MAJHI VASUNDHARA ABHIYAN 4.0

DETAIL PROJECT OF GREEN COVERAGE
&
TREE PLAN 2024

: GUIDED BY :

Shri. Dr. Vivek Meshram Sir

(C. O. Nagar Parishad Pauni)

: SUBMITTED TO :

Nagar Parishad Pauni

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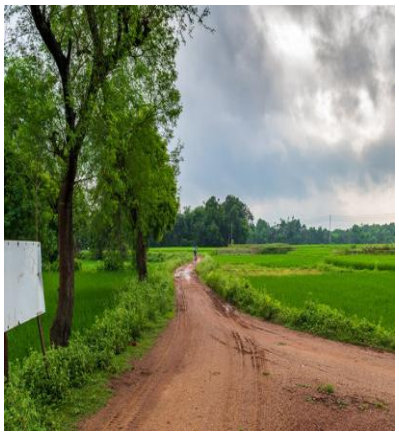
Detail Project Report of Tree Plan



Green Coverage
&
Tree Plan
2024

माझी वसुंधरा
Majhi Vasundhara

Prepared by-

Shree Enterprises

Submitted to-

Nagar Parishad Pauni

नगरपरिषद पवनी
स्थापना - 1867

1. EXECUTIVE SUMMARY

The purpose of this project is to assess the green cover area in various sectors of the city, analyzing the total area, existing green space, and calculating the percentage of green cover. The report also aims to highlight the importance of increasing planting areas in sectors with insufficient green cover according to government norms.

2. INTRODUCTION

Urban green spaces play a vital role in promoting environmental sustainability, enhancing biodiversity, and improving the overall quality of life for city residents. The analysis focuses on several city sectors to evaluate the current status of green cover.

Tree cover in urban areas around the world, is declining and inflexible cover is increasing due to the demand of the land for development Forest Survey of India (FSI) has been assessing country's forest cover since the 1980's using data from remote sensing satellites on a two-year cycle. Due to a substantial number of trees tree cover is not captured by the Satellite data and reported as tree cover for the first time in 2001 assessment. The planned development of Municipal Corporation present a clean and green with trees, plants, lakes and parks and towns in Chennai. It is growing at fast pace in terms of urbanization, technology, infrastructure, and environment. The pace of urbanization is harmfully affecting the green cover in the urban areas. Trees provide numerous Environmental, Social and Economic benefits to people and their services in maintaining environment are been universally accepted. The tree canopies shows moderate temperature, provide shade to building, area of sidewalk, streets and reduce pollution. Urban areas Kuhelmeister, G., 1998 can comprises large variety of green spaces, such as Parks/ gardens green space near institution, Industrial area green spaces (Heinze, J., 2011), and private green spaces (Boone et al, 2010). It includes woodlands, farm lands, public gardens and play areas. Green spaces play a major role in urban areas through their environmental, aesthetic, social and economic contributions to residents' health and wellbeing (Cavanagh et al. 2009). (e.g.Faryadi and Taheri, 2009). In order to design an appropriate urban green cover assessment, spatial features must be evaluated. An attempt is carried out in this study to map the status of green coverage land use and land cover of the Bhandara Municipal Council area using high resolution satellite data. In order to achieve the goal, high resolution satellite data, were used to analyses the spatial pattern of land cover change in the area and the future growth was modeled by applying CA-Markov model. Spatial features like Point feature and polygon features were demarcated from imagery. Individual trees, group of trees, bushes, building area (covering both residential/industrial area), water bodies (lakes, ponds, reservoir, streams, rivers etc. parks and temples has been considered detect the land consumption rate and the changes that have taken place particularly in their built-up area.

GIS datasets are common data sources used for geo processing and are useful for automated data processing and GIS analysis. Datasets are used as inputs, and new datasets are derived as results for various geo processing tools. Geo processing helps you to automate many tasks as a series of operations so they can be run as a single step. This helps to create a repeatable, well-documented data processing workflow. Users also work with Arc GIS datasets to perform spatial analysis. Visual interpretation plays a major role in delineating spatial features of the earth by a geospatial expert. It can be concluded that, green space planning could be an essential component of any urban development. Sufficiently large and protected green spaces reduce the impact of human activities on climate. The ecosystem services provided by the urban green spaces help the city in general and its citizens to adapt to the adverse effects of climate change and disasters. Description: To what extent is the city developing and increasing its green cover. Green Cover, defined as natural or planted vegetation covering a certain area of terrain, functioning as protection against soil erosion, protecting the fauna, and balancing the temperature. For the purpose of this indicator, green areas are defined as man-made city level and zonal/ district level greens; and reserved/ protected areas as per MoHUA's Green Guidelines, 2014 and protected areas under the Wildlife Protection Act, 1972.

3. OBJECTIVES

- Assess the total area of each city sector.
- Determine the existing green cover in each sector.
- Calculate the percentage of green cover in each sector.
- Identify sectors with insufficient green cover as per government norms.
- Understand the reasons for the inadequacy of green cover in specific sectors.

4. METHODOLOGY - GREEN COVER MAPPING

- Satellite Imagery
  - Utilize satellite imagery to measure the total area of each city sector.
- GIS Mapping
  - Employ Geographic Information System (GIS) tools to identify and quantify existing green cover.
- Data Collection
  - Collect data on government norms and guidelines regarding the minimum percentage of green cover required in urban sectors.

5. TREE PLANTATION

Following tree are mapped in different Prabhag of Pauni Nagar Parishad..

Sr.No	Tree Name	Botanical Name
1	बाभूळ	Vachellia nilotica
2	सप्तपर्णी	Alstonia scholaris
3	चिचबील	Pithecellobium dulce
4	निलगिरी	Eucalyptus
5	कडुलिंब	Azadirachta Indica
6	आंबा	Mangifera indica
7	करंजी	Millettia pinnata
8	अशोका	Saraca asoca
9	नारळ	Cocos nucifera
10	सागवान	Tectona grandis
11	पिंपळ	Ficus religiosa
12	वड	Ficus benghalensis
13	फणस	Artocarpus heterophyllus
14	बोर	Ziziphus mauritiana
15	गुलमोहर	Delonix regia
16	पेरू	Psidium guajava
17	चिकू	Manilkara zapota
18	आवळा	Phyllanthus emblica

