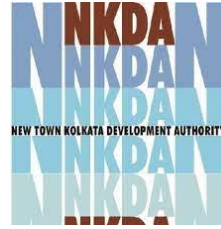




**UN-GGIM**  
UNITED NATIONS  
COMMITTEE OF EXPERTS ON  
GLOBAL GEOSPATIAL  
INFORMATION MANAGEMENT



# Second United Nations World Geospatial Information Congress

**Session:** TP10D - Effective Global Partnerships

**Topic:** Development and Maintenance of **Public Green Space**



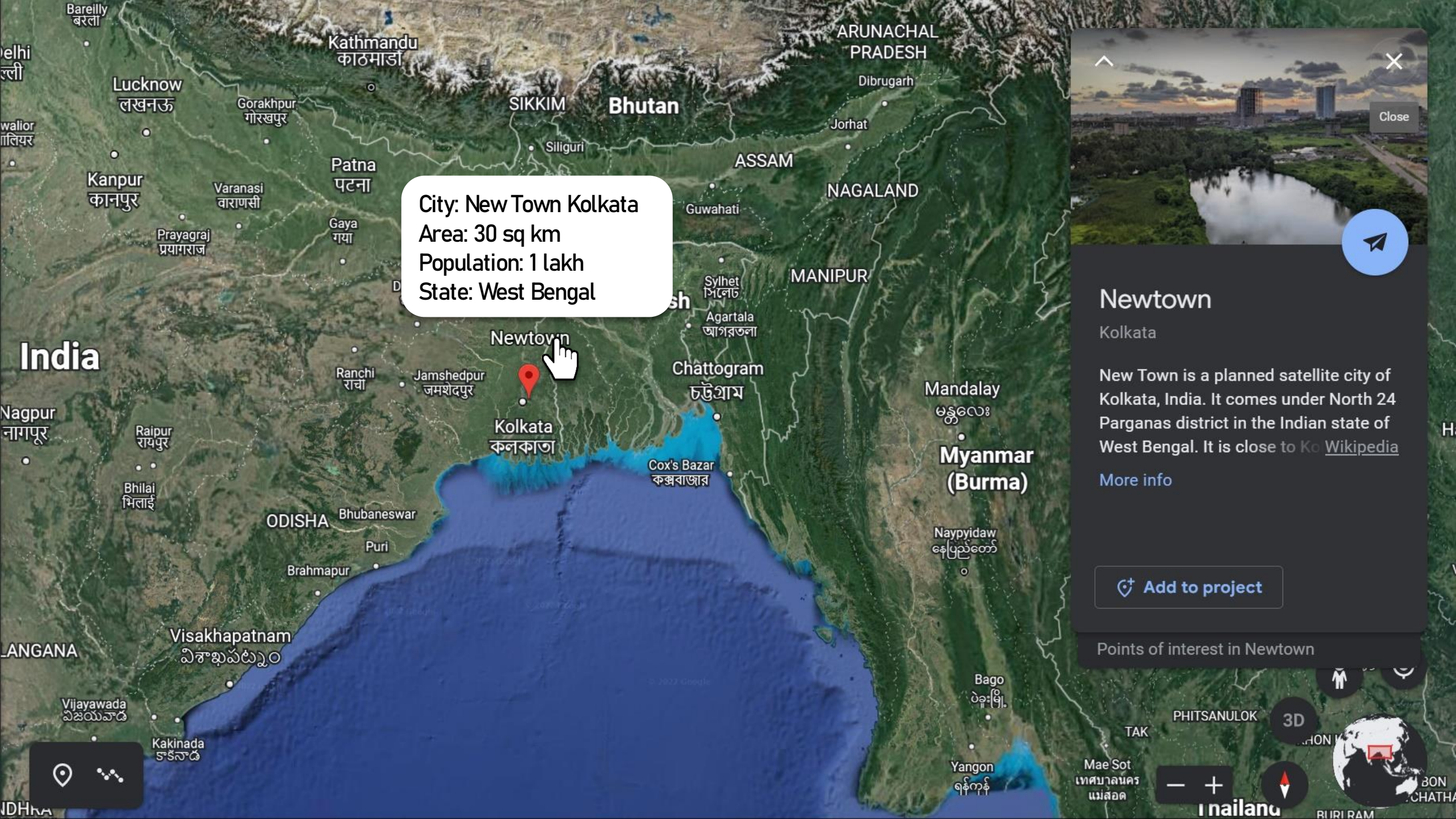
with Community Participation and in Collaboration with Private Partners

**Presented by:**

**New Town Kolkata Green Smart City Corporation, West Bengal**

Hyderabad, October 2022





City: Newtown Kolkata  
Area: 30 sq km  
Population: 1 lakh  
State: West Bengal



## Newtown

Kolkata

New Town is a planned satellite city of Kolkata, India. It comes under North 24 Parganas district in the Indian state of West Bengal. It is close to Kolkata. [Wikipedia](#)

[More info](#)

[Add to project](#)

Points of interest in Newtown

PHITSANULOK

3D

Mae Sot  
เทศบาลนคร  
แม่สอด

nailanu

RI IRI RAM





**New Town Kolkata, being  
a 'Smart City' practises  
Data – Driven Planning,  
Implementation &  
Monitoring**





New Town Kolkata has  
been practising use of  
Geo Spatial Information  
for various functions.

Few Instances. . .







#1



## Smart Solid Waste Management System in New Town Kolkata



# Smart Solid Waste Management System in New Town Kolkata

- ▶ New Town practices regular door-to-door collection of solid waste for 100 % of the city



- ▶ Concern : Timely Collection at household level & from primary/ secondary transfer stations



Initiatives undertaken to ensure timely collection of solid waste:

1. Smart Home Tag

2. SWM Vehicle Tracking

3. IOT Enabled Street Fencing



# Smart Solid Waste Management System in New Town Kolkata

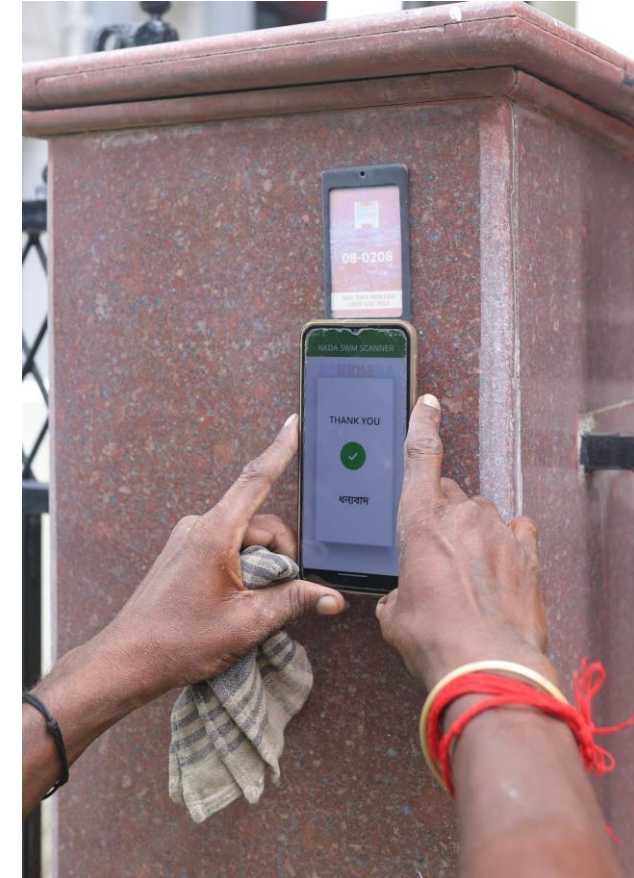
▶ RFID-based  
'Smart Tags' are installed  
at all Premises



