Ministry of Housing and Urban Affairs
Government of India

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Ministry of Housing and Urban Affairs

Smart City
MISSION TRANSFORM-NATION

AFFORDABLE AND SUSTAINABLE HOUSING AGGREGATOR (ASHA)

Prepared by:

Team ASHA

Smart Cities Mission

Ministry of Housing & Urban Affairs

September 2020

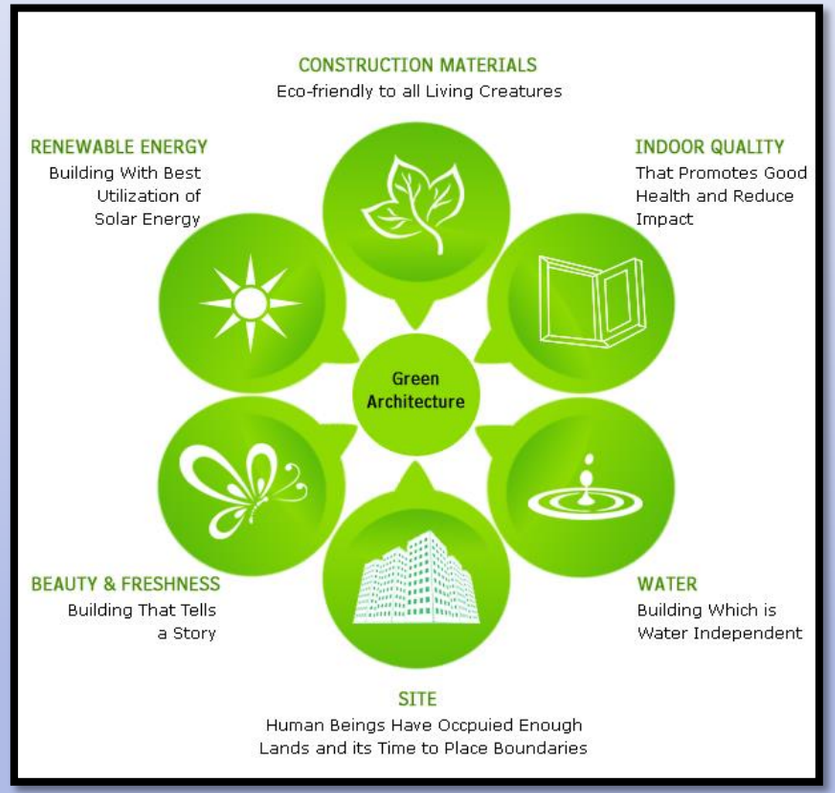
ADVISORY TEAM

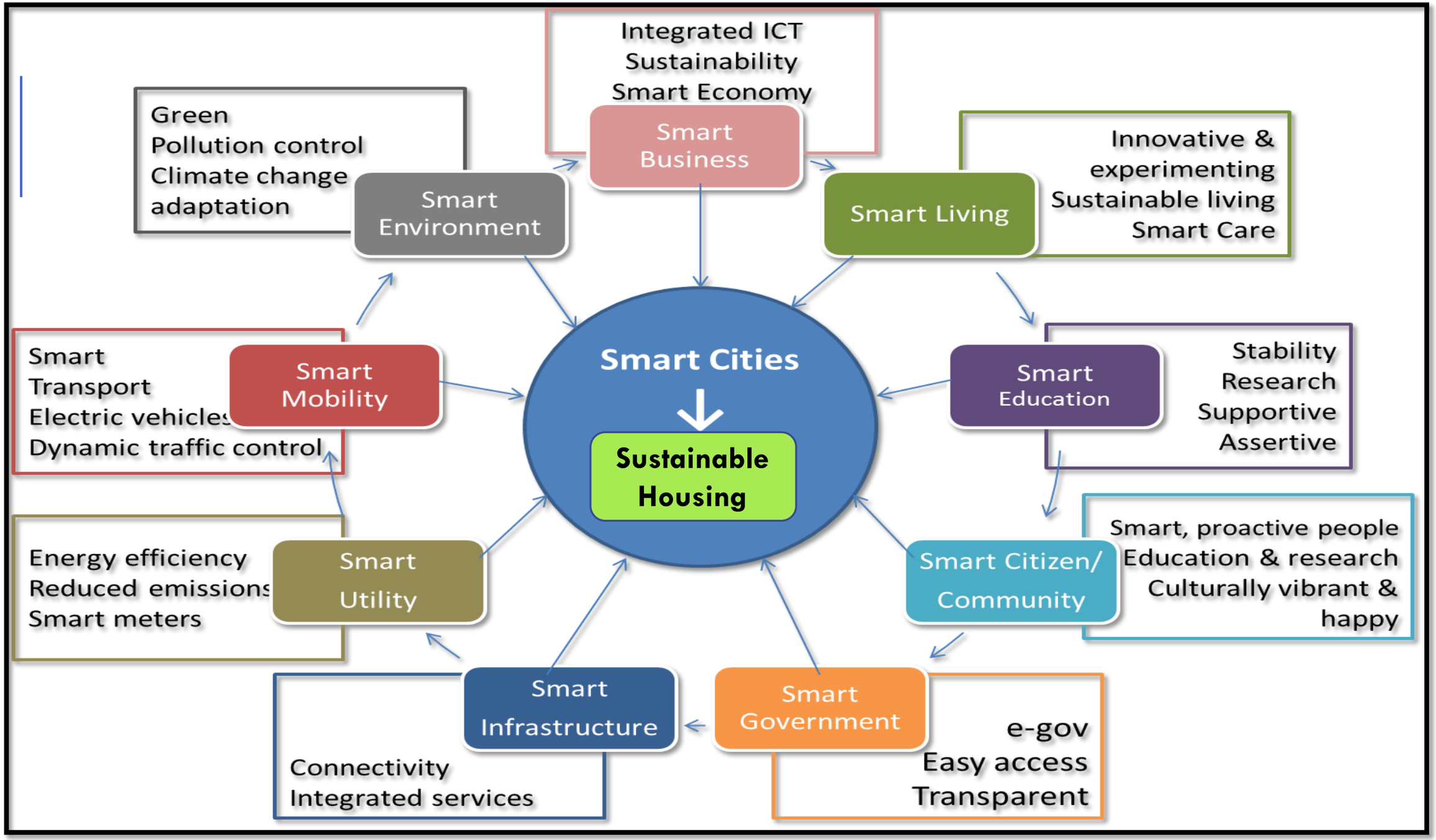
- **Sh. Kunal Kumar (IAS)**, Joint Secretary, Mission Director, MoHUA
- **Sh. Rahul Kapoor**, Director, Smart Cities, MoHUA
- **Prof. Dr PSN Rao**, Head & Director, School of Planning and Architecture, Delhi
- **Dr G Srijana (IAS)**, Commissioner and CEO, Greater Vishakhapatnam Municipal Corporation (GVMC)
- **Dr Srinivasa Rajmani**, City Coordinator, UNDP-GoI Project, GVMC Visakhapatnam

WHAT IS SUSTAINABLE HOUSING?????