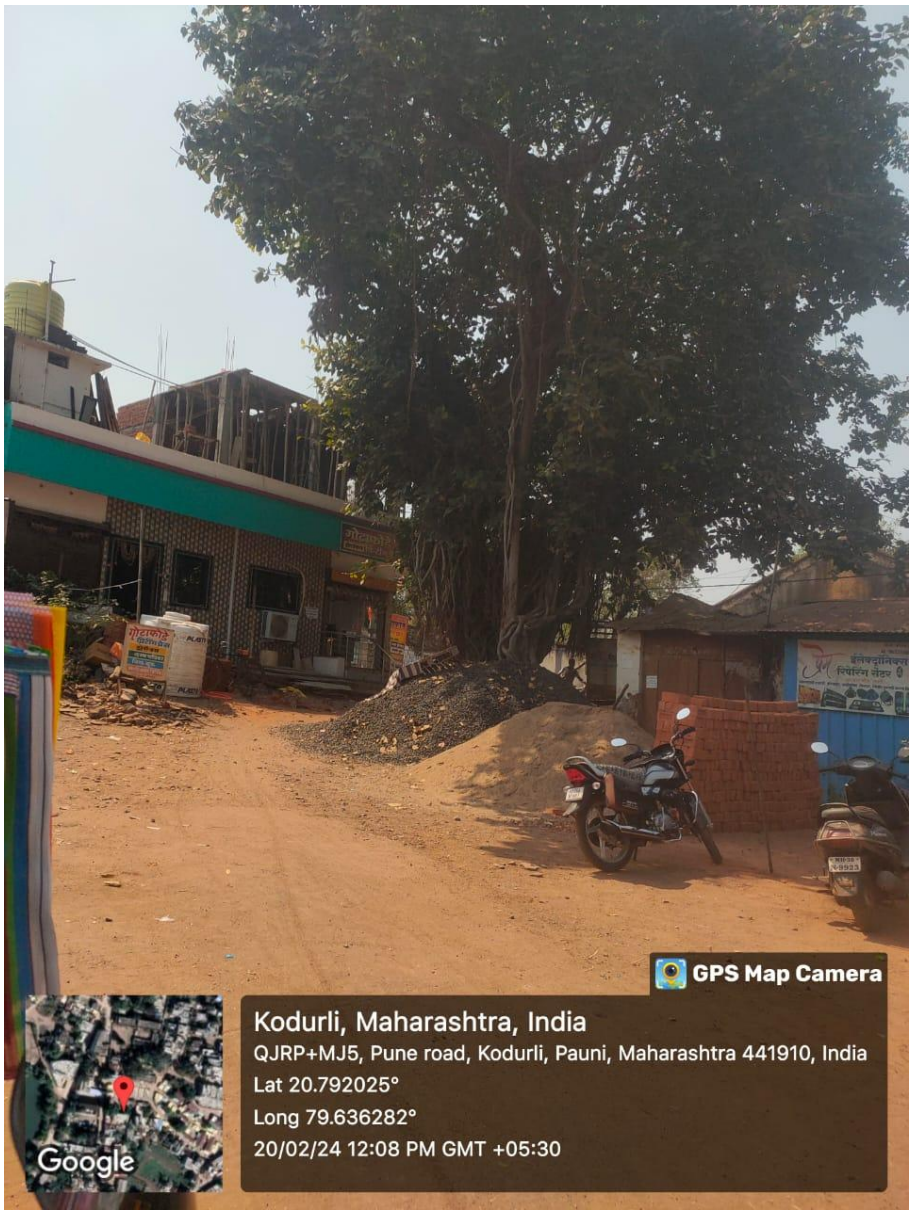
19	सीताफळ	Annona squamosa
20	पळस	Butea monosperma
21	तरोटा	Casia toral
22	आपटा	Bauhinia racemosa
23	बादाम	Prunus dulcis
24	जांभूळ	Syzygium jambolanum
25	बहावा	Cassia fistula
26	मुंगना	Moringa oleifera
27	सुबाभूळ	Leucaena leucocephala
28	चाफा	Plumeria rubra
29	सिंदी	palm nectar
30	मोहा	Madhuca longifolia
31	सदाफुली	Catharanthus roseus
32	गोडनिंब	Murraya koenigii
33	शहतूत	Morus nigra
34	चिंच	Tamarindus indica
35	बेल	Aegle marmelos
36	चिंचवा	Cinchona officinalis
37	शंखासूर	Caesalpinia pulcherrima
38	लिंबू	Citrus ×limon
39	हिवरा	Prosopis cineraria

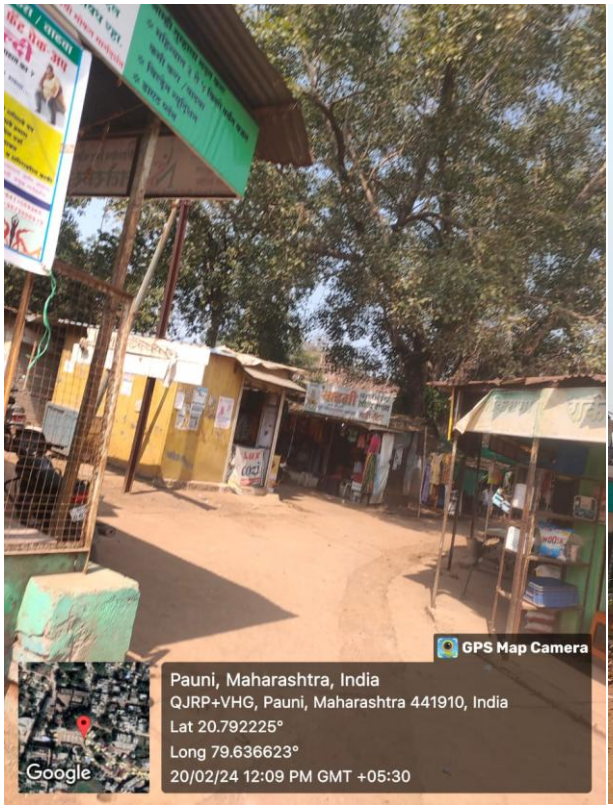
40	कर्मा	Neolamarckia cadamba
41	उंबर	Ficus glomerata
42	मोसंबी	Citrus limetta
43	कळंब	Neolamarckia cadamba
44	जसवंद	Hibiscus rosa-sinensis
45	रामफळ	Annona reticulata L
46	पारिजात	Nyctanthus arbortristis Linn
47	रिठा	Sapindus mukorossi
48	निरगुळी	Vitex negundo
49	सालई	Boswellia serrata
50	भोकर	Cordia dichotoma
51	खैर	Senegalia catechu
52	शेमडी	Prosopis cineraria
53	सिसम	Dalbergia sissoo
54	खविट	Limonia acidissima
55	पाल्म्	Arecaceae
56	एरंडी	Ricinus communis
57	कसोद	Senna siamea
58	पांढरा शिरीष	Albizia lebbeck
59	किन्ही	Albizia lebbeck
60	कनेर	Cascabela thevetia