▶ 'Smart Tag'  
is scanned, every time  
post - collection



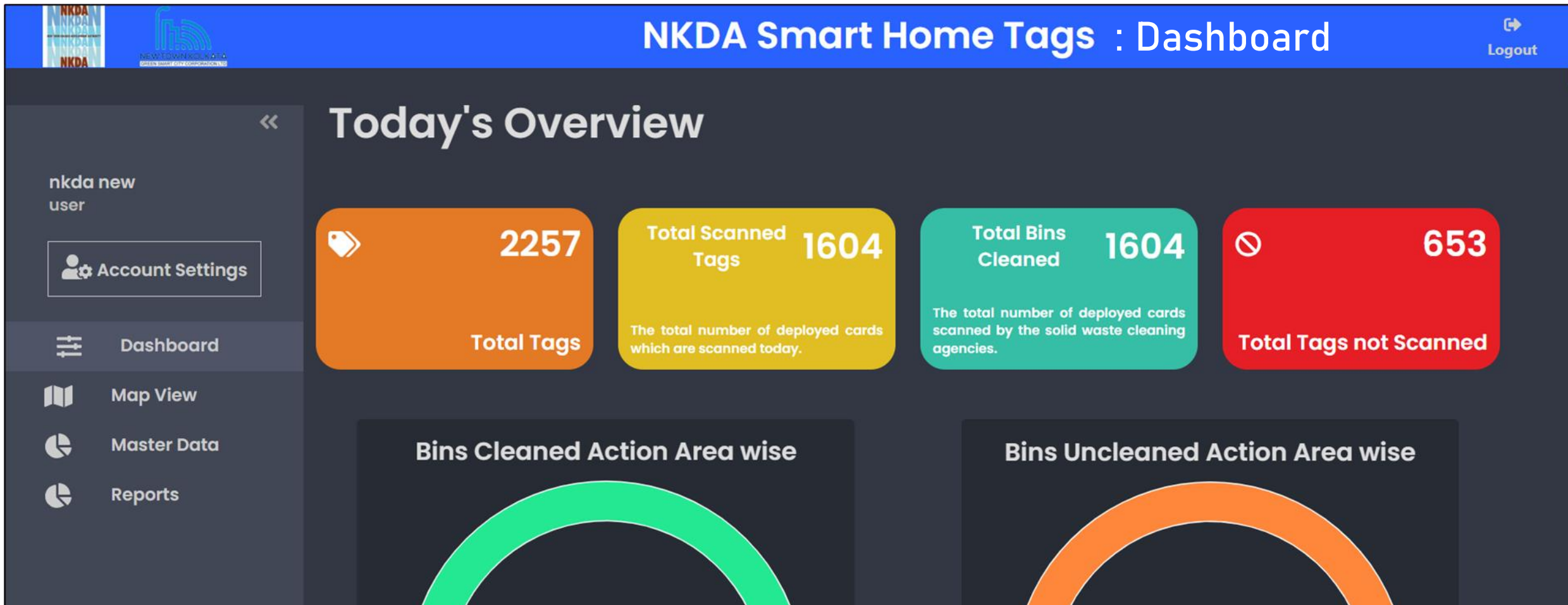
▶ Cleaning Time  
is updated on Central  
Dashboard





# Smart Solid Waste Management System in New Town Kolkata

► Dashboard is maintained for real-time monitoring of the overall status of clearing of bins

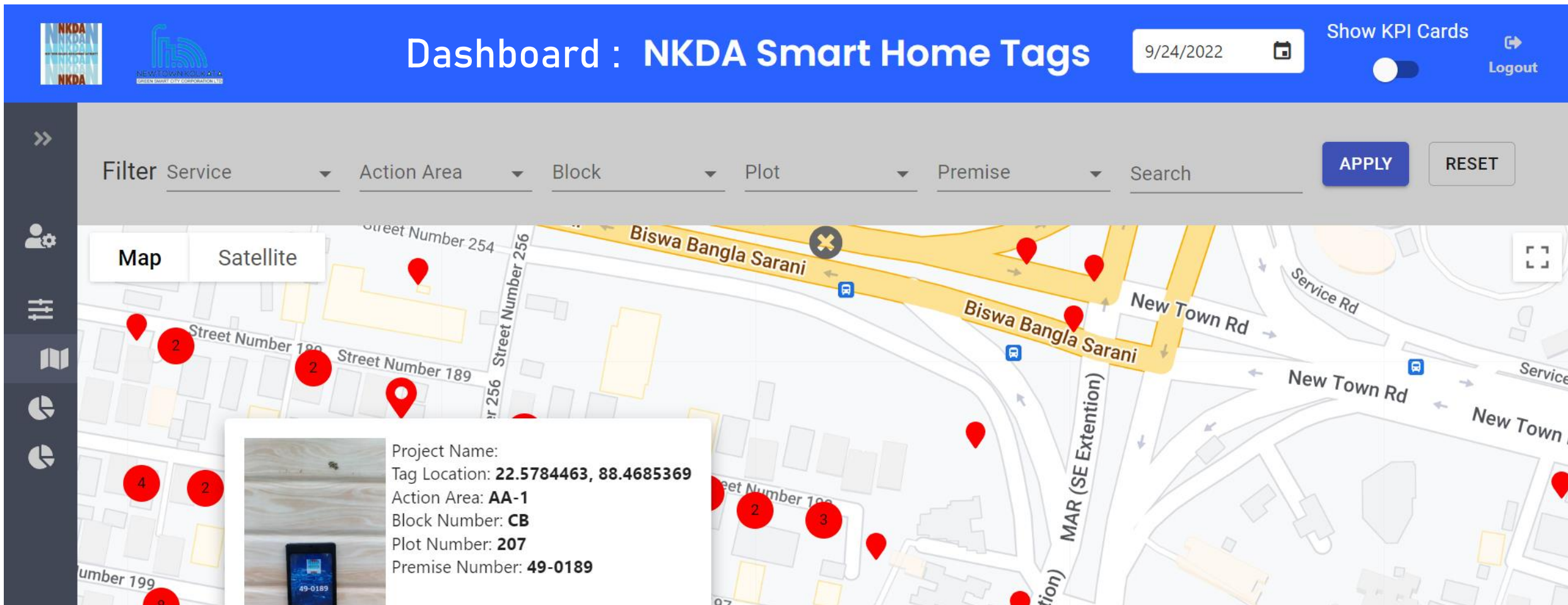


Snapshot from the dashboard displays total number of premises with Smart Tag and number of bins cleared at that instant of time



# Smart Solid Waste Management System in New Town Kolkata

► Dashboard is maintained for monitoring clearing of bins for each premise



Snapshot from the dashboard displays spatial distribution of premises with Smart Tag and details against each tag like premises no., location, etc.



