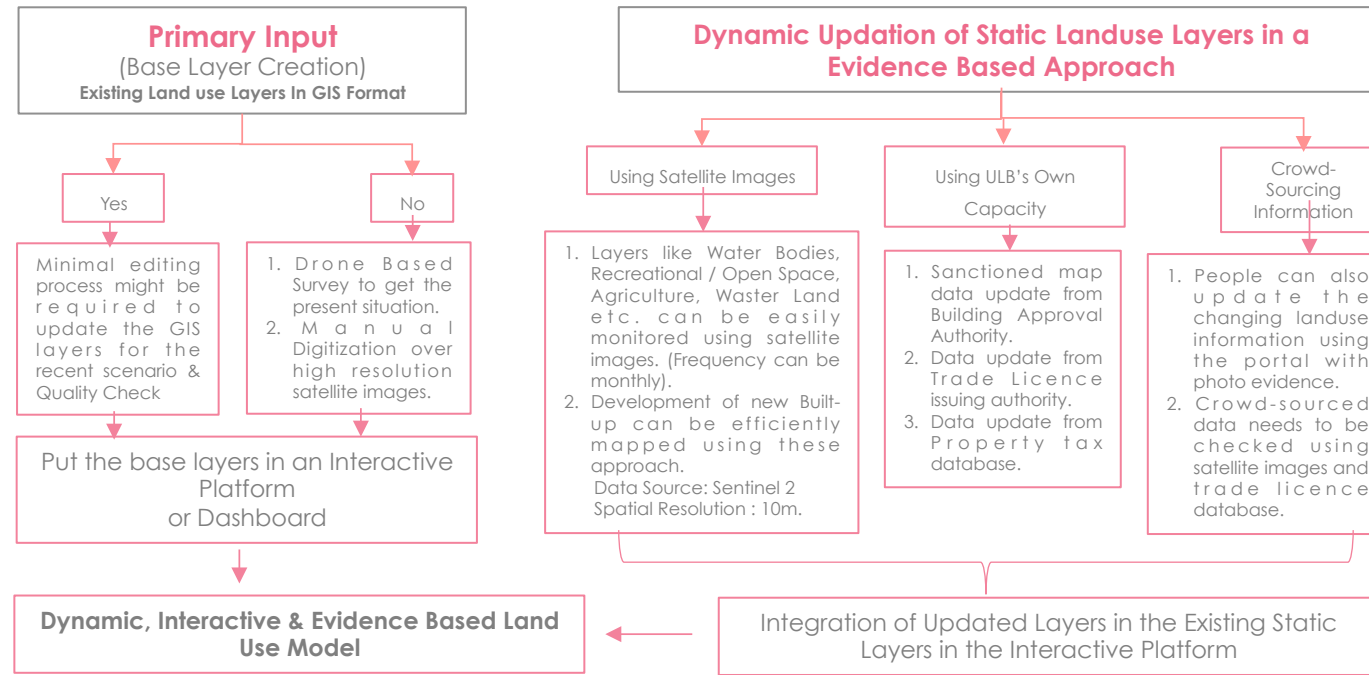
Database integration in Server



TOOL



Tool Idea



OUTPUT

1

BUILD



Data from
*daily building
approvals*

Data from
*Trade licence
issued*

*Crowdsourcing
information*

Updated Land Use Plan & Built Use
Information

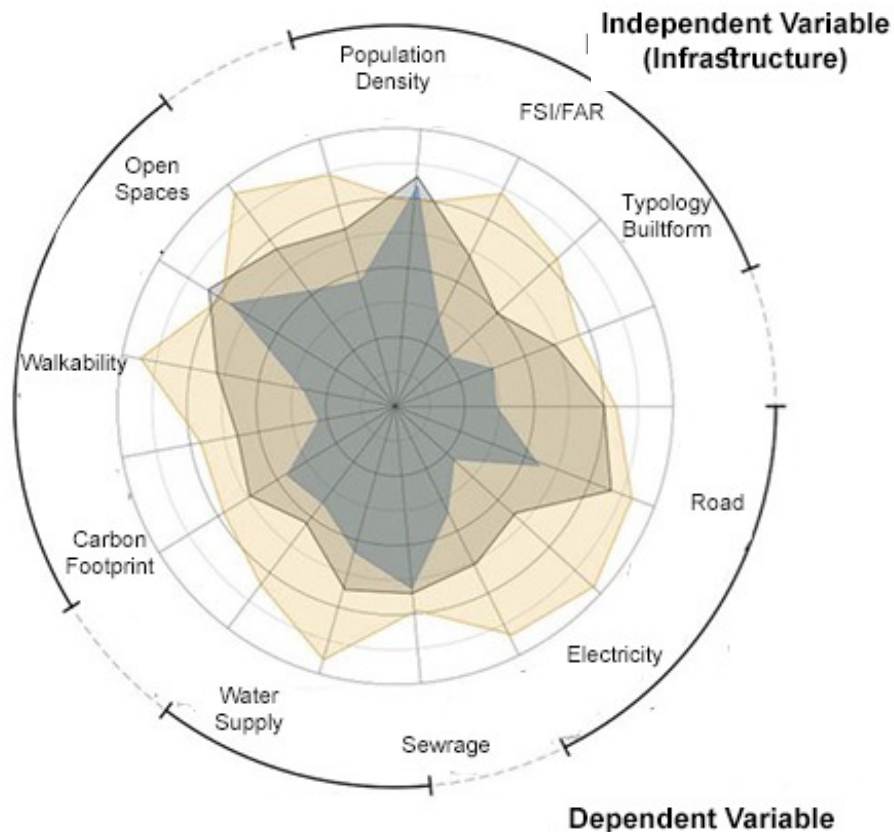


Quantify existing infrastructure from utility mapping

Analyze with Service level benchmarks

Estimate the required infrastructure

Status Of Infrastructure Services (Absent, Excess Or Insufficient)



Independent parameters
FSI, Population density, building typology

Dependent parameters
Infrastructure, open spaces, road, carbon footprint

Radar Chart
(Correlation Between Parameters)

Project *Outcomes*

1. Standardized granular updated data for further analysis.
2. Evidence based approach for intervention in DCR.
3. Informed decision for infrastructure proposals & avoid overlaps.
4. Real time simulation prediction & AI suggestion system.
5. Initiate the data driven urban planning approach.
6. Support to the statutory planning process.

Project *Impacts*



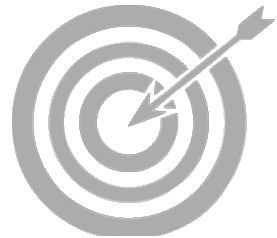
Promotes evidence based planning.



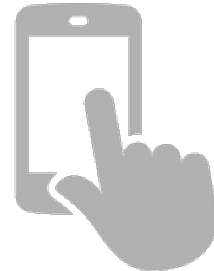
Advocates Market friendly planning in core area of city.



Augments stakeholder consultation (expert & non-expert).