61	काजु	Anacardium occidentale
62	बालमखिरा	Kigelia africana
63	शिवन	Gmelina arborea
64	आजन	Ehretia aspera
65	डाळिंब	Punica granatum
66	पारिजातक	Nyctanthes arbor-tristis
67	रानचाफा	Tiliacora triandra
68	आम्रतक	Spondias pinnata
69	मोहगणी	Swietenia macrophylla
70	तळवळ	Peltophorum pterocarpus
71	बेहडा	Terminalia Bellirica
72	सावरी	Bombax ceiba

6 CROWN AREA IMAGES AND GEOTAGGING

- GEO Tagging of images with Tree crown area and Satellite image data collection of sectors in Pauni Nagar Parishad

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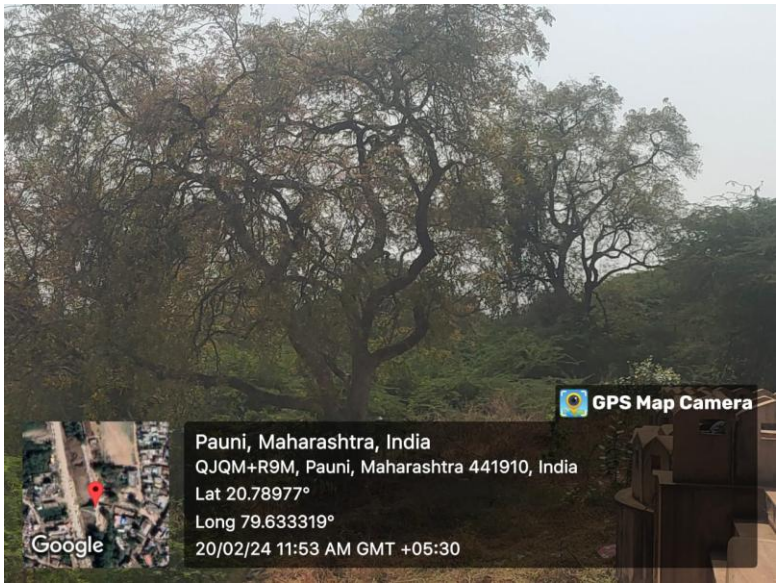
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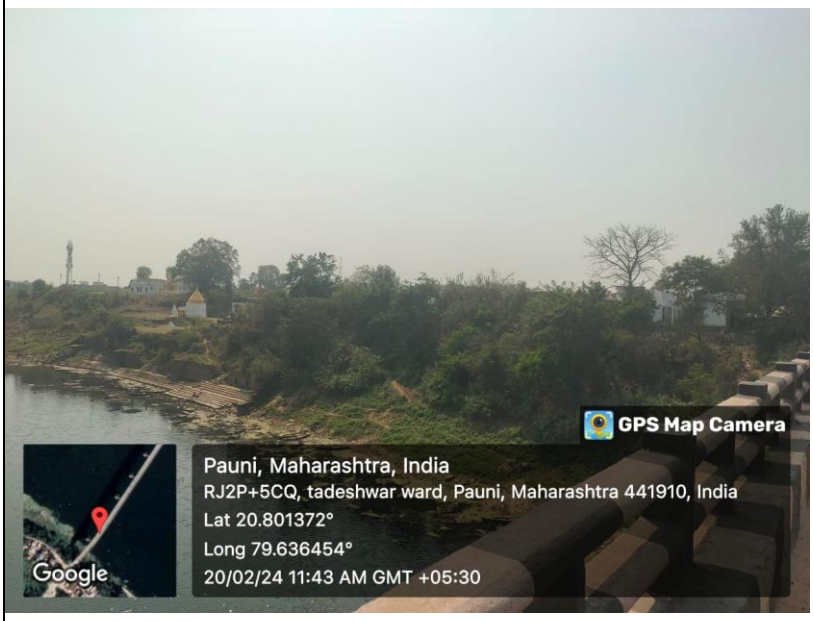
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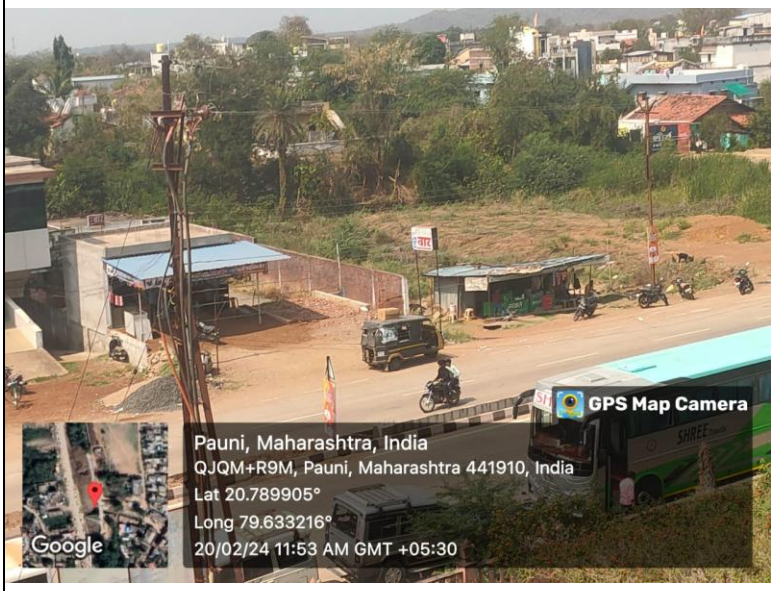
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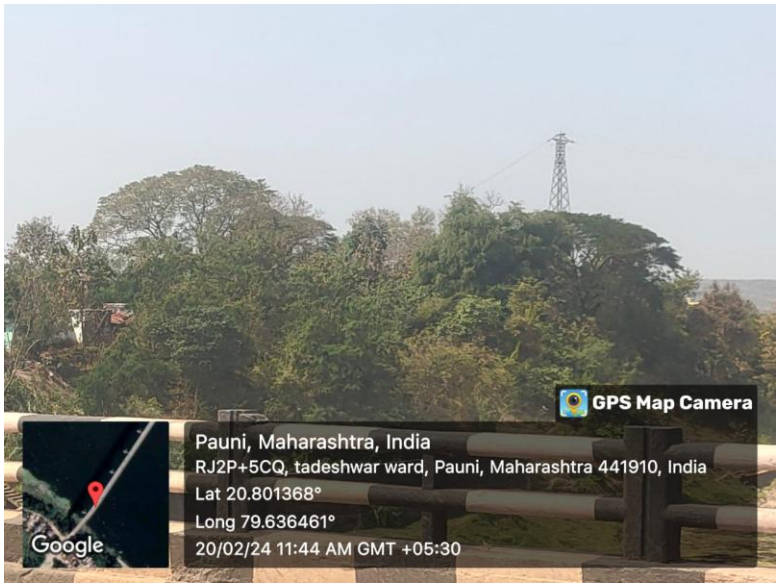
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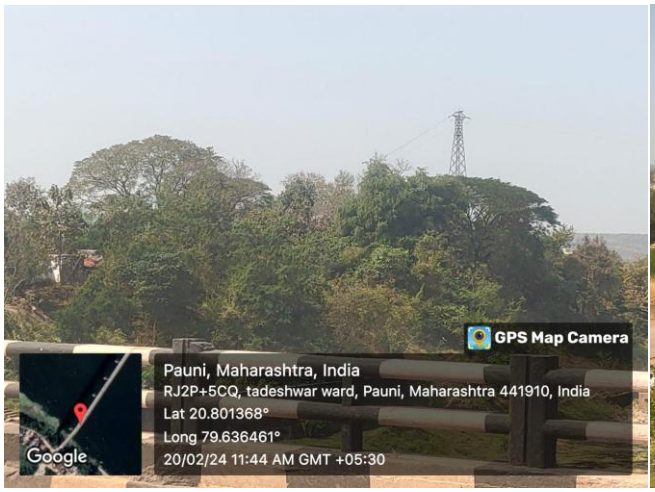
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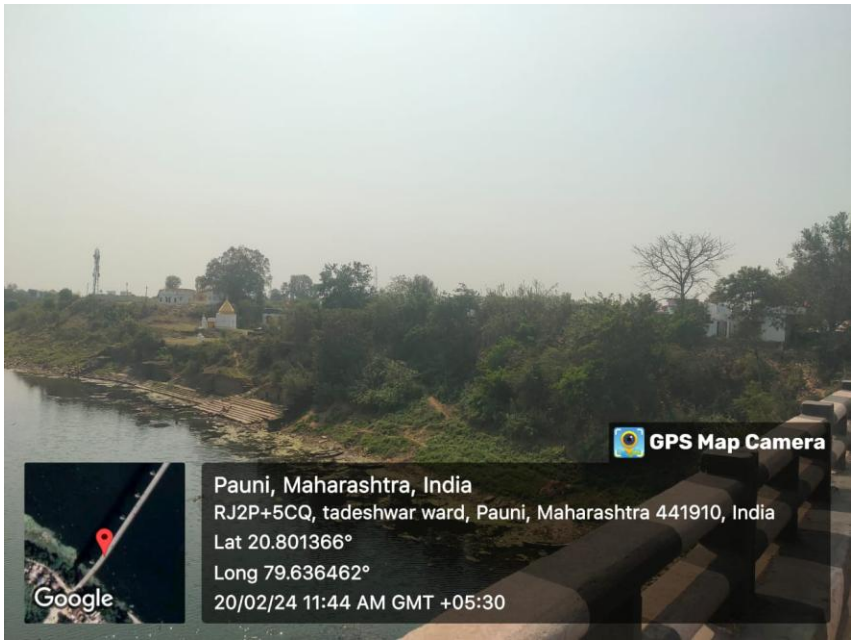
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6. OVERALL GREEN COVER PERCENTAGE