# Smart Solid Waste Management System in New Town Kolkata

- ▶ All solid waste collection vehicles are tagged with RFID- based sensors



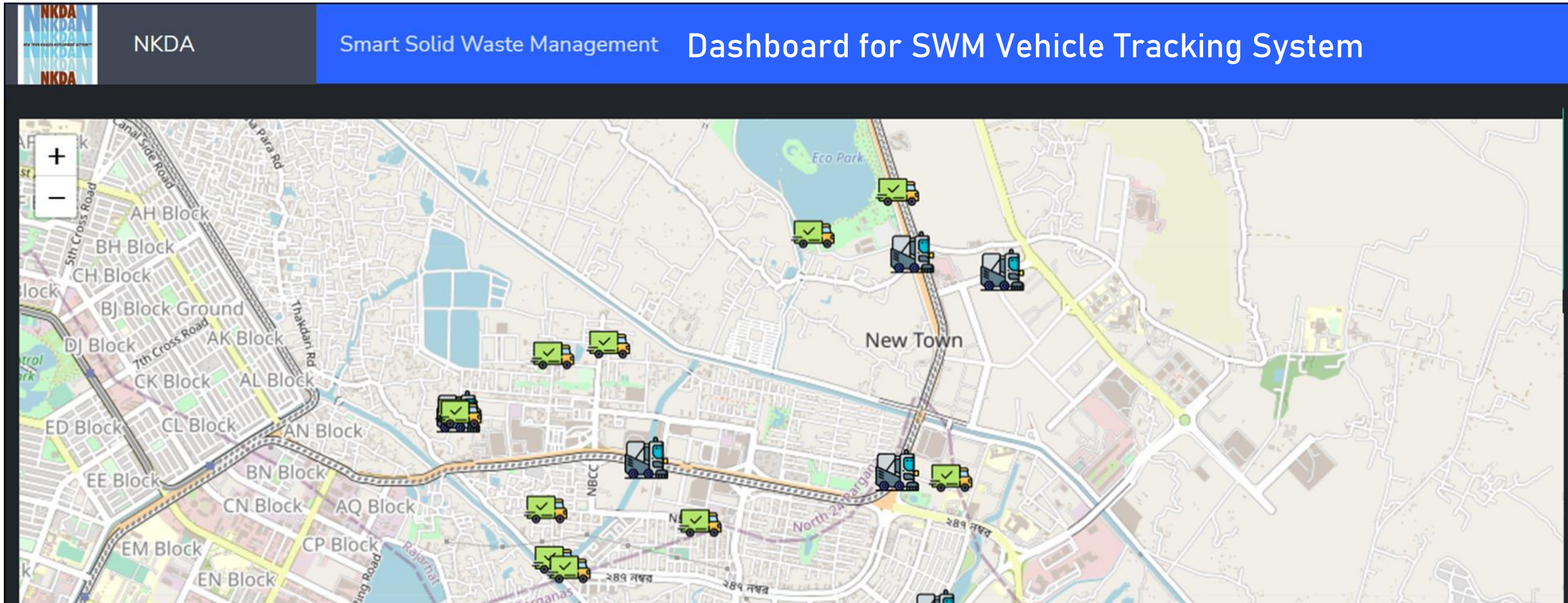
SWM Vehicle fleet includes Auto- tippers with segregated chamber for dry waste and wet waste & Compactors for Wet Waste



# Smart Solid Waste Management System in New Town Kolkata

► Dashboard monitors real-time movement of SWM Vehicles, using the RFID- tag installed on vehicles.

► Development of Street Fencing with RFID-Reader installed on them is in progress.

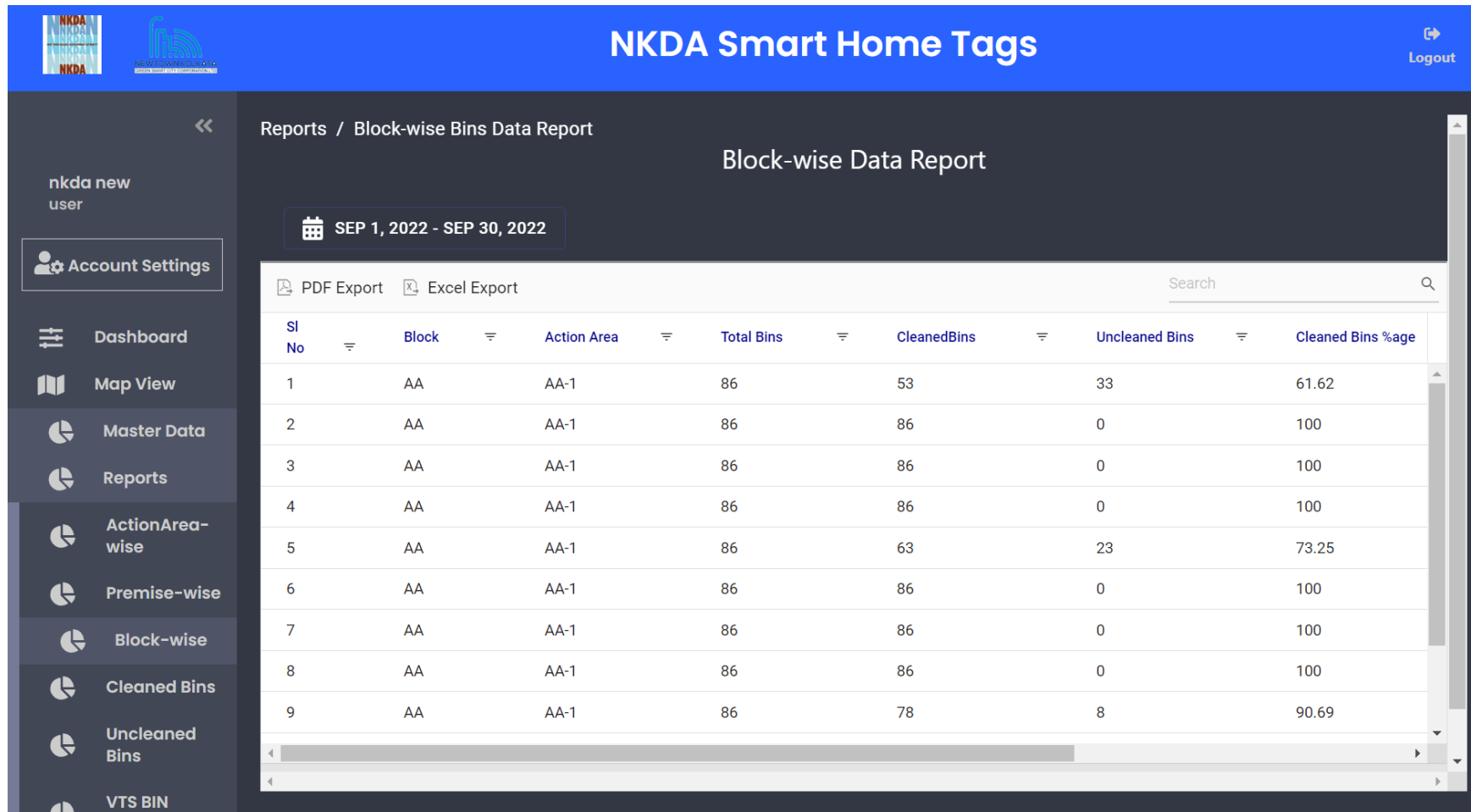


Snapshot from the dashboard displays real-time spatial distribution of the SWM Vehicles in use for that instant of time



# Smart Solid Waste Management System in New Town Kolkata

▶ New Town Kolkata experiences many benefits of this Smart Solid Waste Management System



The screenshot displays the 'NKDA Smart Home Tags' web application. The header includes the NKDA logo, the title 'NKDA Smart Home Tags', and a 'Logout' button. The left sidebar contains navigation links: 'nkda new user', 'Account Settings', 'Dashboard', 'Map View', 'Master Data', 'Reports', 'ActionArea-wise', 'Premise-wise', 'Block-wise' (selected), 'Cleaned Bins', 'Uncleaned Bins', and 'VTS BIN'. The main content area is titled 'Reports / Block-wise Bins Data Report' and 'Block-wise Data Report'. It features a date range selector for 'SEP 1, 2022 - SEP 30, 2022' and buttons for 'PDF Export' and 'Excel Export'. A search bar is located at the top right of the table. The table lists data for 9 blocks, all belonging to 'Block AA' and 'Action Area AA-1'. The columns are: SI No, Block, Action Area, Total Bins, CleanedBins, Uncleaned Bins, and Cleaned Bins %age.