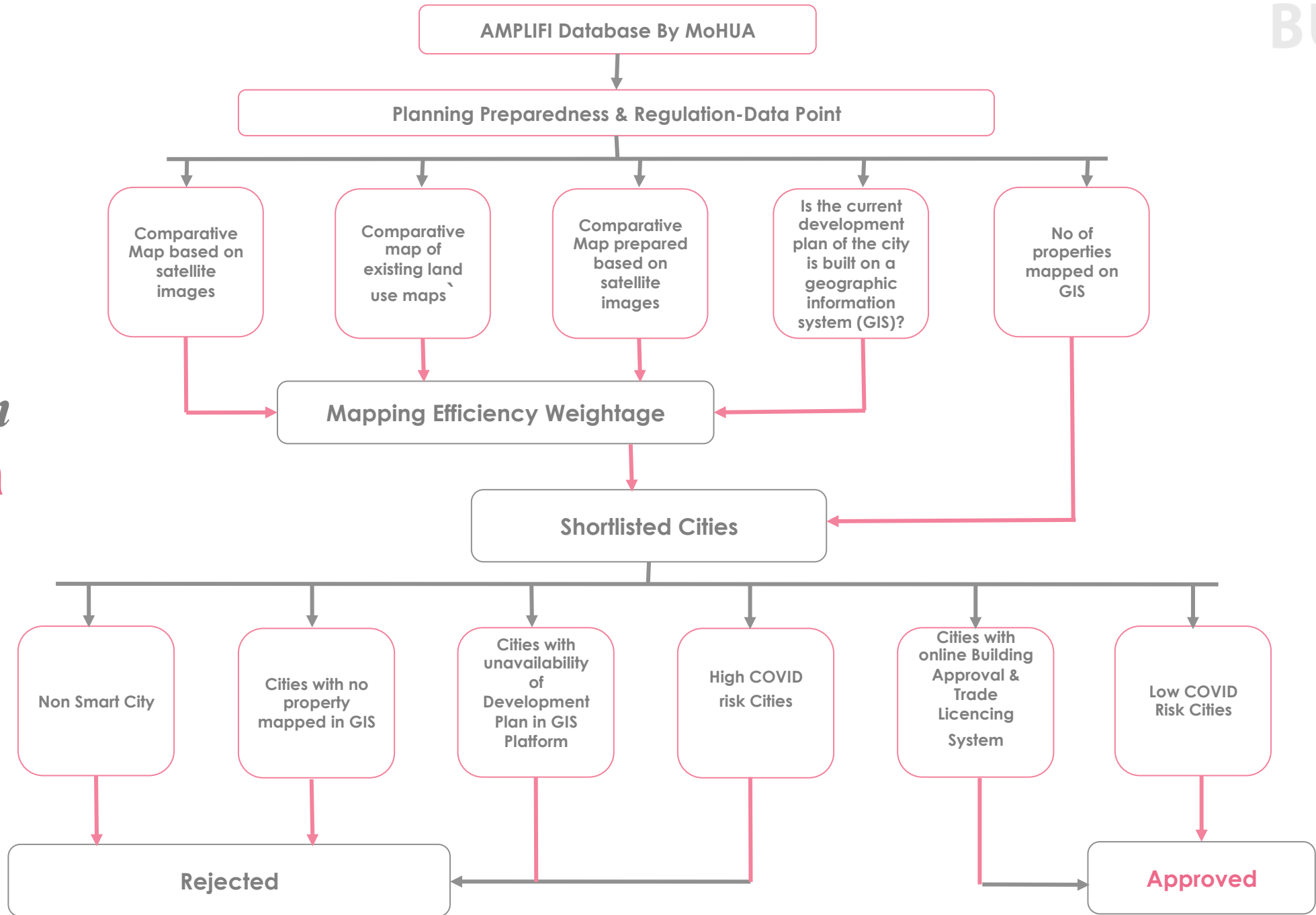


Enables city growth through Responsive planning.