- Calculation of the average green cover percentage across all sectors (Prabhag) of Pauni Nagar Parishad..
- The sectors (Prabhag) that are above 33% marked as green in table, other remaining area are below 33% .
- Below statistics are based on satellite imagery available till the date.

Dist: Bhandara | Taluka: Pauni Green Area						
Sr. No	Ward	Total Area(m^2)	Total Green Area(m^2)	Perimeter(m)	Sum of TotalGreen Area(m^2)	Green Cover %
1	PRABHAG 01	2371709.6	34468.59	2941.01	460966.27	19.4360334
2	PRABHAG 02	245676.5	15048.08	871.73	74278.9	30.23443431
3	PRABHAG 03	726924.41	29977.51	3262.65	194359.83	26.73728208
4	PRABHAG 04	2623235.92	2460.67	691.1	283393.22	10.80319226
5	PRABHAG 05	351722.66	3131.45	431.19	78610.46	22.35012666
6	PRABHAG 06	108601.61	149.83	67.43	17195.32	15.83339326
7	PRABHAG 07	368601.49	599.24	146.18	96378.54	26.14708367
8	PRABHAG 08	350275.2	4062.23	442.33	97406.57	27.80858308
9	PRABHAG 09	416979.57	3563.52	790.06	60526.97	14.51557207
10	PRABHAG 10	1391246.33	12060.03	1736.41	110287.98	7.927279133