SI No	Block	Action Area	Total Bins	CleanedBins	Uncleaned Bins	Cleaned Bins %age
1	AA	AA-1	86	53	33	61.62
2	AA	AA-1	86	86	0	100
3	AA	AA-1	86	86	0	100
4	AA	AA-1	86	86	0	100
5	AA	AA-1	86	63	23	73.25
6	AA	AA-1	86	86	0	100
7	AA	AA-1	86	86	0	100
8	AA	AA-1	86	86	0	100
9	AA	AA-1	86	78	8	90.69

1. Helps maintain a time-series database of the waste collection status for all premises in the city

2. Enables more customized, efficient and effective planning for collection and disposal of the waste

3. Saves time, money and resources while ensuring a better delivery of services





# 2

Development and  
Maintenance of Public  
Green Space  
with Community  
Participation and in  
Collaboration with  
Private Partners



# Public Green Space in New Town Kolkata: Green Verges

► In New Town, 'Green Verges' are pockets amidst built-up areas and are to be retained as green

► Concern : Rapid growth of weeds, snake infestation & manpower-intensive monitoring

Initiative undertaken to maintain the Green Verges in New Town Kolkata:

New Town Kolkata has introduced New Partnership Scheme:  
'Adoption of Green Verges'

Salient Features :

- Land belongs to Authority
- Plantation & Maintenance by Private bodies along with Community Involvement
- All produces belong to Authority and to be used for livelihood generation for local Self-Help Groups



**NEW TOWN KOLKATA**  
DEVELOPMENT AUTHORITY WEST BENGAL

Ho

HOME

ABOUT NKDA +

MAP +

FAQ

IMPORTANT LINKS

## Adoption of New Town Green Verges by Foundation, Society, Organization, Individual, etc.

'Green Verges' in New Town, Kolkata are designated pockets developed as green zones by the New Town Kolkata Development Authority (NKDA). Green Verge have been earmarked almost in each residential block within New Town (NKDA Area). The city has been so planned as to have green pockets at regular intervals amidst built-up spaces. "Green Verges" aim to improve the overall green cover of the city and break the monotony of an urban scape. It is a **space** for physical activity, relaxation, peace, and an escape from heat. Green **Verges can contribute significantly to urban biodiversity and ecosystem.**

NKDA invites Foundation, Society, Organization, Individual, etc. for Adoption of 'Green Verges', a landmark initiative in participatory planning.

# Adoption of Green Verge in New Town Kolkata



A Success Story : Dragon Fruit Orchard in New Town Green Verge

The Green Verge is  
adopted by  
**Bandhan- Konnagar**

Fund Support is provided  
by  
**Bandhan Bank**

Maintenance and  
Marketing is being done  
by Local SHGs





# Adoption of Green Verge in New Town Kolkata

► Of the 48 Green Verges distributed across the city, more than 35 Green Verges have been 'Adopted'



Concern in 'Adoption' of  
Green Verges:  
Appropriate Monitoring

Innovative Initiative  
for Monitoring:  
Use of Geo Spatial  
Information

A Pilot Initiative has been  
launched

Initiative Partner:  
Green for Life  
Foundation (NGO)



# Monitoring of 'Adopted' Green Verges in New Town Kolkata

► Green Verges are being geo - tagged and database is being generated

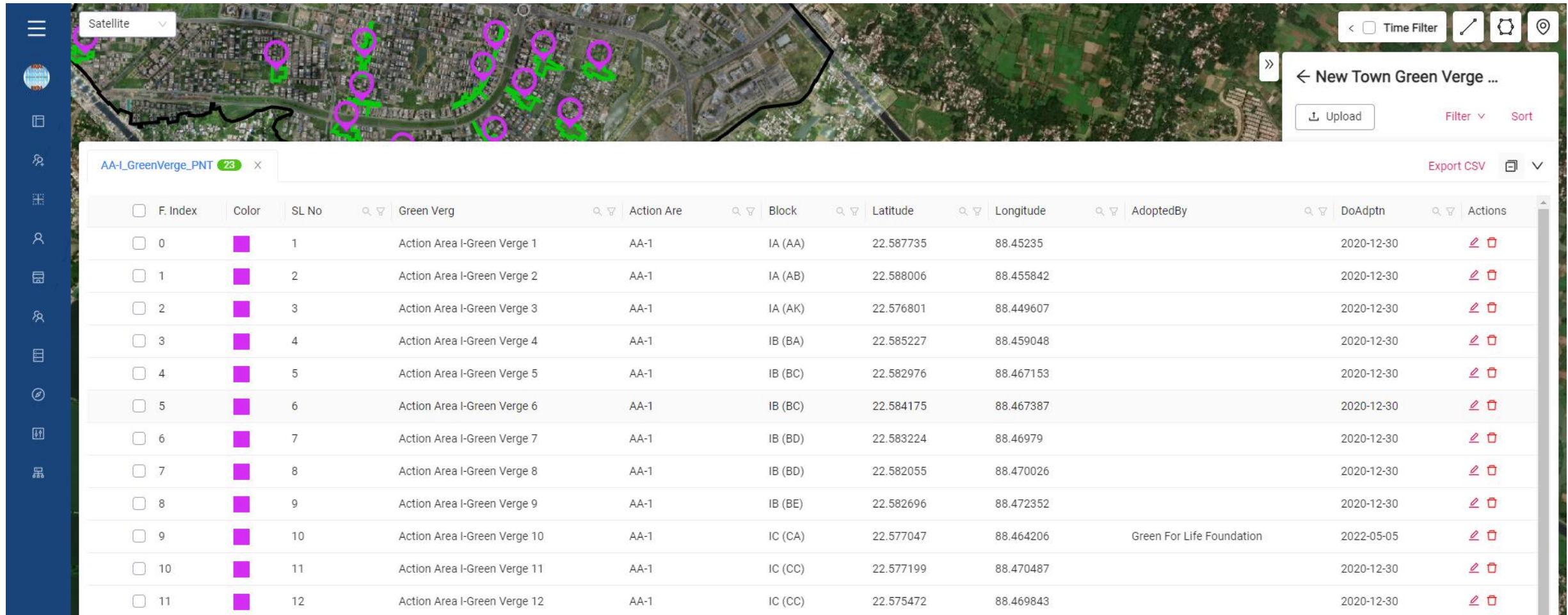


Snapshot from the dashboard displays a part of New Town with the Green Verges within that area marked on map



# Monitoring of 'Adopted' Green Verges in New Town Kolkata

► Data-base being developed for all green verges, include their block, area, coordinates, adoptive partner, etc.



The dashboard displays a satellite map of New Town Kolkata with 12 green verges marked by purple pins. Below the map is a table titled 'AA-I\_GreenVerge\_PNT 23' showing the details of these verges. The table includes columns for F. Index, Color, SL No, Green Verg, Action Are, Block, Latitude, Longitude, AdoptedBy, DoAdptn, and Actions.