INTRODUCTION

- Cities are home to more than half of the world's population, and they are expected to add another 2.5 billion new residents by 2050.
- They face increasing environmental pressures and infrastructure needs—and growing demands from residents to deliver a better quality of life and to do so at a sustainable cost (McKinsey & Company, 2018).
- Sustainable housing planning is a relatively new concept that many cities have embraced. However, many are still struggling to combine or adapt their strategic plans to incorporate the sustainability aspects (Abidin et al., 2013).
- There is a need to create a holistic housing system which is self-sustaining and, in this context, the urban experts have shifted their focus on sustainable housing practices in urban areas, so as to promote self-reliant communities in urban cities.




Integrated ICT
Sustainability
Smart Economy
Smart Business
Green
Pollution control
Climate change adaptation
Smart Environment
Smart Living
Innovative & experimenting
Sustainable living
Smart Care
Smart Cities
Sustainable Housing
Smart Transport
Electric vehicles
Dynamic traffic control
Smart Mobility
Smart Education
Stability
Research
Supportive
Assertive
Energy efficiency
Reduced emissions
Smart meters
Smart Utility
Smart Citizen/ Community
Smart, proactive people
Education & research
Culturally vibrant & happy
Connectivity
Integrated services
Smart Infrastructure
Smart Government
e-gov
Easy access
Transparent

WHY TEAM DECIDED TO WORK ON THIS IDEA??

HOUSING SCENARIO

India is suffering from growing housing problem

India needs to build approx. 110 million housing units by 2022 both in urban and rural areas

Current shortage of housing is estimated over 60 million (KPMG Report 2016)

But, where is the land to be allocated in various cities for the same?

1.7 to 2 lakh hectares (0.7% of India's total area) of land required to fulfil the need by 2022

To create this inventory of housing, it requires a huge capital investment of US 2 trillion $

How do you identify land availability and green land?

How does the administration know the impact of housing on infrastructure services and vice-versa?

What is the proportion contribution of housing in property tax collection as per?

What is the average housing construction rate (in terms of quantity built annually/ bi-annually or quarterly)?

Is the housing development in the city regulated or unauthorized and organic

How does the city know about the trends in the housing market/efficient raw materials?

For all the questions asked, one needs a key resource which is reliable data, that can be analyzed and decoded in order to find answers.

Hence we require a system for various departments working in silos to share data

PROBLEM STATEMENT

- One of the major reasons for lack of housing development in India is non-availability of reliable and efficient housing data which is "smart" in terms of quantity and quality.
- Also it has been observed that cities lack an effective system in place which collates relevant housing information like basic amenities, services and facilities at city level under one umbrella.
- Further, today we are in age of big data and unless data is collated and presented in a simplified manner informed decision-making can not happen.

ISSUES AND CONCERNS

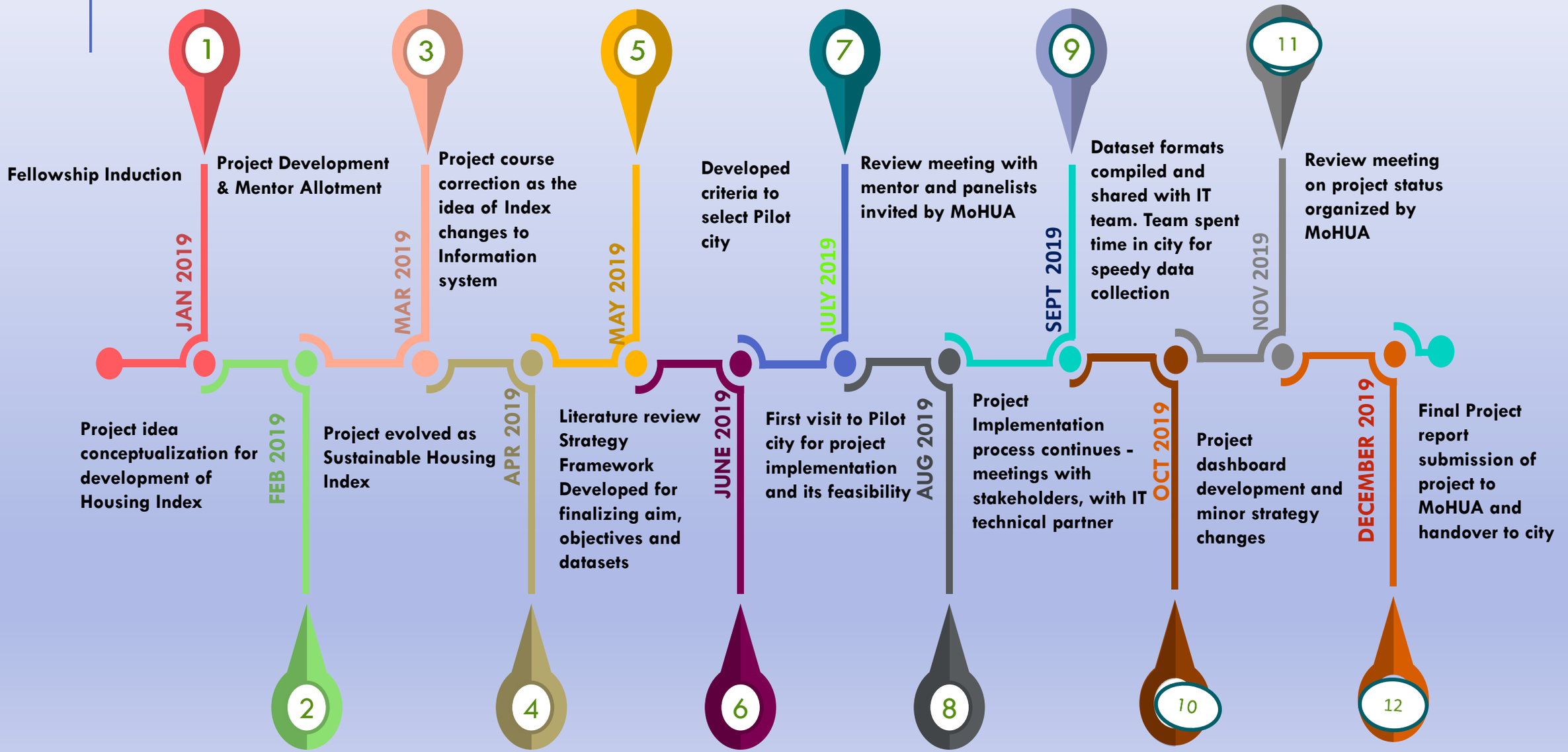
Issues of concern in the smart cities

- Land availability/cost issues.
- Lack of planned planning & development at city level.
- Lack of integration among different departments
- Informal employments/migration is increasing demand of housing at city level.
- Lack of estimated data of population requiring houses.