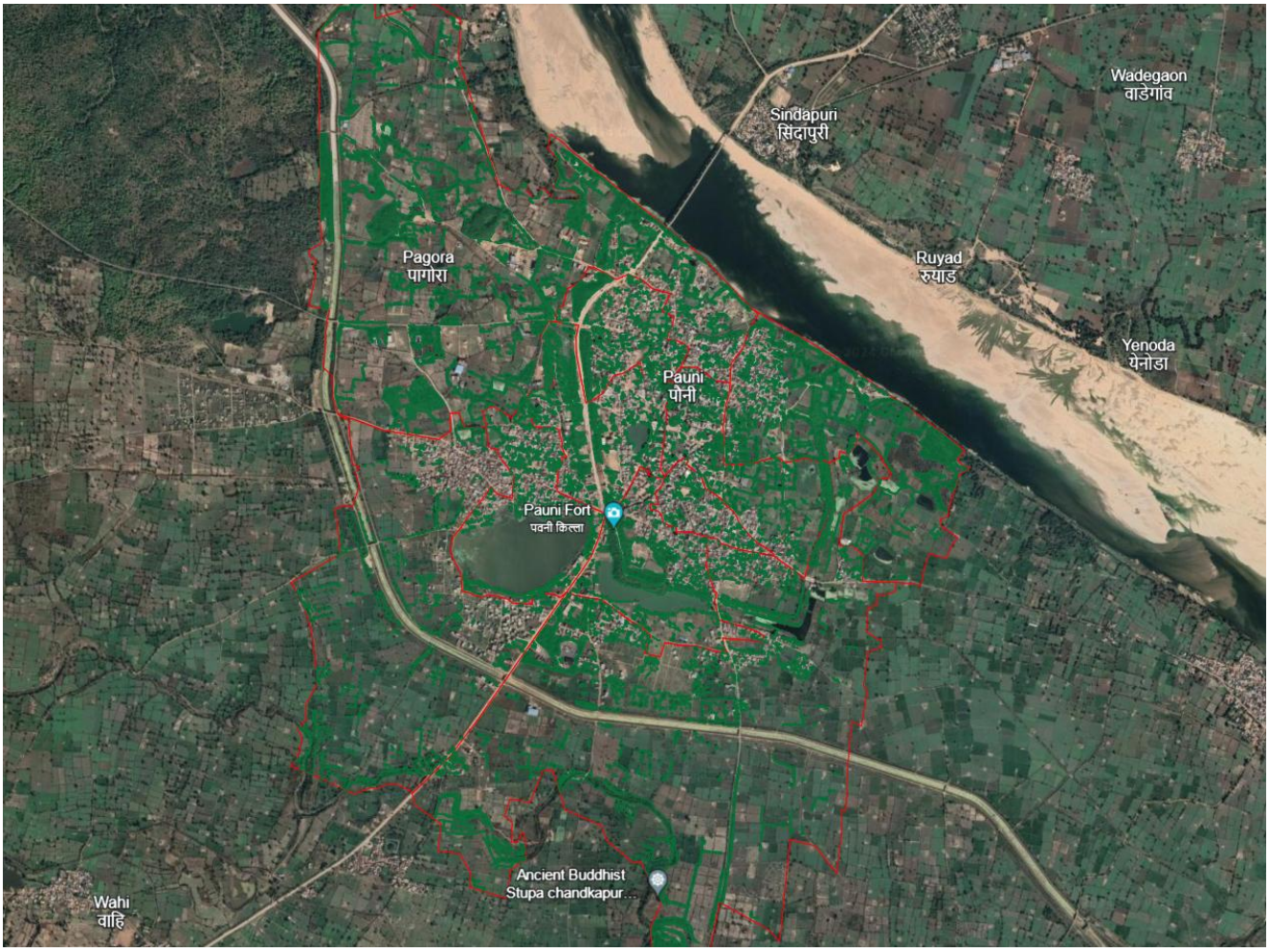

Fig: Location of Pauni Nagar Parishad

Data available on area of urban greens can be analyzed from satellite imagery. Recent imagery can be procured from the state or National Remote Sensing Centre (NRSC). Baseline year: 2019. Comparative analysis using the formula given below on a yearly basis will help to understand the increase/decrease over time. This data is also being reported by cities for the Ease of Living Index and may be sourced from there

Formula: Green Cover in sq.km /Municipal Corporation area in sq.km x 100 Unit: %

Formula

$$\frac{\text{Green cover in km}^2}{\text{Total area in km}^2} \times 100$$

Unit %

Name of Nagar Parishad	Total area sq. Km	Total area of green cover	Total area of open lands	% of green cover	Number of trees
Pauni	9.30	1.47	7.83	15.80 %	10800

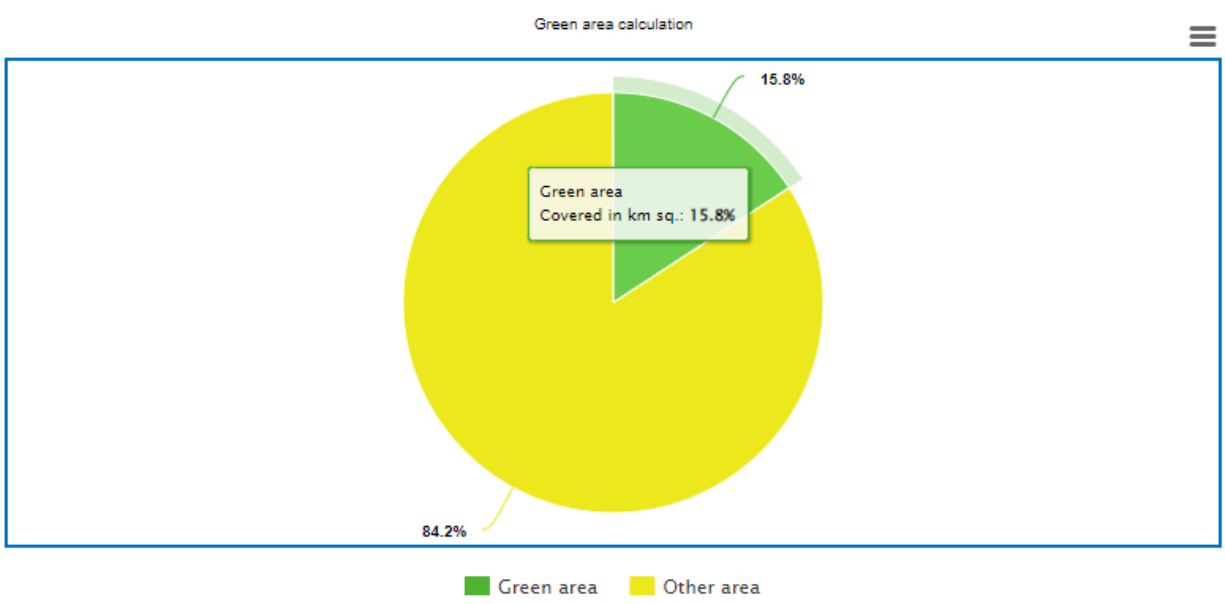

Fig: Total Green Area

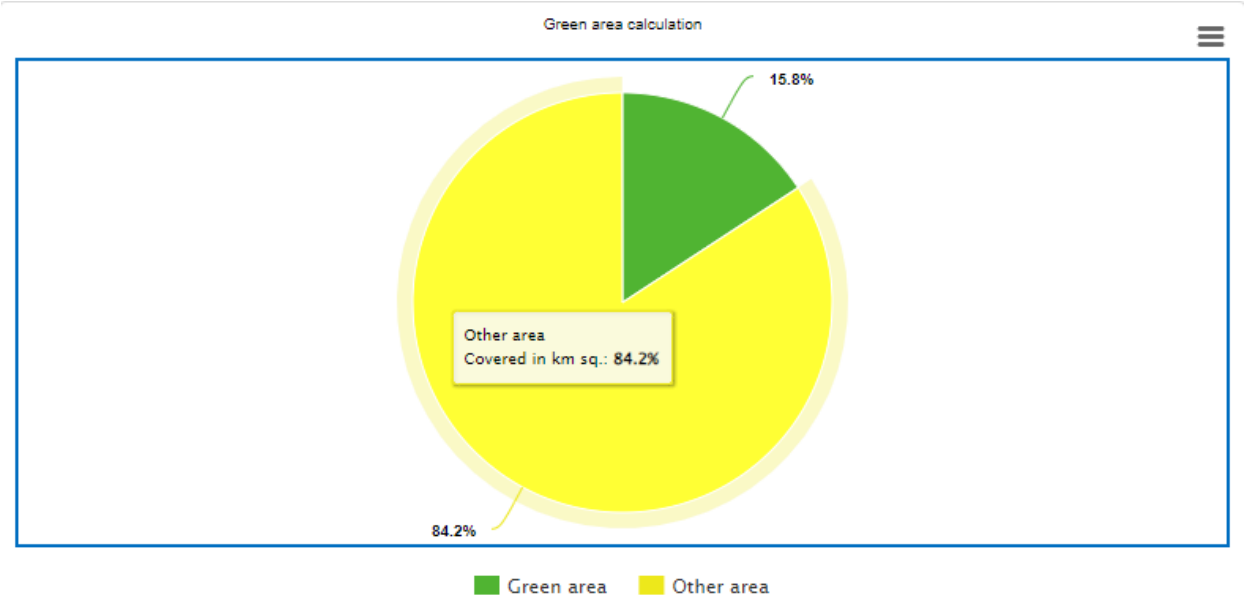

Fig: Total Green Area %

Sr.No	Description	Area(km2)	% Total Area
1	Other Area	7.83	84.20%
2	Green Area	1.47	15.80%
	Total Area	9.30	100%