<input type="checkbox"/>	F. Index	Color	SL No	Green Verg	Action Are	Block	Latitude	Longitude	AdoptedBy	DoAdptn	Actions
<input type="checkbox"/>	0	■	1	Action Area I-Green Verge 1	AA-1	IA (AA)	22.587735	88.45235		2020-12-30	<a href="#">✎</a> <a href="#">✖</a>
<input type="checkbox"/>	1	■	2	Action Area I-Green Verge 2	AA-1	IA (AB)	22.588006	88.455842		2020-12-30	<a href="#">✎</a> <a href="#">✖</a>
<input type="checkbox"/>	2	■	3	Action Area I-Green Verge 3	AA-1	IA (AK)	22.576801	88.449607		2020-12-30	<a href="#">✎</a> <a href="#">✖</a>
<input type="checkbox"/>	3	■	4	Action Area I-Green Verge 4	AA-1	IB (BA)	22.585227	88.459048		2020-12-30	<a href="#">✎</a> <a href="#">✖</a>
<input type="checkbox"/>	4	■	5	Action Area I-Green Verge 5	AA-1	IB (BC)	22.582976	88.467153		2020-12-30	<a href="#">✎</a> <a href="#">✖</a>
<input type="checkbox"/>	5	■	6	Action Area I-Green Verge 6	AA-1	IB (BC)	22.584175	88.467387		2020-12-30	<a href="#">✎</a> <a href="#">✖</a>
<input type="checkbox"/>	6	■	7	Action Area I-Green Verge 7	AA-1	IB (BD)	22.583224	88.46979		2020-12-30	<a href="#">✎</a> <a href="#">✖</a>
<input type="checkbox"/>	7	■	8	Action Area I-Green Verge 8	AA-1	IB (BD)	22.582055	88.470026		2020-12-30	<a href="#">✎</a> <a href="#">✖</a>
<input type="checkbox"/>	8	■	9	Action Area I-Green Verge 9	AA-1	IB (BE)	22.582696	88.472352		2020-12-30	<a href="#">✎</a> <a href="#">✖</a>
<input type="checkbox"/>	9	■	10	Action Area I-Green Verge 10	AA-1	IC (CA)	22.577047	88.464206	Green For Life Foundation	2022-05-05	<a href="#">✎</a> <a href="#">✖</a>
<input type="checkbox"/>	10	■	11	Action Area I-Green Verge 11	AA-1	IC (CC)	22.577199	88.470487		2020-12-30	<a href="#">✎</a> <a href="#">✖</a>
<input type="checkbox"/>	11	■	12	Action Area I-Green Verge 12	AA-1	IC (CC)	22.575472	88.469843		2020-12-30	<a href="#">✎</a> <a href="#">✖</a>

Snapshot from the dashboard displays the database being maintained for each green verge



# Monitoring of 'Adopted' Green Verges in New Town Kolkata

► In the data base, exact boundary of each Green Verge is being superimposed on the Map

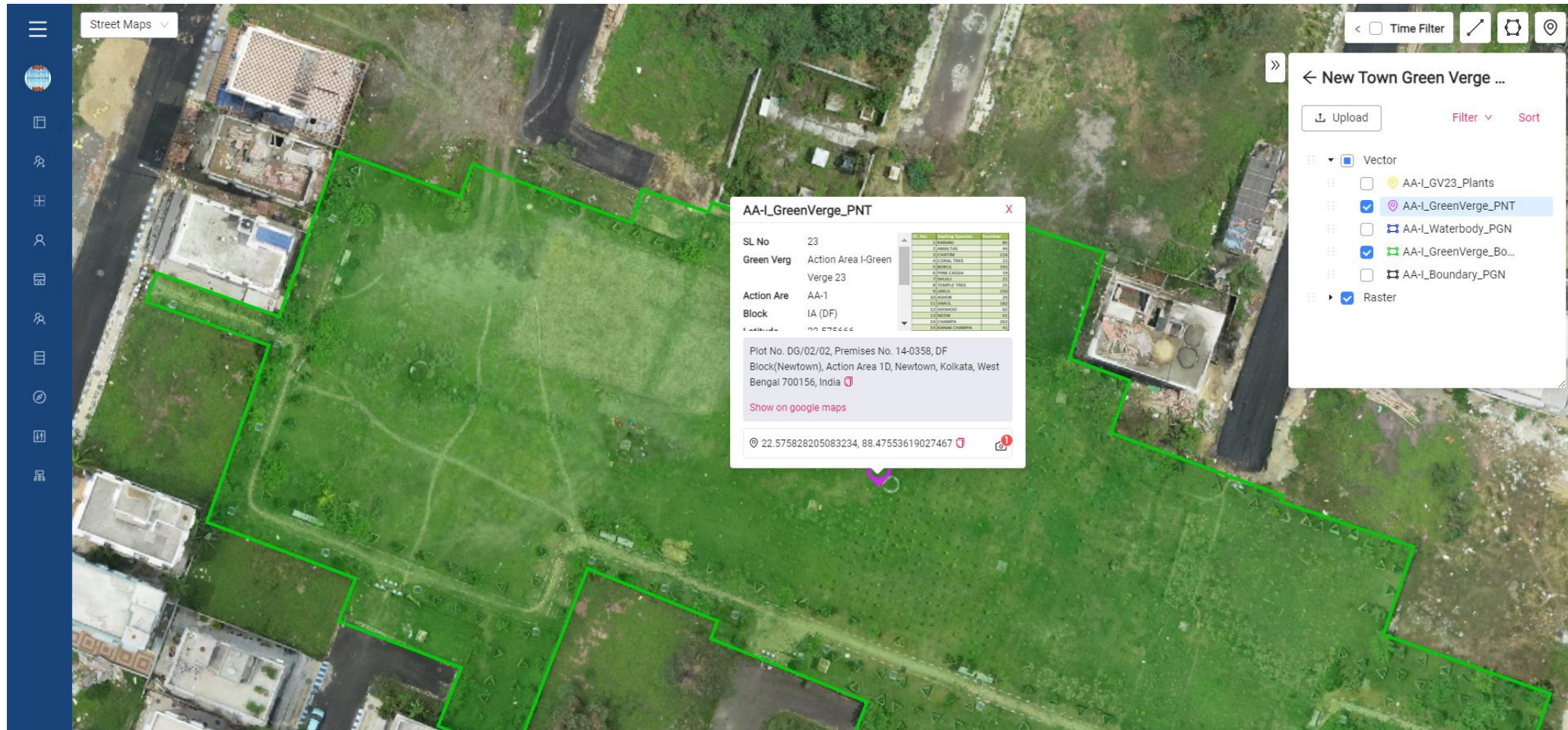


Snapshot from the dashboard displays exact boundary of one of the Green Verges, Green Verge 23, DF Block, Action Area I, New Town Kolkata