Issues of concern in ULBs

- Regulatory constraints e.g., illegal building construction is unmonitored, lengthy approval processes
- Non existence of common platform for information related to new housing schemes, upcoming housing projects, aspirations of citizens concerning housing etc.
- Non existence of a platform to gauge basic amenities, services and facilities in a particular zone at city level e.g., water, parks, electricity, schools, health facility etc.

TIMELINE FOR PROJECT IMPLEMENTATION (JAN-DEC 2019)



OBJECTIVES

Main Objective

- To create a city level housing data repository

Specific Objectives

- To understand the existing housing data system in the cities
- To create a standardized data feeding and sharing platform within departments
- To develop data architecture for housing at local, state and central level

DIGITAL HOUSING DATA REPOSITORY ??

ASHA: A DIGITAL HOUSING DATA REPOSITORY

Affordable & Sustainable Housing Aggregator (ASHA) is a digital housing data repository at inter and intra city level (with automated data sharing and analyzing mechanism on real time basis) for identifying **housing requirements, trends and development.**

It will provide a more robust mechanism for decision making, policy development, compliance, monitoring, implementation and research to **Urban local bodies (ULB's).**

Pilot city: Team ASHA selected **Visakhapatnam** as the first pilot city and worked closely with Greater Vishakhapatnam Municipal Corporation (GVMC) to develop this repository.

DIGITAL SUSTAINABLE HOUSING REPOSITORY PARAMETERS

HOUSING DATABASE

- Provides information on data concerning housing tenure, houseless statistics, land database ultimately helping in understanding housing market trends.
- Further, this can be used for understanding the homeless dynamics in any city.

SUSTAINABLE HOUSING DATABASE

- Provides information on environment friendly disposal of waste, water management, air and water quality status of any area, rainwater harvesting mechanism , pollution monitoring, health services etc.

RESILIENCE AND DISASTER MANAGEMENT

- Provides information on mapping multi-hazard zones, analyse climate change impact, study soil profile for construction, analyse impact of hydro-meteorological events (cyclones, heavy rains, floods etc), identify priority areas for risk reduction and build action plan to build resilience.

PROJECTS DATABASE AT A GLANCE IN GVMC

- Under project database component different departments can track ongoing, proposed and completed projects progress and this would promote better decision-making and e-governance

REGULATIONS AND POLICIES DATABASE

- Provides information about existing national/local level reforms and schemes of different domains of housing to promote good governance.

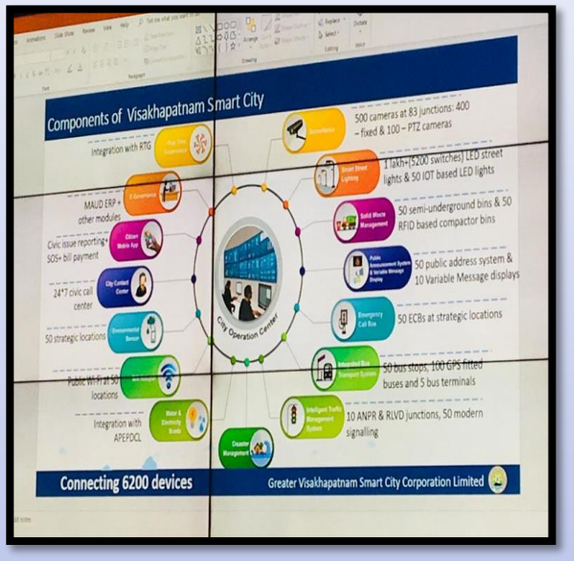
CRITERIA ADOPTED FOR CITY SELECTION

- Smart city with available ICCC integration system.
- Smart City ranking and proposal.
- Grouping of cities into 2 million population group.
- The convergence of digital datasets captured by various departments in the city
- Housing demand
- Consultation with mentor and experts
- City administration interest towards the project

List of identified cities

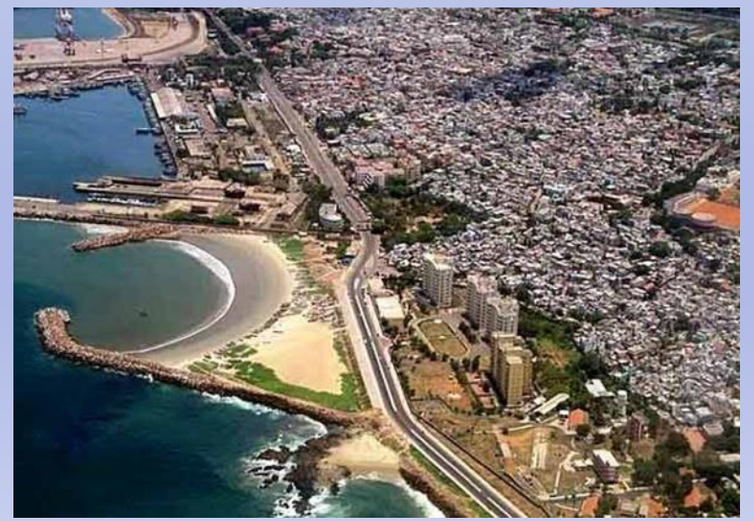
S.No.	City
1	**Visakhapatnam**
2	Guwahati
3	Bhubaneswar
4	Thiruvananthapuram
5	Indore
6	Nagpur
7	Jaipur
8	Coimbatore
9	Pune
10	Ahmedabad

WHY VISAKHAPATNAM FOR IMPLEMENTING PILOT PROJECT?



City Operation Centre in Visakhapatnam

It is a first city to come up with **Integrated control and command centre** for better administration of the city and serving the citizens by using new technologies like GPS Tracking System, IOT sensors along with mobile and web application to improve and smoothen ground level mechanisms.