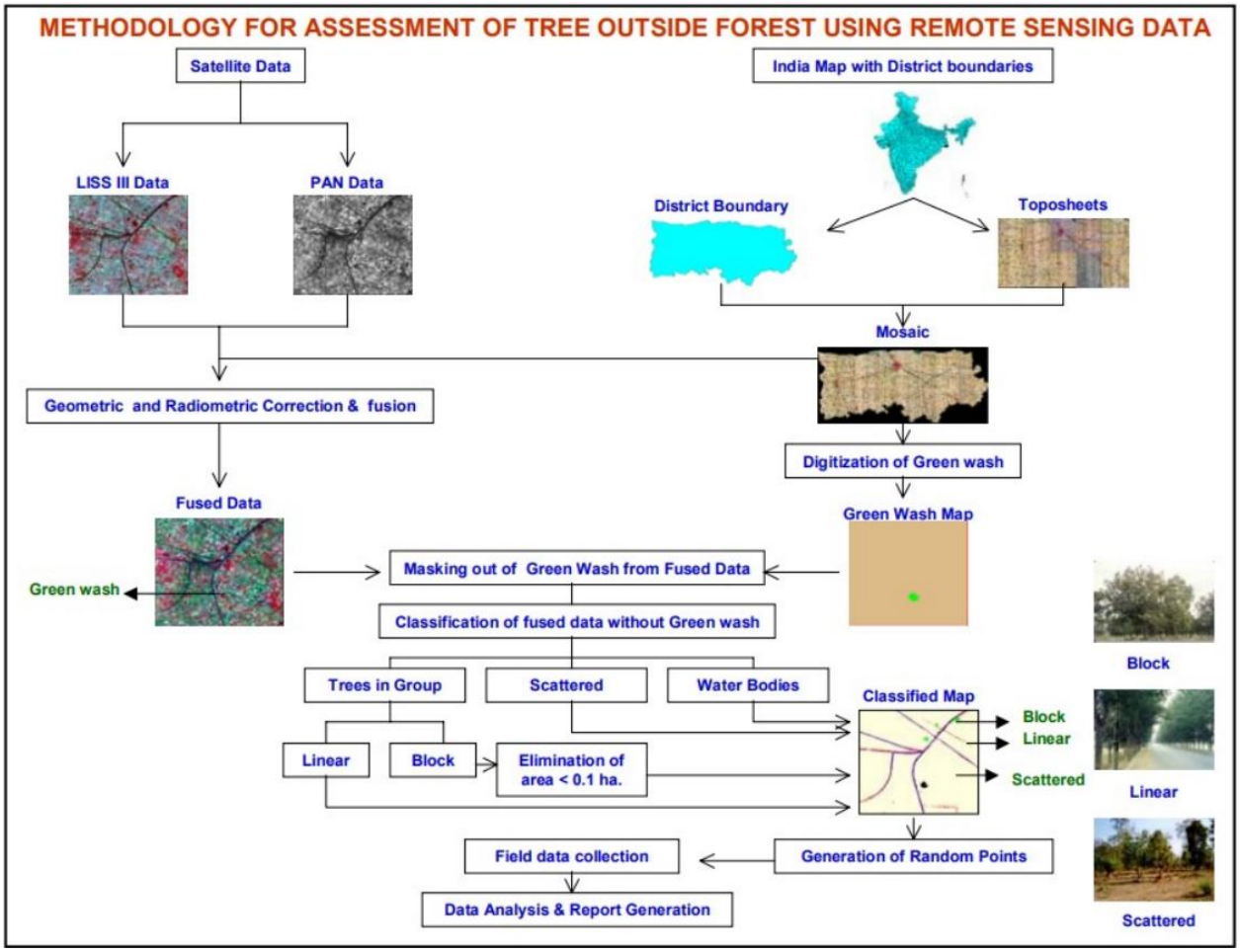

Fig: Flow chart of methodology of Tree Cover mapping

7. REASONS FOR INADEQUATE GREEN COVER

- Urbanization and Infrastructure Development
- Lack of Environmental Awareness
- Insufficient Planning and Implementation of Green Spaces
- Population Density and Increased Footprint of Residential and Commercial Areas.

8. RECOMMENDATIONS

- Implement Policies: Advocate for the adoption and implementation of policies that mandate a minimum green cover percentage in urban sectors.
- Community Engagement: Encourage community participation in tree planting and maintenance initiatives.
- Urban Planning: Integrate green spaces into urban planning and development projects.
- Educational Programs: Conduct awareness campaigns on the benefits of green spaces for residents.

9. CONCLUSION

This project report highlights the current status of green cover in various city sectors, emphasizing the importance of meeting government norms for sustainable urban development. The recommendations aim to address the identified challenges and promote the creation and maintenance of green spaces to enhance the overall well-being of city dwellers.

10. FUTURE WORK

Continued monitoring and periodic reassessment of green cover areas with the help of GIS technology in city sectors to track progress and ensure sustained efforts toward a greener and more sustainable urban environment.

1. POLICY & PLANNING

Acquire an up to date and complete assessment of Tree canopy. Using available services provided through 100RC partnerships, India can gather and analyze data as well as make a tool for Urban forest planning. This also needs to be planned and budgeted for on a recurring 5-year cycle.

Update the comprehensive Urban Reforestation Master Plan. All pertinent municipal departments must collaborate and devise a master plan for maintaining and enhancing India's Urbanforest.

Create a tree ordinance. A more detailed and extensive ordinance for maintaining and protecting India's Urban forest is necessary to uphold the Urban Forest Master Plan.

Acknowledge trees as public service providers in Revised Ordinances of India. Trees must have the same rights as public utilities as they provide the public with similar services and benefits.

A. People & Implementation

i. **Budget for and hire Community Foresters, Nursery Workers, and Landscape Architects.** An interface between the City and community is needed to implement an Urban Forest Master Plan, as well as, plant growers, and more support for internal City coordination on project design and project review.

ii. **Recruit and train volunteers.** As the City does not have staff to maintain all newly planted trees under this initiative, neighborhood champions must be identified and equipped with the skills and tools to maintain the trees in their neighborhood.