# Monitoring of 'Adopted' Green Verges in New Town Kolkata

► Details of individual Green Verges are being included in the Data Base

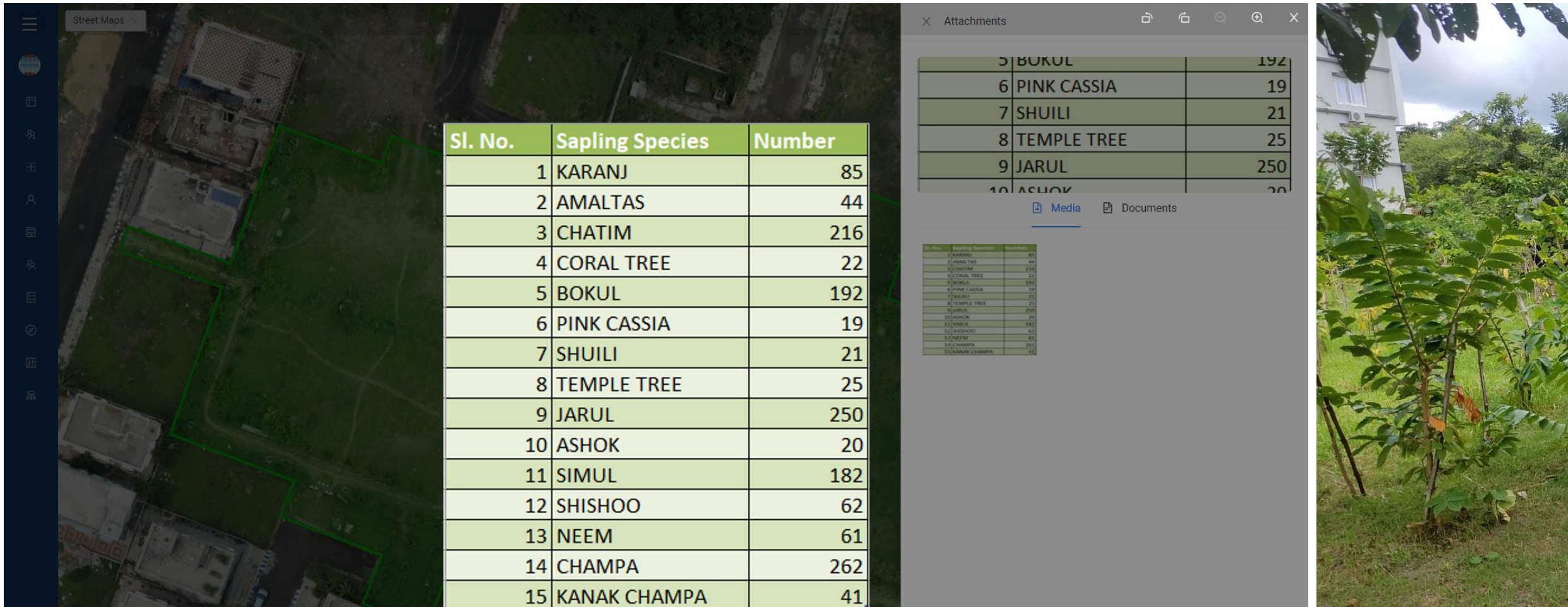


Snapshot from the dashboard displays exact boundary of the Green Verge along with the data maintained for each Green Verge



# Monitoring of 'Adopted' Green Verges in New Town Kolkata

► Details include type of plants and their number in respective Green Verge



Sl. No.	Sapling Species	Number
1	KARANJ	85
2	AMALTAS	44
3	CHATIM	216
4	CORAL TREE	22
5	BOKUL	192
6	PINK CASSIA	19
7	SHUILI	21
8	TEMPLE TREE	25
9	JARUL	250
10	ASHOK	20
11	SIMUL	182
12	SHISHOO	62
13	NEEM	61
14	CHAMPA	262
15	KANAK CHAMPA	41

Sl. No.	Sapling Species	Number
5	BOKUL	192
6	PINK CASSIA	19
7	SHUILI	21
8	TEMPLE TREE	25
9	JARUL	250
10	ASHOK	20

Snapshot from the dashboard displays the database being maintained about the type and number of trees planted in each green verge



# Monitoring of 'Adopted' Green Verges in New Town Kolkata

► Every Tree in the Green Verge is being provided with a Unique Number and is being Geo tagged

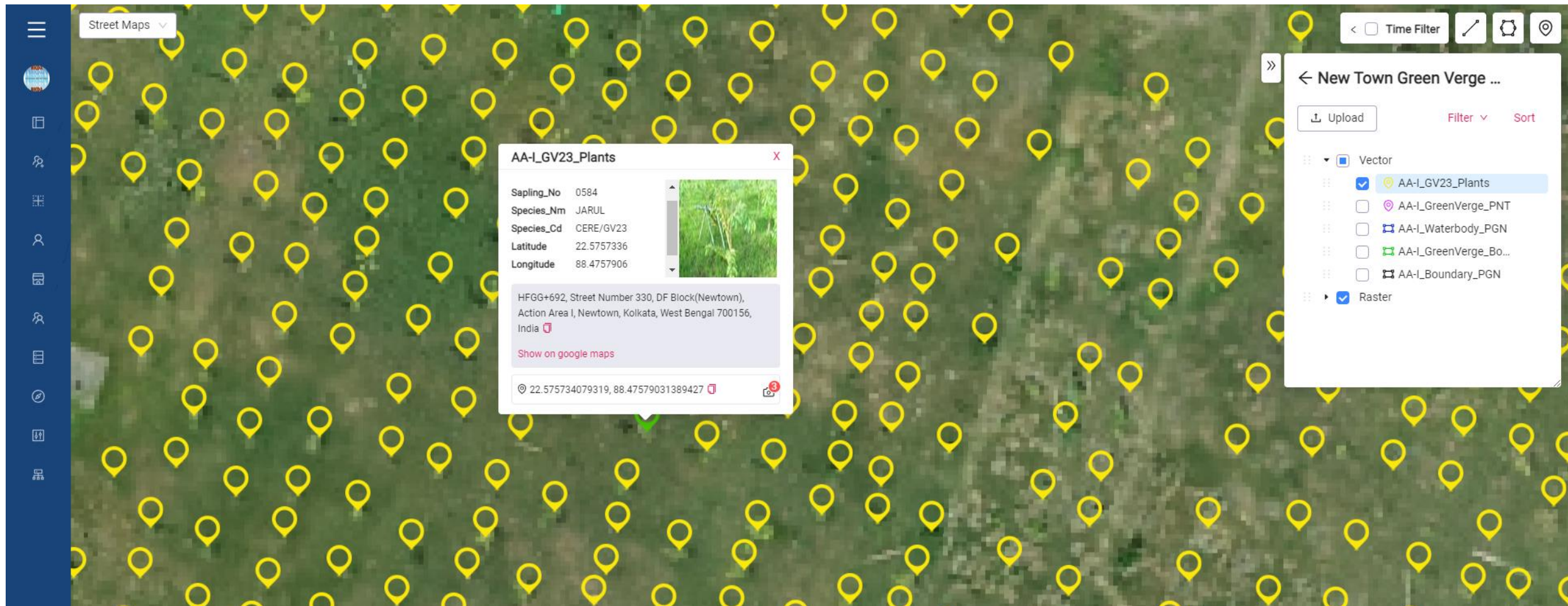


Snapshot from the dashboard displays the unique code number on trees in the Green Verge



# Monitoring of 'Adopted' Green Verges in New Town Kolkata

► Detail including periodic photos of each tree with a unique number, is being incorporated in the data base