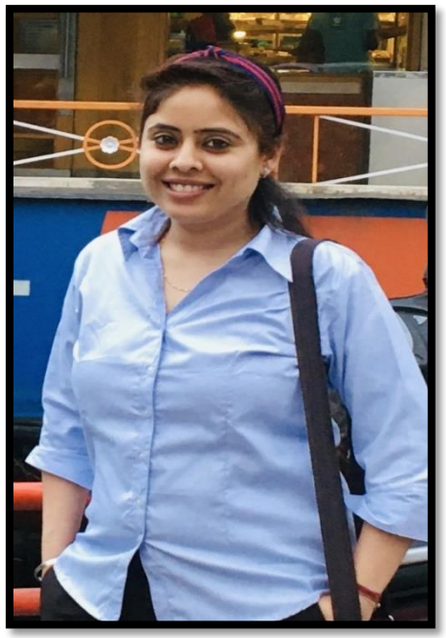


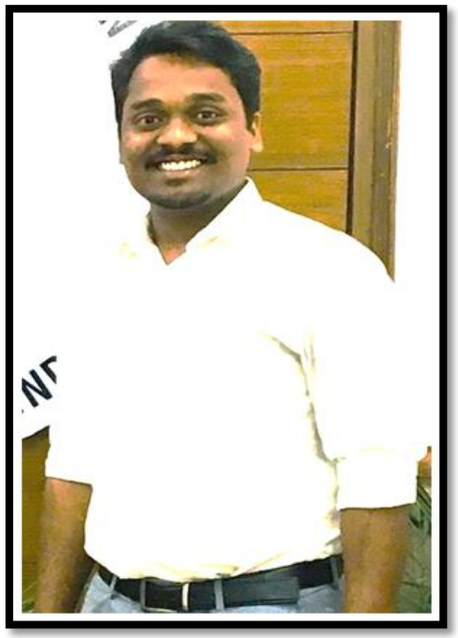
SOLUTIONS PROVIDED BY ASHA REPOSITORY

- Fast track data capturing for housing-related basic services & utilities
- Spatial representation of data which can be used for developing master plans
- Exchange of data among departments which will reduce dependency and delays
- Facilitation of better monitoring and robust decision making for housing development and review of related schemes and policies
- Facilitation of speedy delivery of required amenities in different zones of the city for water supply, telecom, sewerage, electricity etc.
- Improvement in environment and sustainability in terms of good quality of air/water, safe public spaces, disaster preparedness, health & sanitation etc.

OUR TEAM

Team ASHA constitutes of four members having experience in diverse fields

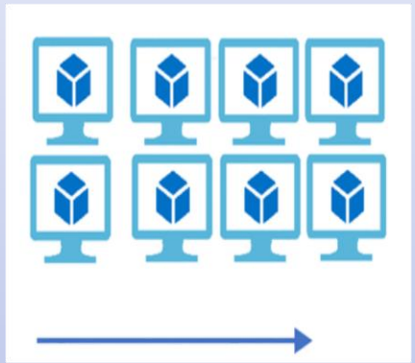




NAME/ EXPERTISE	HARVEEN KAUR Ph.D (Waste Management), University of Delhi	AKSHAY ATREJA B.Tech (Electrical Engineering), NIT Jaipur	AMIT VARMA B.Arch. and M.Plan (Housing), SPA Delhi	UDAY KUMAR M.URP, SPA Vijayawada, B. Tech, JB university
EXPERTISE	She has recently submitted her Ph.D. in DU. She has experience in environment management and sustainable development.	He is an electrical engineer. He has experience in industrial energy management and execution of renewable energy projects.	He is an architect and housing planner. He has experience in working on city development plan reports and related infrastructure for various urban development projects.	Experience in project, feasibility, smart city projects (management check)

POTENTIAL FOR SCALING

- The project has scalability scope both in vertical and horizontal directions as explained in Fig.
- Housing Information system is not a city-specific tool. It can be revamped as per requirements of city and its priority.



HORIZONTAL DIRECTION

Project can be extended to other departments which are relevant to housing sector and also has scope for addition of various other parameters.

VERTICAL DIRECTION

Out of 100 smart cities, 15 have ICCC and in 29 cities it will soon to be functional. Model can be replicated in all smart cities having functional ICCC in place.

Scalability in Vertical and Horizontal direction

USE CASES FOR THE ASHA PROJECT

Use cases for the ASHA project taken from different thematic areas of a smart city environment concerning housing.

The areas include **housing, revenue, land records, building approvals, construction, bye laws, health, safety, waste, environment, energy, pollution, disaster management and resilience.**

The description of the use cases is focussed around the usefulness of each use case in Integrated Command and Control Centre (ICCC) based on the features and applications the project team has envisioned.

PRODUCT SCOPE AND PERSPECTIVE

The reference architecture for ASHA repository should:

- ☐ Cater for data exchange between urban infrastructures
- ☐ Enable reliability of the solutions/platforms city to city
- ☐ Scale without technical constraints and excessive cost increase
- ☐ Provide open APIs
- ☐ Enable real time capabilities
- ☐ Support implementation of functional and technical capabilities

WAY FORWARD

Housing data collected and integrated under Housing information system can be directly fed into **Urban Observatory** in the **Ministry of Housing and Urban Affairs** (subject to approval of city CEO and Ministry).

India Urban Observatory Ministry of Housing and Urban Affairs

CHALLENGES FACED

- The three-phase strategy (City/ State/ Central level) for project implementation was found to be non- feasible due to time constraint.
- Department had digital data in different formats, hence availability of standard data was an issue.
- Other issues included identification IT partner, space for hosting, technical feasibility including data and APIs integration
- Team had to work with no. of IT resource persons due to reasons like transfer, change of job role, expertise etc. which lead to delay in development of prototype. City Commissioner & CEO also changed during implementation phase which lead to further delay.

GLIMPSES OF THE HOUSING DASHBOARD....

LIVE LINK OF DEVELOPED PROTOTYPE

Link of prototypes:

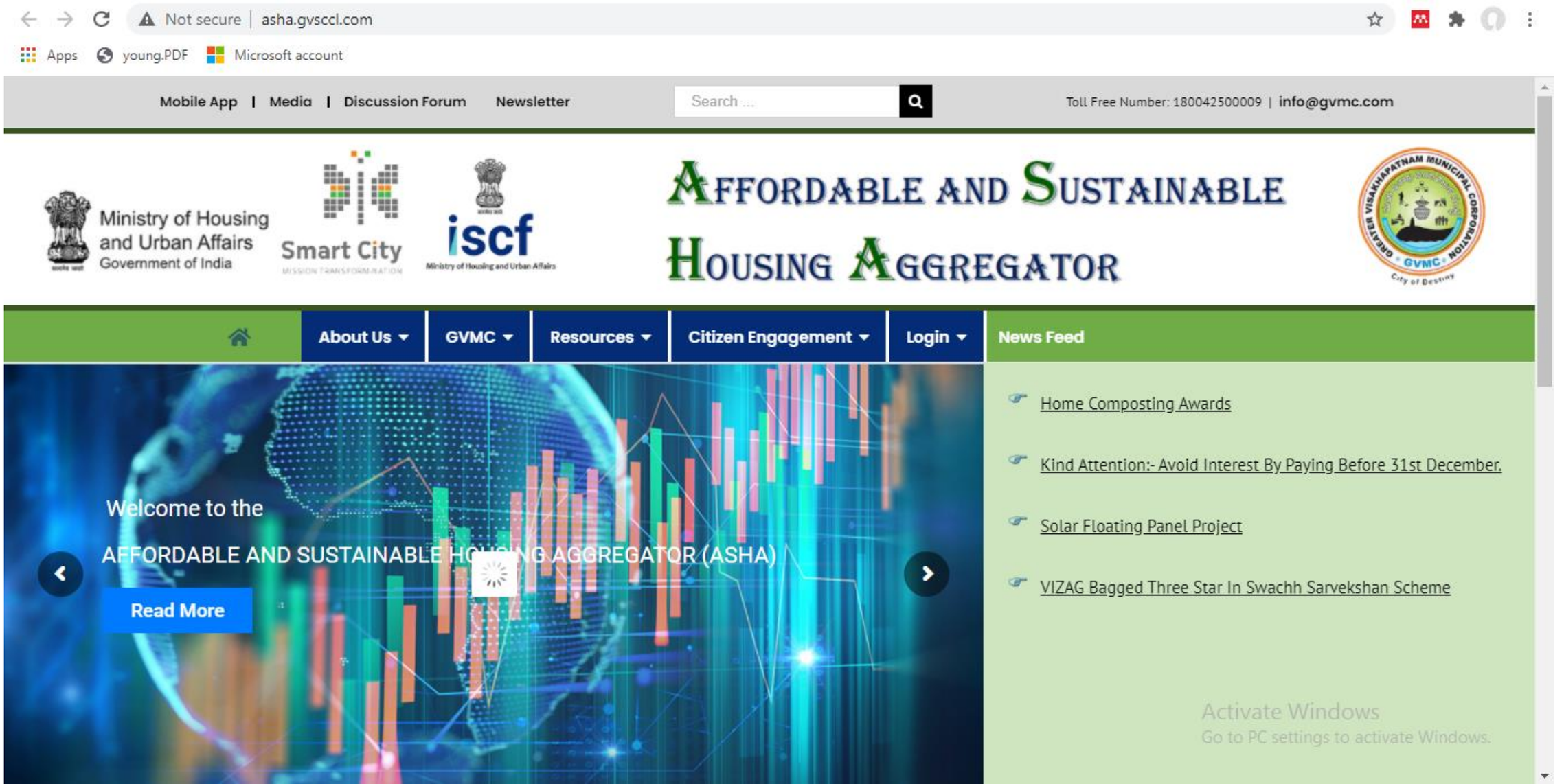
Prototype I

https://asha.gvsccl.com/

Prototype II

https://affordable-and-sustainable-housing-aggregator-gvsccl.hub.arcgis.com/

PROTOTYPE I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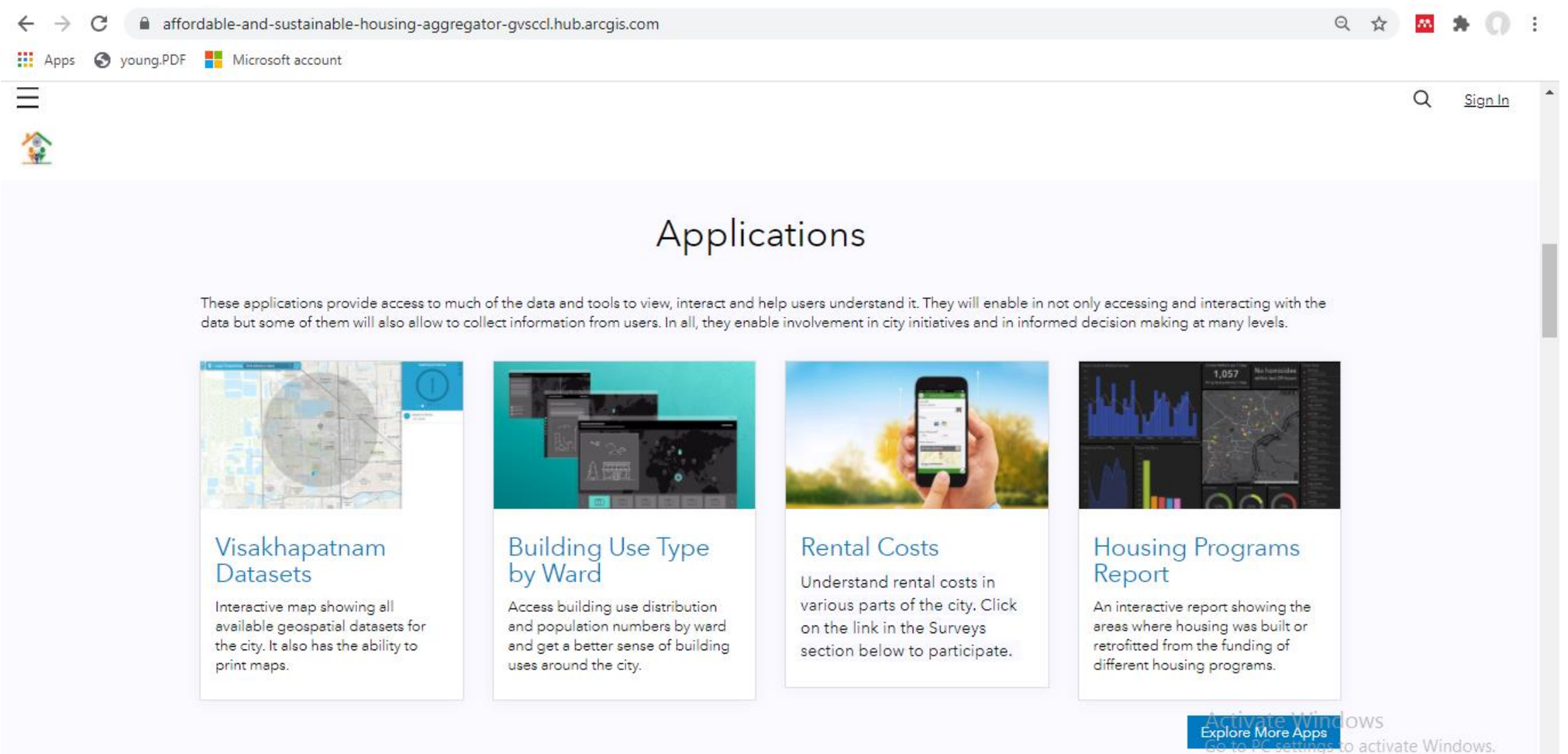
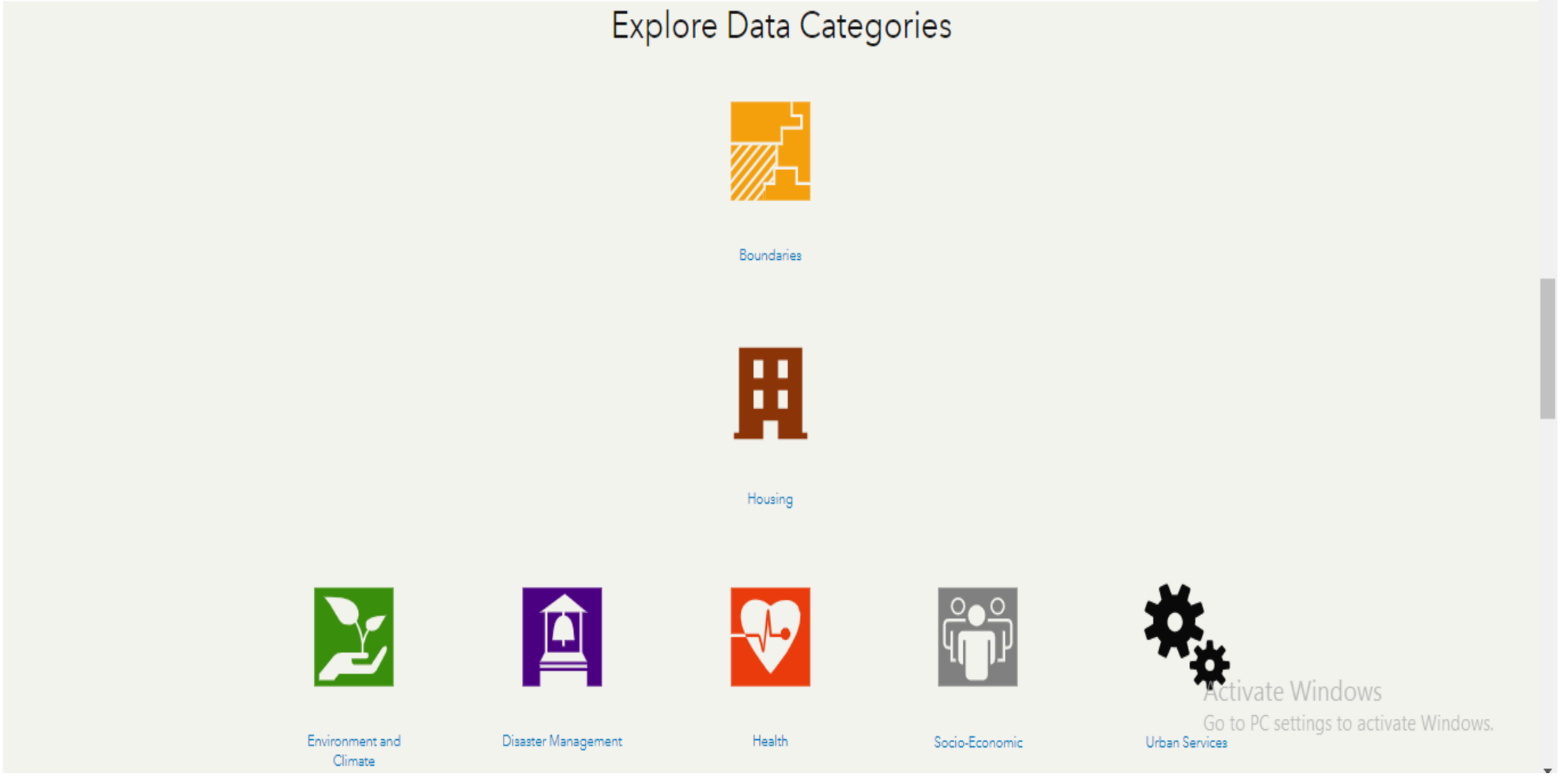
About Us
GVMC
Resources
Citizen Engagement
Login
News Feed
Welcome to the
AFFORDABLE AND SUSTAINABLE HOUSING AGGREGATOR (ASHA)
Read More
Home Composting Awards
Kind Attention:- Avoid Interest By Paying Before 31st December.
Solar Floating Panel Project
VIZAG Bagged Three Star In Swachh Sarvekshan Scheme
Activate Windows
Go to PC settings to activate Windows.