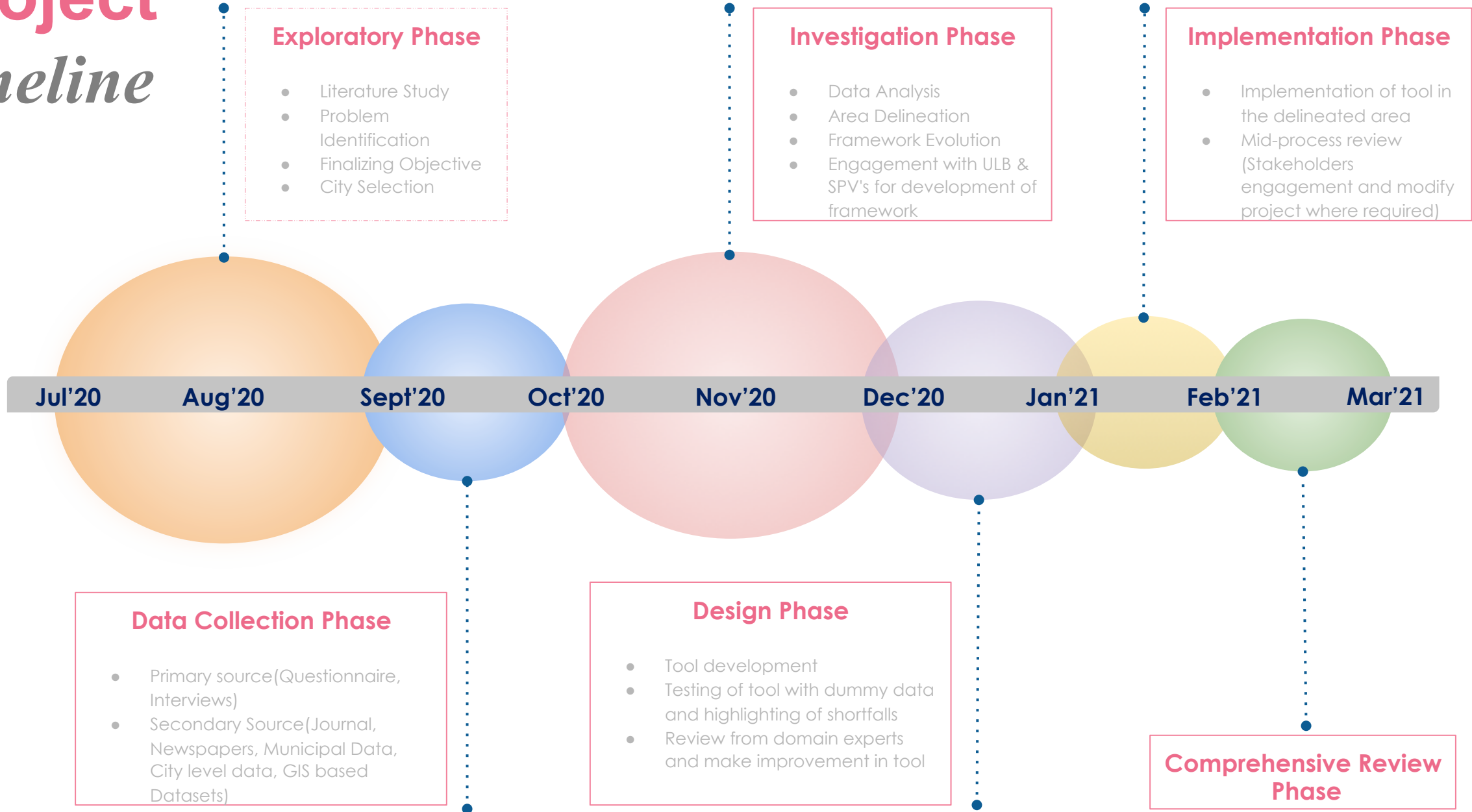


Promotes digital equity.

**City
Selection
Criteria**



Project *timeline*



Project *Estimate*

Project	Items / Activities	Expected cost	Cost Minimizing Technique	Reduced Budget
Integrated Dashboard and Webtool	1. Software Development	600000	College/University based Hackathon will help in development of the tool and thereby reducing the cost upto 50%	300000
	2. Website / Tool Design	100000		100000
Data Cost	Spatial Layers for Landuse mapping	150000	Selecting the ULB which already has maximum number of spatial layers (i.e., updated dataset)	75000
HR components	Domain Specific Expert Consultation	50000	Attempt will be undertaken to explore sources on our own such as expert consultation including the knowledge exchange to further minimize the cost	0
Over head		100000		100000
Total		1000000		575000

Meet *the* Team



Joydip Datta
Geographer & GIS Expert



Pritam Patnaik
Architect & Environmental
Planner



Jash Goswami
Civil Engineer & Urban
Planner



Archit Nishant
Architect & Urban Planner

External Mentor:
Dr.Saswat Bandyopadhyay
Professor - CEPT University

Internal Mentor:
Nilesh Rajadhyaksha & Kanak Tiwari
Project Coordinator MPD 2041, NIUA

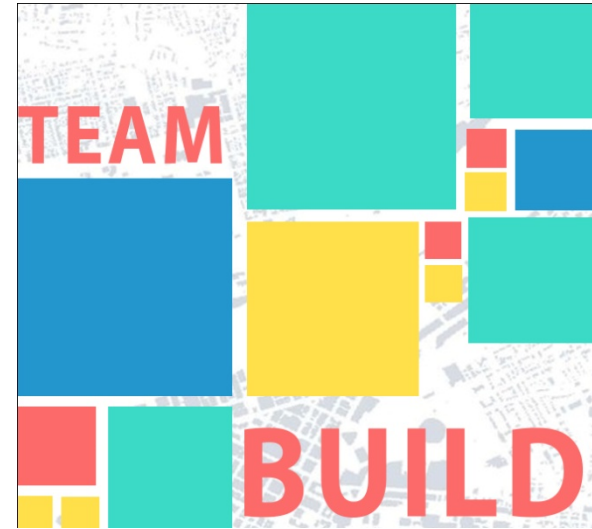
For more *information*



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iscf

Ministry of Housing and Urban Affairs



Smart City

MISSION TRANSFORM-NATION



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Ministry of Housing and Urban Affairs
Government of India

Thank *You*