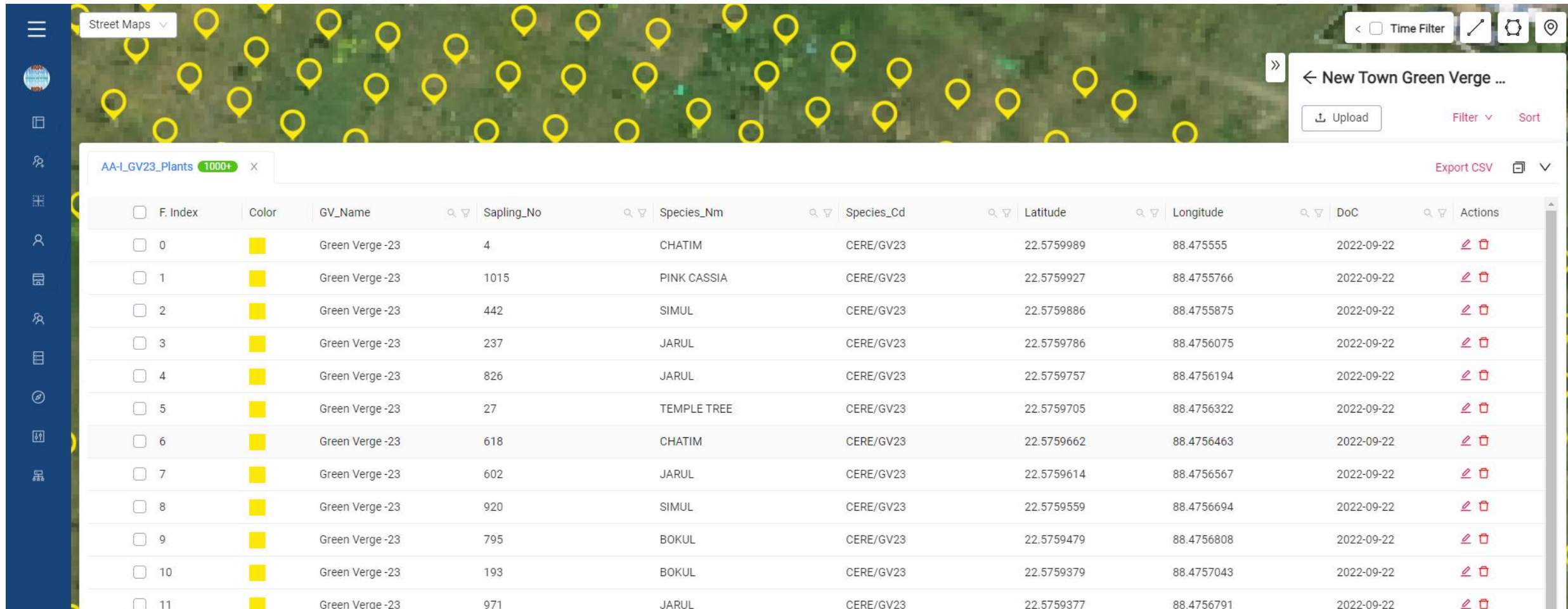


Snapshot from the dashboard displays details of each tree maintained in the database like species type, photo, etc. against each unique number



# Monitoring of 'Adopted' Green Verges in New Town Kolkata

► Database is being generated for all trees in particular Green Verge



The screenshot displays a web dashboard for monitoring green verges. At the top, a map shows a green area with numerous yellow location pins. Below the map is a table titled 'AA-LGV23\_Plants' with 1000+ entries. The table lists various tree species and their locations. The table has columns for F. Index, Color, GV\_Name, Sapling\_No, Species\_Nm, Species\_Cd, Latitude, Longitude, DoC, and Actions. The data rows show different tree species like CHATIM, PINK CASSIA, SIMUL, JARUL, and BOKUL, all associated with 'Green Verge -23'.

<input type="checkbox"/> F. Index	Color	GV_Name	Sapling_No	Species_Nm	Species_Cd	Latitude	Longitude	DoC	Actions
<input type="checkbox"/> 0	Yellow	Green Verge -23	4	CHATIM	CERE/GV23	22.5759989	88.475555	2022-09-22	<a href="#">Edit</a> <a href="#">Delete</a>
<input type="checkbox"/> 1	Yellow	Green Verge -23	1015	PINK CASSIA	CERE/GV23	22.5759927	88.4755766	2022-09-22	<a href="#">Edit</a> <a href="#">Delete</a>
<input type="checkbox"/> 2	Yellow	Green Verge -23	442	SIMUL	CERE/GV23	22.5759886	88.4755875	2022-09-22	<a href="#">Edit</a> <a href="#">Delete</a>
<input type="checkbox"/> 3	Yellow	Green Verge -23	237	JARUL	CERE/GV23	22.5759786	88.4756075	2022-09-22	<a href="#">Edit</a> <a href="#">Delete</a>
<input type="checkbox"/> 4	Yellow	Green Verge -23	826	JARUL	CERE/GV23	22.5759757	88.4756194	2022-09-22	<a href="#">Edit</a> <a href="#">Delete</a>
<input type="checkbox"/> 5	Yellow	Green Verge -23	27	TEMPLE TREE	CERE/GV23	22.5759705	88.4756322	2022-09-22	<a href="#">Edit</a> <a href="#">Delete</a>
<input type="checkbox"/> 6	Yellow	Green Verge -23	618	CHATIM	CERE/GV23	22.5759662	88.4756463	2022-09-22	<a href="#">Edit</a> <a href="#">Delete</a>
<input type="checkbox"/> 7	Yellow	Green Verge -23	602	JARUL	CERE/GV23	22.5759614	88.4756567	2022-09-22	<a href="#">Edit</a> <a href="#">Delete</a>
<input type="checkbox"/> 8	Yellow	Green Verge -23	920	SIMUL	CERE/GV23	22.5759559	88.4756694	2022-09-22	<a href="#">Edit</a> <a href="#">Delete</a>
<input type="checkbox"/> 9	Yellow	Green Verge -23	795	BOKUL	CERE/GV23	22.5759479	88.4756808	2022-09-22	<a href="#">Edit</a> <a href="#">Delete</a>
<input type="checkbox"/> 10	Yellow	Green Verge -23	193	BOKUL	CERE/GV23	22.5759379	88.4757043	2022-09-22	<a href="#">Edit</a> <a href="#">Delete</a>
<input type="checkbox"/> 11	Yellow	Green Verge -23	971	JARUL	CERE/GV23	22.5759377	88.4756791	2022-09-22	<a href="#">Edit</a> <a href="#">Delete</a>

Snapshot from the dashboard displays example of the tree database maintained for each Green Verge



# Monitoring of 'Adopted' Green Verges in New Town Kolkata

► Drone Surveillance of the Green Verges are being conducted periodically



Snapshot from the dashboard displays the drone surveillance images preserved for the Green Verges



# Monitoring of 'Adopted' Green Verges in New Town Kolkata

► Periodic Drone Images from different ranges are being preserved to understand the development over time



Snapshot from the dashboard displays a comparison between the current and previous status of a Green Verge (Green verge 23, Action Area I)