PROTOTYPE II

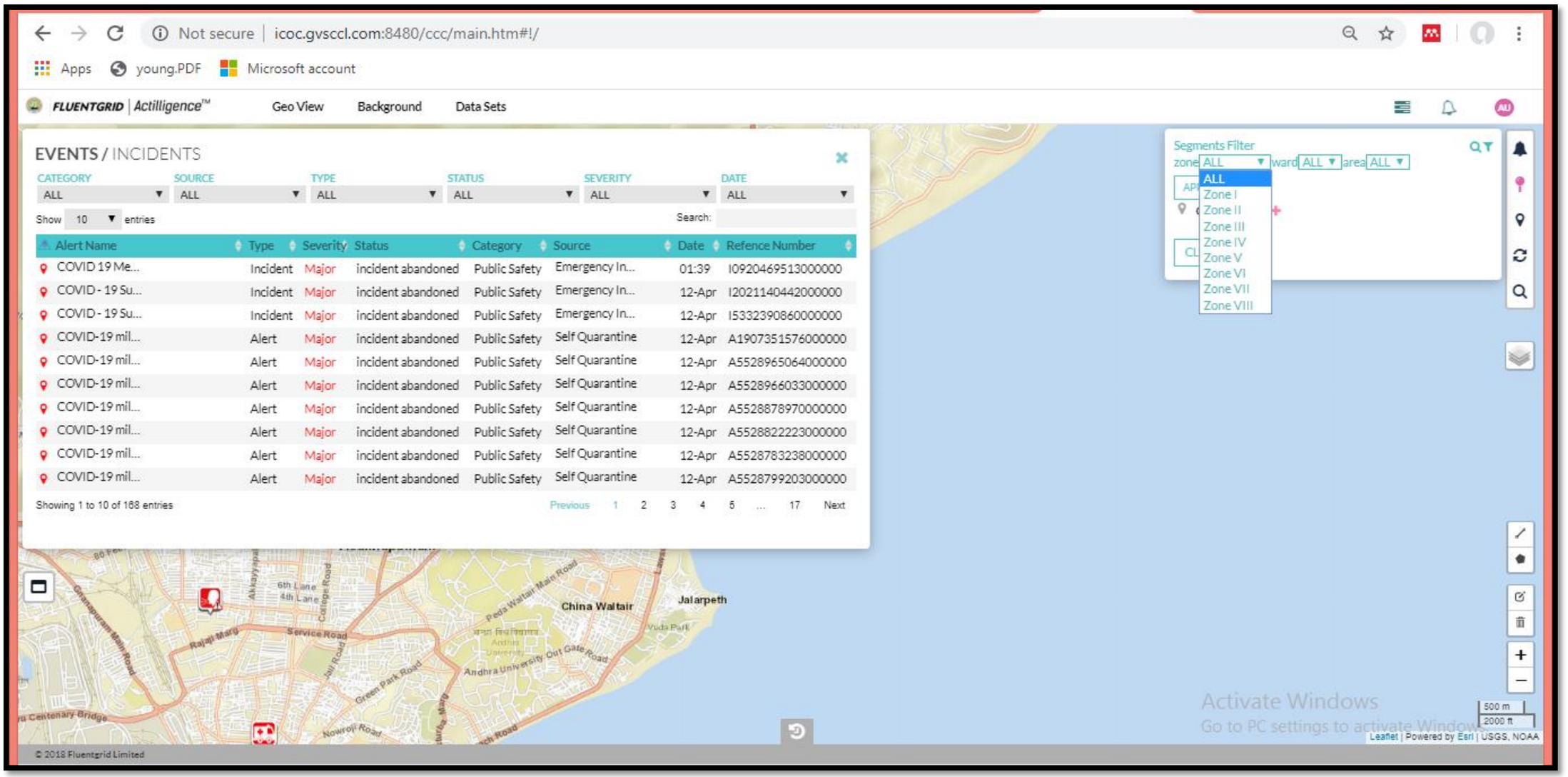
HOME PAGE PROTOTYPE II



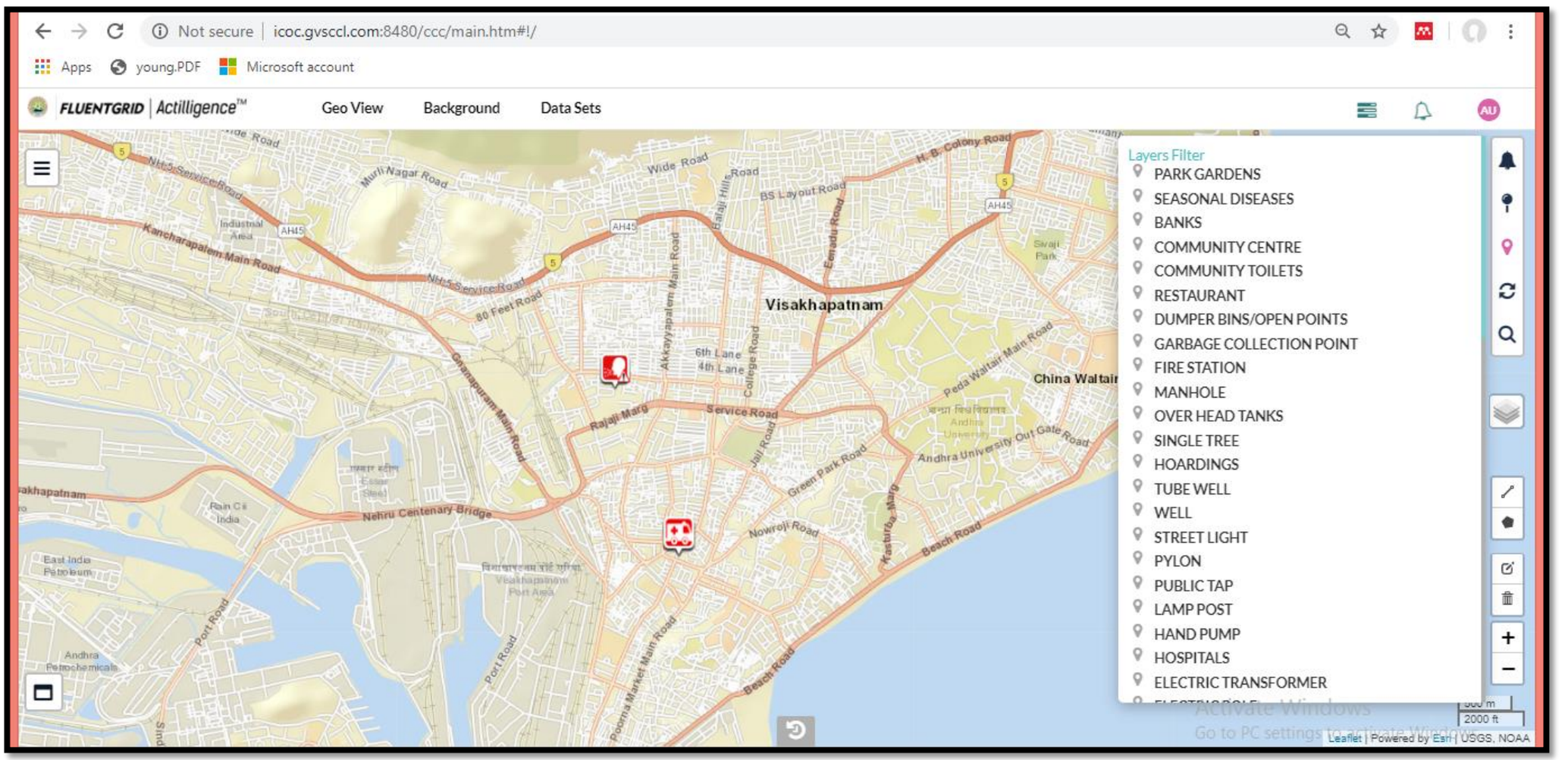
DATA CATEGORIES



COVID CASES REPORTS ZONE & WARD WISE



GIS LAYERS/OTHER SERVICES & UTILITIES



CONSULTATION MEETINGS WITH COMMISSIONER & CEO AND ADDNL COMMISSIONER

Dr .V Sanyasi Rao, Addnl Commissioner, GVMC.

Smt. Dr G Srijana, IAS Commissioner & CEO, GVMC, Visakhapatnam.

GVMC Ex Commissioner & CEO
Sh M Hari Narayanan, IAS

CONSULTATION MEETINGS WITH OTHER DEPARTMENTS OF GVMC

Smt R.J Vidyullatha, Chief City Planner, Town Planning Department, GVMC, Visakhapatnam

Dr G Srijana, IAS, Ex Joint Collector, Visakhapatnam, Govt. of Andhra Pradesh

Mr Vihaykanth, APTIDCO, PMAY Cell, UCD Department, GVMC Vishakhapatnam

CONSULTATION MEETINGS WITH OTHER STAKEHOLDERS

Prof Dr PSN Rao, Head & Director, SPA, Delhi (Project Mentor)

Lt Col L Sh Harsha, Deputy Programme Director & Construction Manager, PMC, Visakhapatnam.

IT Team of Project

MEDIA COVERAGE IN VISAKHAPATNAM...

Media coverage in Visakhapatnam

Soon, a housing repository portal for civic body

IMPROVING THE URBAN SCENE

- India Smart Cities Fellowship-2019 was launched by the ministry of housing and urban affairs
- It received about 3,800 applications from across the country
- 200 candidates were screened for the fellowship
- Major objective of the fellowship is to attract talented youths to create solutions for India's urban needs
- 40 candidates were finally selected for the fellowship

Project To Help In Urban Planning

Umamaheswara.Rao
@timesgroup.com

Visakhapatnam: The Union ministry of housing and urban affairs has appointed a team of four fellows under the India Smart Cities Fellowship-2019 to Visakhapatnam to develop a housing data repository platform for the Greater Visakhapatnam Municipal Corporation.

Once the working prototype of the portal is ready and approved by the officials, it will be expanded and replicated in other urban local bodies of the country.