B. Practice & Maintenance

i. **Trees and streets.** Trees are an integral component of Complete Streets, therefore streets should be designed with accommodation for healthy shade trees.

ii. **Trees and storm water.** Trees can and should be utilized as tools formanaging storm water.

Trees and private property. An incentive program or credit on the future storm water fee would be beneficial for addressing the challenge of getting trees planted and maintained on private property.

C. URBAN TREE CANOPY GOAL

The City has developed a vision statement to guide the development of goals, objectives, and implementation strategies. The vision statement is a short focused statement about how and why trees are important to the community now and into the future. It provides an image of what the community wants to look like in the future and how it wants to function. The City strives to accomplish the goal of increasing the Urban tree canopy to 35% by 2035.

Tree Canopy Assessment was conducted in Nov-2022 and a change detection analysis was completed in Dec-2022 Neither study covered all communities (i.e., "Urban canopy" goal)—see Figure 3. Through the City's participation in the Majhi Vasundhara Abhiyan 4.0 , Chief Officer leading the effort to update and expand our Tree Canopy Assessment to better inform the strategies and actions to plan for and progress with the tree goals as defined above. The following describes near- and long-term actions and recommendations for the City to progress on its Urban forestry commitments.

Residents envision India as a City where:

1. Trees are valued, nurtured, integral, diverse, attractive, and functional. Trees are everywhere. Trees are older, bigger, representative of the future, and an integral part of the planning process.
2. Trees provide habitat for wildlife and a connection to and an understanding of nature. They are a path for a future. They provide shade, beauty, color, and a sense of place / community, character / shape to the community, recreational and tourism opportunities, education, and a sense of pride. They also provide food and the benefits of reduced storm water and energy consumption.
3. Trees help us celebrate nature, transform communities, and connect generations by passing continued appreciation of nature to the next generation.

RECOMMENDED STRATEGIES FOR THE CITY

The following strategies are within the categories of City Action, Regulatory, Public Education, and Community Volunteer.

Internal collaboration and coordination are important for the success of these efforts. City Departments need to internalize that the tree goals are not government or private organization goals, but that they are the Chief Officer's and City's tree goals. This requires consistent messaging and conversations to influence business-as-usual work with respect to the Urban forest. CCSR can be involve that will lead these discussions through the development of department reporting systems with involved departments to produce monthly information for the City Administration.

Additionally, it is critical that existing rules and regulations that should result in the planting of trees be adhered to, and that if and when a City agency's actions result in the removal of a City tree due to contracts including road rehabilitation, sidewalk reconstruction or otherwise, that at least one tree is replanted in the vicinity of the removed tree.

If we continue to allow trees to lose out to other real and/or perceived infrastructure and community planning and design conflicts, we will all lose out with respect to environmental and community quality and health.

City Action Strategies

- Identify and prioritize areas for tree planting and prepare a schedule.

  - The City should identify priority areas for tree planting so as to maximize benefits from the resources invested. The City should establish criteria for selecting those sites and indicators to measure their success. These criteria and indicators can be based on specific objectives such as environmental protection, economic development, aesthetic identity or social enhancement.

  - The City should also be careful about planting the right trees in the right place to optimize their prospect of success. The wrong tree in the wrong place is almost a guaranteed failure. Tree species should be selected on the basis of the nature of the site, the area available, the intended use and the intensity of the use. However, the City should also work to identify opportunities to make more room for trees where there is excessive or unused paved areas, creating new spaces for "right tree, right place." Cost issues are equally important while selecting the appropriate species. Both onetime costs of planting trees and long term maintenance costs should be considered while making such decisions. Since the success of these programs largely depends on the maintenance of trees after they are planted, the City should prepare a schedule for planting as well as regular maintenance of trees.

Prioritize budget

- An Urban Tree Canopy Program makes economic sense and should have a strong financial footing. With the ability to quantify the environmental, social and economic benefits and the ability to express those benefits in dollar amounts, it is easier to compare the benefits of Urban trees against cost. With increasing use of green infrastructure concepts, and recognizing the services provide by trees as described earlier, it is easier to view the investment in an Urban tree program as comparable to any other infrastructure investment such as roads and waste water facilities.

- The City should prioritize the budget for the Urban Tree Canopy Program. The City can use the above arguments to secure more funds. An Urban Tree Canopy program will probably always rely on the general funds; however there are other options available that can provide additional revenue streams. For example a tree-related fee can be established under development fees to support tree programs in newly developing areas of the City.

Establish clear line of responsibilities

- A successful Urban Tree Canopy Program requires coordination between different departments. Trees planted today will continue to grow for years to come and probably outlive the people who planted them. For the program to really work, a clear line of responsibility should be established among departments and among positions within a department for planting, caring and ongoing maintenance of trees. While assigning responsibilities, it is important to ensure that the office has qualified personnel and adequate resources to carry out assigned functions. Since it requires the involvement of many departments, one department can lead the program and coordinate with all the supporting departments.

Regulatory Strategies

- Establish a tree ordinance to:

- The City should consolidate disparate tree-related ordinances into one chapter and incorporate the use of trees and shrubs for storm water management while providing for, maintaining, or improving existing tree canopy.

- Include in the new Tree Ordinance, a section on Urban Tree Canopy to establish appropriate tree canopy requirements for parking lots.

- The City should adopt a tree ordinance that will include the tree canopy requirements for parking lots. This requirement should be targeted towards large parking lots. Small parking lots may be exempted. A sliding scale should be used to require a higher percentage of shaded areas for larger lots..

- Amend the subdivision regulation to include forest and tree protection measures for new development on green fields when establishing areas for storm water management.

- The City should require a certain percentage of the site to be set aside to be preserved as open space. These open spaces should also comply with the tree canopy requirements. The percentage of the site dedicated for open space should be determined on the basis of the zoning category of the site and the type of development proposed. The City should offer higher densities for clustering and preserving larger areas as open space.

- Amend subdivision regulations to include numeric tree canopy requirement for each type of street in new developments.

- Rather than trying to get trees planted after the streets have been built, tree canopy should be planned early in the new streets.

- Subdivision regulations should require a certain percent of tree canopy for each type of street in the new development. To support the tree canopy requirements, develop street standards accordingly to provide room for tree planting. Also, encourage alternative street design to accommodate more trees than required by the regulation.

- Require newly developed sites to set aside open space for storm water managementand to support tree canopy.

- Develop street and sidewalk standards to ensure space required for tree planting.

- Encourage alternative street design in order to accommodate a larger number oftrees.

- Include tree, landscaping, and vegetation buffering requirements in the checklist used for the final site plan approval process.

- Require a tree protection management plan prior to preliminary plan approval that and reduce will include proper methods to protect.