# Monitoring of 'Adopted' Green Verges in New Town Kolkata

► Water Bodies Present in the Green Verges are also being Geo -Tagged

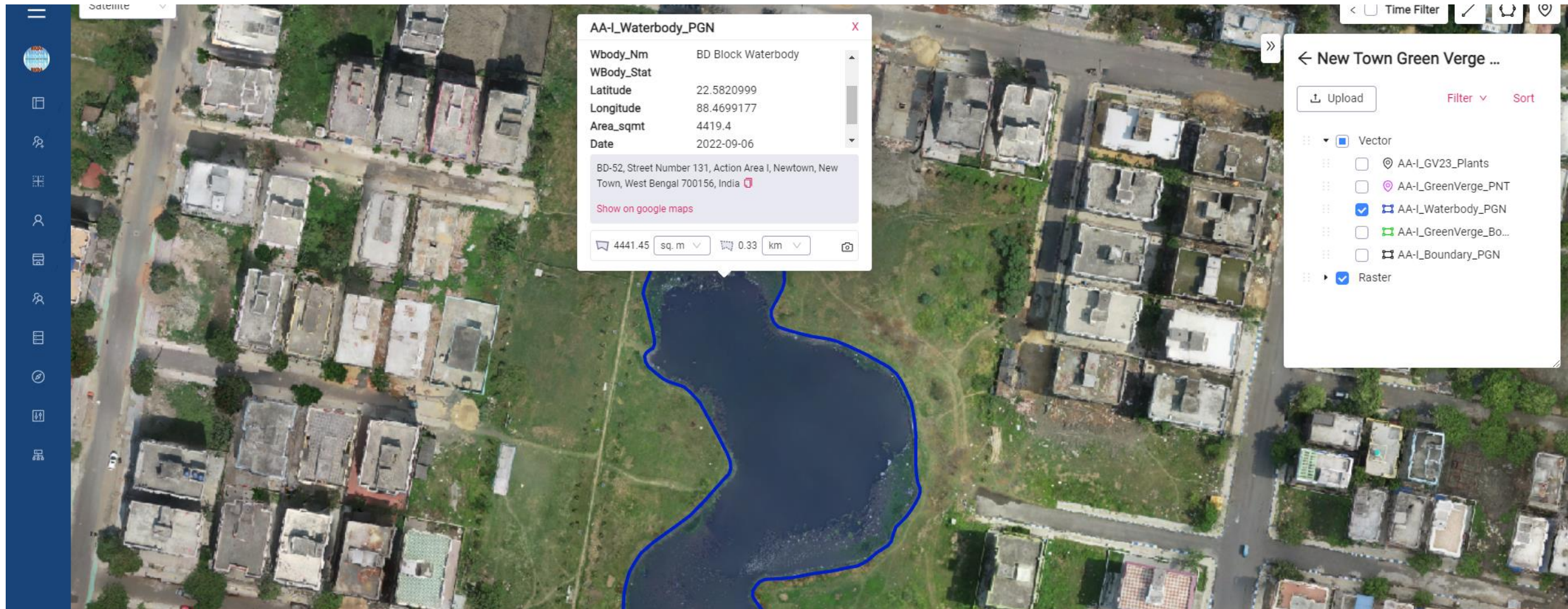


Snapshot from the dashboard displays a part of New Town as an example to demonstrate tagging of water bodies on map



# Monitoring of 'Adopted' Green Verges in New Town Kolkata

► Data- Base is being developed for water bodies including Area, Green Verge Number, etc.



Snapshot from the dashboard displays a water body which is a part of a Green Verge and all details regarding the same, incorporated



# Monitoring of 'Adopted' Green Verges in New Town Kolkata

► Drone Surveillance of the water bodies are being conducted and Periodic Images are preserved

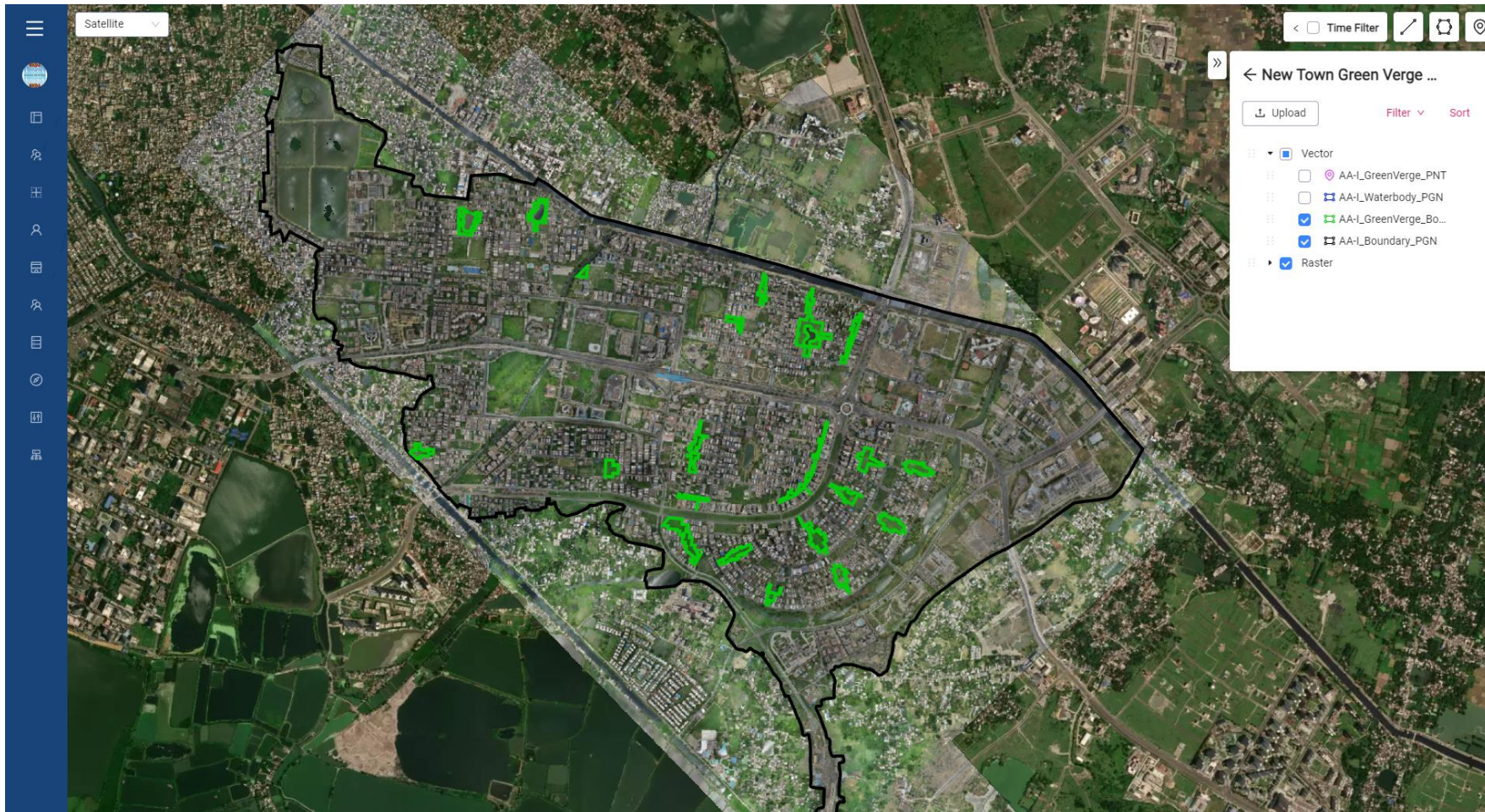


Snapshot from the dashboard displays a comparison between the current and previous status of a Water Body within a Green Verge



# Monitoring of 'Adopted' Green Verges in New Town Kolkata

► There are many benefits of using this Monitoring Mechanism for the Green Verges in New Town Kolkata



1. Maintaining information on spatial distribution of green area and monitoring 'Adopted' Green Verges

2. Preparation of Time- Series data base on tree count, vegetation type, water bodies, temporal images, etc.

3. The project plans to integrate data about the trees periodic health statistics in the database as well.



The image features a large, intricate network diagram on the left side, composed of numerous nodes (circles) of varying sizes and colors (black, red, and grey) connected by a dense web of thin lines. The nodes are distributed across the frame, with some clusters being more prominent than others. The lines connecting them create a complex, interconnected pattern. On the right side, there is a dark grey vertical bar that serves as a background for the text.

# Use of Geo Spatial Information for Other Functions in New Town Kolkata

1. Lora WAN- based Street Light System

2. Passenger Information System at Bus Stops

3. Identification of black-spots for further analysis towards identification of CCTV locations

3. Real Time Feedback of Utilities, etc.



New Town Kolkata has  
Integrated Command  
and Control System  
(ICCC) with presently  
around 25+ Services  
linked to it







... Thank you

Presented by  
New Town Kolkata Green  
Smart City Corporation,  
West Bengal