The team includes Harveen Kaur (environment and sustainable development specialist), Empati act as a key resource for effective future urban planning, monitoring and decision making for urban local bodies (ULBs). It is expected to help understand the demand for housing and

GVMC sets ₹320 crore tax target

Visakhapatnam: GVMC commissioner G Srijana has set the civic body's tax collection target for 2019-20 financial year at ₹320 crore.

During a review meeting on tax collections on Wednesday, she asked GVMC officials to set zone-wise monthly targets and work towards meeting them. GVMC collected close to ₹300 crore in taxes during 2018-19 financial year.

"We cannot neglect even a single rupee. If officials are facing any problems in tax collection, they should bring it to my notice immediately," said Srijana. TNN

Times of India

ం ఈనాడు విశాఖపట్నం

'గృహ' అధ్యయనానికి

యువ బృందం

నీతం పేటి, న్యూస్‌టుడే: కేంద్రప్రభుత్వం ఆకర్షణీయ నగరాల(స్మార్ట్ సిటీ)ను మరింతగా అభివృద్ధి చేసేందుకు నిర్ణయించింది. యువ తకు భాగస్వామ్యం కల్పిస్తూ దేశవ్యాప్తంగా ఎంపిక చేసిన పది స్మార్ట్ నగరాల్లో అధ్యయనం చేయడానికి వీరికి అవకాశం కల్పించింది. దీనిలో భాగంగా నలుగురు సభ్యులతో కూడిన బృందం విశాఖపట్నం వచ్చారు. ఈ బృందం ఆశ(ఎఫర్డబుల్ సస్టైయినబుల్ హౌసింగ్ అగ్రిగేటర్) అనే పేరుతో వీరు నగరంలో సుమారు నాలుగు నెలలు ఉండి వివిధ వర్గాల ప్రజలు, అధికారులను కలుసుకుంటారు.

ఓ అధికారితో సమావేశమైన ఆశ బృందం సభ్యులు

అధ్యయనం ఇలా..

విశాఖకు వచ్చిన ఈ బృందం జీవీఎంసీ పరిధిలో పనిచేస్తూ నివాస గృహాలు, వాటి పరిసరాలు, మౌలిక వసతుల కల్పన, వాతావరణం, కాలుష్యం, తాగునీరు, రహదారులు, నివాసయోగ్యమైన ప్రాంతమా.. కాదా.. తదితర అంశాలపై అధ్యయనం చేయనుంది. వీటన్నింటినీ క్రోడీకరించి ఒక డిజిటల్ ప్లాట్‌ఫాం(వేదిక)ను తయారు చేస్తారు. ఇది విజయవంతమైతే దేశవ్యాప్తంగా ఈ విధానాన్ని అమలు చేస్తారు.

ఇప్పటి వరకు ఏం చేశారంటే..

ఆశ బృందం ఇప్పటికే నగరంలో వివిధ శాఖాధికారులను కలిసింది. ఆంధ్రవిశ్వవిద్యాలయానికి చెందిన ఆచార్యులు ఇ. ఉదయభాస్కరరెడ్డి, బాలప్రసాద్, రామకృష్ణారావు నుంచి సలహాలు తీసుకుంది. తాము అధ్యయనం చేయనున్న అంశాలను జీవీఎంసీ కమిషనర్, రెవెన్యూ అధికారులకు పవర్‌పాయింట్ ప్రజంటేషన్ ద్వారా వివరించారు.

ఎవరీ యువ బృందం..!

కేంద్ర గృహనిర్మాణ, పట్టణ వ్యవహారాల మంత్రిత్వ శాఖ ఆధ్వర్యంలో జాతీయ పట్టణ వ్యవహారాల సంస్థ(ఎన్ఐయూఏ) స్మార్ట్ సిటీల అభివృద్ధి పనులను చూస్తోంది. ఇండియన్ స్మార్ట్ సిటీ ఫెలోస్(ఐ.ఎస్.ఎఫ్) కింద ఉన్నత విద్యావంతులైన యువతను కేంద్ర ప్రభుత్వం తీసుకుంది. ఇందుకోసం దేశవ్యాప్తంగా సుమారు నాలుగువేలమంది ఉన్నత విద్యావంతులైన యువతీయువకులు పోటీపడ్డారు. వీరిలో నుంచి 30మంది యువతను ఎంపిక చేసింది. వీరికి శిక్షణనిచ్చి ఎంపిక చేసిన పది నగరాల్లో ఒక్కొక్క బృందానికి ఒక్కొక్క అంశం అప్పగించింది. విశాఖ వచ్చిన బృందానికి హర్వీన్ కౌర్ నాయకత్వం వహిస్తున్నారు.

E-naru Telugu newspaper

Media coverage in Visakhapatnam

the pioneer
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Vizag to be first Indian city with Housing Data Repository

SUMIT ONKA
VISAKHAPATNAM

Aiding an innovative initiative of the union government under smart city project, Visakhapatnam is poised to be the first city in India to have a Housing Data Repository.

Well-equipped City Command Centre and rich availability of data made Ministry of Housing and Urban Affairs (MoHUA) to take up a pilot project in Visakhapatnam on Housing Data Repository that will act as a key resource for effective future planning, monitoring and decision making for urban local bodies (ULBs). Polling up the existing data of all the houses in the city pertaining to building plans and approval, quality of electricity and water supply, pollution, transportation, medical facility, soil test, sewerage plants and disaster resilient features from various wings of the district administration and ULB, a prototype of the project will be readied by October.

The project can be implemented further scalability at PAN India level. It will help

ing environment conditions, disaster preparedness thus helping in better planning for future development.

The project is being led by Team ASHA: Affordable and Sustainable Housing Aggregator, a sub-group of India Smart Cities Fellows (ISCF). The Team is currently based in Vishakhapatnam and working with Greater

The project is being led by Team ASHA: Affordable and Sustainable Housing Aggregator, a sub-group of India Smart Cities Fellows (ISCF). The Team is currently based in Vishakhapatnam and working with GVMC

Fellows with diverse back- Empati Uday Kumar (Urban Planner).

The team is meeting different stakeholders of urban ecosystem including inter alia, housing domain experts, municipal officers, officials of revenue department, town planning department, environment experts and IT experts so as to design and improve the usability of the platform. Prof. Dr PSN Rao Head & Director, School of Planning and Architecture, Delhi is guiding the team under his mentorship.

Speaking to The Pioneer, Harveen Kaur, Team ASHA representative, said "One of the major reasons for lack of housing development in India is non-availability of reliable and efficient housing data which is "smart" in terms of volume of data captured and quality of such data for use in further analysis and timely updation. It has also been observed that cities lack an effective system in place which collates relevant housing information like basic amenities, services and facilities at city level under one umbrella. This will help the government to prepare effective plans suiting to the needs of different areas of a city. We

The Pioneer

Thank You!

For feedback/queries contact:

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