Public Education Strategies

- Develop a resource guidebook and publish it online. The resource guidebook will provide tree selection, planting, and proper maintenance guidance with illustrations and publish it online.

  They should include:

✓ Types of native species and their characteristics.
✓ Lists of invasive species in the area.
✓ Tree selections for specific areas.
✓ Tree canopy requirements from the Zoning Code and Subdivision Regulation, if applicable; where to plant and where not to. (e.g. at driveway/roads, within certain distance from road intersections, in front yards if above a certain height, within a certain distance of utilities) ; and
✓ Guidance for strategic tree planting to provide energy savings, visual screening and to act as noise barriers.

- Partner with local schools and colleges to educate schoolchildren.

✓ Recognize schools and colleges that effectively manage their and help the City strives to engage college students by providing service oriented learning opportunities on campus and communities outside campus through community forestry efforts. The relationship with such programs to co programs.
✓ Directly involve students in tree related activities and recognize them. Engaging children in tree canopy activities increases their understanding of benefits of trees and community tree programs. The potential partners are all the elementary, middle, and high schools in India.

- Promote the notion of green infrastructure.

✓ Green Infrastructure is the interconnected network of green spaces that conserve natural ecosystem values and functions and provide associated benefits to human populations. The concept of green infrastructure is getting popular and many local and state governments have started acknowledging them in their various plans.
✓ Descriptions of existing conditions in such element should reflect an understanding of various benefits provided by the green infrastructure such as improved storm water management and water quality.
✓ Reflect on the benefits through other elements of the comprehensive plan with appropriate links to the one element that ultimately pulls it all together (i.e.: roadside trees can be discussed in the transportation element with a link to the green infrastructure element). The include this component and link it to transportation, and energy conservation.

Community Volunteer Strategies

- Develop a program to provide free or low cost trees to home-owners.

✓ The program would provide education and financial incentives for growing trees on private properties. The program emphasizes citizens participation as an important element of the program's success. It is a public-private partnership between the State, local nurseries and garden centers, and the local homeowners to encourage planting new private residential land.

- Promote a reward program to publicize correct tree planting and maintenance.

✓ Rewarding property owners and businesses for the work well done is a popular incentive. The city should encourage and reward its residents and businesses for good tree care through a program.

✓ A tree's score is based on the circumference, height, and crown spread. An applicant can determine the score him/herself based on the instructions provided. After determining the score, the Community Forester is contacted. If the tree is larger than the average trees of the same species, it is registered as a Champion Tree. Owners of the tree in the register are awarded with a certificate.

EXISTING AND POSSIBLE TREE CANOPY

The first step in formulating a Strategic Implementation Plan for Urban Tree Canopy is to measure the existing tree canopy. Additionally, conducting a tree inventory is very helpful in determining the number of publicly owned trees, planning for new trees, and tracking their maintenance needs. However, an inventory alone might provide little information about the effect on the overall tree canopy goal of the City and it will not account for the benefits provided by trees on privately owned land.

Name of Nagar Parishad	Total area sq. Km	Total area of green cover	Total area of open lands	% of green cover	Number of trees
Pauni	9.30	1.47	7.83	15.80 %	10800

The City will focus on the following five areas to increase tree canopy coverage.

Public right-of-way

Planting street trees can make for a pleasant, comfortable, healthy, and safe walking experience. Street trees serve as filters for noise and pollution from the vehicular traffic. Trees not only provide a safe and pleasant walking environment for pedestrians, they also provide shade for vehicles parked on streets.

Street trees help create a sense of place and add to the beauty of the City. Trees' color, texture against the Urban background, pattern of light and shade, and utilitarian aspect make a unique impression on the minds of people. That impression becomes the identity of that Urban space. Lastly, trees are identified as integral to the achievement of our Complete Streets ordinance.

Commercial and industrial properties

It is very important to educate business owners in the area about the economic benefits of trees in commercial and industrial areas. Large trees along a retail strip make the area more inviting which generates more business. Studies of public perception show that customers will spend, on average, 11% more time and money in a well-treed business area. Trees provide more innovative business opportunities by making outside space suitable for dining, walkup window purchases, and displays. Year-round activities are more attractive as surrounding temperature is stabilized in areas with trees. As mentioned earlier, trees also help cut energy bills; they make parking areas more pleasing by providing shade; and they reduce glare during hot summer days. Trees also reduce storm water management costs to property owners. In addition to these benefits some businesses may have a direct stake in Urban forestry as a function of their own service such as nurseries, home and garden suppliers, and tree care providers.

Continuing support of the business community is important not only for tree planting and long-term care and maintenance of trees in commercial area subtheme community members can be powerful contributors to the

Urban tree canopy through financial support. The City should initiate an education program targeting business owners and explain the economic benefits of trees and how they influence business activities.

Government and institutional land (County, State, Federal, and Non-Governmental Organization Owned Land)

Government land, institutional land, and other tax exempt properties provide ample opportunities for increasing the urban tree canopy. As these parcels are usually larger in size and in some cases are under government control, there are opportunities for the City to directly engage in a large-scale tree canopy initiative.

The City can coordinate with institutions as potential partners such as University of Hawai‘i at Mānoa, who in turn can also support advocacy and education efforts. Potential partners include hospitals, universities, schools, and other institutions.

Residential properties

The development regulations affecting private properties alone cannot be as effective because these regulations deal largely with preservation and planting, but not with long-term maintenance. Continuing support from home owners and owners associations is vital to the success of an Urban tree canopy program.

The City should focus on educating homeowners and residents of the benefits of trees and provide incentives for planting and maintenance of the trees. A comprehensive resource guidebook should be developed that will provide information pertaining to tree selection, planting, and proper maintenance of trees including strategic tree planting to reduce energy consumption.

Residents’ participation can be encouraged through volunteer involvement and stewardship programs, as well as, potential credits tow storm water fee.

Park and open spaces

Trees can be used for active or passive recreation. As the City has full control over public parks and open space. Implementing programs related to tree conservation and increases in tree canopy can be effective.

The recreational and social values of parks are well known. To add to the list of benefits of parks, City area can be used as open classrooms to educate people about the different species of trees, planting, and maintenance technique.

CONCLUSION

A Green space assessment study has been carried out to measure the existing green spaces in Pauni Nagar Parishad, Pauni quantitatively and to identify sites to create new green spaces in order to upraise the green spaces for the minimum required value recommended by WHO (i.e. 9.5 m2/ Peron). The required amount of green spaces identified and the Open Lands /sites to create green spaces, in order to enhance the environmental quality of the city based on WHO standards.

Green Cover Mapping and Open Land

Name of Nagar Parishad	Total area sq. Km	Total area of green cover	Total area of open lands	% of green cover	Number of trees
Pauni	9.30	1.47	7.83	15.80 %	10800

Pauni Nagar Parishad Area Details